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CONTENTS

Research Papers

An Overview of Ethno-Botanical Use, Conservation and Livelihood of Economically Important Medicinal Plants Grown in the Gulmarg Himalaya Region of Jammu and Kashmir (India)

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ABSTRACT
Medicinal plants form a diverse group of flowering plants comprising approximately 8000 species and these accounts for around 50 percent of all the higher flowering plants of India. A large number of people use different medicinal plants for the treatment of various human and livestock ailments in India. Over one and half million practitioners of the Indian system of medicine in the oral and codified streams use medicinal plants in preventive, promotive and curative applications. This demand had shown a quantum jump in recent years in the supply of plant materials used and treaded across the India. Medicinal plants have thus become major sectors of trade and commerce and are significantly contributing to the socio-economic developments of certain developed and developing countries like India. Among various states of India, Jammu and Kashmir harbours a great rich biodiversity of economically important medicinal plants because it provides a diverse type of habitats for their growth. The Kashmir Himalayas supports a rich and spectacular biodiversity of great curiosity and promising economic benefits owing to its topographic variations. Keeping in view the significance of the subject, present study was carried out to document the various aspects of ethno-medicinally important plants of Gulmarg Himalaya (Jammu and Kashmir).

Objectives and methods: The present study focuses on ethno-medicinal use, conservation and livelihood of the economically important medicinal plants of Gulmarg hills. It also aims at various important medicinal products extracting from these important medicinal plants from this region.

Main findings: In this study, a large area was studied in Gulmarg hills by questioning local gujar and bakarwall people (nomad people) about the beneficial use of locally medicinal plants available there and the economic value of these medicinal plants.

Recommendations: Our main focus of present research was to find out the identification of various problems of native medicinal plants of Gulmarg hills facing today like collection, cultivation, marketing, conservation etc by the local people of the region and their remedies so that these valuable medicinal plants of this region get preserved and conserved sustainably for future generations.

Keywords: ethno-medicinal plants, Gulmarg hills, nomad people, conservation and livelihood, etc.

INTRODUCTION

Medicinal plants have been used for centuries in traditional health care systems and numerous races around the world till rely on plants fir their primary health care. With the recent advancements in plant sciences, there has been a tremendous increase in the use of plant based health products in developing as well as developed countries. About 70-8o% around the world rely on medicinal plants for primary health care. Having minimum side effects and low cost, people in developing countries like Bangladesh (90%) India (80%), Nepal (75%), Sri Lanka (65%), and Indonesia (60%) have strong belief in this system of medicine. As estimated by the World Health Organization (WHO), the present demand for ethno-medicinal plants is approximately US $ 14 billion per year. The Kashmir Himalayas, often referred to as terrestrial paradise on earth, is located at the north-western tip of the Himalayan biodiversity hot spot. The region supports a rich and spectacular biodiversity of great scientific curiosity and promising economic benefits owing to its topographic variations spanning from valley floor. Keeping in view the significance of the subject, present study was carried out to document the ethno-medicinally important plants in the Gulmarg valley of Kashmir Himalaya and the livelihood and conservation of these medicinal plants.

Study Area

The present study was carried out in Gulmarg valley which is geographically located at 34.05^0N 74.38^0E. Physiographically, Gulmarg lies in a cup shaped valley in the Pir Panjal Range of the Himalayas, at an altitude of 2,650 m (8694 ft), 56 km from Srinagar. The soil in Gulmarg comprises glacial deposits, lacustrine deposits and moraines of Pleistocene age covering shale’s, limestone, sandstones and other varieties of rocks. The natural meadows of Gulmarg, which are covered with snow in winter, allow the growth of wild flowers such as daisies, forget-me-nots and buttercups during spring and summer. The meadows are interspersed by enclosed parks and small lakes, and surrounded by forests of green pine and fir. Skiing and other winter sports in Gulmarg are carried out on the slopes of Apharwat peak at a height of 4,267 m (13,999 ft). Many points on Apharwat peak and Khilanmarg offer a panoramic view of Nanga Parbat and Harmukh mountains.

Due to its distinct geographic location, the area is inhabited by different ethnic groups such as Gujjars, Bakerwalls and nomadic people. These groups have their own knowledge of traditional herbal medicine inherited from their forefathers. These medicines are well accepted by the local people since generations have experienced their efficacy in alleviating a variety of diseases.

MATERIALS AND METHODS

The methods employed during the study were designed with the sole purpose of eliciting the precious wealth of information on the livelihood and ethno-medicinal uses of plants practiced by the people residing in and around target site within Kashmir Himalaya. The area was visited several times for the collection of data during the year of 2017-2018. The local name and traditional uses of plants, with emphasis on medicinal uses were documented by interviewing the local elderly knowledgeable persons including local hakims. Many local people of Gulmarg hills were questioned using a structured, close-ended questionnaire (Appendix 3). Literature concerning ethno-botany of this area has been consulted. It was found that the local people (gujars, nomads, shepherds) of Gulmarg were collecting various medicinal plants in different places mostly at higher regions of Gulmarg like Afarwath peak etc and by their own selling them to different nearby people who know the importance of these medicinal plants. During winters as Gulmarg hills are covered with the full of snow from November to mid April but with the onset of summers the different ethnic groups of people like nomads, Gujjars and shepherds goes into the higher reaches of Gulmarg hills for finding abundant grasslands so that their livestock's like sheep, buffalos, cows get abundant grasses for grazing their animals in these upper grass lands of Gulmarg. On one hand these ethic people while grazing their animals at higher reaches of Gulmarg also collecting a number of beneficial medicinal plants like Podophyllum hexandrum, Berginia ligulata, Trillium govanium etc and using them for ourselves for the treatment of various ailments and also selling them at very cheap rates to the other adjoining villagers of Gulmarg directly or mostly to the middle man because they purchased in large quantities these medicinal plants and selling them by selves at very high rates to the other regions of valley.

During the present survey 15 species of plants belonging to 12 families (as shown in the appendix 1) has been recorded those are used by the tribal and non-tribal people against different diseases. The recorded plant species were enumerated alphabetically in appendix 1 along with their botanical names, families, parts used and ethno-medicinal aspects. Among the recorded species are herbs, and 03 species are trees. Different plants parts are used against different ailments but dominantly rhizomes, leaves and roots are used either in raw form or as aqueous extracts. The categorization of some medicinal plants of Gulmarg hills into different groups like selling price of these medicinal plants from local people to middleman, commercial and household use, trade value and essential products obtained from medicinal plants of Gulmarg hills is also given in appendix 2. The floral and vegetation studies of Kashmir Himalaya have been carried out since first half of the twentieth (Kaul et al., 1997; Rao, 1961). But, here it is pertinent mention that no effective study has been carried out till date to document the ethno-medicinally important plant species in the target area. Hence, our study is of great significance as it provides a lead in documenting the knowledge of traditional herbal medicine inherited form our forefathers.

CONCLUSION AND RECOMMENDATIONS

The present study suggests that the traditional system of primary healthcare utilizes the plant resources as medicines in the studied area (Gulmarg Valley), India. The traditional knowledge system is known to few identified persons in the community and this knowledge generally inherited through the oral transfer in family lineages as there is no written document. Hence, our study is of great significance as it provides a lead in documenting the knowledge of traditional herbal medicine. For the sustainable growth and development of medicinal plants of Gulmarg hills there is a need to develop the coordinated strategies, policies and efforts at each level like research of these medicinal plants, their cultivation, collection, storage processing, manufacturing, conservation and marketing. This study revealed that a majority of people in Gulmarg were using medicinal plants continuously and there is urgent need to conserve and preserve these plants. Although at observatory land and tea garden of University of Kashmir and also at Indian institute of integrative medicine field laboratory at Yarkah Tangmarg Kashmir local medicinal plants are cultivating but for the future use of these medicinal plants it is not sufficient. Some problems and their remedies for the medicinal plants based on economic venture of Gulmarg hills are identified as shown below.

Activity	Problems	Possible Remedy
Cultural System	Mostly traditional knowledge is used for preparing various herbal medicines in Gulmarg hills. Day by day traditional knowledge is declining.	Incentives should be given to the traditional herbal healers for preparation of various herbal formulations. Documentation of these available medicinal plants should be done earlier without any further delay.
Collection	Illegal collection by untrained persons leads to depletion of various important medicinal plants in Gulmarg hills.	Enforcement by existing laws and training should be given to local collection in the wild.
Cultivation	Only wild species were collected by local people of Gulmarg hills from the natural habitats and cultivation is not done by local people there. Local people feeling risk in farming medicinal plants. No enough land is available for cultivation of medicinal plants in Gulmarg hills.	Government should encourage the local folk of the region by providing them various techniques and incentives by growing medicinal plants of their own. If crop gets damaged Government should give them relief or insurance schemes of the crop should be available. Restoration of barren lands and allocation of land at one place by local farmer's choice.
Role of biotechnology	No high yielding and environmental stress varieties are available to the local people of the region.	Need of research and development of high yielding varieties is necessary.
Marketing	Marketing facility is very less and local people of Gulmarg are mainly dependent on middleman for selling their plant materials.	Development of marketing infrastructure with the help of various stakeholders including medicinal plant board.
Bio prospecting	Low awareness on the values of resources and traditional knowledge in Gulmarg hills.	Documentation of traditional knowledge and renew the available herbal formulations by standardizing their efficacy and social trust in order to promote tradition.
Conservation	Various anthropogenic activities like constructing different roads in the interiors of Gulmarg hills, illegal deforestation, and harmful discharge of wastes into natural forests produced by different hotels and influx of large number of people destabilizing natural ecosystems of the Gulmarg hills.	Environment of forest and wildlife protection acts.
	Essential health commodity and maximum dependency on wild stock	Setting up medicinal plants conservation areas.

A brief description about some of the medicinal plants of Gulmarg hills is given in the Appendix 1.

Appendix 1

S. No.	Taxon name	Local name	Family	Part used	Ethnomedicinal uses
1	Amebia benthami	Kehzaban	Boriginaceae	Rhizome	Common cold, cough, fever, blood purifier.
2	Abies pindrow	Sal	Pinaceae	Bark	Rheumatism
3	Atropa acumniata	Chella lubbar	Solanaceae	Roots and leaves	Cough and antispasmodic
4	Berginia	Zakhmi	Saxifraceae	Roots and leaves	Intestine complaints

	ligulata	hayat			and stomach ulcers
5	Cannabis sativa	Bhang	Cannabinnaceae	Leaves, seeds and stem	Ear-ache, blood purifier, Scabies and piles
6	Cedrus deodara	Divdar	Pinaceae	Stem, leaves and latex	Skin rashes and external ulcers
7	Euphorbia wallichia	Guri-dud	Euphorbiaceae	Flower	General weakness after childbirth
8	Lavetera kashmeriana	Sozposh	Malvaceae	Seeds	Obesity, Diabetes, Liver infection
9	Oxalis corniculata	Tsok-tsen	Malvaceae	Leaves and Roots	Toothache, convulsions, blood purifications and diarrhea
10	Podophyllum hexandrum	Banwangun	Berberidaceae	Seeds and gums	Skin diseases, gastric problems
11	Pinus roxiburghii	Chad	Pinaceae	Flower	Skin diseases and asthma
12	Prunella vulgaris	Kalwauth	Lamiaceae	Rhizome	Mumps, skin irritation in pregnant women
13	Sasseria costus	Kuth	Asteraceae	Rhizome	Joint pain, fever, back pain
14	Trillium govanianum	Tripiter	Melanthiaceae	Rhizome	Stomach problems
15	Utrica dioca	Soi	Utricaceae	Leaves and Roots	Rheumatism and minor wounds

Categorizaiton of some plants into different groups are given in the Appendix 2.

Appendix 2

Species	Rate in Rupees.KG	Commercial Use	Household Use	Both	Trade value or market value	Nature of trade or agency	Production
P. hexandrum	400-500	-	+	-	Lowest 1600 kg	Illegal/middle man	Podophyllo toxin/Etoposide
A.accuminata	500-600	-	+	-	Lowest 1800 kg	Illegal/middle man	Crude drug/tropane Alkaloids
T.goanianium	700-800				Lowest 2000 kg	Illegal/middle man	Trillarin and diosgenin
A.benthanii	450-550				Lowest 2000 kg	Illegal/middle man	Gaozaban drug
S.costus	500-650				Lowest 1200 kg	Illegal/middle man	Essential oils
B.ligulata	700-800				Lowest 1900 kg	Illegal/middle man	Bergnin chemicall

Appendix 3

A. Questionnaires used in interviews about medicinal plants in Gulmarg hills, Kashmir.

1. Do you know the medicinal plants which exist in your locality- If yes please give the name?
2. What is the use of these medicinal plants
3. Which parts of the plants are being used for medicinal purpose?
4. In which season do you collect these plants?
5. Why do you collect these medicinal plants (domestic or trading)?

6. At which price you are selling medicinal plants to middleman?
7. If trade what is the market price of these medicinal plants?

B. Questionnaires for second set of objectives.

1. Is this plant found near your house- if yes please give the location of occurrence?
2. How you use this plant (a-spice, b-medicine c-other)?
3. Can you classify this plant according to its nature- if yes please give the details of classification?
4. Do you extract this plant-if yes then what is the purpose of extraction (a-domestic b- contractor cooperatives)?
5. How much quantity is extracted by you in every season?

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Photo Degradation of Coralene Dark Red 2b Dye by Using Synthesized Nano Particles under UV Light

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ABSTRACT
During the dyeing and finishing operations in industries, consumes considerable amounts of water. Dyes extensively used are found to be toxic and considered to be resistant to biodegradation. In this work, a detailed investigation was done on photocatalytic degradation for selected dye solutions The nanoparticles, $MgZnAl_2O_5$ was synthesized by using fuel urea through solution combustion method. This nanoparticle was characterized by using X-ray diffraction (XRD), Scanning Electron Micrograph (SEM) and UV absorbance spectroscopy. The average nanoparticle size was found to be 23 nm. The band gap of the nanoparticle $MgZnAl_2O_5$ was found to be 3.0 eV. This nanoparticle was tested for the photocatalytic degradation by varying parameters such as catalyst concentration, pH and dye concentration and effect of light.

Indexterms: $MgZnAl_2O_5$; Degradation; Nanoparticles; Photocatalyst; Coralene Dark Red 2B.

I. INTRODUCTION

The ever growing industrialization throughout the globe has begun to introduce harmful organic pollutants into the water system. These effluents are a source from the textile industry that consumes a large quantity of water in the process of dyeing and washing of fabrics and the release of huge quantities of dyes [1]. Therefore, the development of inexpensive and green methods to treat and purify contaminated water has been the focus towards technological developments. Among many strategies, photocatalysis is regarded as the most viable one, especially for treatment of contaminants, due to its usage of sunlight to decompose organic pollutants [2–4].

Photocatalytic degradation oxidizes complex organic compounds into small molecular inorganic substances, such as carbon dioxide and water, under light. The reaction is thorough and causes no secondary pollution [5]. Generally, Heterogeneous photocatalysis using UV/TiO_2 is one of the most common photocatalytic process and is based on adsorption of photons with energy higher than 3.2 eV resulting in initiating excitation related to charge separation event [5] (Eq 1). Generation of excited high-energy states of electron and hole pairs occurs when wide bandgap semiconductors are irradiated higher than their bandgap energy. It results in the promotion of an electron in the conductive band (e_{CB}^-) and formation of a positive hole in the valence band (h_{VB}^+) [5]. The h_{VB}^+ and e_{CB}^- are powerful oxidizing and reducing agents, respectively. The h_{VB}^+ reacts with organic compounds resulting in their oxidation producing CO_2 and H_2O as end products (Eq. 2). The h_{VB}^+ can also oxidize organic compounds by reacting with water to generate $^{\bullet}OH$ (Eq 3). Hydroxyl radical ($^{\bullet}OH$) produced by has the second highest oxidation potential (2.80 V), which is only slightly lower than the strongest oxidant fluorine. Due to its electrophilic nature (electron preferring), the $^{\bullet}OH$ can non-selectively oxidize almost all electron rich organic molecules, eventually converting them to CO_2 and water (Eq 4) [6]. Where OC represents the organic compounds.

$TiO_2 + h\nu\ (<387\ nm) \rightarrow e_{CB}^- + h_{VB}^+$ (Eq 1)

$h_{VB}^+ + OC \rightarrow$ intermediates $\rightarrow CO_2 + H_2O$ (Eq 2)

$H_2O + h_{VB}^+ \rightarrow {}^{\bullet}OH + H^+$ (Eq 3)

${}^{\bullet}OH + OC \rightarrow$ intermediates $\rightarrow CO_2 + H_2O$ (Eq 4)

The conductive band can react with O_2 forming an anion radical superoxide as shown in Eq. 5. Further reaction can lead to the formation of hydrogen peroxide which lead to the formation of $^{\bullet}OH$ [6]. The mechanism of the electron hole-pair formation when the TiO_2 is irradiated as shown in Figure 1.

$e_{CB}^- + O_2 \rightarrow O_2^{\bullet -}$ (Eq 5)

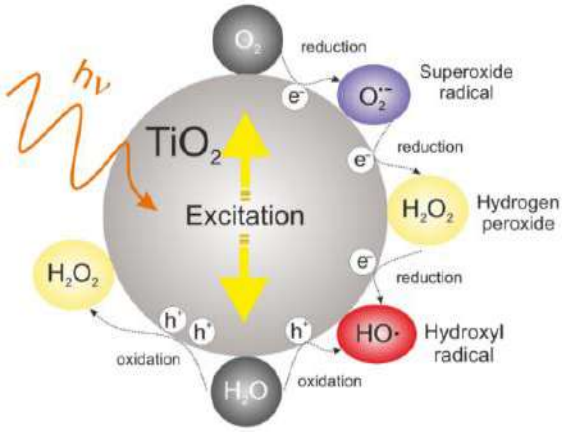

Figure 1: Mechanism of electron-hole pair formation in a TiO_2 particle in the presence of pollutant in water.

Many researchers have worked on the photocatalytic degradation of dyes and colored effluents. The use of UV radiation for the photocatalytic oxidation of organic contaminants in waste water is fast developing application. In fact, for removal of colour and reduction of chemical oxygen demand (COD) in industrial waste water, photocatalytic oxidation is the only environmentally benign, effective treatment available [7] -[10].

The main challenge for the textile industries today is modify production methods, so they are more ecologically friendly at a competitive price, by using safer dyes and chemicals and by reducing cost of effluent treatment/disposal. This paper explores the feasibility of using UV light for treating dye solutions by photocatalytic reduction processes. Various operational parameters affecting the reduction such as catalyst concentration, pH and optimum time were investigated. The catalyst itself is unchanged during the process.

II. MATERIALS AND REAGENTS

Photocatalytic experiments were carried out in presence of UV lamps 254 nm wavelength. A dye solution of 100 ml was taken in 100ml Borosil beakers. The UV-VIS spectrophotometer 119 (Systronics) was used for the determination of absorbance in the range of 200 to 800nm. The chemicals like aluminium nitrate ($Al(NO_3)_3$ $6H_2O$) (99%, AR), zinc nitrate ($Zn(NO_3)_2$ $6H_2O$) (99%, A. R.), Magnesium nitrate $Mg(NO_3)_2$ $6H_2O$ and fuels like urea (NH_2 CO NH_2) (99%, AR) were obtained from loba chemicals, Mumbai and used as received. The nano particle $MgZnAl_2O_5$ was synthesized in the laboratory using fuel urea because, it seems to be the most convenient fuel which is easily available for the synthesis of the $MgZnAl_2O_5$ nanoparticles.

The Corolene Dark Red 2B azo dye used for the photocatalytic study was purchased from colurtex, Pvt.Ltd . Gujarat. The structure of the dye is given in the figure 2.

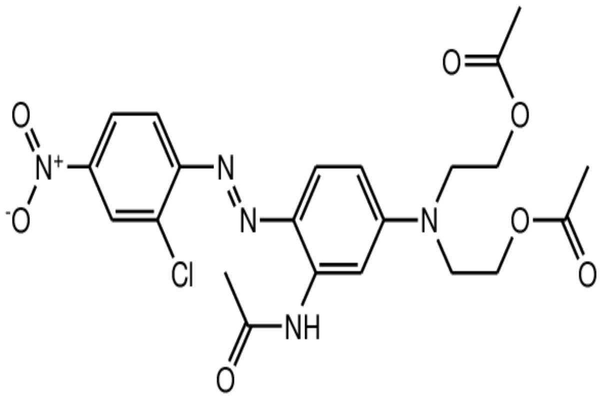

Figure 2: Chemical structure of Coralene Dark red 2B.

III. SYNTHESIS OF $MgZnAl_2O_5$ NANOPARTICLES BY SOLUTION COMBUSTION METHOD

The nanoparticles were prepared by synthesis. A mixture of stoichiometric amounts of Magnesium nitrate (7.69g), zinc nitrate (8.92g), Aluminium nitrate (22.50g) and urea (1.51g) was dissolved in a minimum quantity of water in a silica crucible (100 mm size). The mixture solution was introduced into the muffle furnace which was preheated at 500^0C. The solution undergoes dehydration and catches fire by spreading throughout the mass, finally yielding $MgZnAl_2O_5$ nanoparticles [11]. The obtained $MgZnAl_2O_5$ was crushed in a mortar to make the $MgZnAl_2O_5$ amorphous. Thus, $MgZnAl_2O_5$ is formed. According to propellant chemistry the reaction is as shown below.

$3Mg(NO_3)_2 + 3Zn(NO_3)_2 + 6Al(NO_3)_3 + 25NH_2CONH_2 \rightarrow 3MgZnAl_2O_5 + 50H_2O + 25CO_2 + 40N_2$ (Eq 6)

X-RAY DIFFRACTION TECHNIQUE (XRD) :

X-ray diffraction is a versatile, nondestructive that reveals detailed information about the chemical composition and crystallographic structure of natural and manufactured materials. XRD was performed by Rigaku diffractometer using Cu-K_α radiation (1.5406 Å) in a θ-2θ configuration [11].

According to the Debye Scherrer's formula:

$D = K\lambda/\beta COS\theta$ ------------- (Eq-7)

Where,

D = Thickness of the crystallite

K = 0.90 the Scherrer's constant (dependent on crystallite shape)

λ = X-ray wavelength

β = the peak width at half-maximum (FWHM)

θ = the Bragg diffraction angle

According to the XRD the average crystallite size of $MgZnAl_2O_5$ was found to be 23nm.

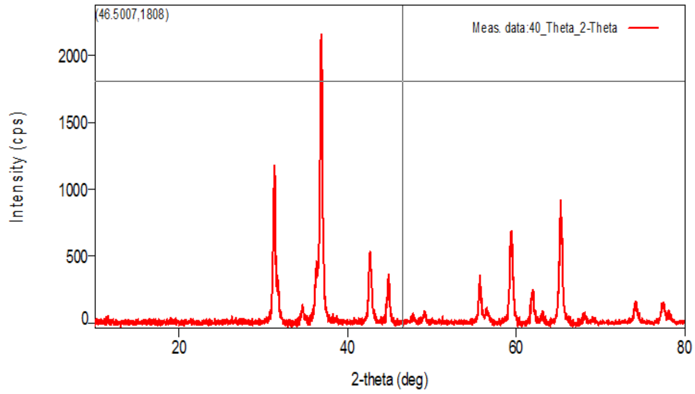

Figure 3: X-Ray diffraction of $MgZnAl_2O_5$.

SEM STUDY OF $MgZnAl_2O_5$

Photo 1 illustrates SEM photographs of single crystals of $MgZnAl_2O_5$. The photographs revealed a combination of cluster like structure morphology with plate like structures which looks like a colony. The enlarged image shows the uneven size and shape of the different nano-particles, which also revels the thick attachment and agglomeration of nano-particles over one another.

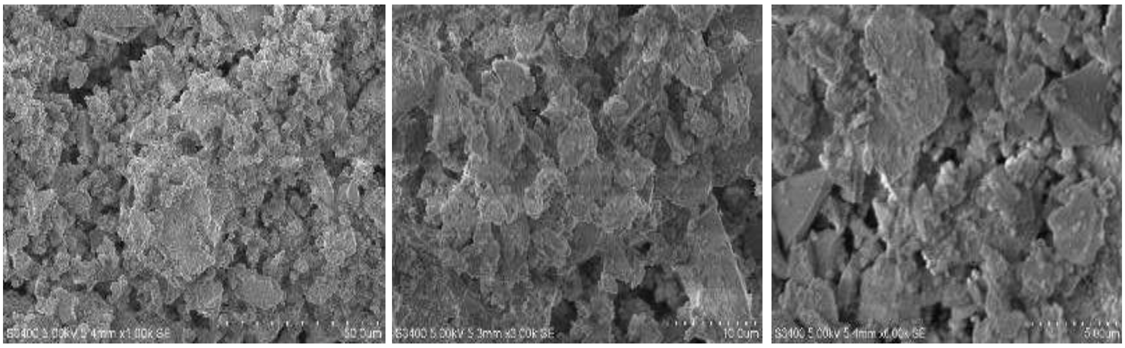

Photo 1: SEM photographs of $MgZnAl_2O_5$ nanoparticles.

UV ABSORBANCE SPECTROSCOPY

Absorption spectra of the $MgZnAl_2O_5$ metal oxide nanoparticle was recorded using UV-VIS spectrophotometer (Systronics–169) over the wavelength range 200-800 nm at Nano Research Laboratory, Department of Nanotechnology, Kuvempu University. From this spectrum, it has been inferred that, the nanoparticles have sufficient transmission in the entire visible and IR region. The band gap energy of the $MgZnAl_2O_5$ nanoparticle was calculated using the following simple conversion equation. The band gap equation is calculated using the Planck's equation as follows.

Band Gap Energy $E= h \times C/\lambda$ (Eq.8)

h= Planck's constant, C= Velocity of light (speed of light), λ=wavelength of light

$h=4.135\times 10^{-15} eV$, $C= 3\times10^{8}$ m/s, λ= ---------$\times 10^{-9}$ nm

Band gap energy (eV) = 4.135×10^{-15} eV $\times 3 \times 10^{8} \times 10^{9}$

Band gap energy (eV) = (1240/ wavelength (nm))

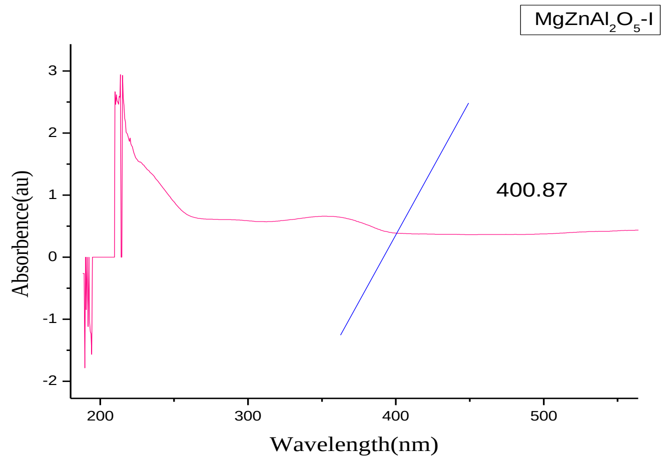

Figure 4: UV absorbance spectroscopy

The band gap energy of $MgZnAl_2O_5$ is found to be 3.0 *eV* with this we can say that the band gap of the semiconductors has been found to be particle size dependent.

IV. RESULTS AND DISSCUSSION

EXPERIMENTAL PROCEDURE

Coralene Dark Red 2B dye has the appearance of red in colour. An azo dye, Coralene Dark Red 2B is widely used in the biological staining, printing and dyeing, leather, ink, lithography *etc*.

From these earlier studies we synthesized $MgZnAl_2O_5$ nanoparticle was selected for this study. Photocatalytic dosages from 0.01g, 0.02g, 0.03g up to 0.1g were tested on the Coralene Dark Red 2B dye sample of 30ppm concentration and 10ml quantity. The suspension pH values were adjusted by using 0.1N NaOH and HCl solutions using pH meter. Before irradiation, photo catalyst suspension was stirred in the dark to ensure the adsorption equilibrium and it was kept in UV chamber for the photocatalytic degradation. After every 60 minutes the suspension was sampled and centrifuged and the process was repeated at 60, 120, 180, 240 and 300 minutes. The residual concentration of the solution sample was monitored by using spectrophotometer at 554nm. The experiments were conducted in different pH range from 2 to 11 in order to study the efficiency of nanoparticle in acidic, alkaline and neutral conditions. The data obtained from the photocatalytic degradation experiments were used to calculate the degradation efficiency 'D' using (Eq. 9).

$D=(A_0-A_t/A_0)\times100$ (Eq. 9)

Where, A_0 is the initial absorbance of dye solution

A_t is absorbance at time't'.

EFFECT OF CATALYST CONCENTRATION UNDER UV LIGHT

The effect of catalyst concentration on the photocatalytic degradation was studied over a range of the catalyst amount from 0.01 to 0.1g/10ml of Coralene Dark Red 2B dye. The synthesized nanoparticle shows appreciable results. The $MgZnAl_2O_5$ with the nanoparticle size 23 nm has shown 62.59% degradation. Since, the photo degradation was very efficient at 0.08g/10ml in 300 minutes for $MgZnAl_2O_5$ nanoparticle concentration showed in (Fig.5) (Photo 2).

The increase in degradation rate can be explained in terms of availability of active sites on the catalyst surface and sunlight penetration into the suspension as a result of increased screening effect and scattering of light. A further increase in the catalyst amount beyond the optimum dosage for all the nanoparticles decreases the photo degradation by some margin. This may be due to overlapping of adsorption sites as a result of overcrowding owing to collision with ground state catalyst [12].

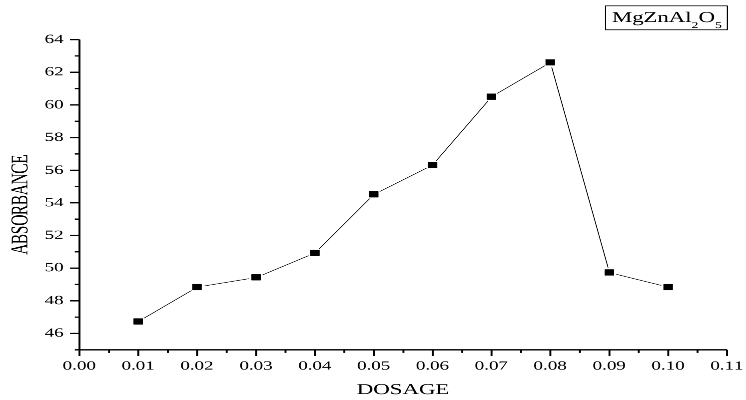

Figure 5: Effect of catalyst concentration on dye solution at 300 minutes=30 ppm, pH=7.

Photo 3: Effect of catalyst concentration on Coralene Dark Red 2Bdye at 300 minutes=30 ppm, pH=7.

MECHANISM OF PHOTOCATALYTIC ACTIVITY

$MgZnAl_2O_5 + h\upsilon \rightarrow (e^-_{CB} + h^+_{VB})$ (Eq. 10)

Step 1: The nanoparticles under UV light irradiation get excited and transfer electrons to the conduction band.

$e^-_{CB} + O_2 \rightarrow O_2^{\bullet -}$ (Eq. 11)

Step 2: It can reduce molecular oxygen and produce the super oxide radical.

$H_2O + O_2^{\bullet -} \rightarrow OOH^{\bullet} + OH^-$ (Eq. 12)

$2OOH^{\bullet} \rightarrow O_2 + H_2O_2$ (Eq. 13)

$O_2^{\bullet -}$ + Coralene Dark Red 2B→ Coralene Dark Red 2B-OO$^{\bullet}$ (Eq. 14)

Step 3: Molecular oxygen, adsorbed on the surface of the photocatalysts prevents the hole-electron pair recombination process [13]. Recombination of hole-electron pair decreases the rate of photocatalytic degradation. This radical may form hydrogen peroxide or organic peroxide in the presence of oxygen and organic molecule.

$OOH^{\bullet} + H_2O + e^-_{CB} \rightarrow H_2O_2 + OH^-$ (Eq. 15)

Step 4: Hydrogen peroxide can be generated in another path.

$H_2O_2 + e^-_{CB} \rightarrow OH^{\bullet} + OH^-$ (Eq. 16)

$H_2O_2 + O_2^{\bullet -} \rightarrow OH^{\bullet} + OH^- + O_2$ (Eq. 17)

Step 5: Hydrogen peroxide can form hydroxyl radicals which are powerful oxidizing agents.

$OH^{\bullet}$ / $O_2^{\bullet -}$/ $MgZnAl_2O_5^{\bullet +}$+ Coralene Dark Red 2B→ Coralene Dark Red 2B degradation (Eq. 18)

Step 6: The radicals produced are capable of attacking dye molecules and degrade them.

EFFECT OF pH UNDER UV LIGHT

In order to study the effect of pH on the degradation efficiency of $MgZnAl_2O_5$ catalyst, the experiments were carried out at pH ranging from 2 to11. The results showed that pH significantly affected the degradation efficiency. The percentage of degradation of Coralene Dark Red 2B was obtained from 32.97% to 65.58% from pH 2to 8, similarly the degradation decreases to 56.91% at pH 11in 300 minutes for 0.08g/10ml. The maximum degradation was found at pH 9 of 72.77%. The experimental results show that, the degradation was effectively in pH 9 due to the interaction between the dye and nanoparticles leads to generation of $^{\bullet}OH$ in the Alkaline medium and critical species for oxidizing $^{\bullet}OH$ radicals, are responsible for the photo degradation. Above the pH 9 the degradation is decreased due to amphoteric nature of the catalyst and electrostatic repulsion between negatively charged dye molecules and the catalyst. Thus, the adsorption is mainly depending on the pH of the solution [14].

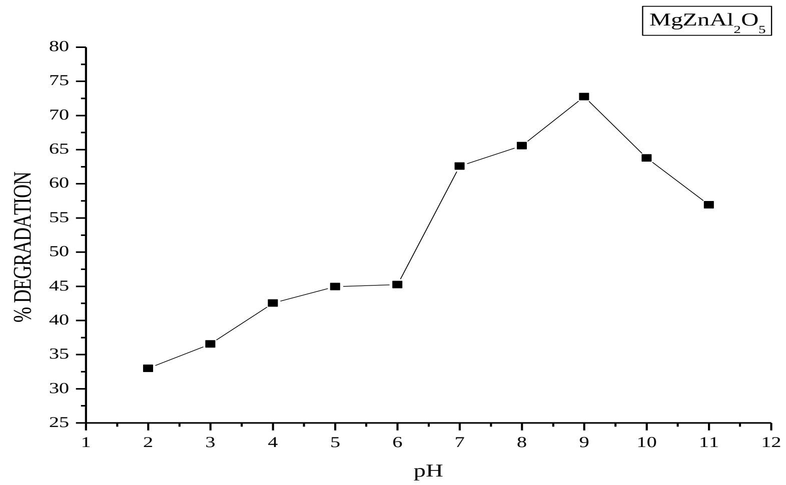

Figure 6: Effect of pH on dye at 300 minutes

Photo 4: Effect of pH on dye at 300 minutes

EFFECT OF INITIAL DYE CONCENTRATION UNDER UV LIGHT

The experiments were conducted to study the effect of initial dye concentration by varying the Coralene Dark Red 2B dye concentration from 30 ppm to 60 ppm. The results obtained for $MgZnAl_2O_5$ (Fig. 7) (Photo 5) is 72.77% for 30ppm,54.60% for 40ppm and 44.67% for 50ppm and 29.52% for 60ppm, these experiments illustrated that the degradation efficiency was directly affected by the concentration of the solution. The decrease in the degradation with an increase in dye concentration was ascribed to the equilibrium adsorption of dye on the catalyst surface which results in a decrease in the active sites, this phenomenon results in the lower formation of $^{\bullet}OH$ radicals which were considered as primary oxidizing agents of the dye [15,16]. According to Beer Lambert law, as the initial dye concentration increases, the path length of photons entering the solution decreases. This results in the lower photon adsorption of the catalyst particles, and consequently decrease photocatalytic reaction rate [17].

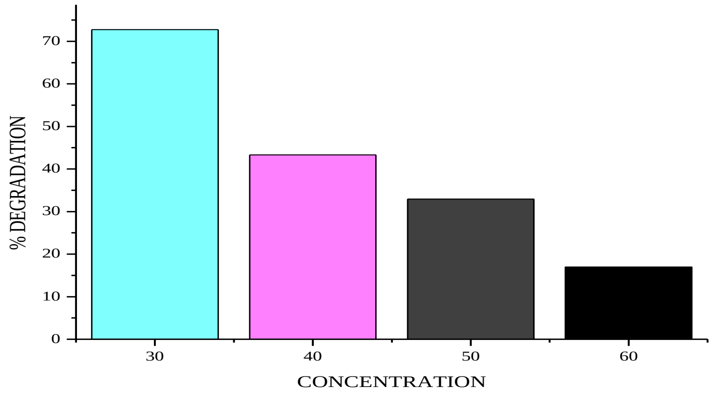

Figure 7: Effect of initial dye concentration on the photocatalytic degradation of Coralene Dark Red 2B $MgZnAl_2O_5$ g/30ppm,40ppm,50ppm,60ppm

Photo 5: Effect of initial dye concentration on the photocatalytic degradation of Coralene Dark Red 2B $MgZnAl_2O_5$ g/30ppm,40ppm,50ppm,60ppm

EFFECT OF LIGHT

The photocatalytic degradation of Coralene Dark Red 2B (30mg/L) under two different experimental conditions were examined, *i.e.*, through dye/dark/catalyst and dye/UV light/catalyst for the catalyst. Coralene Dark Red 2B dye solution when exposed directly to the UV light without the catalyst, the degradation was found to be zero during the entire experiments. The degradation rate was found to increase with increase in irradiation time, for dye/UV light/$MgZnAl_2O_5$ showed 72.77%, and for dye/dark/$MgZnAl_2O_5$ 4.30%was recorded (Fig 9) (Photo 8). These results clearly indicate that photo degradation occurs most efficiently in the presence of UV light (Photo 6). Under UV light, excitation of electrons from the catalyst surface takes place more rapidly than in the absence of light.

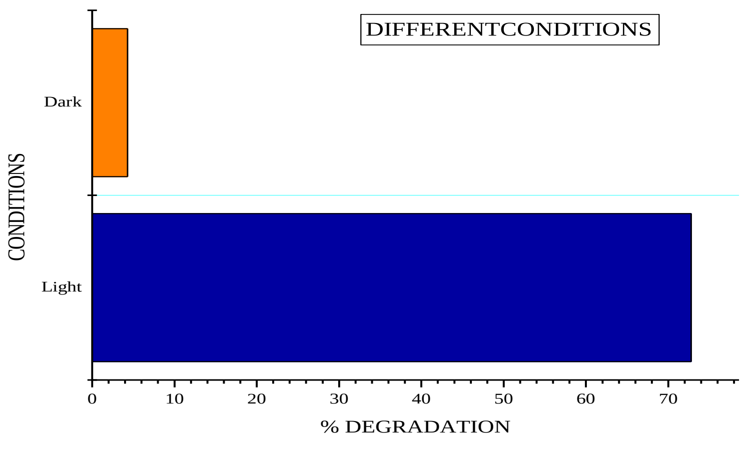

Figure 8: Effect of sunlight irradiation with respect to Dark condition and UV condition on photocatalytic degradation of Coralene Dark Red 2Bin 300 minutes

Photo 6: Effect of sunlight irradiation with respect to Dark condition and UV condition on photocatalytic degradation of Coralene Dark Red 2B in 300 minutes

CONCLUSION

In the present study, the $MgZnAl_2O_5$nanoparticles were prepared by solution combustion method using urea as a fuel and the result suggested that, the average particle size was found to be 23nm and band gap was found to be 3.0eV and these nanoparticles have been used in industries and also in medical applications. The Photocatalytic Activity of synthesized nanoparticles was used to degrade the Coralene Dark Red 2B under artificial UV light and by varying the parameters such as, pH of the dye, dye concentration and catalyst concentration. The optimal catalyst concentration was found to be 0.08g/10ml with dye concentration 30ppm and the pH 9 was maintained by 0.1 N HCl and NaOH. The maximum degradation was found to be 72.77% in 300 min. The method of photocatalytic degradation of Coralene Dark Red 2Bis more helpful in treating Coralene Dark Red 2B dye containing textile effluents.

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Characterization and Anticancer Activity of *Annona Muricata* Leaf Fractions against T- Cell Acute Lymphoblastic Leukemia Cell Line (Molt-3)

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ABSTRACT

The present study reveals that Annona muricata leaf fractions have rendered their efficacy towards induction of apoptosis against cell proliferation in MOLT-3 cells. In this study, we have performed FTIR, HPLC and GCMS to investigate the phytochemical components present in the F4C-Annona muricata leaf fraction. FTIR results evidenced the presence of different functional groups; HPLC, and GCMS analysis evidenced the presence of various phyto compounds in the F4C fraction. Further MTT and SRB assay confirms the cytotoxic activity of F4C fraction against molt-3 cell lines. Mitochondrial membrane potential by JC-1 staining showed a significant decrease in staining, which was confirmed to reflect the depolarization and cell cycle analysis reveals that the F4C treated cells were arrested at G2M phase of the cell cycle which is mitotic phase. Thus, Annona muricata leaf fractions possess anticancer activity against molt-3 cell line.

Keywords - Annona muricata,T-ALL, cell cycle analysis, mitochondrial membrane potential, anticancer.

1. INTRODUCTION

ALL is a form of leukaemia that affects lymphoblast cells [1]. ALL has a bimodal trend, with the first peak occurring in children's and the second peak happening about the age of 50 [2].

In India, incidence varies by region, with age-adjusted rates of up to 101.4 per million for boys and 62.3 per million for girls registered. ALL is significantly more common in boys, peaking between the ages of 2 and 5. T cell ALL accounts for about 15-20% of paediatric ALL, while a higher proportion of T-ALL (20-50%) has been recorded in India [3, 4].

Plant chemistry, also known as Phytochemistry, has emerged in the recent past as a separate identity occupies between plant biochemistry and natural products organic chemistry as a specialised area and is very closely connected to plant biochemistry and organic chemistry. It is associated with the vast variety of organic substances that plants produce and accumulate, as well as their chemical structures, biosynthesis, turnover, and metabolism, and also their natural distribution and biological function [5].

Many phytochemicals found naturally in parts of medicinal plants such as leaves, fruits, and roots have protective mechanisms and beneficial effects [6]. Non-nutritive plant chemicals with disease-preventive or protective properties are called phytochemicals. They are non-essential nutrients, which meant that the human body didn't need them to survive. Plants, on the other hand, develop these active principles or phytochemicals for protection and findings published have shown that they could render good protection against several diseases and human illness. There are over a thousand phytochemicals identified, and each has their own specific significant role to play in the metabolic processes. Alkaloids, terpenoids, phenolics, flavonoids, phlobatanins, tannins, fatty acids, leucoanthocyanins, coumarins, saponins, and steroids are among the well-known phytochemicals [7].

The numbers of people diagnosed with various types of cancer are alarming and are continuously increasing every year, prompting queries about the suitability and effectiveness of the existing prognosis and treatment strategies. As a result, patients are looking for alternatives to surgery, chemotherapy, and radiotherapy to supplement or substitute them. *Annona muricata* is one such plant that has been found to contain promising compounds that could be used to treat cancer [8].

A. *muricata* L., also known as Soursop, Graviola, Guanabana, Paw-paw, and Sirsak, is a plant that belongs to the Annonaceae family [9, 10]. A. *muricata* is native to the South and North regions in America and widely available in tropical and subtropical regions around the world, including India, Malaysia, and Nigeria [11]. A. *muricata* is a 5–8 m tall, evergreen, terrestrial, erect tree with an open and round canopy and broad and glossy, leaves are dark green in colour. The tree's edible fruits are huge, heart-shaped, and green in colour, with a diameter of 15 to 20 cm [12]. All parts of the Graviola tree including leaf, root, fruit, stem and bark have been shown to possess therapeutic potential against oxidant induced disorder namely cancer, diabetes and other parasitic infections in humans,in particular have been shown to treat cystitis, diabetes, headaches, insomnia, and inflammation [13, 14].

Graviola's conventional pharmacological applications have sparked researchers' interest in learning more about its active ingredients. Acetogenins are one of the constituents of Graviola that has been used to treat cancer. The polyketide skeleton of annonaceous acetogenins is made up of fatty acids with 35-37 carbon atoms present. Acetogenins derived from the parts of A. *muricata* including seeds, leaves, and pericarp has been shown to have cytotoxicity against prostate, pancreas, and breast carcinoma cells [14, 15, and 16]. The phytoconstituents present in A. *muricata* especially acetogenins exhibit anticancer property and the leaves of graviola are having good cytotoxic effect [17].

The active principles in plants have been extensively researched in modern pharmaceutical science. The bioactive principle component of plants differs from species to species. Since isolating and separating compounds is challenging and time-consuming, identifying and validating active compounds in crude extract becomes more difficult. Some non-chromatographic and chromatographic methods may be used to classify and characterised the compounds in the crude extract of the plants with medicinal value. Identification of active principles, also known as biologically active marker compounds, involves suitable chemical procedures including chromatographic and spectral studies [18]. TLC, NMR and GCMS have been widely used forisolation of bioactive compounds, detection and structural determination [7].

Herbs can be used to induce apoptosis in tumour cells, which is an alternative treatment option [19].The induction of apoptosis is an important mechanism for the eradication of cancer cells, based on the observation that *Annona muricata* exhibit anticancer activity, in this study we have investigated the FTIR, HPLC and GCMS profiles of *Annona muricata* fractionsto determine the nature and properties of the bio active compounds present in the plant of interest that are responsible for their anticancer properties, and performed cell viability assays (MTT, SRB), staining methods (JC-1, Propidium Iodide) to ascertainswhether the *Annona muricata* fractions possess the ability to induce apoptosis against theT-cell acute lymphoblastic leukemia cell line – molt-3.

2. METHODOLOGY

2.1 SAMPLE PREPARATION

Annona muricata leaves collected fresh were allowed to dry and then powdered using a suitable mechanical blender to make it fine powder, and 50g of the powder was macerated for 5 days in 95 percent ethanol. Ethanol was evaporated using a rotary evaporator, and the sediment obtained was redissolved in an appropriate solvent (acetone). Using a Buchner funnel and silica gel 60 on filter paper, the solution was filtered. The solid crude extract was leached with the solvents water, water-ethanol (7:3 v/v), and water-ethanol (1:1 v/v) to obtain the F1, F2, and F3 fractions. Then, to obtain fraction F4, ethanol, ethanol-ethyl acetate (1:1 v/v), and ethyl acetate were used sequentially, mixed, and evaporated using a rotary evaporator(Figure-1) [20].

2.2 Fractionation using open column chromatography

The sample was fractionated using a 30cm column. To obtain the fractions F1C, F2C, F3C, and F4C, the F4 fraction was loaded on to a silica gel 60 packed open column chromatography. Silica gel 60 acted as stationary phase and the mobile phase solvents used as eluents were mentioned in table -1 [21]. Fractionated samples were lyophilised and stored at room temperature. The samples were then dissolved in DMSO (1mg/ml) and used for the experiments.

2.3 Fourier transforms infrared spectroscopy (FTIR)

Fractions obtained above wereanalysed with a Shimadzu (Miracle 10) FTIR instrument, and infrared absorbance data was collected over a wave number range of3750 cm-1 to 500 cm-1.

2.4 High performance liquid chromatography (HPLC)

HPLC was used for qualitative screening analysis, with operating conditions that matched those stated by Daud et al., [22].The sample was analysed using a Thermo Scientific (Accela) HPLC device with a C18 reversed phase column. The column configuration consisted of a reversed phase column (4.6 × 150 mm, 4 µm). Detection wavelength was set at 230 nm. The mobile phase consisted of A (acetonitrile) and B (deionized water), using a linear gradient: 0-40 min (85%), and 40-60 min (85-95% A). The flow rate was 1.0 ml/min. The column temperature was maintained at 30°C.

2.5 Gas chromatography mass spectrometry (GCMS)

GC-MS analysis was carried out on a GC system comprising a Gas Chromatograph interfaced to a Mass Spectrometer (GC-MS) instrument; Schimadzu CH-GCMSMS-02, employing the following conditions:Column

DB 35- MS capillary standard nonpolar column (30 x 0.25mm ID x 0.25µMdf) operating in electron impact mode at 70eV; Helium gas (99.999%) was used as carrier gas at a constant flow of 1 ml /min and an injection volume of 1µl was employed. The oven temperature was programmed from 70 ºC with an increase of 6ºC/min, to 260ºC, then 5ºC/min to 280ºC, total run time was 38 minutes. The compounds were then identified from the GC-MS peaks, using library data of the corresponding compounds.The spectrums of the components were compared with the database of spectrum of known components stored in the GC-MS library using NISP Search. The relative % amount of each component was calculated by comparing its average peak area to the total areas. Measurement of peak areas and data processing were carried out by Mass Hunter software.

2.6 Culturing of molt-3 cell lines

NCCS, Pune, India, supplied the Molt-3 T-cell Acute Lymphoblastic Leukemic cell line. It was grown in RPMI1640 medium with 10% FBS and incubated at 37 ° C. Using a haemocytometer, the cell count and viability were determined, and 1×10^6 cells were seeded into 96 and 6 well plates for cell viability and staining analysis, respectively.

2.7 MTT dye reduction assay

The MTT assay was performed according to Igarashi and Miyazawa (2001) [23]. The treated Molt-3 cells were treated with 50µl of MTT and incubated at 37ºC for 3 hours after centrifugation. After incubation, all samples were given 200µl of PBS. After that, the liquid was carefully aspirated. Then 200µl of acid propanol were added and left in the dark overnight. In a microtiter plate reader, the absorbance was measured at 650nm. The control cells' optical density was set to 100% viability, and the percent viability of the cells in the other treatment groups was determined.

2.8 Sulphorhodamine B assay

The medium was removed after the *Annona muricata* fractions were treated in Molt-3 cells for 24 hours. 350µl of ice-cold 40% TCA was layered on top of the treated cells and incubated at 4° C for one hour before being washed five times with 200µl of ice-cold PBS. SRB (350µl) was poured to each tube and left in contact with the cells for half an hour at room temperature after the buffer was removed. In a microtiter plate reader, the absorbance was measured at 490 nm.

2.9 Detection of Mitochondrial Membrane Potential using JC-1 staining

After a treatment with fractionated samples for 24 hours at their IC50 values obtained in MTT cytotoxic assay, the cells were harvested with PBS. It was then resuspended in 0.5ml of JC-1 working solution and incubated in a CO_2 incubator for 10-15 minutes at 37^0C. The cells were then washed twice with 2ml 1X assay buffer. Finally, the cells were resuspended in 0.5ml of 1X assay buffer, and the mitochondrial membrane potential was measured with a flow cytometer (BD Facsverse).

2.10 Cell cycle analysis

The fractionated samples were added on to the cells in the culture flask at their IC50 values obtained in MTT cytotoxic assay, then trypsinized and centrifuged. The cells were then stained for half an hour at room temperature in the dark with 1ml of the prepared Propidium Iodide reagent mixture and cell cycle analysis was performed using flow cytometry, FACSuite software was used to interpret the data (BD Facsverse).

2.11 Statistical analysis

The results of the study was analysed statistically using the software Graph pad prism 9 (Trial version).

3. RESULTS

3.1 Fourier transform infrared spectroscopy (FTIR)

FTIR is the most extensively used method for identifying chemical constituents, elucidating phytocompound structures. It has a prominent role in pharmaceutical research due to its fingerprint characteristics [24-27, 28 and 29].The results of FT-IR analysis confirmed the presence ofC-I, C-CI, C-Br, C-H, C=C, O-H, N-O, OH, N-O, C=O, N=C=S, O=C=O and N-H functional groups (Figure-2).

3.2 High performance liquid chromatography (HPLC)

The most complex and daunting task in the research arena is the quantitative and qualitative detection of chemical constituents in herbal extracts. Isolation with traditional methods involving several isolations may result in the active compound's activity being reduced or fully lost. In current discovery, compound profiling using the HPLC analytical approach is employed to accurately detect several compounds [30, 31, and 32].

According to Daud [22], the F4C fraction was screened using HPLC. Figure 3 shows representative chromatograms of compound analytes for the sample under optimal conditions. In the HPLC screening procedure, the compound analytes 12, 15-Cis squamostatin-A, Squamostatin-A were well separated, detected, and other peaks were unknown. The retention times of the chromatographic peaks were compared to those of the reference compounds published in the previous journal [33].

3.3 Gas chromatography mass spectrometry (GCMS)

GC-MS is a technique used for analytical separation of compounds which is a combination of gas chromatography, which separates the various components of chemical compound mixtures, with mass spectroscopy, a technique used to analyse the metabolites or components that the GC separates. GC-MS can be adopted to analyse the active pharmaceutical ingredients, thermos stable volatile compounds, drug metabolites [34, 35, and 36]. Figure 4 shows the GC-MS profile of the *Annona muricata* fraction - F4C, and table 2 lists the constituents contained in the fraction.

3.4 MTT dye reduction assay

The results showed that all fractions could cause cell death; among the fractions evaluated, F4C had the best cytotoxicity, followed by F3C, F2C, and F1C at a concentration of 500µg towards the molt-3 cell lineand the IC50 values were found to be 133.667 ± 4.321µg/ml, 144.412 ± 3.352µg/ml, 338.593 ± 12.347µg/ml and 461.769 ± 8.092µg/ml respectively(Figure-5).

Roduan *et al*., 2018 [37], confirmed the cytotoxic activity of *Annona muricata* extracts and its compound annonacin at different concentrations. The MTT assay was used to assess the cytotoxicity of aqueous *Annona muricata* leaf extract on MCF-7, MDA-MB-231, and 4 T1, and the IC50 values differed between the samples, revealing the impact of the bioactive compounds [38].The cytotoxic activity of *Annona muricata* fractions may be due to the existence of various bioactive components present in the fractions, according to the cited papers.

3.5 Sulphorhodamine B assay

The viability of the cells was fixed at 100% and the values of the other treatment groups were calculated accordingly. All the extracts were able to cause cell death and the viability of cells reduced as the concentration of leaf fractions increased. Among the treatment groups tested, F4C rendered good cytotoxicity, followed by F3C, F2C and F1Cat concentration of 500µg towards themolt-3 cell line and the IC50 values were found to be 112.122 ± 2.175µg/ml, 171.696 ± 6.083µg/ml, 258.473 ± 30.063µg/ml, 441.622 ± 6.821 respectively (Figure-6).

According to Paraskeva, the MTT and SRB assays yielded similar results [39]. According to Lindamulage, the *Adenanthera pavonina* L. (Bead tree) and *Thespesia populnea* L. (Portia tree) decoctionssubstantially inhibited the proliferation of HEp-2 cells and the percentage cell viability of the HEp-2 cell line decreased in a concentration-dependent manner [40]. Several prior researchers have found that plant extract having a large number of phytochemicals with anticancer properties, that may be the cause of the anticancer effect of these plants extracts [41]. Acetogenins, a phytochemical with anticancer properties, are abundant in Annonaceous plants [42]. The existence of acetogenin may be linked to *Annona muricata* fractions anticancer properties

Thus the present study reveals that *Annona muricata* fractions are toxic to molt-3 cell lines and the cytotoxic activity is may be attributed to the synergistic interactions of various bioactive components found in the fractions.

3.6 JC-1 staining

Mitochondrion is an important organelle involved in the apoptotic process and plays a key role in ATP production. Normal cells will have more number of J-aggregates in the ratio of J-aggregates and monomers, it will change when there is alteration in the MMP.Depolarization is the first event in the initiation of apoptosis. Membrane depolarisation leads to the formation of more monomers and less of J-aggregates. Treated F4C group caused an increased proportion of monomers in the ratio of J-aggregates and monomers, indicating the enhanced efficacy of F4C fraction in apoptosis induction when compared to all other groups tested (Figure-7).

The *Annona muricata*twigs extract had the highest depolarization (21.75%) at 20µg/ml, while the leaf and root extracts had the highest depolarization (98.29 and 98.91%) at 100µg/ml. At 50µg/ml, all of the extracts showed greater than 50% depolarization. These findings demonstrated that extracts caused apoptosis in HL-60 cells after 24 hours due to mitochondrial membrane disruption [43]. In THP-1 and AMJ-13 cells, green synthesis of *Annona muricata* mediated AgNPs treated samples resulted in a significant increase in apoptosis. In contrast to the untreated cells, these treated cells displayed a substantial reduction in staining, which was reported to represent the depolarization [44].

Apoptosis is characterised by a reaction of mitochondrial membrane potential. Changes in mitochondrial permeability have been shown to induce a depolarization of transmembrane potential (ΔΨm), and treatment with F4C fraction resulted in increased mitochondrial membrane potential.

3.7 Cell cycle analysis

The untreated molt-3 cells (Control) were uniformly distributed in all phases of the cell cycle, indicating that no cell cycle arrest had taken place. The distribution of cells after exposure to *Annona muricata* leaf fractions resulted in apoptosis-mediated cell death, and the results showed that the cells were arrested at G2M phase (Figure 8), which is mitotic phase, confirming our findings. When compared to other treated groups, the percentage of cells arrested at G2M phase was considerably greater in the F4C treated group (Figure-9).

Gomes *et al*. found that C3 and C5 fractions of *Annona coriacea* Mart (5-10µg/ml) facilitated an arrest in the G2/M phases during cell division in SiHa cells [45]. Similarly, *Alpinia pricei*rhizome extracts (25–200µg/ml) inhibited KB cell proliferation[46].

Our findings are in accordance with what other researchers had found and indicating that *Annona muricata* fractions are capable of arresting mitosis and triggering apoptosis.

4. CONCLUSION

The findings suggest that *Annona muricata* fractions could be used to create better anticancer drugs to combat the T-cell acute lymphoblastic leukaemia cell line MOLT-3.

5. ACKNOWLEDGEMENT

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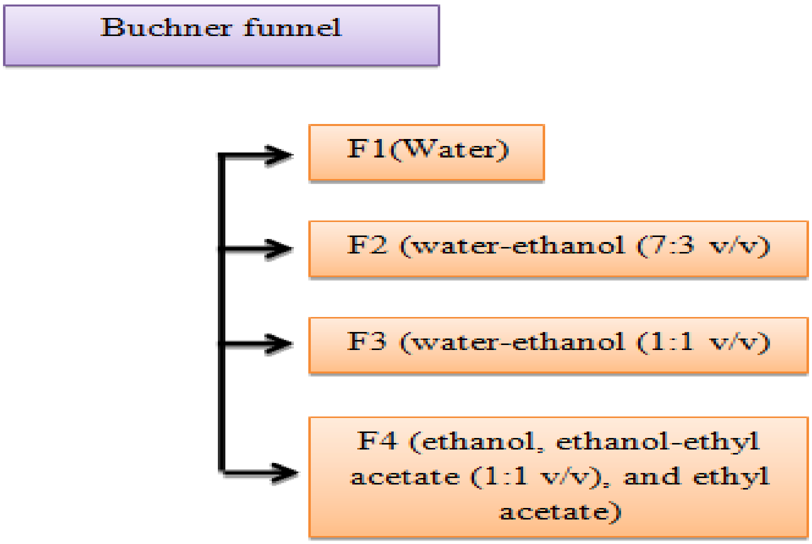

Figure -1: Sample preparation flow chart

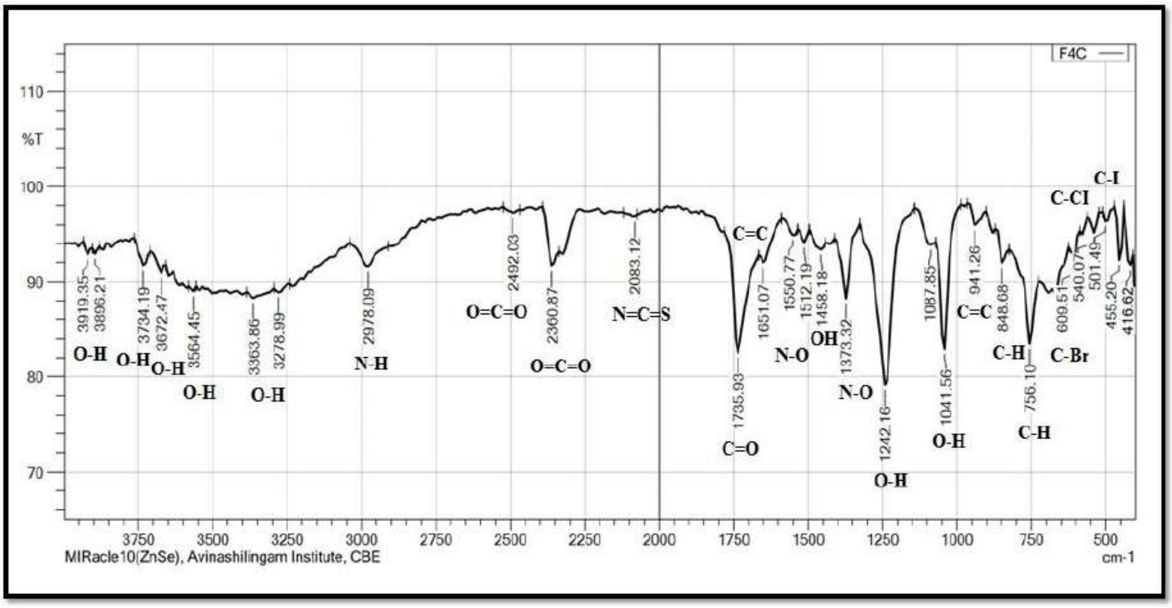

Figure -2: FTIR analysis of *Annona muricata* fraction - F4C

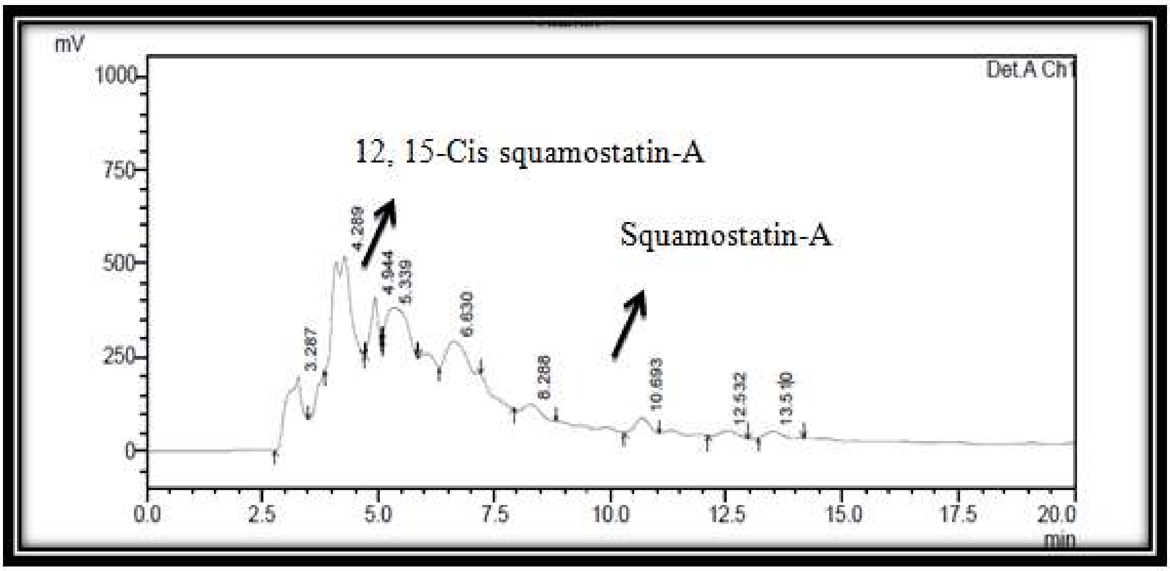

Figure -3: HPLC analysis of *Annona muricata* fraction - F4C

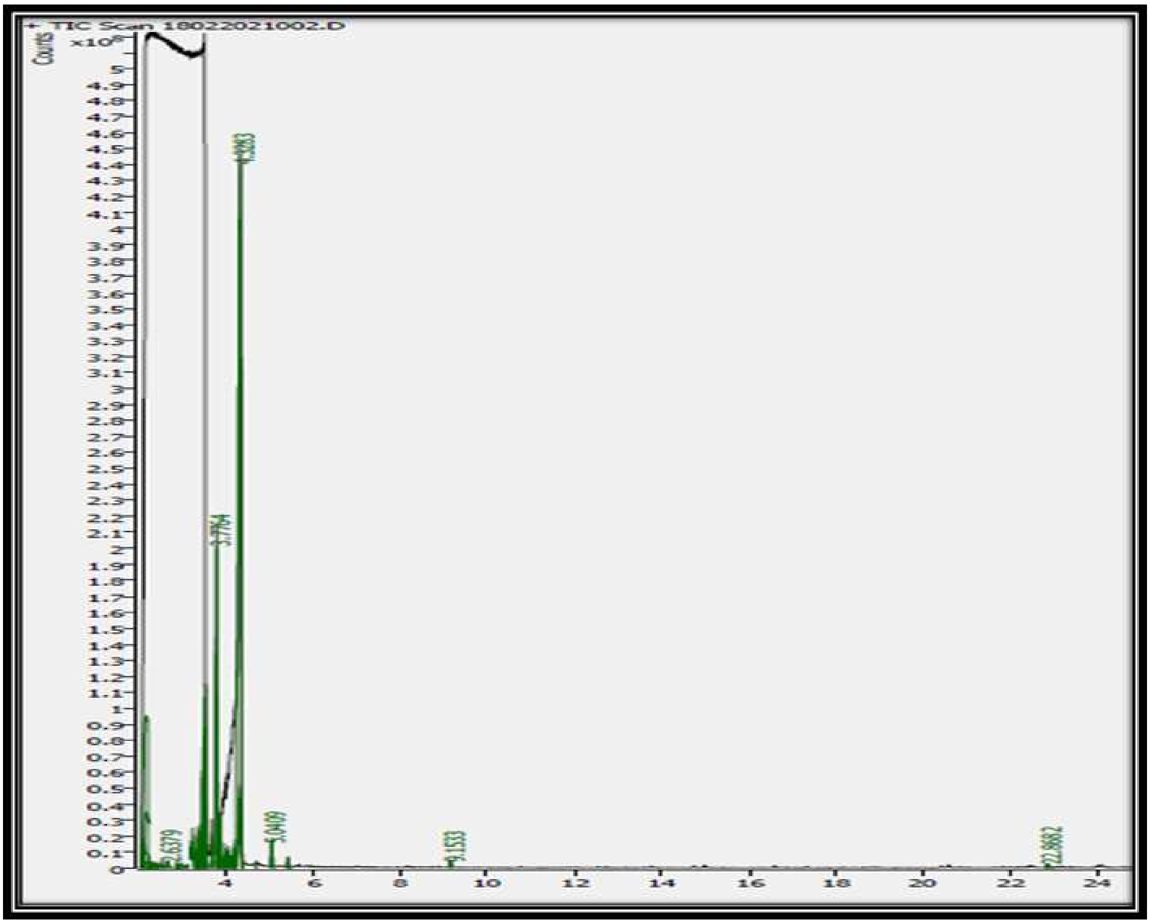

Figure -4: GCMS profile of *Annona muricata* fraction - F4C

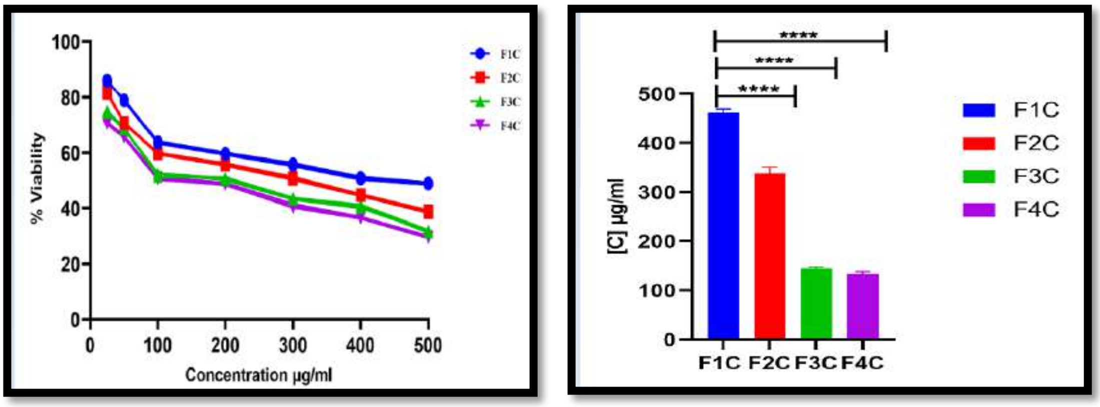

Figure -5: Graphical representation of cytotoxic effect of *Annona muricata* leaf fractions by MTT assay

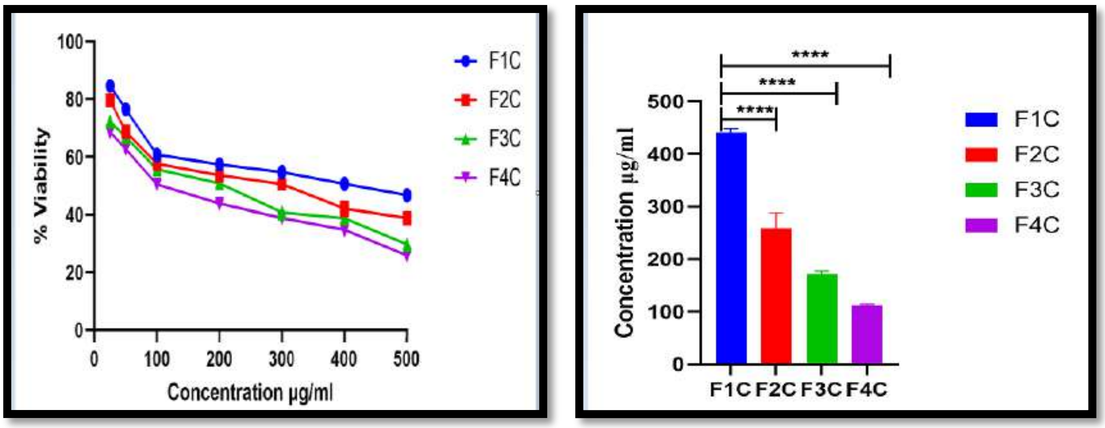

Figure -6: Graphical representation of cytotoxic effect of *Annona muricata* leaf fractions by SRB assay

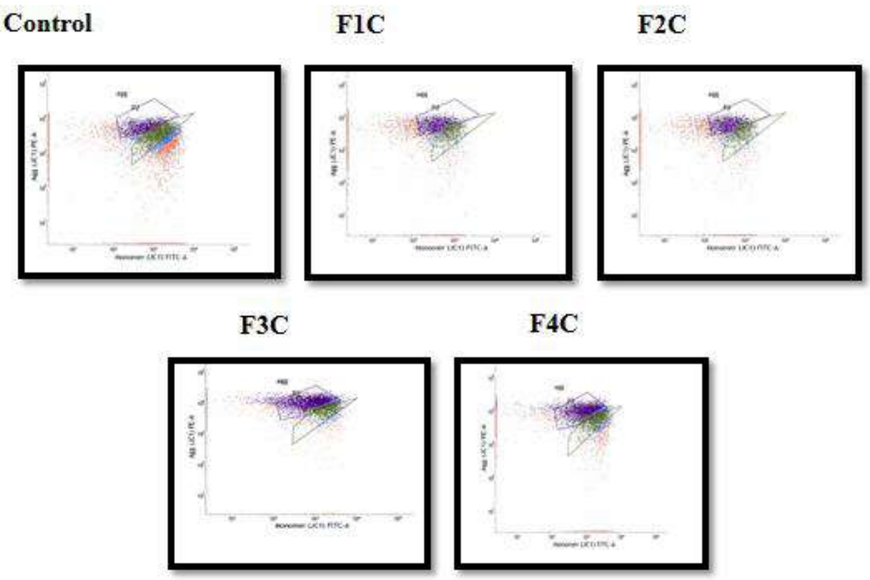

Figure -7: Mitochondrial membrane potential (MMP) by flow cytometry

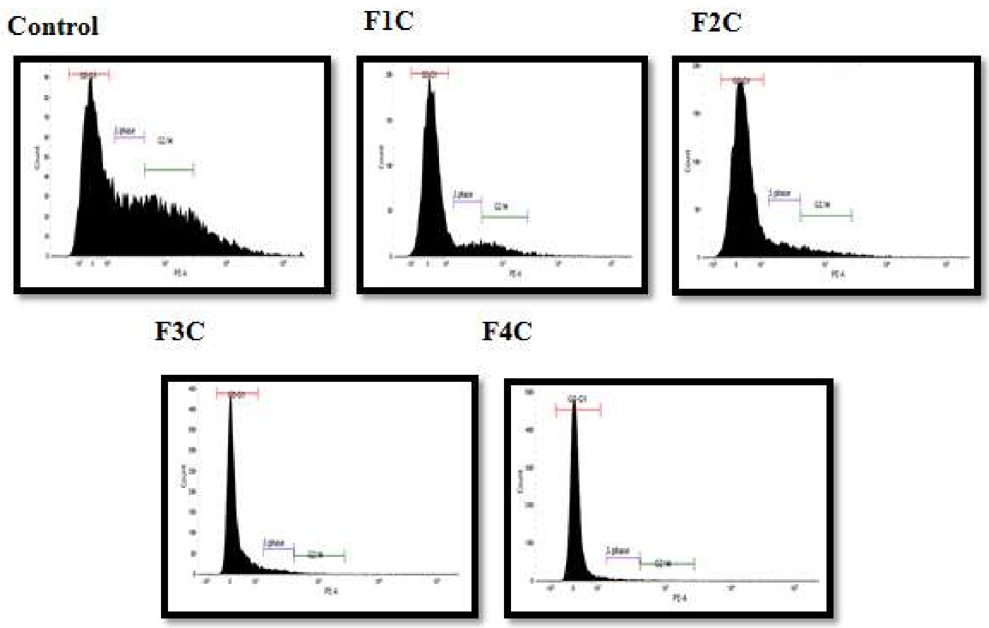

Figure -8: Cell cycle analysis of molt-3 cells exposed to *Annona muricata* leaf fractions

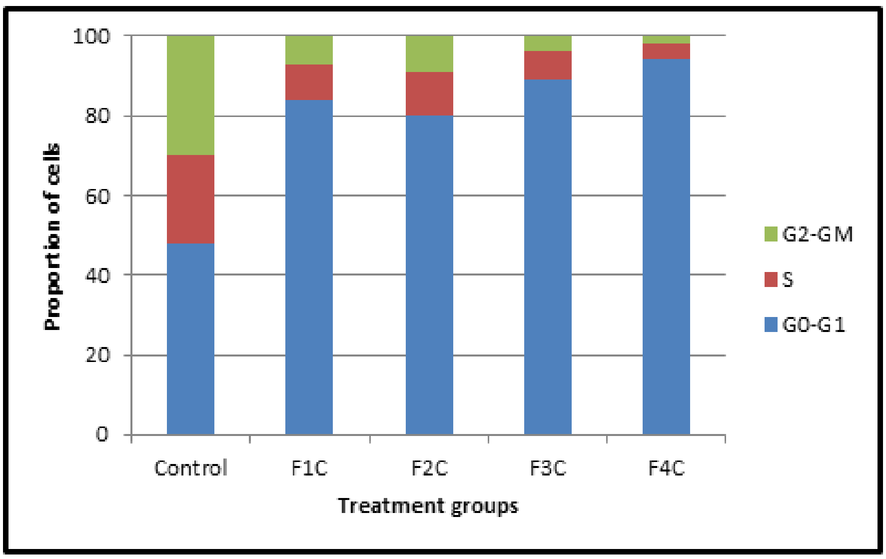

Figure -9: Distribution of cells in various phases of cell cycle

Table -1: Solvents used as eluents for obtaining fractions

Fractions	Eluents
F1C	Hexane
F2C	Hexane-chloroform (8:2 v/v)
F3C	Hexane-chloroform (1:1 v/v)
F4C	Ethyl acetate

Table -2: Components identified in *Annona muricata* fraction - F4C

Component RT	Compound Name	Formula	Component Area	Match Factor
2.0890	2,2'-Bithiazolidine	$C_6H_{12}N_2S_2$	16679318.5	63.0
2.0976	1-Butanamine	$C_4H_{11}N$	112377149.8	63.8
2.1306	Propanoic acid, 2-hydroxy-, propyl ester	$C_6H_{12}O_3$	2426053.3	75.9
2.1454	4-Amino-5-hydrazino-1,2,4-triazole	$C_2H_6N_6$	1970256.2	51.3
2.1522	1H-1,2,4-Triazol-3-amine, 1-methyl-	$C_3H_6N_4$	25365504.7	67.8
2.2320	N-Phenylglycine, 2TMS derivative	$C_{14}H_{25}NO_2Si_2$	1028856.5	57.4
2.2407	2-Propenoyl chloride	$C_3H_3C_lO$	5261166.6	58.9
2.3906	L-Proline, phenylmethyl ester	$C_{12}H_{15}NO_2$	2741864.8	62.7
2.4556	Methanol, (dimethylsilylene)bis-, diacetate	$C_8H_{16}O_4Si$	10330016.3	56.4
2.5050	Terephthalic acid, tridec-2-yn-1-yl ethyl ester	$C_{23}H_{32}O_4$	1885183.4	72.8
2.8601	Difluoro(methylamino)phosphine sulfide	CH_4F_2NPS	5088474.2	51.2
2.9750	Acetamide, N-(4-oxothiazolidin-2-ylidene)-	$C_5H_6N_2O_2S$	4673345.0	56.2
3.1129	Succinic acid, di(2-chloropropyl) ester	$C_{10}H_{16}Cl_2O_4$	9180476.2	58.5
3.2123	Benzeneacetic acid, 4-(1,1-dimethylethyl)-	$C_{12}H_{16}O_2$	66347739.0	53.2
3.3086	Propane, 1-(methylthio)-	$C_4H_{10}S$	6647190.9	66.2
3.3095	4-(Methylthio)-1-butene	$C_5H_{10}S$	2426679.7	53.1
3.3180	Acetamide, N-benzyl-2-(2,3-dihydro-2-methyl-5-phenyl-1,3,4-thiadiazol-2-yl)-	$C_{18}H_{19}N_3OS$	12535287.5	58.1
3.3763	2-Methyl-5-nitrobenzimidazole	$C_8H_7N_3O_2$	45958125.3	62.3
3.3853	3-Thietanol	C_3H_6OS	9949205.3	74.7
3.4059	Terephthalic acid, ethyl 4-methylhept-3-yl ester	$C_{18}H_{26}O_4$	39982778.9	59.6
3.4153	Succinic acid, 2-fluoro-6-(trifluoromethyl)benzyl isobutyl ester	$C_{16}H_{18}F_4O_4$	15935732.5	59.5
3.4966	4-Pyrimidinamine, 2,6-difluoro-	$C_4H_3F_2N_3$	110622644.9	57.8
3.4969	2H-Indazole, 2-methyl-4-nitro-	$C_8H_7N_3O_2$	92527963.6	51.4
3.5002	Trifluoroguanidine	$CH_2F_3N_3$	323306764.2	73.3
3.5018	1H-Tetrazole	CH_2N_4	37325339.9	71.3
3.5076	Trichloromethane	$CHCl_3$	70663984.4	95.0
3.5133	di-tert-Butyl dicarbonate	$C_{10}H_{18}O_5$	13951839.9	94.6
3.5632	Isopropyl acetate	$C_5H_{10}O_2$	3221053.5	82.7
3.6542	Formic acid, 2-methylpropyl ester	$C_5H_{10}O_2$	16710735.7	98.5
3.7464	3,3-Dichloropropyne	$C_3H_2Cl_2$	1576246.7	83.7
3.7764	Propanoic acid, propyl ester	$C_6H_{12}O_2$	201297110.7	83.2
3.7764	Propanoic acid, ethyl ester	$C_5H_{10}O_2$	201321297.8	95.5
3.7940	n-Propyl acetate	$C_5H_{10}O_2$	69028685.6	95.3
3.8580	Nitroethene, 2-(2,4-dibenzyloxy)phenyl-	$C_{22}H_{19}NO_4$	52996524.1	70.0
3.8643	Diethyl carbonate	$C_5H_{10}O_3$	14399044.8	79.4

4.0324	Propanethial, S-oxide	C_3H_6OS	16931754.8	81.5
4.1080	Methyl thiolacetate	C_3H_6OS	14008149.1	78.9
4.1789	Pentane, 1-ethoxy-	$C_7H_{16}O$	2018274.0	89.8
4.2075	Bicyclo[3.2.0]hepta-2,6-diene	C_7H_8	22064754.5	83.9
4.3226	2-Furancarbonitrile 617-90-3	C_5H_3NO	185782875.9	66.4
4.3766	Isobutyl acetate	$C_6H_{12}O_2$	4230194.6	96.0
4.6884	Heptane, 2,4-dimethyl-	C_9H_{20}	1899029.7	79.4
5.0409	Cyclotrisiloxane, hexamethyl-	$C_6H_{18}O_3Si$	26632105.0	97.1
5.4138	2-Pentanone, 4-hydroxy-4-methyl-	$C_6H_{12}O_2$	9937803.9	98.8
9.1533	Cyclotetrasiloxane, octamethyl-	$C_8H_{24}O_4Si$	3235103.7	94.2
22.8682	2,4-Di-tert-butylphenol	$C_{14}H_{22}O$	1474726.3	87.9

Celebrity Endorsement and its Effect on Women among Beauty Care Products

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ABSTRACT
Celebrity Endorsement has grown into a multi-billion dollar industry in recent years. Celebrity Endorsement is a marketing tactic that is used to differentiate a company's product from that of its competitors, as well as to allow people to identify a brand/product with a certain celebrity. Marketers utilise celebrity endorsement to boost sales and influence customer purchasing decisions. They also use celebrity endorsement to affect viewers' perceptions of their brand, which has a beneficial impact on their purchasing behaviour. The main focus of this study paper was on the relationship between celebrity endorsement and its impact on women when it came to beauty care goods. The research adopted convenience sampling and the data was gathered among 168 Women students in salem who has experience in online shopping. Data analysis was performed using GARRETT Ranking method and chi-square method. The study indicates that "Celebrity" and "swag of their celebrity in the advertisement" is the major reason for purchase on beauty care products.

Keywords: Celebrity, Celebrity Endorsement, Buying Behaviour, Beauty Care Products

1. INTRODUCTION

Due to fast and continuous changes that we experience in the world today, the marketing and advertising industry has been experiencing a more competitive environment that makes it hard for them to capture the attention of consumers through pictures, magazines, newspapers, billboards, websites, radio, and television. A marketer must think of ways to on how to capture the attention of their target market despite the bombardment of thousands of ads created by other competitive companies. One of the best ways to capture their attention easily is through celebrities.

When compared to their competitors, marketers always employ distinct tools and approaches to thrive in the industry. Using a well-known individual from sports, cinema, or another area as an endorser in advertising is one of these techniques for standing out in a crowded market. Advertisements have a key part in moulding a consumer's thinking in today's era of information and communication explosion and media impact.

Companies use celebrity endorsement as one of the most prevalent promotional tactics to raise awareness, assist in recovery, and receive good feedback about their products and services (Khan & Lodhi, 2016). Many corporations pay millions of dollars each year to have celebrities promote their products in order to make advertising more appealing and effective.

This study aimed to determine whether celebrity may impact women's purchasing behaviour and how companies can use the right celebrity at the right moment to promote their products. In this period, celebrities are seen as role models. Celebrities are used by almost every brand to promote their product. Celebrities affect a large number of clients and their lifestyles. These factors influence their purchasing decisions.

2. Celebrities

The term "celebrity" refers to a prominent figure (actor, sports figure, entertainer, etc.) who is well-known for accomplishments outside of the product category supported (Friedman and Friedman, 1979).

Celebrities are those who are well-known by a huge number of people, who defy social norms and have a high level of public awareness (Schlecht, 2003).

Celebrity is an ever-present part of society, leaving a lasting influence on those who come into contact with it. (Kurzman, et al) (2007)

A celebrity is described as a person who is well-known in the public eye and who exploits that fame to promote products, businesses, or services (Jain and Roy, 2016).

3. Celebrity Endorsement

Celebrity endorsement is becoming increasingly popular as a marketing approach (Biswas, Hussain, and O'Donnell, 2009).

A celebrity endorsement is a type of product or service promotion in which a well-known person is used in a marketing campaign to promote a product or service by leveraging his or her celebrity and social standing (Keller, K. L. 2012).

A multitude of factors that have a direct or indirect impact on product sales are influenced by celebrity endorsements (Erdogan, 1999).

Celebrity endorsement is described as "any individual who enjoys public notoriety and leverages this recognition on behalf of a consumer commodity..." Breen and Byrne (Byrne & Breen, 2003)

A celebrity endorsement is defined as a public figure who uses his or her popularity to promote a product by appearing in advertisements for it (McCracken, 1989).

A celebrity endorsement has traditionally been a long-term arrangement between the celebrity and the company to promote a brand, product, or service through ads, campaigns, and public appearances. According to the source credibility model, the receiver's acceptance of the message is influenced by the spokesperson's positive characteristics (Khan and Khan, 2002).

4. Buying Behaviour

Consumer purchasing behaviour refers to both the decision-making process and the attitude of persons who purchase and use things.

Every advertising strategy's ultimate goal is to influence the target audience's actual behaviour, whether it's purchase intent or actual consumption. (Sharma and colleagues, 2008)

Loudon and Della Bitta (1988) described consumer behaviour as the decision-making process and physical activity that consumers participate in when analysing, purchasing, using, or disposing of goods and services.

According to Dolekoglu et al., quality, price, trust, alternative packaging availability, frequent advertising, sales promotions, imitations, availability, brand image, prestige, freshness, and habits are all elements in the customer buying process (2008).

5. Beauty Care Products

With its enormous potential, the personal care sector is an important aspect of the nation's economy. One of the most important consumer areas in the country is personal care. Beauty care items are a part of our daily lives, and they are a big industry in India.

Consumer goods for cosmetics and body care are included in the Beauty & Personal Care market. Face and lip cosmetics, skin care products, fragrances, and personal care goods such as hair care, deodorants, and shaving products are all included. Beauty services, such as hairdressers, professional goods, and electric personal care products, are also included.

The global beauty and personal care business is predicted to reach $725 billion by 2025, according to Mr. Apoorva Mittal, Editor of Economic Times, and the Indian market would expand to $28 billion by then (Economic Times, April 2021)

The rise of the beauty and personal care business has been fueled by changes in consumer shopping habits.

In the previous decade, the Indian consumer's purchasing power and disposable incomes have significantly expanded, creating a niche for top firms in this category, resulting in amazing growth in this industry.

6. Factors Affecting Celebrity Endorsement and relevant Models

When celebrities endorse a brand, there are a variety of reasons that influence customer purchasing behaviour. Marketers must examine a number of aspects when choosing celebrities to endorse products in order to get the intended results from this strategy in terms of brand image, consumer buying behaviour, and market share.

6.1 Source credibility model.

Because a celebrity's legitimacy is based on his or her physical appeal, trustworthiness, and knowledge, researchers studying the impact of celebrity endorsement must take this model into account (Ohanian, 1990).

6.1.1 Trustworthiness.

Customers who trust celebrities will be more receptive to their messages, which will aid in influencing customers to take the desired action that businesses want for their brand (Miller and Baseheart, 1969)

6.1.2 Expertise.

Expertise can be defined as the endorser's professionalism, which encourages customers to purchase things (Goldsmith & Lafferty, 2000). In comparison to endorsers with limited experience, those with excellent knowledge and skills have a strong power of endorsement (Ohanian, 1990)

6.2 Source attractiveness

McGuire (1985) established a source attractiveness model based on four dimensions: familiarity, likeability, similarity, and attractiveness.

6.2.1 Celebrity Attractiveness:

Physical attractiveness, as measured by a person's weight, height, and face beauty, is one of the first things that others notice about them (Bardia et al., 2011).

6.2.2 Celebrity Familiarity:

When the customer discovers that he or she is similar to the celebrity, it will have a stronger positive influence. The mere exposure effect is what it's called (Zajonc, 1968)

6.2.3 Celebrity Similarity:

A better relationship will be developed if the celebrity and the customers have popular factors such as comparable interests or lifestyles (Erdogan, 1999)

6.3 Match-Up And Meaning Transfer Model

According to the product match-up model, attractive celebrities, particularly attractive female celebrities, are more effective at advertising beauty items, which are products that help people seem better (Kamins, 1990).

According to McCracken (1989), celebrity endorsement is only effective if the meanings customers connect with the endorser are finally transferred to the brand.

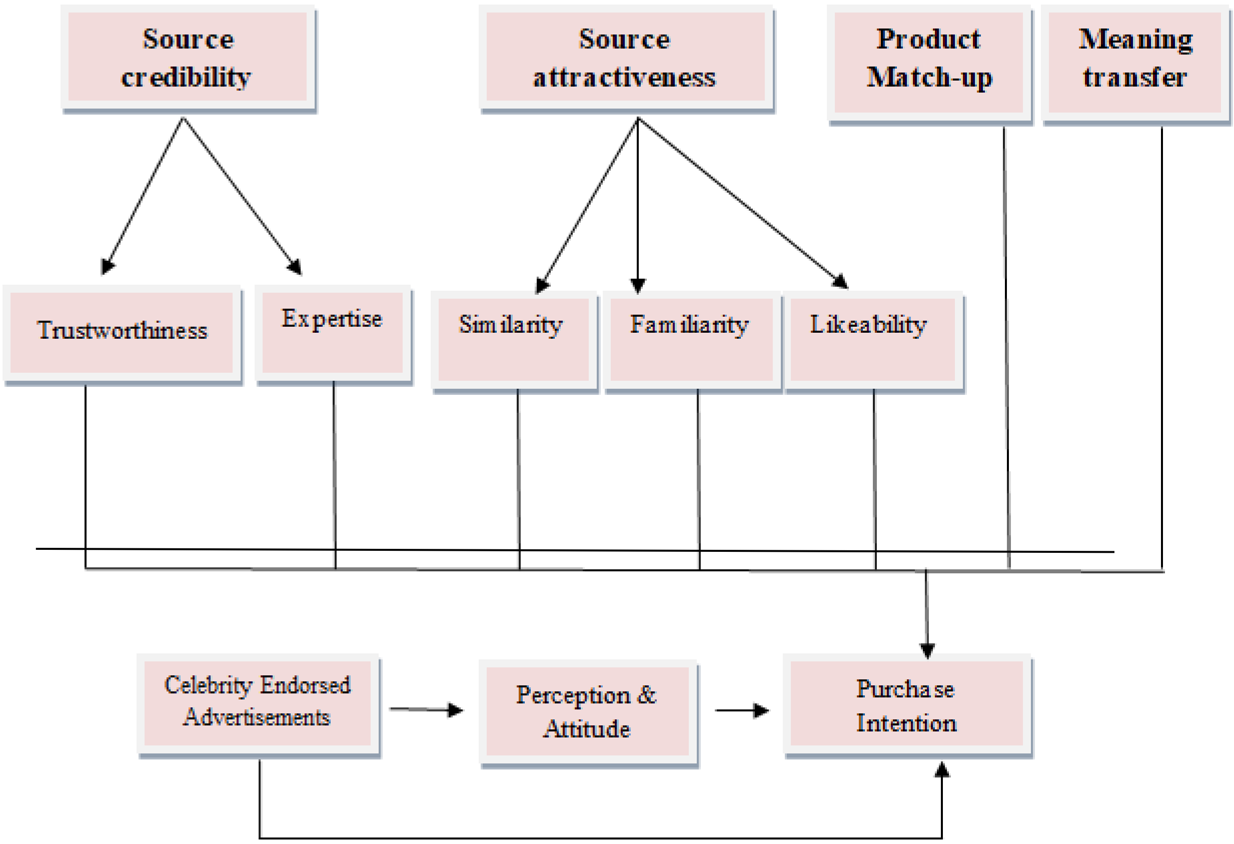

***Fig 1. Source Credibility, Source Attractiveness and Match-up and Meaning Transfer model*(Source-** Ramos, Mia angeli; Lagarico, Reika (2019))

7. Research Works related to the study

The impact of consumers' attitudes about celebrity endorsement on Telecom Brands' purchase decisions was explored by **Naresh and Latha (2014).** The sample respondents were chosen via random sampling. The samples were chosen via systematic random sampling. Respondents were given a self-completion questionnaire to complete out in response to the questions in three districts: Chittoor, Nellore, and Kadapa. The four Indian telecom service provider product brands that were polled were Vodafone, Aircel, Reliance Communication, and Idea. The most important finding of the study is that celebrity endorsement boosts marketing communication. Young consumers' purchasing decisions were also influenced by celebrity endorsement, according to the study (students). The age of the respondents is likely to have an impact on whether they think celebrity endorsement is beneficial or bad.

Consumer views of celebrity endorsement of FMCG products were explored by **Randhawa and Khan (2014)**, as well as the impact of altering the brand endorser on the product's image. A pre-structured questionnaire and convenience sampling were used to collect data from 50 respondents, and the findings were analysed using the percentage technique. Celebrity endorsement, according to studies, enhances product knowledge and raises customer awareness. It aids their recall of the product brands being marketed. Non-celebrity advertising, comedic character commercials, CEO commercials, and fiction commercials have all failed to persuade consumers to purchase. According to the majority of respondents, frequent changes in celebrity for product promotion influence customers' purchasing decisions.

At Globalcom Ghana Telecommunication Mobile Network, **Fiona Gibson (2015)** investigated the impact of celebrity endorsement on customer purchasing decisions. Consumers find celebrity endorsements more appealing, according to the study. Celebrity endorsements, according to the research, increased brand identification and recollection of the recommended commodities and services. Customers are more likely to remember products supported by celebrities. This will come in handy while they're out food shopping. The findings reveal that celebrity endorsements have a significant beneficial impact on customer perceptions and attitudes toward the items and services they support.

Humaira Mansoor Malik researched the impact of celebrity endorsements on customer purchasing intentions (2016). It also discovers what Pakistani consumers think about celebrity endorsements. The goal of the study was to see how different aspects of celebrity endorsement influenced customer purchasing decisions. A quantitative method was used for the same. A questionnaire (with 150 replies) was used to collect data, which was then analysed using SPSS software. Gender, attractiveness, credibility, endorser type, and multiple celebrity endorsements have all been demonstrated to have a positive impact on purchasing intent.

WidartoRachbini (2018) looked at the effect of celebrity endorsements on buying intent as well as celebrity qualities that influence purchase intent. The data used in this study is from primary sources. The data was collected by the researcher directly in order to address the problem or meet the research objectives. In Indonesia, a survey was conducted using a systematic questionnaire. A self-administered questionnaire was used. A total of 100 people responded to the survey. The results reveal that celebrity endorsement has a positive and large impact on purchase intent, and that all three characteristics (attractiveness, knowledge, and trustworthiness) contribute to the celebrity endorsement variable's construction.

8. Intention of this Research

The intention of this Research is;

1) To identify key factors of celebrity endorsements which can influence women’s purchase decision on beauty care products.

9. Research Methodology Practices Used

Pilot Study:

Pilot study was conducted through structured questionnaire from 62 respondents in salem and indenting the important variables regarding e-commerce. Cronbach alpha method was used to test the validity of the questionnaire. Overall the reliability of all the items of the Annexure was found to be 0.824.

Sampling:

In this study, 168 women respondents were selected in the convenience sampling method. The respondents returned the filled questionnaire via google forms.

Data Analysis:

Data sources in this study are primary as well as secondary. Analysis was done using statistical packages for social science (SPSS), testing was done using GARRETT Ranking Method and Chi Square method which influences customer experience

Analysis and Interpretation

Henry Garrett Ranking

Table 1 proportion Level with Value

Rank	proportion Level	Table Value
1	100(1-0.5)/5=10	76
2	100(2-0.5)/5=30	61
3	100(3-0.5)/5=50	50
4	100(4-0.5)/5=70	40
5	100(5-0.5)/5=90	25
Source: Garrett Ranking Table		

Table 1.1 Henry Garrett Ranking

To identify key factors of celebrity endorsements which can influence women's purchase decision on beauty care products

Particulars	1	2	3	4		Mean Score	Rank
	76	61	50	40			
Product Price	38	26	48	56	168	54.48	**4**
	2888	1586	2600	2080	9154		
Brand name of the product	39	37	28	64	168	55.18	**3**
	3420	1891	1400	2560	9271		
Celebrity	60	31	18	59	168	57.08	**1**
	3952	2379	900	2360	9591		
Swag of the Celebrity in the advertisement	30	30	67	41	168	55.85	**2**
	2736	1708	3380	1560	9384		
Source: Data was collected via questionnaire (Google form) and computed through excel							

Results point out **Celebrity** is ranked to the first **Swag of the Celebrity in the advertisement** is ranked second

CONCLUSION

Future Scope for Further Research

In future studies, it will be important to include samples from organisations with a wider range of backgrounds in order to process data and outcomes. Increasing the number of variables that can observe the model more fully, introducing differences in organisational background, and increasing the number of samples sufficient are some proposals for further research.

FEW SUGGESTIONS INCLUDE;

- Digital marketing and customers in the era of industry 4.0
- Customer satisfaction towards online shopping in industry 4.0

DECLARATION OF CONFLICT OF INTERESTS

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Impact of Technology Development on Consumer Buying Behaviour on FMCG Products through E-Commerce

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ABSTRACT
Due to Technological Developments, the FMCG market is currently undergoing significant transformation. The buying experience of the consumers were heavily impacted by digital technologies. In the current scenario, the majority of consumers conduct their shopping-related activities using Digital Technology to research, explore, and purchase all of their items on a single E-Commerce website. The purpose of this study is to determine the Impact of Technological Development on buying behaviour of the consumer towards FMCG Products through E-Commerce. The research adopted convenience sampling and the data was gathered among 186 respondents in Salem using GARRETT Ranking method. The study indicates that customer "Loyalty" and "User Friendly" is the major reason for the rise of E-commerce Websites promoting the FMCG Products.

Keywords: Technology Development, Consumer, Buying Behaviour, FMCG Products E-commerce

INTRODUCTION

According to Kantar Cube study conducted by the IAMAI, the number of active internet users in India is predicted to grow by 45 percent to 900 million by 2025. Through the use of smart phones, social media, and on-demand service offerings, customers have been able to live a more personalised lifestyle in recent years as a result of digitalization and technological advancements (Hajli,2014). Consumers save time by having access to product-related information, which contains a mix of pictures, sounds, and very thorough descriptions to aid learning and selection of the best product (Moon, 2004).

In the past, if a customer wanted to purchase a product, he had to visit the store during business hours. Otherwise, he won't be able to purchase the item. Customers can now buy things at any time thanks to the advent of e-commerce (Jose,Julie 2017). More businesses have understood that changing consumer behaviour is an unavoidable trend and have changed their marketing strategies with the available Technologies. Market in India has been expanding day by day. Because, these FMCG products are sold at a rapid pace and at a comparatively low cost, the craze for these products are more in the market. Consumersare much more satisfied with online buying and with development of technologies Consumers feel much safer than traditional marketing. As a result, digital marketing has a greater potential to expand their business in the future (Alzyoud, 2018).

Technology Development

Digitalizing every aspect of business, including logistics, procurement, supply chain, and sales operations, will be the next Industrial Revolution, with E-commerce accounting for 90 percent of global commercial transactions in the near future. (Geissbauer and colleagues, 2016). Vendors can make real-time price changes at a low cost by reviewing consumer traffic, demographics, and preference data, among other things, using modern technology that employs cookies and clickstream data, among other things. Mak et al. 2018; Elmaghraby and Keskinocak 2003).

In digital marketing, Artificial Intelligence (AI) is likely to revolutionise consumer relationships (Ransbotham et al. 2017).

AI differs from human intuition because it is data-driven. Using artificial intelligence, data may be converted into methods that guide meaningful customer behaviour (Haenlein& Kaplan 2019).

Cloud Computing Technology (CCT) allows consumers to access a wide range of services via private, public, and communal computer networks (Sultan and Sultan, 2012). Because consumers may access product data from any geographic location and computer equipment, cloud computing has evolved as a dynamic technological innovation (Stein et al., 2013).

The influence of Big Data Analytics (BDA) on customers' online activities demonstrated a significant link between browsing and purchasing of sales products recommended by BDA. (Woonkian Chang, Qiuchen Li, Jinkun Xing, On Liu, and Woonkian Li, 2017)

The Internet Of Things (IoT) began to play a larger role in purchasing decisions as internet marketing became more prominent. The modern customer has a wide range of products to choose from, which complicates the decision-making process and consumer behaviour (Trifu and Ivan 2014).

Consumer Buying Behaviour

Consumer behaviour has become a critical aspect in determining a company's overall performance. The study of how people, groups, and organisations choose, buy, use, and dispose of goods, services, ideas, or experiences to meet their needs and wants is known as consumer behaviour (Kotler and Keller,2011). "The activities that consumers perform when they are seeking for, purchasing, using, analysing, and discarding products and services that they expect to suit their requirements" is how consumer behaviour is defined (Leon & Leslie, 2004). According to G. and M. Belch (2009), consumer behaviour is the process by which customers feel and experience their purchases, and it includes a variety of aspects that can impact a purchase decision. Because various consumers have varied wants, consumer behaviour is an essential and challenging topic for marketers (Kumar, 2010).

FMCG Products

Fast-Moving Consumer Goods is the third largest industry in India's economy (FMCG). Fast-Moving Consumer Goods (FMCG) or Consumer Packaged Goods (CPG) are products that are sold quickly and at a low cost. Fast-moving consumer products are the most well-known example of a low-margin/high-volume company (FMCG). Because a large number of brands and organisations are involved in the manufacturing and production of the same categories of FMCG items, it is extremely difficult to project a distinct image in the eyes of customers. For a long time, the marketing tactics of FMCG companies were based on one-way product promotion. The focus of FMCG technology development is turning to user-centric content that provides real value to consumers' lives and changes the shopping experience.

Research Works related to the study

Ugoing to to et al. (2017) conducted research in the setting of Owerri's internet enterprises in Nigeria's Imo State to examine the effects of digital marketing on consumer behaviour. The authors discovered the benefits of good digital marketing, effective communication, and on-time product delivery on the frequency of consumer visits and patronage to the online merchants in the aforementioned region. The study used six research questions and six hypotheses. Questionnaires were handed to the 300 participants who took part in the study. Mean analysis was used in the study, and the hypothesis was tested using the Z-test. The data was analysed using SPSS software. Successful digital marketing channels have an effect on the frequency of visitors, according to the research.

Laith T. Khrais (2020) looked at the significant technological breakthroughs in e-commerce in order to influence client behaviour in favour of specific products and enterprises. Despite AI's contribution to e-commerce, this research shows that its ethical soundness remains a contentious issue, especially when it comes to the concept of explainability. This study recommended that ML models be improved to make them more interpretable and understandable in order to deploy explainable AI systems.

The impact of digital marketing on client purchasing decisions was explored by **Mahalaxmi and Ranjith (2016)**. Consumers in Trichy were polled for the study. Customers' awareness of online marketing was also investigated in the study. A survey of 50 consumers was used to acquire the data. The Chi-square test was used to analyse the data. Customers were aware of digital marketing and preferred to buy goods and services online, according to the research. The study's flaw was that it was conducted in a single geographic location.

Donthu and Garcia (1999) investigated consumer characteristics related to online purchase and found that individuals seeking convenience and variety bought more online. These folks are also more spontaneous and innovative, according to the researchers. Economic incentives, product availability, and security risk, according to him, are all essential variables in categorising online shoppers.

Kunz Kunz Kunz Kunz Kunz Kunz Kunz Kunz Kunz Kun Kunz Kunz Kunz Kunz Kunz (1997) According to a study he conducted on internet purchasing, client demographics have a major impact on buying inclinations. According to the conclusions of the study, men are more inclined to shop online, and those who aim to buy online are more likely to be young. People who reside in large metropolitan regions shop online less than those who live in suburban areas, according to the survey.

The impact of digital media on consumer purchasing behaviour was explored by Simarpreet et al. (2019). In recent decades, online technologies have altered the retail scene, and they will continue to do so in the future. This may be seen in customer surveys, which suggest that using internet tools makes shopping easier. Retail marketing is growing increasingly reliant on technical impacts as a result of price transparency, mobile alerts, and social message sharing. Questionnaires were used to collect data for the study.

Intention of this Research
The intention of this Research is;

1) To analyze the factors which are responsible for rise of E-Commerce because of technology

Research Methodology Practices Used
Pilot Study:
Pilot study was conducted through structured questionnaire from 62 respondents in salem. Cronbach alpha method was used to test the validity of the questionnaire. Overall the reliability of all the items of the Annexure was found to be 0.824.

Sampling:
In this study, 186 respondents were selected in the convenience sampling method. The respondents returned the filled questionnaire via google forms.

Data Analysis:
Data sources in this study are primary as well as secondary. Testing was done using GARRETT Ranking Method

ANALYSIS AND INTERPRETATION

Henry Garrett Ranking

Table 1 proportion Level with Value

Rank	proportion Level	Table Value
1	100(1-0.5)/5=10	76
2	100(2-0.5)/5=30	61
3	100(3-0.5)/5=50	50
4	100(4-0.5)/5=70	40
5	100(5-0.5)/5=90	25
Source: Garrett Ranking Table		

Table 1.2 Henry Garrett Ranking

To analyze the factors which are responsible for rise of E-Commerce because of technology

Particulars	1	2	3	4	5		Mean Score	Rank
	76	61	50	40	25			
People Mindset	38	26	61	41	2	186	49.20	**3**
	2888	1586	3000	1640	50	9164		
Advertisement	45	40	28	60	13	186	46.10	**4**
	3420	1040	1400	2400	325	8585		
Loyalty	61	39	27	36	23	186	55.80	**1**
	4636	2379	1350	1440	575	10380		
User Friendly	45	37	65	29	10	186	55.57	**2**
	3420	2257	3250	1160	250	10337		
Source: Data was collected via questionnaire (Google form) and computed through excel								

Results point out **Loyalty**is ranked to the first and **User Friendly** is ranked second

CONCLUSION
We live in a world where continuous technological development has become the norm. The increased application/use of technology has opened doors to a more opportunities that were beyond imagination, and its impact on consumer buying behaviour is amazing. Technology-driven solutions should be considered by any firm that wants to expand and compete in the market. Because consumer satisfaction is a top priority for

businesses, companies invest in technologies to better understand consumer buying behaviour.Thus we conclude that there was strong Impact of Technology Development on consumer buying behaviour on FMCG Products through E-commerce.

FUTURE SCOPE FOR FURTHER RESEARCH

In future studies, Increasing the number of variables and increasing the sample size for further research shall be done.

Few suggestions include

- Consumer perception towards Technology Development can be analysed
- Buying behaviour towards Luxury Products can be analysed

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A Study on Motivation and Impediment with Special Reference to Youth Green Entrepreneurs in Salem District, Tamil Nadu

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ABSTRACT
Green entrepreneurship is a modern concept of business activity which correspondents to the needed of firm for profitability and development taking into the account also the environment dimensions. In the present scenario the globe become the warming and energy crunch, sustainable eco-friendly business. It gives enormous opportunity for Youth Green Entrepreneurs by their innovative ideas by serving the society and environment. This research paper is going to study about the factors that influencing the green entrepreneur and the motivation factors affecting the green entrepreneur. This paper is about empirical research, and the primary data and sample are acquired from Youth Green Entrepreneurs. The survey's tools reveal that there is no link between the hurdles to starting a green business and the instruments employed in the survey. According to the research, the majority of green products' images do not appeal to customers, and awareness is poor. For the green entrepreneur, catching the market is also a challenge. The ethical justification for being a green entrepreneur does not meet the business's expectations. The fundamental reason for the marketing of green products is a lack of environmental knowledge. Investors are showing little interest in green businesses, and product development and commercial viability are taking longer than the time span set by venture capitalists. Green business has a difficult time gaining competitive advantages.

Keywords: Green entrepreneurship, motivation, Barriers, youth

1. INTRODUCTION

With a focus on recycling, natural preservation, and renewable energy implementation, green entrepreneur concepts try to conserve the environment while still making money. It is defined as a newly formed environmental services or manufacturing company that focuses on ordinary resources or likely conditions, such as eco-tourism, recycle, waste water management, or biodiversity. Recently, green entrepreneurs have been described as having a blend of green and moral goals; their motivations may not be entirely green, but rather a blend of green, moral, and social motivations. It's frequently difficult to tell them apart (as the concept of sustainability reflects).

2. REVIEW OF LITERATURE

Earlier studies concentrated on three core aspects of green entrepreneurship (Lenox and York, 2011). To begin, the amount of ecological deprivation prevented by green entrepreneurial activity is significantly less than that caused by social movements, governments, or established corporations

Mahalia von Wallenberg Pachaly, Mahalia von Wallenberg Pachaly, Mahalia von Wallenberg Pachaly, Mahalia von Wallenberg Pachaly, Mahalia von Wallenberg Pachaly, Mahalia von Wallenberg Pachaly, Mahalia von Wallenberg Pachaly, Mahalia von Wallenberg Pachaly, Mahalia von Wallenberg Pachaly, Mahalia von Wallenberg Pachaly, Mahalia von Wallenberg Pachaly, Mahalia von Wallenberg Pachaly, Mahalia von Wallenberg On the other hand, the studies investigate a diverse variety of policies and organisations and are frequently based on case studies, making comparisons impossible. Only a few empirical studies have been undertaken in the renewable energy market, and they are country-specific.

Sine and Lee (2009) conduct empirical study in the United States on the barriers to entry for green entrepreneurs in the wind energy business. They discovered that large-scale social movements had a beneficial effect on the creation of green entrepreneurial activities. Social movements transmit a diverse range of norms, values, and regulatory structures as a result of their outcomes. According to the literature review, while research in the renewable energy sector provides early, intriguing insights into the constraints and catalysts for green entrepreneurship, it falls short of providing policymakers with a deeper grasp of the critical concerns. In terms of barriers to green entrepreneurship,

According to Lenox and York (2011), additional research is necessary to gain a complete considerate of green entrepreneurship, including the motivations of green entrepreneurs, how conventional entrepreneurs impact opportunity perception, and how their passion and risk perception differ.

RESEARCH OBJECTIVES

1. To find the background profile of the respondents
2. To study the relationship between the factors considering the green entrepreneur motivation
3. To study the factors considering the green entrepreneur

Hypothesis:

H01= There is a significant relationship between the green entrepreneur and the motivating factors.

H02= There is a significant relationship between the green entrepreneur and the factors influencing the green business.

3. RESEARCH METHODOLOGY

This exploratory study makes use of both primary and secondary data. Responses from Young Green Entrepreneurs make up the primary data. Personal interviews with respondents are employed as part of the random sample procedure. Data was gathered in these areas while the researcher was residing there. It allowed the researcher to gather data from 60 young green entrepreneurs in total. Initially, survey questions were posed to determine whether these graduates would go into business for themselves. When the response is no, and they want to work instead, the sample was dropped from the very beginning. For the test, the data is finished at 60 samples.

SPSS was used to edit, codify, and analyze the data acquired.

4. DATA ANALYSIS AND INTERPRETATION

Table-1: General outline of respondents

		1. green entrepreneurship likeliness			
		Parents' Occupation	**YES**	**NO**	
			Count	Count	%
Educational Qualification	Engineering	entrepreneurship	16	0	53.33
		employment	7	0	23.33
		others	7	0	23.33
		Total	**30**	0	100
	MBA	entrepreneur	15	0	50
		employment	8	0	26.66
		others	7	0	23.33
		Total	**30**	0	100

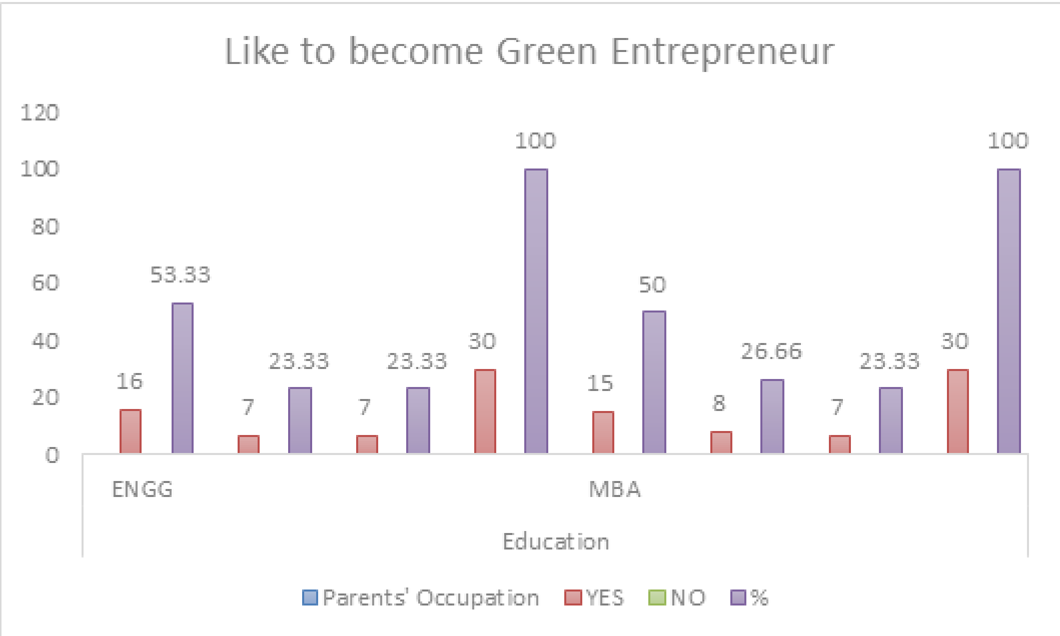

Table 1 summarises the respondents' demographic characteristics. Thirty engineering grads and thirty MBA graduates responded in total. 53% of engineering graduates whose parents are entrepreneurs and 23% of engineering graduates whose parents are employed are willing to start a green business, respectively, while 23.3 percent of engineering graduates whose parents are neither entrepreneurs nor employed are. 50% of MBA graduates come from entrepreneurial families, 26.6 percent come from employed families, and 23.33 percent come from other environmentally conscious families. Others were omitted from the list because only those who responded affirmatively to the inquiry were taken into account.

Henry Garrett Ranking

Table 1 proportion Level with Value

Rank	proportion Level	Table Value
1	100(1-0.5)/5=10	76
2	100(2-0.5)/5=30	61
3	100(3-0.5)/5=50	50
4	100(4-0.5)/5=70	40
5	100(5-0.5)/5=90	25
Source: Garrett Ranking Table		

Table 1.1 Henry Garrett Ranking

To study the relationship between the factors considering the green entrepreneur motivation

Particulars	1	2	3	4		Mean Score	Rank
	76	61	50	40			
I can develop my technical expertise innovatively	39	26	47	56	170	54.48	**4**
	2888	1586	2600	2080	9154		
Brand name of the product	40	37	29	64	170	55.18	**3**
	3420	1891	1400	2560	9271		
Green enterprise will be for its best deeds	61	31	19	59	170	57.08	**1**
	3952	2379	900	2360	9591		
ecological groups will always hold up and be acquainted with the green entrepreneurs	30	31	68	41	170	55.85	**2**
	2736	1708	3380	1560	9384		
Source: Data was collected via questionnaire (Google form) and computed through excel							

Results point out **Green enterprise will be for its best deeds** is ranked to the first and **ecological groups will always hold up and be acquainted with the green entrepreneurs** is ranked second

CONCLUSION

According to the findings of this survey, young people are becoming more interested in green business and green product marketing in the twenty-first century. It is critical to include, educate, and train graduates in the direction of entrepreneurship at the academic level. This study found that there are some elements that influence graduates' decision to become green entrepreneurs, and the perceptions of graduates were gathered using a structured questionnaire. The central tendency is used to test the hypothesis.

Companies have begun to emphasise the importance of green products and eco-friendly products in order to conserve the environment and protect the globe from global warming. According to the study, the majority of green products' images do not appeal to customers, and awareness is poor. For the green entrepreneur, catching the market is also a challenge. The ethical justification for being a green entrepreneur does not meet the business's expectations. The fundamental reason for the marketing of green products is a lack of environmental knowledge. Investors are showing little interest in green businesses, and product development and commercial viability are taking longer than the time span set by venture capitalists. Green business has a difficult time gaining a competitive advantage.

FUTURE SCOPE FOR FURTHER RESEARCH

Few suggestions include;

- Digital marketing of green products in the in the covid pandemic

- Customer satisfaction towards green plastic and bio degradable bags

DECLARATION OF CONFLICT OF INTERESTS

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How to Improve Immunity, Respiratory System, Stress, Depression Related Issues Due to Isolation and Interventions to Overcome Respiratory Disorders Like COPD ETC with Anicient Yogic Treatment

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ABSTRACT
In the wake of covid-19 outbreak entire globe is suffering. Therefore, enhancing the body's defence system (immunity) plays an important role in maintaining optimum health. But as we know that every physical mechanism has their own immune system it may be very good or might be very low in process. So, during this epidemic while we all are staying at home this is very important to maintain immunity that our body will become healthy and boost our body defence system to get effected by covid-19 related issues. I articulate some data related to Indian yoga therapy, that some certain asana sequence and pranayama (breathing exercises) practice will help us to maintain our physical and mental health while we are under quarantine at our home. These certain sequences are very much easy and beneficial to every person. In this full paper I showed various sequences that anyone can follow very easily. As we all know that for ages yoga has been used to cure health issues. Our saints used to perform some cultural asana like sun salutation and above mentioned asana to live long and disease free life by observing the law of nature. In this paper we will know how to "improve immunity" how to overcome by stress, anxiety and depression related issues due to isolation, uncertainty, disruptions in normal life etc.

Key Words: Pranayama, Anxiety, immunity

IMPROVING IMMUNITY
The immune system is the major defence mechanism in our body. That protects us from all kind of diseases, viruses and parasitic worms. Its main executrix to the blood cells (like NK- Natural cells and etc) and a fluid consisting of plasma etc. we know that there are two type of immunity- acquired and natural.

In the wake of covid-19 outbreak entire globe is suffering. Therefore, enhancing the body's defence system (immunity) plays an important role in maintaining optimum health. But as we know it is a sudden pandemic and every human body's immune system is not strong enough to defeat the viruses. All we know that there is no medicine for covid-19 as yet. Hence It is necessary to take steps that boost our immunity during isolation/self quarantine. Ancient India yogic culture gives us the yogic therapy and practices that can improve our immunity and prevents human body against these viruses.

Yoga therapy includes yoga asanas and pranayama which strengthens both kind of immunity – natural & acquired. In yoga therapy, there are certain yoga asana sequences that stretch specific organs of our body and block certain other parts which boost the blood circulation in that particular part and strengthen it. Regular practice of these recommended asanas and breathing exercises (pranayama) improves our immune system and gives us healthy life. Due to low immunity the body has high chances of infections, fatigue, fever and malignant disorders.

Practice of some sequence asanas and pranayama is very effective as both generate enormous energy in the body, stimulate our cells and relax tense muscles. It improves our immune system.

These sequences of recommended asanas can help to counter the low immunity and boost organs so that the immunity can be improve within a stipulated period of time.

We have 3 sequences of different asanas and anyone can practice these sequences. Which asana effect on which particular part it is also mentioned in detail.

How these asanas helps us to improv immunity is given below in detail:

FIRST SEQUENCE-:
1. **Setuband sarvaang asana-** it prevent arterial blockages, increases blood circulation to the arteries, improves digestion and strengthens the abdominal organs.
2. **Supt vajr asana** – Helps to reduce cardiac disorders, soothes acidity and stomach ulcers, stretches the abdomen and relieves the symptoms of asthma.

3. **Setuband sarvaang asana-** it prevent arterial blockages, increasing blood circulation to the arteries, improves digestion and strengthens the abdominal organs.
4. **Mountain pose –** calms the brain and gently stimulates the nerves. Slows down the heartbeat.
5. **Shashang asana** – it is a relaxing posture, tones the pelvic muscles, stimulates the abdomen organs, and massages the abdominal muscles.
6. **Hala asana** – Relieves fatigue and boosts energy, rejuvenates the abdominal organs and improves digestion.
7. **Sarvaang asana** – Improve the function of the thyroid and parathyroid glands, relieves from breathlessness and palpitations.
8. **Shava asana** – Soothes the nervous system and bring peace in mind. Relaxes the body and eases breathing.

2nd sequence

1. **Manduka asana** – Stimulates pancreas to produce insulin hormones, gives relief from unwanted gas and boost immunity.
2. **Matsyandera asana** – Cures stomach disorders, strengthens the abdominal organs.
3. **Uttan padh asana-** Cures stomach disorders, strengthens the abdominal organs.
4. **Nava asana** – Improve the function of digestion regulate pancreas, liver and lungs. Improves the blood circulation.
5. **Pawan mukt asana –** Strengthens abdominal muscles, massages the intestines, internal organs of digestive system and improving digestion.
6. **Shava asana -** Soothes the nervous system and bring peace in mind. Relax the body and eases breathing.

3rd sequence-:

1. **Skanda chalana** – Strengthens, lungs liver and spleen, cures respiratory troubles and circulates blood & cures heart.
2. **Sarvotaan asana** – Stretch the all cells and veins, circulate blood to all the organs and remove stiffness in the body.
3. **Agnisaar kriya** – Cure lungs disorders, massages the internal organs, increases blood flow, decelerates ageing process.
4. **Pag chalan** – Soothes spinal cord, boost digestion, cures the nervous system.
5. **Navi sanchallan 1,2&3** – Navel is the centre point of human mechanism, through this kriya, we place it in its main position. Because if any human body have navel displacement, it do negative effects on its whole body system like – bad digestion, food poisoning, constipation etc.
6. **Bal machlam** –Decrease stress and prevention disease. Soothes and improve whole digestive system. Reforms and renovates the body tissues.
7. **Shava asana** – relaxes the whole body calms the mind and improves mental health. Cures insomnia.

One should Practice these asanas sequences under the instructions of a yoga instructor. Unlike other forms of exercises, yoga results in the concentration of immunity cells in areas affected by disease and thus improve our immunity. Therefore, the ancient sages called yoga a therapeutic as well as a preventive science.

We should practice these three sequences for a minimum 45 minutes every day. The best time to practice is in the morning with empty stomach. The second best time to practice these is in early evening before sunset on empty stomach. There must be 3 hours gap between our meal and yoga practice. This is extremely important. After practicing asana, we need to practice some powerful breathing exercises (pranayama) and meditation. The ancient yogis advocates the practice of pranayama to link up the breathe with their mind. Prana means life energy and the ayama means to hold or to strengthen.

In pranayama the cells of the brain and the muscles remain soft during inhalation. Each molecular fibber and cell of the body is independently felt by the mind. In exhalation, the release of breath is gradual and this gives the air to cells has sufficient time to re-absorb the residual prana to the maximum possible extent. This allows for the full utilization of the energy. Thus building up, calming the mind, improving the immunity as well.

To improve the immunity following pranayama are recommended :

1. Kapalbhati 2. Anloum vilom 3. Humming bee sound 4. Udgeet pranayama 5. Simha kriya (by sadhguru isha)

During pranayama breathing, the brain is quiet and this allows the nervous system to function more effectively. Inhalation is the art of receiving energy into the body and exhalation is the removal of toxins from the body.

Practise of these yogic techniques will lead to improve immunity. It is not an overnight solution. We must know that Building our immunity is not going to happen overnight this must we know. Yes, these yoga techniques will increase our immunity in a short period of time but not overnight. It is therefore necessary that during covid-19 pandemic we should change our life style and food consumption habits too. There is no medicine till date that can immediately boost our immune system. So, with the help of this yogic treatment we can boost it up with in a period of time.

Improving respiratory system -:
Respiratory system is a series of organs responsible for taking in oxygen and expelling carbon dioxide. The primary organs of respiratory system are lungs which carry out this exchange of gasses. Respiratory disorders may caused by- infection, smoking tobacco, occupational hazards and different forms of air pollution etc. Due to this, human respiratory system is caught in various illnesses like COPD, chronic bronchitis, pleural effusion; covid-19 etc. one can improve one's respiratory system with the help of breathing exercises. For People with COPD it is hard to breath, but it is found that steam inhalation therapy leads to significantly lower heart rates and respiratory rate according to a small study. Practice of yoga asana can improve physical and mental health.

Yoga asana are particularly beneficial for all respiratory disorders if the recommended sequence is practised regularly. When in respiratory system breathlessness is noticed, this condition is also called "dyspnoea" which is caused by deficiencies in the elastic recoil of the lungs. Air is retained in the lungs, which then become distended. The diaphragm is squeezed and the efforts to breathe strain the chest. In this condition, we have to follow some asana sequence which can help to improve our self from this disorder. **Asana sequence should be follow by the practitioner –:** Tada asana, Sukha asana, Supt vajra asana, Setuband sarvaang asana, Parvat asana, Chandra asana, Ushtra asana, Hal asana, Sarvaang asana, Paschimotan asana, Shavasana.

Pranayama sequence follow by the practitioner-:
1. Bhastrika 2. Kapal bahtti 3. Anulom vilom 4. Agni saar 5. Surya bedhi 6. Chander bedhi

Stress, anxiety and depression related issues due to isolation, uncertainty, disruptions in normal life etc.
First we should know that the origins of stress, anxiety etc. During isolation or not only during this pandemic but otherwise in regular times, comes with the dominant emotions. Now during covid-19 as most are in self quarantine, it is natural that human mind is grasped by the fear as to what will happen to them due to this epidemic. Fear comes when we feel lonely, fear also come when we feel separated from the web of existence; fear is also experienced when we threatened. The threat could be psychological, physical or financial during isolation and this fear is a root cause of stress. Fear leads to stress, stress leads to anxiety, anxiety leads to depression related issues and all this leads to biological turbulence.

During isolation if someone suffers from depression that can leads to strain in the body causing nervous tension and adversely affecting the mind. To deal with these all problems people generally resolve to artificial solutions in order to cope with the pressure of their routine life. But these measures do not provide them with a permanent solutions, the root cause of stress still remains unresolved.

Yoga is not a miracle treatment that can free a person from all these problems. But it can help to minimize the worries of loneliness during isolation. Life depletes our reserve of bio energy, because we draw our own vital energy from nerve cells. This can ultimately exhaust our energy reserves and lead to the collapse of mental and physical equilibrium. In yogic science, we believe that the nerves controls the unconscious mind. When the nervous system is strong, a person faces even stressful situations positively. Yoga asana boosts blood flow to the cells of the body, revitalizing the nerve cells. This flow strengthens the nervous system and its capacity for enduring stress.

Practice of different yoga poses and pranayama helps to integrate the mind, body, breath and intellect. Asana practice brings serenity to the body cells that relaxes the facial muscles and releases all tensions from the organs of perception. When this happens the brain, which is constant communication with the organs of action becomes void and all thoughts are stilled. We entered the state of true clarity of intellect our mind is free from stress and is filled with calm and tranquillity. Unlike other forms of exercise, yoga keeps the nervous system elastic and capable of bearing stress. Daily practice of some asanas and pranayama is most effective in the natural treatment of stress. Sequence practice of asana and pranayama generate enormous energy in the body which stimulates our cells and relax our tense muscles. In yogic therapy the secretions of the hormonal system are believed to influence the mind and the nervous system. Following sequence of asana and pranayama, works on our endocrine glands and the sympathetic and central nervous system to pacify the nerve, reduce respiratory rate and calm a stressed body as well as mind.

Sequence of asana should be following -:

1. Parvat asana 6. Ushtraa asana 11. Manduka asana
2. Titali asana 7. Trikone asana 12. Navasana
3. Kon asana 8. Janu shirsha asana 13. Utitha pad asana
4. Paschimotaan 9. Sarvaangasan 14. Shava asana
5. Bhujang asana 10. Hal asana

Pranayama sequence should be following –:

1. Agnisaar 2. Anulom vilom 3.Kapal bhati 4. Simha kriya 5. Bramri 6. Udgeet

For ages yoga has been used to cure health issues. Our saints used to perform some cultural asana like sun salutation and above mentioned asana to live long and disease free life by observing the law of nature. Nowadays the whole world is facing an invisible disease named covid-19. So, we should also include yoga into our daily life routine under the guidelines of a certified yoga expert. The person who practice yoga regularly will not became a victim but a master of his or her circumstances and time. The yoga practitioner lives to love and serve the world. This is the essence of life. Peace within, peace in the individual, in the family unit, in society and in the world.

Note -: Above mentioned asanas are adopted by various ancient yoga books. All asana should be followed in recommended sequence and at appropriate time.

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A Study on Effective Gender Assortment towards the Worker's Endorsement in The Engineering College, Salem Disrtict Tamil Nadu

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ABSTRACT
The delivering of the employee assortment is the fact that every single individual is distinguishing, and on the topic of their inimitability could be like their race difference, gender difference, age difference, class difference and physical ability difference, along with sexual grouping and religious inclination. Gender assortment in more important in the field of professional teaching and this paper is highlighting the aspects of gender assortment consequences on the workers endorsement in the Engineering College located in Tamil Nadu and focus on one district Salem. In Salem District at the time of research there are 24 Engineering colleges with statically data of 2336 workers are in teaching and the sample taken for survey is 331 workers from all the categories. The survey collected by using Structured Questionnaire which is focus on gender assortment oriented. The descriptive research design is used for this research. To measure the hypothesis the researcher used the following tools like Correlation Analysis, independent T Test sampling. The output of this research paper shows that there is a important affinity between gender assortment and worker enactment in engineering college. The research work proves there is no important affinity lies in the gender assortment and workers endorsement.

Key Words: Gender Assortment, Endorsement, Effective

INTRODUCTION
Workers are assorted by various dimensions they are by age, gender, education qualification, religions, experience and income also one of the factor. The effective gender assortment depend on the workers endorsement while in the field of education assortment by gender varies by handling the students and the way of approach as big deal the way of teaching also differs. In the greater education even government have taken more steps to eliminate the assortment among the workers, by enormous training and development programme.

OBJECTIVES
To investigate the affinitybetween the gender Assortment and workers Endorsement in engineering colleges at Salem District.

possibility of the study

REVIEW OF LITERATURE
Gender Assortment

Sean Dwyer ET al (2003) examining the factor causing of gender assortment in management on firm's Endorsement. The study suggested that the gender assortment will be effect on the management levels which is tempered by the firm's strategic orientation path, the organizational culture which resides, in the multivariate interaction among these variables.

Ali Ahmadi ET al (2018) examined the affinity between the two aspects of the Duality Role of Chief Executive Officer (CEO) and the CEO tenure, on the board structures and gender Assortment have two activity on Endorsement in listed companies in CAC 40.

Almudena Barrientos Báez ET al (2018) explored the status of gender Assortment in corporate governance and its implications to corporate Endorsement and emotional intelligence.

Daniel Fox ET AL (2019) examined that there are gender disparity in the salaries of K-12 educators with others. This study reveals that an important part of the gender gap relay on the male educators with earning additional income outside of their primary teaching salary.

Trong Tuan Luu ET AL (2019) investigated how to do the assortment-oriented HR practices, that address about the gender assortment and on their value of employee Assortment contribution towards employee work engagement.

RESEARCH METHODOLOGY
The researcher used the research design of cross sectional research. The sample population is 2236 among which 331 sample size is chosen for the study. The research tools used for measuring the affinitybetween the

the gender assortment and worker endorsement are descriptive methods of mean and Standard Deviation to rank the factors and Independent T Test sample and Correlation analysis.

Possibility:
H1: There is a significant affinitybetween the gender Assortment and workers Endorsement in engineering colleges at Salem District.

H2: Gender have not equal means on effective workforce Assortment in the engineering colleges at Salem district.

DATA INTERPRETATION

Table 4.1: Gender of the Respondents

Gender	Frequency (f)	Percentage (%)
Male	168	50.8
Female	163	49.2
Total	331	100.0

CENTRAL TENDENCIES OF MEASUREMENT OF VARIABLES
The measurement of central tendencies was used to measure and fix the level of agreement of the respondents on each item of the variables, like gender Assortment, age Assortment, educational background Assortment, organizational tenure Assortment, work experience Assortment, religion Assortment and in their institution.

Table 4.14: Central tendencies measurement of construct of gender on Endorsement

Mean		Std. Deviation	
A1	The workers are not been discriminated by the employer while hiring and recruiting based on gender basis.	3.2840	1.19253
A2	There is a proper mix of males and females in the organization	3.0121	1.17028
A3	There are females in top management	2.8671	1.09842
A4	There is no gender bias during the Endorsement appraisal process. Increments and promotions are purely given on the merit basis.	2.9607	1.10986
A5	Male & female workers are treated in a fair & equal manner.	3.2659	0.98258
A6	I feel comfortable working with the opposite gender	3.6224	1.08124
A7	Working with opposite gender helps me increase my Endorsement	3.3172	1.02940
A8	Women's were involved in the organization's decision making as much as men.	3.2326	1.04314
A9	The organization's T&D program is developed to meet the criteria/requirement of the male and female.	3.1843	1.20070

Based on the findings in Table 4.14 above, the respondents agreed about the "The workers are not been discriminated by the employer while hiring and recruiting on gender basis" (Mean = 3.2840; STANDARD DEVIATION = 1.19253). Furthermore, the respondents agreed that "There is a proper mix of males and females in the organization" (Mean = 3.0121; STANDARD DEVIATION = 1.17028), "Male & female workers are treated in a fair & equal manner" (Mean = 3.2659; STANDARD DEVIATION = 0.98258), "I feel comfortable working with the opposite gender" (Mean = 3.6224; STANDARD DEVIATION = 1.08124), "Working with opposite gender helps me increase my Endorsement" (Mean = 3.3172; STANDARD DEVIATION = 1.02940), "Women are being involved in the organization's decision making as much as men" (Mean = 3.2326; STANDARD DEVIATION = 1.04314), and "The organization's T&D program is developed to meet the criteria/requirement of the male and female" (Mean = 3.1843; STANDARD DEVIATION = 1.20070).

On a different note, the respondents gave a neutral response on that "There are females in top management" (Mean = 2.8671; STANDARD DEVIATION = 1.09842). Furthermore, the respondents gave a neutral response on that "There is no gender bias during the Endorsement appraisal process. Increments and promotions are purely given on the merit basis" (Mean = 2.9607; STANDARD DEVIATION = 1.10986).

CORRELATION ANALYSIS
The statement of possibility is given below:

H0: There is no significant affinitybetween thegender Assortment and workers Endorsement in engineering colleges at Salem District.

H1: There is a significant affinitybetween the gender Assortment and workers Endorsement in engineering colleges at Salem District.

Table 4.21: Correlation of gender Assortment and workers Endorsement

Gender Assortment		Workers Endorsement	
Gender Assortment	Pearson Correlation	1	0.038
Sig. (2-tailed)		0.490	
Employee Endorsement	Pearson Correlation	0.038	1
Sig. (2-tailed)		0.490	

From the above table 4.21, it can be seen that the correlation coefficient (r) equals 0.038, indicating a positive correlation at the same time no significant affinitybetween the gender Assortment and workers Endorsement. Since p-value (0.490) > 0.05, we accept the null possibility. It was concluded that there is no important affinitybetween the gender Assortment and workers Endorsement

INDEPENDENT SAMPLE T TEST

Gender wise opinion of workers regarding the workforce Assortment in the engineering colleges.

H0: Gender have equal means on effective workforce Assortment in the engineering colleges at Salem district.

H1: Gender have not equal means on effective workforce Assortment in the engineering colleges at Salem district.

Table 4.22: Group Statistics for gender wise opinion of workers regarding the workforce Assortment in the engineering colleges

Workforce Assortment	Gender	N	Mean	Std. Deviation	Std. Error Mean
Gender Assortment	Male	168	3.1905	0.85438	0.06592
	Female	163	3.2515	0.83403	0.06533
Age Assortment	Male	168	3.7262	0.68081	0.05253
	Female	163	3.7301	0.67642	0.05298
Educational Background Assortment	Male	168	3.4583	0.69948	0.05397
	Female	163	3.3988	0.72470	0.05676
Organizational Tenure Assortment	Male	168	3.8690	0.67955	0.05243
	Female	163	3.7975	0.62023	0.04858
Work Experience Assortment	Male	168	3.9583	0.69519	0.05363
	Female	163	3.9877	0.67575	0.05293
Religion Assortment	Male	168	3.5893	0.91121	0.07030
	Female	163	3.6258	0.81715	0.06400

The table 4.22 shows that the sample sizes used for our t test are 168 (Male) and 163 (Female).

i. Male have an average ‘Gender Assortment’ score of 3.1905 whereas the female scores 3.2515.

ii. Male have an average ‘Age Assortment’ score of 3.7262 whereas the female scores 3.7301.

iii. Male have an average ‘Educational Background Assortment’ score of 3.4583 whereas the female scores 3.3988.

iv. Male have an average ‘Organizational Tenure Assortment’ score of 3.8690 whereas the female scores 3.7975.

v. Male have an average ‘Work Experience Assortment’ score of 3.9583 whereas the female scores 3.9877.

vi. Male have an average ‘Religion Assortment’ score of 3.5893 whereas the female scores 3.6258.

Table 4.23: Independent-Samples T Test for gender wise opinion of workers regarding the workforce Assortment in the engineering colleges

Workforce Assortment		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference	
									Lower	Upper
Gender Assortment	Equal variances assumed	0.010	0.920	-0.658	329	0.511	-0.06106	0.09284	-0.24369	0.12157
	Equal variances not assumed			-0.658	328.987	0.511	-0.06106	0.09280	-0.24362	0.12151
Age Assortment	Equal variances assumed	0.009	0.922	-0.052	329	0.959	-0.00387	0.07461	-0.15065	0.14291
	Equal variances not assumed			-0.052	328.813	0.959	-0.00387	0.07461	-0.15064	0.14289
Educational Background Assortment	Equal variances assumed	0.133	0.716	0.761	329	0.447	0.05956	0.07828	-0.09443	0.21355
	Equal variances not assumed			0.760	327.587	0.448	0.05956	0.07832	-0.09452	0.21364
Organizational Tenure Assortment	Equal variances assumed	0.736	0.392	0.999	329	0.319	0.07150	0.07157	-0.06930	0.21230
	Equal variances not assumed			1.000	327.784	0.318	0.07150	0.07148	-0.06911	0.21211
Work Experience Assortment	Equal variances assumed	0.614	0.434	-0.390	329	0.697	-0.02940	0.07539	-0.17770	0.11890
	Equal variances not assumed			-0.390	328.999	0.697	-0.02940	0.07535	-0.17763	0.11884
Religion Assortment	Equal variances assumed	3.338	0.069	-0.383	329	0.702	-0.03648	0.09523	-0.22382	0.15085
	Equal variances not assumed			-0.384	326.991	0.701	-0.03648	0.09507	-0.22351	0.15055

Table 4.23 explores that Independent-Samples T Test used for gender wise opinion of workers regarding the workforce Assortment in the engineering colleges.

i. Gender have equal means on 'Gender Assortment', because the mean 'Gender Assortment' scores did not differ, t (329) = -0.658, p = 0.511. The population means are equal that is the p-value (0.511) which is greater than the significance level of 0.05. Hence, the null possibility are recognized, there is relationship between the gender and gender assortment and the alternative possibility rejected.

ii. Gender have equal means on 'Age Assortment', because the mean 'Age Assortment' scores did not differ, t (329) = -0.052, p = 0.959. The population means are equal that is the p-value (0.959) which is greater than the significance level of 0.05. Thus, the null possibility are recognized that there is relationship between the gender and age assortment and the alternative possibility rejected.

iii. Gender have equal means on 'Educational Background Assortment', because the mean 'Educational Background Assortment' scores did not differ, t (329) = 0.761, p = 0.447. The population means are equal that is the p-value (0.447) which is greater than the significance level of 0.05. Therefore, the null possibility are recognized, that there is relationship between the gender and the educational background assortment and the alternative possibility rejected.

iv. Gender have equal means on 'Organizational Tenure Assortment', because the mean on 'Organizational Tenure Assortment' scores did not differ, t (329) = 0.999, p = 0.319. The population means are equal that is the p-value (0.319) which is greater than the significance level of 0.05. So, the null possibilityare recognized, that there is a relationship between the gender and the organization tenure assortment and the alternative possibility rejected.

v. Gender have equal means on 'Work Experience Assortment', because the mean 'Work Experience Assortment' scores did not differ, t (329) = -0.390, p = 0.697. The population means are equal that is the p-value (0.697) which is greater than the significance level of 0.05. Accordingly, the null possibility arerecognized, there is a relationship between the gender with work experience assortment and the alternative possibility rejected.

vi. Gender have equal means on 'Religion Assortment', because the mean 'Religion Assortment' scores did not differ, t (329) = -0.383, p = 0.702. The population means are equal that is the p-value (0.702) which is greater than the significance level of 0.05. Consequently, the null possibilityare recognized, there is a relationship between the the gender have relationship with religious assortment and the alternative possibility rejected.

Therefore, it is concluded that gender have equal means on effective workforce Assortment (Gender Assortment, Age Assortment, Educational Background Assortment, Organizational Tenure Assortment, Work Experience Assortment, and Religion Assortment) in the engineering colleges at Salem district since their p-values (0.511, 0.959, 0.447, 0.319, 0.697, and 0.702 irrespective) which are greater than the level of significance level of 0.05. Therefore, the null possibility are recognized, there are relationship between the the gender, age, educational background, organization tenure assortment , work experience and religious assortment and the workers enactment

Therefore, the null possibility are recognized and the alternative possibility rejected.

In state to comparing the samples means of marital status wise opinion of workers regarding the workforce Assortment in the engineering colleges at Salem district. The Independent-Samples T Test was conducted and results were given below.

FINDINGS AND SUGESSTION

To investigate the affinitybetween the gender Assortment and workers-endorsement in engineering colleges at Salem District.

i) With regard to 1st possibility (H_1), the result reveals that there is a positive correlation at the same time no significant affinitybetween the gender Assortment and workers Endorsement.

ii) Regarding 2ND possibility (H_7), the result indicates that gender have equal means on effective workforce Assortment (Gender Assortment, Age Assortment, Educational Background Assortment, Organizational Tenure Assortment, Work Experience Assortment, and Religion Assortment) in the engineering colleges at Salem district.

SUGGESTION

All genders ought to be treated in a reasonable and equivalent way. There ought to be no sexual orientation predisposition at the season of Endorsement evaluation or promotions.

Management of engineering colleges should keep on promoting equivalent career growth opportunities for all sex. To energize gender Assortment, managements should make adaptable working strategies that can assist female workers with managing their work and their own life (work-life balance) without conflicts. The management ought to likewise endeavor to screen their measurement by checking occasionally the rate of male and female in the organization, the rate of promotion for male and female and even the normal salary of the two sexes at each dimension in the organization. By doing this, they can make sure to see whether their strategies are supporting Assortment as far as contracting both male and female, advancement and maintenance.

CONCLUSION

The study on effective gender assortment towards the worker endorsement in engineering colleges, article is an eye opening for the gender assortment reflection in the endorsement of their work, the assortment based on the gender is the part of their endorsement, this can be rectify by the rational treatment of the male and female in the endorsement appraisal. This has to be started from the salary, responsibility distribution by promotions and the training which make them to balance their work and the own life without conflict. Compare to the male, female can be given leaves and extra privileges not the monetary benefits.

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Water Quality and Statistical Analaysis of Rampally Lake near Ecil, Hyderabad

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ABSTRACT

After the water samples were obtained, some physico-chemical and phytoplankton properties of the water were determined at the sampling location, physico-chemical properties such as Water Temperature, pH, Total Hardness, Calcium, Magnesium, Carbonates, Bicarbonates, Chlorides, Silicates, Sulphate, Nitrates, Nitrites, Phosphates, Organic Matter, Sodium, Potassium, BOD, COD, DO, TDS and TSS. Phytoplankton analysis of water was calculated in addition to these parameters in drinking water samples. All samples were transported in ice cartons to the lab for analysis. They were sampled and then analysed within a certain time frame. The anthropogenic activities such as disposal of sewage and industrial effluent, recreational activities, excess fertilization of land and the use of pesticides have threatened environmental health of surface water. Deterioration of water quality and the fast depletion of water resources is the main challenge which needs an immediate solution. Bio-monitoring is the use of biological organisms to assess the changes in the environment, which is generally due to anthropogenic activities. Biomonitoring is the most recent rising apparatus for moment and exact checking of water quality. It not just goes about as an enhancement to the physicochemical and bacteriological qualities, yet additionally gives valuable data about the general soundness of a water body.Temperature values between 20ºCto 39 ºC, pH 8to9.1, Total hardnessvalues 152 mg/Lto 240.45 mg/L, Calciumvalues 24.4 mg/Lto 54.6 mg/L, Magnesiumvalues 12.2 mg/Lto 58.2 mg/L, Carbonatesvalues 0 mg/Lto 95 mg/L, Bicarbonates values 149 mg/Lto 337.1 mg/L, Silicates values 0.13 mg/Lto 1.69 mg/L, Sulphatesvalues 12.0 mg/Lto 20.3 mg/L, Nitritevalues0.11 mg/Lto 1.83 mg/L, Nitrate values 0.10 mg/Lto 0.96 mg/L, Phosphates values 0.20 mg/Lto 1.8 mg/L, Organic mattervalues 13 mg/Lto 34.8 mg/L, Sodium values 49 mg/Lto 175 mg/L, Potassium values 1.2 mg/Lto 38 mg/L, BOD values 2.1 mg/L to 30 mg/L, COD values 45 mg/L to 290 mg/L, DO values 1.9 mg/L to 19.2 mg/L, TSS values from 198 mg/L to 650 mg/L and TDS values 3 mg/L to 371 mg/L.Chlorophyceae were most abundant making it the most abundant algae category at station-I (29700 no\L). During the two-year study period, Chlorophyceae multiplied at the greatest rate in the winter (68.01 %) and at the lowest rate in the summer (30.99 %) with a monthly average of 46.7 %.During the study period, it was discovered that Chlorophyceae were most abundant during the summer (47650 no\L) and least abundant during the winter (11737 no\L) and at station-II (23920 no\L). During the two-year study period, Chlorophyceae multiplied at the greatest rate in the winter (72.85%) and at the lowest rate in the summer (29.11 %) with a monthly average of 49.91 %.During the study period, it was discovered that Chlorophyceae were most abundant during the **Winter** (37512 noL) and least abundant during the summer (13750 noL).Bacillariophyceae were discovered as second most abunndant in this body of waterstation-I(**24696** no\L). During the two-year study period, Bacillariophyceae multiplied at the greatest rate in the summer (52.58%) and at the lowest rate in the winter (23.26 %) with a monthly average of 41.5%.During the study period, it was discovered that Bacillariophyceae were most abundant during the summer (31012 noL) and least abundant during theWinter (15600 noL) and at station-II(18395 no\L). During the two-year study period, Bacillariophyceae multiplied at the greatest rate in the summer (52.71%) and at the lowest rate in the winter (23.07%) with a monthly average of **37.88**%.During the study period, it was discovered that Bacillariophyceae were most abundant during the summer (26237 noL) and least abundant during theWinter (11737 noL).Cyanophycean, which accounted for 8.89 % of the total phytoplankton. If the monthly population is considered, cyanophyceae reached a maximum of 7150 noL(12.31 %) in summer and a minimum of 3037 noL(5.46%) in rainy at at station-ICompared to Station I, the quantitative characteristics of the Cyanophyceae are more evident in the station-II. For the investigation, **7.56** % of the entire phytoplankton population was discovered. According to the most recent available data, Cyanophyceae reached its maximum point of 6562 noL(12.90 %) in summer and its lowest point of 1562 noL in winter (3.16 %). The Euglenophyceae family of phytoplankton has been detected in Rampally Lake Station-I water for the first time (**1866**no/L). Maximum of 5.12% (3025no\L) during the summer season, and minimum of 1.18 % (487no\L)during the winter season, with a monthly average of 3.36% of the total phytoplankton population for the study period.Euglenophyceae community, the Euglenophyceae community was occupied on a monthly average of **3.83**% (1779no\L) at station-II. A bigger number of Euglenophyceans were detected in the summer season 5.38 % (2725 noL), a little

less in the rainy season 5.15 % (2125 noL), and very few in the winter season 1.52 % (875 noL) during the two-year study period.

Keywords: Water Quality, Statistical Analysis, APHA, Phytoplankton, Rampally Lake.

INTRODUCTION

Water is the gift that humanity has received. It's the spirit of the natural world, to be precise. A few of the numerous applications for water include drinking water, irrigation systems, angle production, mechanical cooling, and age management, to name a few examples. When it comes to the abiotic segment, water is unusual in that it can exist in three different states: solid, fluid, and vaporous. Water is also unique in that it can exist in three different states: solid, fluid, and vaporous. It is also used to spread a variety of inorganic and organic chemicals. 70% of the water on Earth's surface is found on continents, but 99 % of it is in the form of groundwater or ice, making it difficult to reach. Under 1 % of the total is used in beverage production, and the majority is not readily available for consumption. Because just 0.3 to 0.5 % of the world's total water resources can be used to produce crisp water, it is critical to use water wisely in this context. Water quality is worsening due to spontaneous urbanisation, rapid industrialisation, and the unpredictability of synthetic compounds, and marine life, particularly fish, is disappearing due to these factors. It isn't easy to comprehend the natural wonder's bio-system digestion and the hydrobiological Sinter reaction if one does not have a background in water science. Shakespeare's Hamlet is a classic example of dramatic irony (2006).

MATERIALS AND METHODS

Correlation between Physico-chemical parameters and Phytoplankton

SITE-I

Most of the Physico-chemical characteristics in the Site-I waters have a negative connection with the dominant group Chlorophyceae. There was a strong negative association between air temperature and water temperature but a strong positive link between DO and temperature. pH, Ca, CO3, HCO3, COD, BOD, and K had a moderately negative connection with Bacillariophyceae. It demonstrated a low degree negative association with NO3, but a low degree positive correlation with Mg, Cl, PO4, Organic matter, and Na.

Cyanophyceae likewise had a favourable link with the majority of the Site-I water's Physico-chemical parameters. It showed a strong positive correlation with sodium and a strong negative correlation with air temperature and chloride; a moderate positive correlation with free PO4, CO3, and K; a weak positive correlation with water temperature, pH, Ca, and HCO3; and no or negligible correlation with SiO2 and NO2.

The air temperature had a strong positive association with Euglenophyceae. It had a strong positive relationship with COD, CO3, and water temperature, but a weak negative relationship with DO and a moderately positive relationship with pH, Cl, PO4, Organic matter, BOD, Na, and K. On the other hand, it showed a low degree positive association with magnesium and a low degree negative correlation with nitrite and nitrate.

SITE-II

The dominant algal flora found in this Chlorophyceae had a strong positive correlation with DO but a strong negative correlation with air temperature, water temperature, and BOD; a moderately positive correlation with NO3 but a moderately negative correlation with pH, TH, Ca, Mg, CO3, Cl, Organic matter, COD, and Na. HCO3, PO3, and K all had a modest degree of negative connection with Bacillariophyceae.

Cyanophyceae had a strong positive correlation with atmospheric temperature, Mg, COD, BOD, Na, and TH, but a strong negative correlation with DO; a low degree positive correlation with pH, CO3, Cl, SiO2, PO4, and potassium; a moderate degree positive correlation with pH, DO.

Cyanophyceae and Euglenophyceae both showed an equivalent association with the Physico-chemical parameters in Site-II. Both had a strong positive relationship with air temperature, water temperature, COD, BOD, and NA, as well as a moderate positive relationship with pH, TH, Ca, CO3, and K. They both showed a weak positive connection with pH, TH, Ca, CO3, and K.

Cyanophyceae showed positive correlations with temperature, Mg, COD, BOD, Na and TH but negative correlations with DO. pH, CO3, Cl, SiO2, PO4 and Potassium show a low degree of positive correlation; water temperature, Calcium and Organic matter show a moderate degree of positive correlation.

Inorganic material demonstrated a somewhat positive association in Cyanophyceae, and a markedly positive correlation in Euglenophyceae showed a modest positive connection with chloride. An analogous correlation was seen in site II water for bacteria and fungi, as measured by Physico-chemical parameters. A substantial positive link was observed with air temperature, magnesium and COD; a moderately positive correlation was observed with NO3 and DO. Bacillariophyceae exhibited a moderately positive association with Ph, TH, Ca, CO3 and K. Cyanophyceae also showed a moderately positive correlation with K. A low degree of negative connection was seen with NO3 and a significant degree of positive correlation with DO for both compounds. In contrast, Cyanophyceae showed a high positive correlation. A low negative correlation was seen with NO3.

Physico-chemical parameters in Rampally lake at a station-I (December 2018- November 2020)

MONTH	WT	pH	T.H.	Ca^{2+}	Mg^{2+}	CO_3	HCO_3	Cl	SiO_2	SO_4	NO_2	NO_3	PO_4^{-3}	O.M.	Na	K	BOD	COD	DO	TDS	TSS
18-DEC	26	8.1	205	32.4	14.1	0	223	93	1.06	17.4	1.61	0.95	0.34	18	54	16	18	58	14.50	133	405
19-JAN	23	8.4	154	36.9	18.2	18	201	115.8	1.23	19.6	1.70	0.34	0.36	17	53	3	14	54	15.51	227	294
19-FEB	26	8.1	200	33.5	23.6	11	168.5	110.4	1.09	18.3	0.89	0.42	0.52	19	65.5	1.5	12	52	9.01	215	201
19-MAR	27.1	8.3	194	32.6	14.8	32	153.4	142.5	0.47	20.1	1.07	0.36	0.69	16	60	4.5	16	60	13.33	355	264
19-APR	34	8.1	292	34.8	53.1	35	305	134.2	0.18	20.3	0.12	0.10	0.35	22.5	119.5	10.5	3.6	290	11.9	360	650
19-MAY	38	8.3	285	51.3	54.5	25	310	144.3	0.13	19.2	0.13	0.10	0.46	26.9	142.5	13	4.0	270	8.0	371	520
19-JUN	33	8.2	355	66.2	58.2	70	315	151.3	0.34	13.2	0.18	0.13	0.41	34.5	148	13.5	3.8	260	11.8	120	440
19-JULY	39	8.8	338	53.1	43.2	70	335	157.7	0.55	18.3	0.6	0.10	0.57	34.8	121.5	17	2.4	150	19.2	124	330
19-AUG	25	8.3	246	40.1	45.1	50	247.5	110	0.33	18.2	0.76	0.14	0.34	33.5	95	14.5	2.9	110	8.8	189	251
19-SEP	28	8.4	266	54.1	38.0	45	277.5	147.6	0.62	17.9	0.88	0.15	0.19	22.7	96	13	2.3	100	8.2	236	200
19-OCT	21	8.4	248	41.3	27.5	0	292.5	101.5	0.31	16.2	0.48	0.15	0.33	25.6	90	13.5	2.1	123	10.2	251	202
19-NOV	20	9.0	269	41.6	40.6	10	290	112.4	0.30	15.3	0.37	0.27	0.22	27.1	99	13.5	3.6	156	10.8	161	621
19-DEC	39	9.1	275	38.7	41.2	0	272.5	130.6	0.25	14.2	0.84	0.24	0.20	21.3	95	15.5	3.2	141	9.3	154	582
20-JAN	33	7.2	284	24.4	13.3	25	275	149.1	0.27	13.1	0.41	0.25	0.29	27.1	103	16	3.7	120	9.7	196	498
20-FEB	31	8.0	346	29.6	50.9	10	207.5	151.2	0.30	12.0	0.58	0.28	0.23	25.9	107	11	3.0	121	8.5	175	365
20-MAR	24	8.6	265	26.6	47.5	45	280	123.5	0.46	12.8	1.12	0.94	0.32	21.1	126	5	2.1	198	8.8	152	220
20-APR	30	8.5	19	38.8	24	90	221.	180	0.41	18.2	0.11	0.11	1.3	18	50	6.5	12	45	11.24	246	356

			5																		
20-MAY	29.3	8.2	179	48.1	20.1	84	231	189.5	0.72	18.1	0.34	0.43	1.62	24	138	36	16	64	11.14	192	267
20-JUN	34	8.7	189	53.4	25.8	95	324	229	0.21	16.6	0.27	0.49	0.84	24	140	37	22	80	6.78	241	198
20-JULY	31.3	8.1	210	44.1	23.4	55	337.1	156.3	1.13	15.8	1.03	0.37	0.775	17	130	19	30	110	9.01	212	341
20-AUG	37.6	8.4	178	36.1	21.8	40	198	127.2	1.24	20	1.54	0.81	0.60	16	115	17	12	52	12.31	153	303
20-SEP	29.1	8.6	193	41.3	26.1	32	236	122.8	1.36	17.3	1.34	0.43	0.59	14	109	15	18	68	12.80	164	294
20-OCT	30.1	8.8	211	46.1	13.9	12	183	98.9	1.29	16.6	1.62	0.83	0.67	19	70	14	24	84	10.66	134	271
20-NOV	34	8	194	42.7	13.2	0	190.1	85.9	1.02	15.9	1.57	0.76	0.80	16	60	21	20	76	13.47	176	264
Average	30.36	8.35	240.45	41.15	31.33	35.58	253.06	136.02	0.63	16.85	0.81	0.38	0.54	22.54	99.45	14.43	10.44	118.41	11.04	205.70	347.37

CO3-:Carbonates, HCO3-: Bicarbonates, Cl: chlorides, DO: Dissolved Oxygen, BOD: Biological Oxygen demand, COD: Chemical Oxygen demand, O.M.: Organic matter, T.H.: Total Hardness, Ca+2:Calcium, Mg+2;Magnesium, SO4-2:Sulphates, PO4-3:phaspates, NO3-2:Nitrates, NO2-:Nitrite, TDS: Total Dissolved Solids, T,S,S: Total suspended Solids, Na+:Sodium, K+:Potassium, SiO2: Silicon dioxide

Physico-chemical parameters in rampally lake at station-II (December 2018- November 2020)

MONTH	W.T	pH	T.H.	Ca^{2+}	Mg^{2+}	CO_3	HCO_3	Cl	SiO_2	SO_4	NO_2	NO_3	PO_4^{-3}	O.M.	Na	K	BOD	COD	DO	TDS	TSS
18-DEC	27.4	8.2	202	35.4	15.1	4	227	90.4	1.05	18.1	1.41	0.96	0.42	19	56	12	3.7	141	9.3	154	582
19-JAN	29.6	8.7	160	39.9	16.2	16	200	118.8	1.07	15.8	1.60	0.39	0.42	16	53	31	3.6	120	9.7	196	498
19-FEB	28.1	8.1	209	36.5	25.6	13	164.5	113.4	1.2	16.2	0.82	0.48	0.66	17	65.6	1.2	3.5	121	8.5	175	365
19-MAR	32.5	8.4	187	31.6	17.8	33	151.4	146.5	0.5	15.1	1.07	0.39	0.79	18	60	4.2	3.7	198	8.8	152	220
19-APR	30	8.7	174	32.7	25	94	212	174	0.47	19.6	0.20	0.11	1.5	13	49	7.3	3.2	220	10.9	3	601
19-MAY	34	9.0	152	40.9	20.3	80	241	192	0.63	13.1	0.13	0.45	1.64	16	139	31	4.0	280	11.3	151	202
19-JUN	21	8.2	189	54.6	24.1	94	337	187	0.22	18.2	0.34	0.37	1.08	27	142	36	3.8	250	9.0	131	563
19-JULY	28	8.5	208	43.1	20.7	57	326	210	0.34	17.2	0.18	0.67	0.19	23	138	17	3.9	110	10.4	141	531

19-AUG	27	8.2	179	31.7	26.9	43	194	97	0.41	15.9	0.27	0.26	0.38	20	171	19	3.7	105	8.2	140	520
19-SEP	33	8.0	211	34.7	21.5	31	172	81	1.00	14.8	0.72	0.42	0.74	19	114	26	3.6	115	8.4	132	452
19-OCT	33	8.3	224	40.9	23.6	24	165	96	1.03	13.2	1.41	0.61	0.61	16	88	19	3.0	200	9.0	138	412
19-NOV	28	8.9	173	45.1	20.7	2	216	83.7	1.45	13.8	1.83	0.38	0.72	18	69	20	3.7	195	9.5	152	321
19-DEC	25	8.8	182	32.7	26.3	5	168	95	1.06	18.4	1.37	0.29	0.81	20	57	11	3.6	185	9.3	158	369
20-JAN	26	8.0	154	30.4	24.7	17	171	127	1.09	16.8	0.79	0.17	0.45	17	54	30	3.0	175	8.6	160	285
20-FEB	23	8.3	203	32.3	25.8	14	154	103.2	1.4	16.1	0.64	0.39	0.67	19	61	1.6	3.1	162	10.9	184	274
20-MAR	30	8.6	180	30.1	21.6	30	149	136	0.4	15.2	1.05	0.43	0.69	15	54	4.0	3.8	148	8.0	174	260
20-APR	30	8.1	186	36.8	27	93	224	182	0.51	19.2	0.13	0.17	1.8	19	51	6.6	3.5	290	11.9	132	650
20-MAY	27.2	8.6	164	42.1	23.1	86	230	187.5	0.62	13.6	0.24	0.47	1.72	29	148	38	3.2	270	8.0	371	520
20-JUN	34	8.4	197	51.4	26.8	92	321	228	0.21	18.6	0.17	0.49	0.86	28	141	33	4.0	260	11.8	120	440
20-JULY	28.3	8.4	214	48.1	26.4	54	335.1	153.3	1.43	16.2	1.05	0.42	0.88	18	132	15	4.4	150	9.2	124	330
20-AUG	35.6	8.8	187	34.1	22.8	41	196	125.2	1.34	15.1	1.34	0.86	0.70	19	175	16	3.9	110	8.8	189	251
20-SEP	27.1	8.3	183	43.3	24.1	36	232	123.8	1.56	14.3	1.24	0.52	0.69	15	108	14	3.8	100	8.2	236	200
20-OCT	31.1	8.7	215	45.1	16.9	14	181	94.9	1.69	13.1	1.42	0.83	0.76	20	76	13	4.6	123	10.2	251	202
20-NOV	33.7	8.0	199	46.7	12.2	1	194.1	87.5	1.0	12.8	1.36	0.77	0.88	18	66	25	4.1	156	10.8	161	621
Average	29.27	8.42	188.83	39.17	22.3	40.58	215.04	134.71	0.9033	15.85	0.86	0.47	0.83	19.12	94.48	17.95	3.68	174.33	9.52	163.52	402.87

CO3-:Carbonates, HCO3-: Bicarbonates, Cl: chlorides, DO: Dissolved Oxygen, BOD: Biological Oxygen demand, COD: Chemical Oxygen demand, O.M.: Organic matter, T.H.: Total Hardness, Ca+2:Calcium, Mg+2;Magnesium, SO4-2:Sulphates, PO4-3:phaspates, NO3-2:Nitrates, NO2-:Nitrite, TDS: Total Dissolved Solids, T,S,S: Total suspended Solids, Na+:Sodium, K+:Potassium, SiO2: Silicon dioxide

Correlation between Physico-chemical Parameters & Phytoplankton at Station-I

	Ch	Ba	Cy	E
W.H	-0.69	0.77	0.28	0.74
Ph	-0.46	0.77	0.22	0.45
T.H.	-0.10	0.00	0.01	0.12
Ca2+	-0.57	0.75	0.30	0.76
Mg2+	-0.31	0.07	0.17	0.32
CO3	-0.57	0.55	0.60	0.71
HCO3	-0.49	0.44	0.36	0.56
Cl	-0.33	0.28	0.77	0.43
SiO2	0.09	0.14	-0.12	-0.01
So4	-0.10	0.00	0.01	0.12
NO2	0.06	-0.06	-0.08	-0.21
NO3	0.32	-0.31	0.11	-0.36
PO4-3	-0.39	0.40	0.55	0.42
O.M.	-0.21	0.41	0.05	0.42
Na	-0.29	0.15	0.82	0.42
K	-0.48	0.43	0.44	0.47
BOD	-0.54	0.59	0.03	0.59
COD	-0.51	0.62	0.13	0.63
DO	0.65	-0.47	-0.29	-0.65
TDS	-0.48	0.44	0.36	0.56
TSS	-0.33	0.28	0.77	0.43

Correlation between Physico-chemical Parameters & Phytoplankton at Station-II

	Ch	Ba	Cy	E
WT	-0.68	0.59	0.68	0.72
Ph	-0.43	0.34	0.49	0.51
T.H.	-0.46	0.68	0.50	0.50
Ca2+	-0.60	0.48	0.46	0.44
Mg2+	-0.60	0.62	0.68	0.67
CO3	-0.25	0.36	0.33	0.15
HCO3	-0.49	0.25	0.53	0.51
Cl	-0.44	0.39	0.53	0.32
SiO2	-0.01	0.34	0.18	0.14
So4	-0.25	-0.44	0.53	0.32
NO2	0.05	0.12	0.04	-0.04
NO3	0.41	-0.17	-0.32	-0.36
PO4-3	-0.26	0.31	0.29	0.07
O.M.	-0.60	0.42	0.48	0.62
Na	-0.56	0.68	0.65	0.56
K	-0.35	0.35	0.54	0.47
BOD	-0.61	0.69	0.65	0.66
COD	-0.58	0.72	0.64	0.63
DO	0.73	-0.61	-0.49	-0.59
TDS	0.05	0.12	0.04	-0.04
TSS	-0.60	0.42	0.48	0.62

DISCUSSION ON TABLES

Although the weather conditions at both sites were equal, the flora species composition and the population's density were significantly different. The fact that freshwater biology and chemistry are so closely coupled means that one has a significant impact on the other, resulting in many feedback loops. Among these, the difference in chemical composition between the two stations, as measured by the average concentrations of HCO3, NO3, PO4, DO, COD, BOD, and organic matter, among other things, could be the most significant.

The existence and abundance of phytoplankton are significantly influenced by the temperature of the water (Nazneen, 1980). According to Chakravarthy, Roy, and Singh, summers were the most productive algal development (1959). Similar discoveries were obtained in the current study at both stations of Rampally Lake, where the summers were the most productive for algal growth and multiplication.

pH range of 8.5 to 9.5 is optimal for phytoplankton growth, and this was proven to be accurate in the current study. Based on their findings, Verma and Mohanty (1995) found a direct link between pH and phytoplankton abundance.

PHYTOPLANKTON PARAMETERS

Total four classes of algae were identified viz., Chlorophyceae, Bacillariophyceae and Cyanophyceae, Euglenophyceae. Members of chlorophyceae dominated among the remaining three classes. The percent composition of different groups of algae and their sequence are as follows:

Chlorophyceae>Bacillariophyceae>Cyanophyceae>Euglenophyceae

1. CHLOROPHYCEAE

Chlorophyceae were most abundant making it the most abundant algae category. According to Cairns (1956), high light and high temperatures are conducive to algae growth. The present investigation indicated that the Cyanophyceae were the most abundant in the summer months, with an average of 31012 and 26237 nos/L at Station-I and Station-II, respectively, when water temperatures were high. This conclusion is consistent with the previous findings.

Species of the orders Volvocales, Chlorococcales, and Zygnematales(desmids) were the most abundant in the Cyanophyceae during the research period, while species of the orders Ulothrichales, Tetrasporales, and Cladophorales were rather rare.

a. VOLVOCALES

When it came to occurrence and density, the Volvocales were one of the least influential groups of Phytoplankton at the two stations under investigation, with a mean of 0.1 and a standard deviation of 0.01. This group was dominated by the unicellular taxa Chlamydomonas, Gloeocystis, Pandorina, and Phacotus, which were all present in significant numbers.

When it came to both lakes, the Chlamydomonas species was consistently present throughout the year, although they were particularly prevalent during seasons of heavy rainfall, rising temperatures, and increased sunlight. In line with the conclusions of Rao (1953), Philipose (1960), Gonzalves and Joshi (2001), and others (1946). Pandorina species have arisen intermittently in the past few weeks and then vanished after surviving for a few weeks in periods of short durations of rain, clear skies, and well-aerated circumstances.

During the current investigation, a high rate of Volvocales multiplication was observed during the monsoon season. As Iyengar (1993) and Philipose (1960) described, rainwater pools are preferred habitats for the growth of Volvocales, which is consistent with the findings of the two studies mentioned above. The explanation for the low representation of Volvocales throughout the summer months could have been owing to the constant blooms of Microcystis, which harms Volvocales. A similar tendency was discovered by Seenayya (1968) and Swarnalatha (1969) in their research (1990).

When the concentrations of DO and pH were high, GloeocystisGigas and Phacotus lenticularis were identified in both water bodies. It's possible that these circumstances contributed to the development of these species. Iyengar (1993), for example, concluded that Volvocales thrive in environments with higher aeration conditions and a decrease in the intensity of light. Mary Cynthia (1980) and GnanaSudha (1990) made observations that were similar to ours (1998). In agreement with the previous observations, the current investigation was conducted.

b. CHLOROCOCCALES

A larger presence and greater bulk among the Cyanophyceae is found in the Chlorococcalian flora of lakes compared to Volvocales and Zynematales. In contrast, the Volvocales and Zynematales have a weaker presence and a smaller mass amongst the Cyanophyceae (desmids). The frequency and diversity of Chlorococcales in lake waters and the impact of water quality measures in regulating them are all being investigated in this project. In addition to the work of Philipose(1960) and Rao (1967), Sudhakar (1989), Hegde (1986), Misra and colleagues (2002-2005), Kumawat and Jawale (2003), and Jena and colleagues (2006-2011), (2007).

Chlorococcales continued in high concentrations throughout the year. It reached its optimal levels during the summer months when the temperatures were high. Consequently, it appears that the proliferation of Chlorococcales is influenced by water temperature to a certain degree. When high water temperatures are present throughout the summer months, researchers such as Rao, Singh, Zafar, Munawar, Swarnalatha, Mary Cynthia (1980), and BeataMessyasz and Annie Sheron have observed an increase in the number of Chlorococcales.

Satyamohan (1987) discovered that the pH of the water and the density of the Chlorococcales population followed a pattern that was strongly tied to the amount of calcium in the environment. In this investigation, a positive relationship was found between Chlorococcales and pH, with the pH of both lakes ranging from 8.0 to 8.7 at Station-I and Station-II, respectively. According to early studies such as Gonzalves and Joshi, the pH of water directly impacts the dispersion of chlorococcalean compounds (1946). Because of this, the present conclusions are backed up by the available data.

According to Seenayya (1971), high bicarbonate concentrations promoted the growth of Chlorococcales, and there was a direct relationship between oxidizable organic matter and phosphorus. Seasonal highs in bicarbonates and organic matter were recorded in Station-I and Station-II, respectively, with averages of 298.12 mg/L and 25.19 mg/L and 24.45 mg/L in Station-I and II, respectively. As a result, during the study period, it was discovered that the Chlorococcales population was particularly dense during the summer months. These findings support the observations that were presented previously.

According to Sulabha and Prakasam (2006), higher concentrations of phosphate increase the abundance of the Chlorococcales bacteria. They asserted that water bodies that absorb domestic sewage are more likely to have Chlorococcalean populations, which was found to be true in this study and previous research. It has been established by Sukumaran (2002) that the Chlorococcales have no association with DO. Chlorococcales can flourish in the current study because DO levels vary from 3.4 to 15.5 mg/L in Station-I and 5.3 to 14.7 mg/L in Station-II, respectively, allowing them to flourish. By Singh(1960)and Munawar's(1970) investigations from the 1960s, these findings have been confirmed (1970).

In the opinion of Munawar (1970), magnesium is one of the variables that regulate the dispersion of the Chlorococccales bacterium. The Chlorococcales, according to him, flourish in water with magnesium concentrations ranging from 20 mg/L to 60 mg/L. During the current experiment, magnesium concentrations ranged from 13.2-58.2 mg/L in Station-I and 12.0-58.2 mg/L in Station-II. All summer long, the levels of magnesium in the lakes reached their maximum levels. This lends credence to the presence of Chlorococcales in the current study's data. According to the current research findings, these organisms require a high temperature and well-oxygenated alkaline water with many organic matter levels, phosphate, and magnesium to survive and thrive.

The pH of the water appears to be another element in regulating desmid population growth. According to Zafar, an alkaline pH encourages desmid abundance (1967). It was discovered that both places had consistent alkaline pH levels throughout the investigation period (8.0-8.7). Desmids were found in lower concentrations in Station-I water than they were in Station-II water in this experiment. A similar set of findings was published by Moss and Swarnalatha (1967) and Narsingarao (1967), (1994).

According to Zafar (1967), A desmid population deficit is caused by the calcium enrichment of drinking water. The current experiment's desmid population was higher because Station-II's lower calcium content (30.22 mg/L) than Station-I (42.30 mg/L). Some researchers, including Muralidhar et al. (2002), Banakar (2006), and Annie Sheron (2002), have made similar observations (2009).

According to Rosenberg (1939) and Zafar (2002), desmids can be found in rivers with low amounts of nitrates and phosphate, among other conditions (1964). In Station-I, where nitrate and phosphorus concentrations are higher, a poor desmid population is observed. Still, a diverse desmid population is observed in Station-II, where nitrate and phosphorus concentrations are lower. Gupta, Roy, and Arvind Kumar have all made observations comparable to Gupta's (2003).

When Verma and colleagues (1998) discovered that different amounts of calcium and magnesium were present in different algae, they speculated that this may have triggered reproduction. Calcium is essential for both the breakdown and the production of cell walls. The Ulotrichales, Tetrasporales, and Cladophorales were discovered in Station-I when the concentrations of bicarbonates, chlorides, and calcium were high. The highest number of Chlorococcalean members was detected in both lakes, but the smallest number was found in these three orders in both lakes. Lila Francis (2001) discovered the same issue while conducting the study in the Kerala lakes.

Taking all of this into consideration, we may conclude that high temperatures, intense sunlight, a modest alkaline pH, as well as low concentrations of calcium, nitrate, and phosphate appear to favour the abundance of desmids in general. When placed in a polluted water body, desmids did not flourish.

2. BACILLARIOPHYCEAE

This study has been made possible by the contributions of several scholars. It was discovered by Hancock (1973), Kant and Kachroo (1974), as well as by Gupta et al. (2002) that the temperature of the water influences the periodicity of diatoms (2003). The Bacillariophycean population was abundant during the months, demonstrating that temperature is beneficial with the Bacillariophycean population. This could be due to diatoms' ability to withstand higher temperature ranges while allowing for optimal development. Nonetheless, in the current experiment at Station-I, it is extremely beneficial to their development. As previously reported by Banakar et al. (2006), the diatom population was numerous, consistent with their findings.

The pH of the water affects the diatom population. The pH of the water, according to Singh and Swarup (1979), Desai (1987), Vaishya and Adoni (1992), Pulla Reddy (2004), and Annie Sheron (2009), stimulates the growth of diatom populations. It was discovered that both of the lakes in this study are alkaline (ranging from 8.0 to 8.7) and had a large population of diatoms.

The presence of dissolved oxygen controls the formation and growth of diatoms. Station-I had a slightly higher average quantity of DO (10.34 mg/L) than Station-II (9.76 mg/L) and a little larger diatom population (8.5 %) than Station-II. Station-I also had a slightly higher average quantity of DO (10.34 mg/L) than Station-II (9.76 mg/L) (8.1 %). This demonstrates that higher concentrations of DO encourage the growth of luxuriant diatoms. Researchers Manikyareddy (1984), Venkateshwarlu et al. (1987), and Banakar (1990) have all looked into diatoms and the DO component, as well (2006).

Nitrates were thought to be a controlling factor in diatom formation by Patrick (1948), Sampath Kumar (1977), and Sudhakar et al. (1991). This analysis discovered a beneficial relationship between these two parameters at both of these locations, which verifies the conclusions of the prior investigation.

According to Harish (2002) and Dodds (2003), phosphate-rich waters increase the abundance of diatoms in the environment. Phosphates were discovered to be a critical factor in the current experiment since Station-I waters with higher concentrations of diatoms demonstrated a positive relationship with phosphates.

In contrast to Munawar (1974), who discovered a direct relationship between silicate content and diatom density, Zafar (1967) argued that calcium, as one of the necessary components, influences Cyanophyceae dispersion in the environment. However, although the calcium and silicate concentrations in Station-I (4.23 and 0.64 mg) were slightly higher than those found in the lotus pond (30.2 and 0.59 MCL) in the current study, Station-I had a slightly higher diatom population (121900 no/l). In contrast, Station-II had a slightly lower diatom population (91800 no/l). This shows that the quantities of calcium and silicate in these bodies of water are not the only factors impacting the diatom community in these bodies of water. Muralidhar and colleagues, for example, shared a similar point of view (2002).

Philipose (1960) discovered that Cyclotella, Navicula, Gomphonema, and Nitzschia reproduced effectively in waterways containing high levels of chlorides, which he attributed to pollution caused by animals. In addition to a high concentration of chlorides (137.05 mg/L), the waters of Station-I include a high concentration of Cyclotella, Navicula, and other Cyclotella species. Compared to the chloride concentration in Station-II (88.14 mg/L), Gomphonema and Nitzschia flourished in Station-I, showing that the water quality was superior.

3. CYANOPHYCEAE

In the current analysis, Cyanophyceans were shown to have a distinct periodicity in both stations, which was confirmed. They are a quantitatively rich and dominant group in the total phytoplankton population at Stations I and II, where they account for a large proportion of the total.

According to Ganapthi (1957), blue-green algae development is dependent on the ability of lakes to hold low dissolved oxygen concentrations for an extended time. The ability to produce oxygen, as detailed by Rao (1953), Swarnalatha (1990), and GnanaSudha (1990), demonstrates their ability to survive in the environment (1998). According to the current study, when blue-green algae were present, the oxygen concentration in the water increased to 15.7 mg/L in station-I and 14.7 mg/L in station II.

The relevance of phosphates and nitrates in the ecology of Cyanophyceans has been emphasised by some researchers, including Prescott (1962), Rhee & Gotham (1980), Heaney et al. (1983), and Banagar et al. (2008). A relationship was discovered between Cyanophycean multiplication and low Nitrate and Phosphates levels, according to the researchers. One of the criteria that influence the proliferation of Cyanobacteria over other algae in a freshwater environment, according to Rhee and Gotham (1980), is a Nitrate and Phosphate value of less than 5. In the current investigation, the nitrate and phosphorus concentrations were (1.16 and 1.39 mg/L) in Station-I and (1.00 and 1.25 mg/L) in Station-II, respectively. This shows that hard water is beneficial to the growth of blue-green plants because it promotes their luxuriant growth.

The findings of the current study provide credence to this assertion. Because of blue-green algae in Station I, the algal variety was less diverse than in Station II. Although there is a lot of phytoplankton, it is not particularly diversified.

4. EUGLENOPHYCEAE

High phosphate, nitrate, and low DO were found to promote Euglenoids' growth by Munawar (1974), Puttaiah and Somashekar (1987), and the current study's findings that both lake stations contain high nutrient levels that promote Euglenoids' maximum growth are corroborated by the findings of the current study, which found that both lake stations contain high nutrient levels that promote Euglenoids' maximum growth. The maximum population of Euglenoids was observed during the summer months, while the lowest number was observed during the winter months.

It has been discovered that high temperatures are critical in regulating the proliferation of Euglenoids in the environment. According to Seenayya (1971), Hegde&Bharati (1986), Gupta et al. (2003), and Annie Sheron (2003), water temperatures above 30° but below 35°C are particularly conducive to the luxuriant growth of Euglenophyceae. Hegde&Bharati (1986), Gupta et al. (2003), and Annie Sheron (2003) agree that water temperatures are above 30° but below 35° (2009). A similar observation was discovered during the current inquiry. The development of these flagellates was discovered to occur during the summer season in both bodies of water.

Applied to the current investigation, both study lakes encountered a wide range of temperatures (31.2°C to 43.6°C). Still, only Station-I exhibited a dense population of Euglenophyceae with mixed blooms that remained for an extended time. This shows that temperature isn't the only factor influencing the dispersion of Euglenophyceae; other elements such as organic matter, BOD, and PO4 are also thought to play a role in this process. This is backed by the findings of Chowdury and Mamun (2006), Suresh (2007), and Annie Sheron's research (2009).

In addition to the Physico-chemical features that generated the periodicity of Euglenoids in these lakes, there were significant biological interactions that played a role. According to Kumar et al., the compatibility of Euglenoids with Cyanophyceans has been established (1974). Blue-green algae, on the other hand, are compatible with them, whereas Cyanophyceae are not. This was demonstrated at Station-I, where the Euglenophyceae peaks coincided with a blue-green residence.

CONCLUSION

In the current study, the physico-chemical properties and phytoplankton of the Rampally lake from the sampling sites selected were analyzed. The following parameters have been determined by the samples Temperature values between 20ºC to 39 ºC, pH 8 to 9.1, Total hardness values 152 mg/L to 240.45 mg/L, Calciumvalues 24.4 mg/L to 54.6 mg/L, Magnesiumvalues 12.2 mg/L to 58.2 mg/L, Carbonatesvalues 0 mg/L to 95 mg/L, Bicarbonates values 149 mg/L to 337.1 mg/L, Silicates values 0.13 mg/L to 1.69 mg/L, Sulphatesvalues 12.0 mg/L to 20.3 mg/L, Nitritevalues0.11 mg/L to 1.83 mg/L, Nitrate values 0.10 mg/L to 0.96 mg/L, Phosphates values 0.20 mg/L to 1.8 mg/L, Organic mattervalues 13 mg/L to 34.8 mg/L, Sodium values 49 mg/L to 175 mg/L, Potassium values 1.2 mg/L to 38 mg/L, BOD values 2.1 mg/L to 30 mg/L, COD values 45 mg/L to 290 mg/L, DO values 1.9 mg/L to 19.2 mg/L, TSS values from 198 mg/L to 650 mg/L and TDS values 3 mg/L to 371 mg/L. Chlorophyceae were most abundant making it the most abundant algae category at station-I (29700 no\L). During the two-year study period, Chlorophyceae multiplied at the greatest rate in the winter (68.01 %) and at the lowest rate in the summer (30.99 %) with a monthly average of 46.7 %. During the study period, it was discovered that Chlorophyceae were most abundant during the summer (47650 no\L) and least abundant during the winter (11737 no\L) and at station-II (23920 no\L). During the two-year study period, Chlorophyceae multiplied at the greatest rate in the winter (72.85 %) and at the lowest rate in the summer (29.11 %) with a monthly average of 49.91 %. During the study period, it was discovered that Chlorophyceae were most abundant during the **Winter** (37512 noL) and least abundant during the summer (13750 noL).

Bacillariophyceae were discovered as second most abunndant in this body of water station-I (**24696** no\L). During the two-year study period, Bacillariophyceae multiplied at the greatest rate in the summer (52.58%) and at the lowest rate in the winter (23.26 %) with a monthly average of 41.5 %. During the study period, it was discovered that Bacillariophyceae were most abundant during the summer (31012 noL) and least abundant during the Winter (15600 noL) and at station-II (18395 no\L). During the two-year study period, Bacillariophyceae multiplied at the greatest rate in the summer (52.71%) and at the lowest rate in the winter (23.07 %) with a monthly average of **37.88** %. During the study period, it was discovered that Bacillariophyceae were most abundant during the summer (26237 noL) and least abundant during the Winter (11737 noL). Cyanophycean, which accounted for 8.89 % of the total phytoplankton. If the monthly population is considered, cyanophyceae reached a maximum of 7150 noL(12.31 %) in summer and a minimum of 3037 noL(5.46 %) in rainy at at station-I Compared to Station I, the quantitative characteristics of the Cyanophyceae are more evident in the station-II. For the investigation, **7.56** % of the entire phytoplankton population was discovered. According to the most recent available data, Cyanophyceae reached its maximum point of 6562 noL (12.90 %) in summer and its lowest point of 1562 noL in winter (3.16 %). The Euglenophyceae family of phytoplankton has been detected in Rampally Lake Station-I water for the first time (**1866** no/L). Maximum of 5.12 % (3025 no\L) during the summer season, and minimum of 1.18 % (487 no\L) during the winter season, with a monthly average of 3.36% of the total phytoplankton population for the study period.Euglenophyceae community, the Euglenophyceae community was occupied on a monthly average of **3.83** % (1779 no\L) at station-II. A bigger number of Euglenophyceans were detected in the summer season 5.38 % (2725 noL), a little less in the rainy season 5.15 % (2125 noL), and very few in the winter season 1.52 % (875 noL) during the two-year study period.

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A Comparative Study of Public Sector Bank and Private Sector Bank's Advances and NPA Management

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ABSTRACT
In spite of the pandemic during 2020-21, scheduled commercial banks reported improvement in asset quality. Recovery in large default cases through insolvency and bankruptcy code resulted bolster effect in bank's asset position. For improve the financial health in the banking system, it is necessary to get control on Bank's nonperforming assets. Banks played a useful role in mobilizing the savings of the common people from urban and rural area of India. Merger of public sector banks was also a step towards developing good and strong banks. Public sector bank drive various initiative of RBI and government which help social purpose to sub serve national priorities and objectives in the interest of the weaker sections of the society. The public sector banks criticize on the grounds of operational efficiency, profitability and managing of net performing assets. On the counter Private sector banks proven efficacy in operational efficiency, profitability and managing of net performing assets. An attempt is made in this paper to understand NPA position, the status and trend of loans and advances of public sector and private sector banks.

Keywords: Advances, NPA management, COVID 19, Lockdown

1. INTRODUCTION
Reserve bank of India and Government has taken various policy measures to overcome from this pandemic effects. Because of this pro active policy measures, Indian banking system was less affected in this global pandemic. COVID -19 has taught important lessons for the management system in general and for banking system in particular. Profitability, implement new digital environment, entry of new small finance banks and payments banks, implement financial inclusion and most important management of Non-performing assets are key challenges before the management of the banks.

The Non-Performing asset hit banks in several ways. Not only banks lose income on these advances, but they have also to incur heavy recurring expenditure to maintain them in their books. Banks have to ensure adequate capital, maintain reserve requirements, pay interest on deposits, incur legal and other miscellaneous expenses, make provisions on loan losses. All these costs are finally passed on to the Government, which is forced to bail out the banks through its budgetary provisions. This means that ultimately the tax payers bear the cost of Non-Performing assets for no fault of theirs.

Bank's credit policy is key determinant for quality advance portfolio. If bank tight the credit parameters then offering loans will tough and book size of advances will not grow. Bank take deviation in credit policy and source aggressively loans business will resulted into high Non-Performing assets. In current situation Private sector banks effectively manage Non-Performing assets and expanding aggressively advances business.

2. OBJECTIVES
Following are the main objective of the research paper

1. To assess the pattern of Loans and advances business of Public and Private sector banks.
2. To analyze NPA problem in public and private sector banks.
3. To analyze effective NPA management between public and private sector banks.

3. RESEARCH METHODOLOGY
The present study is an analytical in nature. The study is based on secondary data ranging from the year 2010 to 2021, which are collected from official website of RBI. The secondary data were further classified and tabulated as per the requirement of the study. Simple statistical tools have been applied to analyze the data for testing the hypothesis. The study is descriptive as we use secondary data for research.

4. LITERATURE REVIEW
Literature helps to know the research work undertaken under particular topic and current status of the topic. For the research, literature is collected through research paper published in journal and reports published by RBI. Details of references were shared in below.

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5. Data analysis of Advances and NPA in Public and Private sector banks

Non-performing assets is an issue which affects not only the banking sector but also to create obstacles in growth of the economy. The money which is locked in NPA is not available for productive activities, It adversely affects the profit of the bank and result in higher rate of their diligent credit customer. The problem of NPA is very crucial. During the pandemic, economic activity were go into contraction. RBI and the Government made proactive and effective strategies to trim down NPA in this crucial time as well.

In order to move towards international best practices an impart greater transparency. RBI continuously change in NPA norms. India has improved its ranking by 79 positions in last five years. In the recent World Bank's ease of doing business 2020 report, the country jumped to 63rd position, among 190 nations.

Table 1 : Gross advances and Net advances of Public sector bank and Private sector bank, (Amount in INR crore)

Year	Public sector Bank		Private sector Bank	
	Gross Advances	Net Advances	Gross Advances	Net Advances
2011	3346450	3305632	811780	612886
2012	3942732	3877308	981418	736300
2013	4560169	4472845	1159143	873252
2014	5215920	5101137	1360253	1342935
2015	5615793	5476250	1607329	1584312
2016	5823907	5593577	1972608	1939339
2017	5874849	5557232	2266721	2219475
2018	6141698	5697350	2725891	2662753
2019	6382461	5892667	3442347	3327328
2020	6615112	6158112	3776231	3625154
2021	6776000	6337096	4084510	3986285

Graph 1 : Percentage growth in Gross advances and Net advances of Public sector bank and Private sector bank

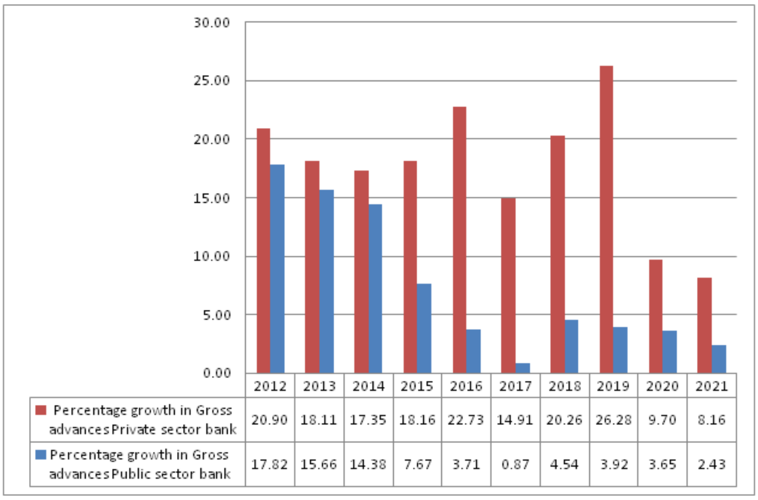


Table : 1 represents the Gross advances and Net advances of public sector banks and private sector banks from the year 2011 to 2021. Public sector bank having large operations as compared to private sector banks. Seen a slow growth observed in Gross advances and Net advances of Public sector banks in comparison to Private sector bank. From year 2011 to 2021, Gross advance rise in Public sector bank Rs. 33,46,450 cr to Rs. 67,76,000 and Net advances rises from Rs. 33,05,632 Cr to Rs. 63,37,096 Cr. In last eleven years loans and advances portfolio of Public sector bank get double. While Gross advance rise in Private sector bank Rs. 8,11,780 cr to Rs. 40,84,510 Cr and Net advances rises from Rs. 6,12,886 Cr to Rs. 39,86,285 Cr.

Above data shows that signs of recovery are visible in credit growth of both public and private sector banks. Total advances of public sector bank compare to private sector banks has been declining since private sector banks have been improving their share.

During 2018-19, advances of schedule commercial banks was the highest in last eleven years. In year 2020-21 RBI and government has launch emergency credit line to sustain business in COVID situation for normalization of economic activity.

To test the differences in the growth of advances of the public sector and private sector banks, 'Single Factor ANOVA' has been performed. The hypotheses which are framed as follows:

Ho1 : There is no difference in Loans and advances business between Public and Private sector banks

Table : 2 : ANOVA

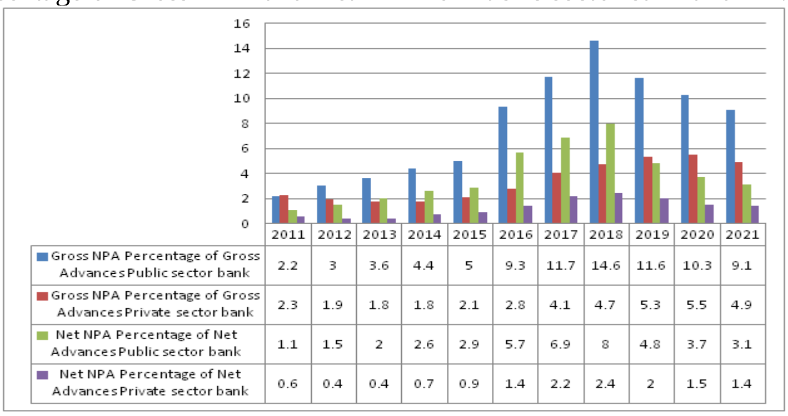
		Sum of Squares	df	Mean Square	F	Sig.
Gross_Advances	Between Groups	5.926E13	1	5.926E13	45.923	.000
	Within Groups	2.581E13	20	1.290E12		
	Total	8.507E13	21			
Net_Advances	Between Groups	5.429E13	1	5.429E13	46.547	.000
	Within Groups	2.333E13	20	1.166E12		
	Total	7.761E13	21			

Table : 2 represents the results of F-test in one way ANOVA. As shown the p value (sig value) of F-statistics is less than five percent level of significance. Hence, with 95 percent confidence level, the null hypothesis of 'there is no difference in Loans and advances business in Public and Private sector banks cannot be accepted. Thus, it can be concluded from the results that Loans and advances business in Public and Private sector banks is statistically different.

Table 3 : Gross NPA , Gross NPA percentage , Net NPA and Net NPA percentage of Public sector bank and Private sector bank, (Amount in INR crore)

Year	Public sector Bank				Private sector Bank			
	Gross NPA Amount	Gross NPA Percentage of Gross Advances	Net NPA Amount	Net NPA Percentage of Net Advances	Gross NPA Amount	Gross NPA Percentage of Gross Advances	Net NPA Amount	Net NPA Percentage of Net Advances
2011	74664	2.2	36055	1.1	14500	2.3	3400	0.6
2012	117839	3.0	59391	1.5	14500	1.9	3000	0.4
2013	165006	3.6	90037	2.0	15800	1.8	3900	0.4
2014	227264	4.4	130394	2.6	24542	1.8	8862	0.7
2015	278468	5.0	159951	2.9	34106	2.1	14128	0.9
2016	539956	9.3	320376	5.7	56186	2.8	26677	1.4
2017	684732	11.7	383089	6.9	93209	4.1	47780	2.2
2018	895601	14.6	454473	8.0	129335	4.7	64380	2.4
2019	739541	11.6	285122	4.8	183604	5.3	67309	2.0
2020	678317	10.3	230918	3.7	209568	5.5	55746	1.5
2021	616616	9.1	196450	3.1	200141	4.9	55808	1.4

Graph 2 : Percentage of Gross NPA and Net NPA of Public sector bank and Private sector bank



To test the differences in the problem of NPAs of the public sector and private sector banks, 'Single Factor ANOVA' has been performed. The hypotheses which are framed as follows:

Ho2 : There is no difference in the NPA problem between Public and Private sector banks

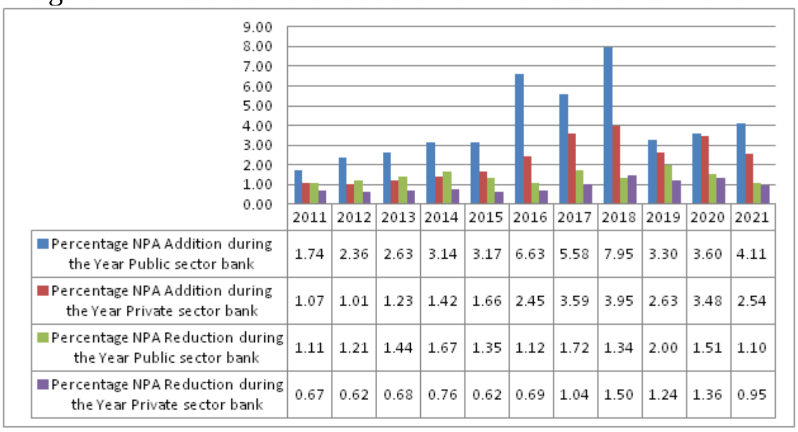
Table : 4 : ANOVA						
		Sum of Squares	df	Mean Square	F	Sig.
Gross_NPA_Amount	Between Groups	7.428E11	1	7.428E11	16.531	.001
	Within Groups	8.987E11	20	4.494E10		
	Total	1.642E12	21			
Net_NPA_Amount	Between Groups	1.810E11	1	1.810E11	18.925	.000
	Within Groups	1.912E11	20	9.562E9		
	Total	3.722E11	21			
Gross_NPA_Percentage_of_Gross_Advances	Between Groups	102.989	1	102.989	10.273	.004
	Within Groups	200.505	20	10.025		
	Total	303.495	21			
Net_NPA_Percentage_of_Net_Advances	Between Groups	36.662	1	36.662	13.189	.002
	Within Groups	55.593	20	2.780		
	Total	92.255	21			

Table : 4 represents the results of F-test in one way ANOVA. As shown the p value (sig value) of F-statistics is less than five percent level of significance. Hence, with 95 percent confidence level, the null hypothesis of ‘there is no difference in the NPA problem between Public and Private sector banks cannot be accepted. Thus, it can be concluded from the results that difference in the NPA problem between Public and Private sector banks is statistically different.

Table 5 : Addition of NPA ,Reduction of NPA and Write off of NPA in Public sector bank and Private sector bank (Amount in INR crore)

Year	Public sector Bank			Private sector Bank		
	Addition during the Year	Reduction during the Year	Write-off during the Year	Addition during the Year	Reduction during the Year	Write-off during the Year
2011	58227	37112	5885	8686	5446	2339
2012	93153	47892	2348	9874	6083	3262
2013	119812	65458	7187	14243	7825	4115
2014	163912	86849	13795	19380	10276	5632
2015	177862	75678	50979	26680	9887	7229
2016	385962	65029	59445	48268	13516	11927
2017	327594	100781	81991	81337	23654	20661
2018	488175	82280	129504	107680	40803	30751
2019	210532	127835	183168	90526	42748	49098
2020	238464	99692	178305	131249	51335	53949
2021	278710	74685	133999	103625	38824	69994

Graph 2 : Percentage of NPA addition and reduction of Public sector bank and Private sector bank



To test the differences in the effective NPAs management between the public sector and private sector banks, 'Single Factor ANOVA' has been performed. The hypotheses which are framed as follows:

Ho3 : There is no difference between the public sector and private sector banks for NPAs management

Table : 6 : ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Addition_during_the_Year	Between Groups	1.642E11	1	1.642E11	17.151	.001
	Within Groups	1.915E11	20	9.576E9		
	Total	3.558E11	21			
Reduction_during_the_Year	Between Groups	1.707E10	1	1.707E10	35.962	.000
	Within Groups	9.496E9	20	4.748E8		
	Total	2.657E10	21			
Writeoff_during_the_Year	Between Groups	1.570E10	1	1.570E10	5.835	.025
	Within Groups	5.380E10	20	2.690E9		
	Total	6.950E10	21			

Table : 6 represents the results of F-test in one way ANOVA. As shown the p value (sig value) of F-statistics is less than five percent level of significance. Hence, with 95 percent confidence level, the null hypothesis of 'there is no difference in difference between the public sector and private sector banks for NPAs management cannot be accepted. Thus, it can be concluded from the results that difference between the public sector and private sector banks for NPAs management is statistically different.

6. CONCLUSION

The study highlights the following findings: In last 11 years behavior of public and private sector banks' advances and non-performing assets rising. With respect to various literature review and above data analysis attempts to provide a more comprehensive analysis on asset portfolio and NPA. In study analysis display that Public sector banks and Private sector banks has different patterns in loans and advances. Observe that in last 11 years book size of Private sector banks grow fast compare to Public sector banks. Both Public and Private sector banks assets portfolio decelerated in last two years. This mainly because of COVID pandemic. During this period due to lock down all economic activity were stop which reflected effect in Bank's advance business. Public sector bank's credit business affect due to large amount of NPA, not permit to enhance asset portfolio. RBI has also put restriction on acquisition of new loans in few banks because of poor asset quality. Observe overall improvement in asset quality as standard assets to total advances increased in both Public sector banks and Private sector banks in last 11 years. From above data analysis derive that rising in NPAs is worry of Indian banking system. Analysis of gross advances and gross NPA in the Scheduled Commercial Banks shows that both are high. It is observe that asset portfolio grow of both public and private sector banks along with NPA. Performance is declining on advances and recovery of NPA is slow in Public sector bank compare to private sector banks.

Public and Private Sector Banks should reduce their NPAs through effective use of latest recovery tool IBC and increase advances by implementing effective credit policy.

7. LIMITATION OF THE STUDY

The problem of NPA is faced by all financial institution so it was quite difficult to consider all financial institute into study hence only Public and Private sector banks have been considered for the study.

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Nature of Association and Impact of Welfare Variables on Covid-19 Death Ratio: An India Based Investigation

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ABSTRACT

Aim: This paper aims to investigate the state-wise variations of the death ratio of Covid-19 in India. It also explores the factors responsible for the Covid-19 death ratio across Indian states, their nature of relationships, and the impacts.

Study Design: The study takes 33 Indian states and union territories (U.T.s). Some states, including U.T.s, are excluded from the study due to insufficient data. The study makes a correlation and regression analysis to show the nature and magnitude of dependency of the Covid-19 death ratio on other development, rather health welfare, factors. The study is based on a cross-sectional study design.

Methodology: The study primarily deals with correlation and regression methods. Karl Pearson correlation coefficients are estimated to show the nature of the relationship between the dependent and independent variables. Regression is run to see the effects of the independent variables on the death ratio of Covid-19. The dependent variable in this study is the death ratio of Covid-19 in Indian states. In contrast, the independent variables include Gross State Domestic Product (GSDP) per capita of the states, state-wise literacy rate, population density of the states, state's healthcare expenditure as a percentage of GSDP, percentage of the population of 60 and above age, number of doctors per 10000 people, and state-wise Sustainable Development Goal (SDG) score.

Results: Results found significant variation in the death ratio of Covid-19 among the states/U.T.s of India. It is also found that among the independent variables, healthcare expenditure by the states as a percentage of their GSDP, and the number of hospital doctors is negatively correlated with the Covid-19 death ratio.

Conclusion: According to this study, the better developed a state's healthcare system is, the lower the death ratio in a pandemic will be.

Keywords: Covid-19; impact; welfare variables; death ratio; India

1. INTRODUCTION

As of January 2022, the World counts 34.6 crores of Covid-19 cases with 55.9 lakhs of death, in which India stands second after the United States counting the total of 3.89 crore cases with 4.89 lakh deaths (World Health Organization). Most countries are going through the third pandemic wave, including India. Since its inception, Covid-19 has been thoroughly researched at the global, national, and regional levels and its link with a variety of factors, including socio-economic factors. The following section includes some reviews of the extant literature.

To link county-level COVID-19 death rates in the United States with critical factors, **Knittel and Ozaltun [1]** employed both linear regression and negative binomial mixed models. They looked at four sets of data: socio-economic indicators, county-level health variables, modes of transportation, climate, and pollution patterns, and discovered that counties with higher percentages of African Americans have higher death rates. However, when they restricted themselves to connection patterns within a single state, the statistical significance of the mortality rate-to-African-American-share link began to disappear, even though it was still positive. In terms of the percentage of the population above the age of 65, they came to the same conclusion. When they limited their analysis to connection patterns within a single state, however, the statistical significance of the death rate-to-African-American-share link, while still positive, decreased. They discovered that the older population in the county had similar outcomes. They also discovered that taking public transportation rather than telecommuting was linked to a higher likelihood of fatalities. In both models, the link between driving to work and death rates was positive, but it was statistically significant only when looking across states and counties. They also discovered that a higher percentage of people not working and thus not commuting is connected to higher death rates, whether old, children, or unemployed. Death rates are higher in counties where home values are higher, summer temperatures are higher, and winter temperatures are lower. In contrast to the earlier study, they found no link between pollution and death rates. They also found no correlation between death rates and obesity, ICU beds per capita, or poverty levels. Finally, after correcting for the factors in their model, their model that looked at mortality rates within states provided estimates of how a given state's death rate compared to other states; this may be considered a measure of how states are doing in comparison to others. They discovered that death rates in the Northeast are substantially higher than in other states, even after controlling for the four sets of characteristics listed above. Death rates are statistically higher in Michigan, Louisiana, Iowa, Indiana, and Colorado. The death rate in California is the lowest of any state. **Gangemi et al.** [2] conducted a correlation analysis on the impact on socio-economic variables due to covid-19. They found a significant relationship between covid-19 and socio-economic indicators, i.e., GDP per capita, HDI, GDP nominal per capita. This result depicts that the mortality rate depends upon the age of the population in India. **Rahman et al**. [3] used geospatial modeling to measure the spread and dynamics of the covid-19 pandemic in Bangladesh. This study revealed that males are becoming more infected from these diseases, and among them, the mortality rate is very high than the women. The management needs to take stiff action on maintaining appropriate behavior in the vulnerable area or proper measure can reduce the infection rate, and it will increase the recovery of patients. **Ghosh** et al. [4] discussed the impact of social distancing and lockdown rules on the economy, human living, and environment. It is indicated that the pandemic economy and human living conditions are moderately destroyed. However, as a result of the minimum movement of common people, it positively impacts the environment. **Roy et al**. [5] have tried to predict the covid-19 epidemic pattern and compare the actual and predicted values using the ARIMA models. This experimental study signified that South and West India are more vulnerable for covid-19, Maharashtra, Gujarat, Madhya Pradesh, and Delhi faced a severe outbreak due to covid-19. **Bhadra et** al. [6] have deeply conducted a correlation and regression model to find infection and mortality rates due to covid-19 with population density. It has been revealed that there is a positive correlation between infection of covid-19 mortality and population density. **Hazarika et al. [7]** conducted a study to find the relationship between covid-19 mortality rates and India's development variables regarding the North-Eastern states. The socio-economic variables, i.e., literacy rate, net state GDP, per capita health infrastructure, sustainable development goal score, and district hospital doctors, negatively impact the mortality rate of covid-19 across North-Eastern India. They conclude by saying that more investment in the health sector in building the proper and modern health infrastructure can reduce the mortality rate during the pandemic. **Wu Xiao et al.** [8] evaluated the air pollution impacts on covid-19 mortality rate by fitting mixed binomial modeling on covid-19 death rates. They found that increasing air pollution exposure leads to the death rate of covid-19 patients across the U.S. They mentioned that people living in highly polluted places face more death than those living in moderately polluted places. **Ghosal** et al. [9] were used interchangeably the multiple regression and linear regression analysis to make projection on covid-19 death count during the 4^{th} week of the corona virus pandemic in India. The study projected that India would face death rate of 211 and 467 at the end of the 5^{th} and 6^{th} week from the study, respectively.

This paper aims to investigate the state-wise variations of the death ratio of Covid-19 in India. It also explores the factors responsible for the Covid-19 death ratio across Indian states, their nature of relationships, and the impacts.

The layouts of the paper are designed as follows. Section 2 describes the materials and methods opted for the study, and section 3 deals with the results and discussion. Section 4 concludes the paper.

2. MATERIALS AND METHODS

This study combines various data from different secondary sources. These include the Ministry of Health and Family Welfare, India, for the death ratio of Covid-19. GSDP per capita was taken from the Ministry of Statistics, and Programme Implementation, India (MoSPI) [10]; literacy rate and population density were taken from the 'indiacensus.net' website [11]. State's healthcare expenditure as a percentage of GSDP and percentage of the population of 60 and above age are taken from RBI publications [12]. SDG scores of the states are taken from the SDG India Index and Dashboard, 2020-21, published by NITI Aayog [13]. The number of doctors per 10000 people was taken from a paper published by the Centre for Disease Dynamics, Economics and Policy, New Delhi [14].

The correlation between the death ratio, the dependent variable, and the independent variables are computed by the Karl Pearson correlation coefficient method. The correlation coefficient, abbreviated as r, indicates how strong a linear or straight association between two variables is. A simple linear regression approach estimates the impact of the factors or the independent variables on the death ratio.

3. RESULTS AND DISCUSSION:

The first part of this section describes the state/U.T. wise variations of the Covid-19 death ratio, the status of the variables taken for the study, and some descriptive statistics. The following parts give the correlation and regression analysis to fulfill the study's second and third objectives.

3.1 Interstate (and U.T.s) variation of Covid-19 death ratio:

Figure 1 shows the inter-state (and U.T.s) variation of the Covid-19 death ratio that highlights that Punjab counts the highest death ratio of 2.60, followed by Nagaland (2.16) Uttarakhand (2.06), and Maharashtra (2.00). On the contrary, among the states, Mizoram shows the lowest death ratio of 0.38, followed by Arunachal Pradesh (0.50) and Telangana (0.58). Arunachal Pradesh, Tripura, Mizoram, Assam, Telangana, Rajasthan, Odisha, Andhra Pradesh, and Kerala are the states which have a death ratio of below 1. Notably, four out of these nine states are north-eastern states. However, it cannot be concluded straightly that North-eastern states have a lower death ratio because the other four states of the region, Nagaland, Sikkim, Meghalaya, and Manipur, are counting higher death ratio. Nagaland has the second-highest death ratio in the country after Punjab.

Table 1 shows the data set that shows the status of the variables taken for the study. In table 1, the variable names are abbreviated as follows.

Y= Death ratio of Covid-19 in Indian states/UTs

X1= GSDP per capita, X2= literacy rate, X3= population density, X4= states healthcare expenditure as a percentage of GSDP, X5= population of 60 and above age, X6= number of doctors per 10000 population, and X7= SDG score.

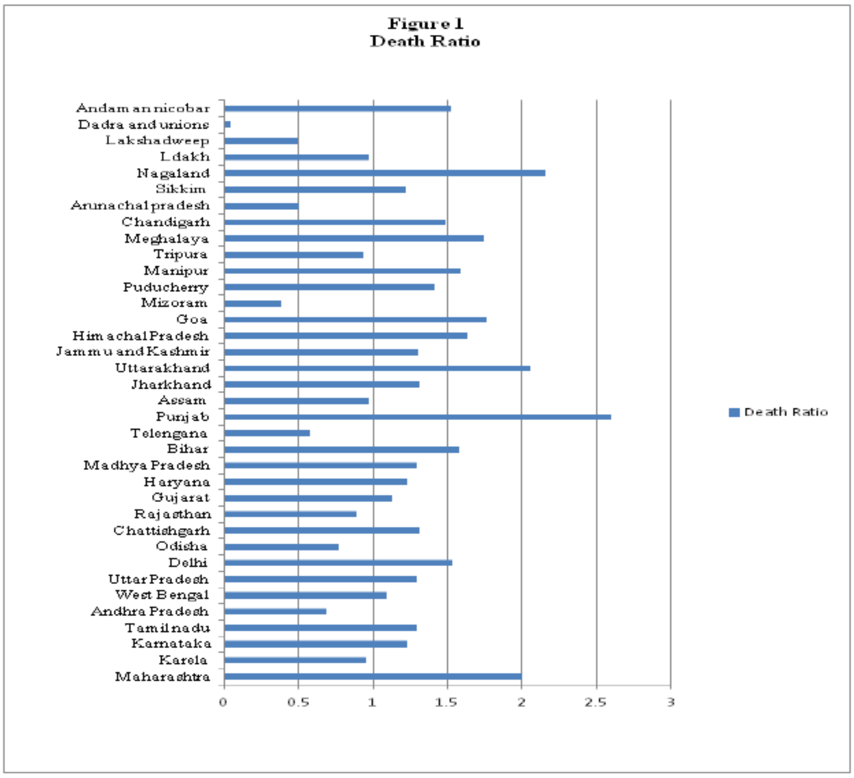

Table 1. Status of the selected variables of the study area.

States	Y	X1	X2	X3	X4	X5	X6	X7	X8	X9	X10
Maharashtra	2	10477	82.34	365	0.6	11.7	8	70	172.94	8.65	4.32
Kerala	0.95	11153	94	860	0.9	16.5	42	75	253.18	12.66	6.33
Karnataka	1.23	11524	75.36	319	0.6	11.5	9	72	391.62	19.58	9.79
Tamil nadu	1.29	10587	80.09	555	0.7	13.6	12	74	174.83	8.74	4.37
Andhra Pradesh	0.69	8261	67.02	308	1.3	12.4		72	145.33	7.27	3.63
West Bengal	1.09	5983	76.26	1028	0.8	11.3	15	62	109.55	5.48	2.74
Uttar Pradesh	1.29	3635	67.68	829	1.4	8.1	8	60	129.88	6.49	3.25
Delhi	1.53	19974	86.21	11320	1	9.3	10	68	194.49	9.73	4.87
Odisha	0.77	5200	72.87	270	1.4	11.8	5	61	54.67	2.73	1.37
Chattishgarh	1.31	5294	70.28	189	1.6	8.8	7	61	55.64	2.78	1.39
Rajasthan	0.89	6044	66.11	200	1.4	8.6	5	60	123.21	6.16	3.08

Gujarat	1.13	10789	78.03	308	0.7	10.2	9	69	98.33	4.92	2.46
Haryana	1.23	12904	75.55	573	0.7	9.8	8	67	115.88	5.79	2.9
Madhya Pradesh	1.29	4973	69.32	236	1.3	8.5	11	62	72.84	3.64	1.82
Bihar	1.58	2395	61.8	1106	1.6	7.7	8	52	25.55	1.28	0.64
Telengana	0.58	11174	66.54	307	0.7	11	11	69	236.62	11.83	5.92
Punjab	2.6	8470	75.84	551	0.8	12.6	6	68	204.63	10.23	5.12
Assam	0.97	4485	72.19	398	2.2	8.2	5	57	73.31	3.67	1.83
Jharkhand	1.31	4154	66.41	414	1.3	8.4	4	56	71.91	3.6	1.8
Uttarakhand	2.06	10860	78.82	189	1.1	10.6	8	72	210.7	10.54	5.27
Jammu and Kashmir	1.3	5021	67.16	56	2.9	9.5	21	66	61.63	3.08	1.54
Himachal Pradesh	1.63	10006	82.8	123	1.8	13.1	6	74	215.24	10.76	5.38
Goa	1.76	25044	88.7	394	2	7	13	72	276.84	13.89	6.88
Mizoram	0.38	7495	91.33	52	2.9	8.8	11	68	226.11	11.32	5.62
Puducherry	1.41	12047	85.85	2547	1.5	8	10	68	374.82	18.7	9.35
Manipur	1.59	3824	76.94	128	2.9	8.8	11	64	72.08	3.58	1.81
Tripura	0.93	6180	87.22	350	2.9	8.8	11	65	116.62	5.82	2.92
Meghalaya	1.74	4865	74.43	132	2.9	8.8	11	60	165.2	8.52	4.13
Chandigarh	1.49	197990.1	86.05	9258	1.5	8	12	79	510.07	25.54	12.77
Arunachal pradesh	0.5	7628	65.38	17	2.9	8.8	11	60	237.72	11.87	5.98
Sikkim	1.22	19543	81.42	86	2.9	8.8	11	71	353.7	17.75	8.88
Nagaland	2.16	6387	79.55	119	2.9	8.8	11	61	154.67	7.73	3.86

We used descriptive statistics to explain the main properties of the samples and present concise summaries based on the data in table 1. The descriptive statistics of the variables utilized in this investigation (both dependent and independent) are shown in Table 2. Descriptive statistics are a set of short descriptive coefficients that summarise a data set, whether it represents the total population or a subset. Table 2 shows, among other descriptive statistics metrics, the minimum, maximum, mean and standard deviation, and variance are considered for the variables in this study.

Table 2. Descriptive Statistics

	N	Minimum	Maximum	Mean	Std. Deviation	Variance
Y	32	.38	2.60	1.3094	.49370	.244
X1	32	2395.00	197990.10	14823.9406	33807.55881	1142951032.939
X2	32	61.80	94.00	76.5484	8.46903	71.724
X3	32	17.00	11320.00	1049.5938	2483.34740	6167014.314
X4	32	.60	2.90	1.6281	.84404	.712
X5	32	7.00	16.50	9.9312	2.10122	4.415
X6	31	4.00	42.00	10.6452	6.72581	45.237
X7	32	52.00	79.00	66.0937	6.30084	39.701
Valid N (listwise)	31					

3.2 Correlation Analysis

The analysis includes 32 Indian states and union territories, based on data available on the various metrics used. Table 3 shows the Karl Pearson coefficients (r) for the correlation of death ratio with various health welfare variables used in the study.

Table 3. Correlation Summary:

Death Ratio (Y)	**r**	**X1**	**X2**	**X3**	**X4**	**X5**	**X6**	**X7**
		0.081	0.118	0.111	- 0.117	0.029	- 0.159	0.135

The correlation analysis found that the death ratio is negatively correlated with state healthcare expenditure and the number of doctors per population a state has. In other words, the more a state makes expenditure on healthcare infrastructure, the death ratio will come down. On the contrary, GSDP per capita, literacy rate, population density, the population of age more than 60 are positively correlated with the death ratio. Surprisingly, the SDG score shows a positive correlation with the death rate.

3.3 REGRESSION ANALYSIS

Table 4. Regression result

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	.389	1.335		.291	.774
	x1	-2.204E-007	.000	-.015	-.048	.962
	x2	.009	.019	.147	.445	.660
	x3	1.149E-005	.000	.059	.202	.842
	x4	-.031	.158	-.055	-.198	.845
	x5	.014	.078	.059	.177	.861
	x6	-.020	.018	-.276	-1.093	.286
	x7	.006	.030	.080	.203	.841

a. Dependent Variable: y

Regression result is found ‘awkward’ as unexpectedly as all the variables found insignificant to the death ratio. It can be justified because fewer observations are taken for the study, and many related factors, such as demographic and topographic, are missing. More observations often lead to statistically significant correlation between variables, as is well known.

4. CONCLUSION

The study shows that if a state makes more investments in the healthcare sector, such as hospital beds, ICU beds, ventilators, and other medical facilities, it can overcome the Covid-19 death ratio by lowering its susceptibility. Furthermore, increasing the number of doctors per capita is a critical concern for all Indian states, as insufficient doctors are accessible. As a result, investing in the creation and training of more doctors and medical professionals will be a long-term solution to the problem of sudden pandemics. Many studies on the Covid-19 have been conducted at the global and national levels, and this study can be considered an addition to that granary. As a result, this study will provide additional dimensions and focus on future research in northeast India, focusing on the ongoing pandemic.

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Green HRM-An Initiative towards Environmental Perseverance

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ABSTRACT
Environmental sustainability has been acknowledged as the most common global concern towards the environment from the past times. Longer ago the success of firms depends on companies and their shareholders. But now its dependency has been diminished. Financial and budgetary outcomes need to encourage by the reduction of ecological footprints and increased attention to social and eco-friendly aspects.

GHRM (Green human resource management) describes as the system policies and practices that make employees of the organization green for the benefit of the global world. It helps in improving the organization's image and to attract young active staff. It is straightway responsible for creating a green workforce. It also includes environmental HR practices and the preservation of knowledge capital. GHRM initiatives make environmentally friendly policies.

Objectives of the Study Are:
1) To provide a basic understanding of GHRM.

2) To create a green workplace.

3) To Highlight significant practices green practices adopted by the firms.

At present companies are executing EMS [environmental management system] to procure competitive advantage. However now a day’s companies working on product innovations and environmental perseverance yet the issue of how an individual organization or entire society achieves sustainability of green movement is still debatable and unclear. For this, we need to more study and investigate green HRM and understand their importance.

Keywords: - GHRM, HR practices, workforce, environmental management system, green movement.

INTRODUCTION

GHRM is the environmental awakening buzzer in organizations today. The word sustainability refers to the capability to be maintained at a certain level. Sustainability is the citation of maintaining change in a balanced environment, in which the exploitation of resources, the orientation of technological development. Sustainability is something that existed to save our natural resources for our future generations. After a lot of study on sustainability and green HRM, we can say that it is used to make environmentally-friendly policies and promote environmental management initiatives. These policies have lesser pollution and more awareness in people about GHRM. In the present business environment companies become more competitive and they have undergone pressure of environmental sustainability. For managing the pressure they require to make policies that reduce environmental side effects on products and services offered. To gain competitive advantage companies use green products and follow the "go green" policy. Consumers are more aware of the environment and its issues so there is an increasing demand for ecological products. It has been noticed that increasing awareness with business communities on the importance of going green and adopting various techniques. As we know that the world is a global forest and the no. of industries is continuously increasing which produces harmful chemicals. For the sake of the environment, it is more important to make eco-friendly policies that promote sustainability and reduce harmful chemicals and wastage.

GHRM helps in promoting organization goodwill and attracting young staff. It includes staffing, planning, training & development policies, evaluation, HR system. Companies are more conscious about their responsibility towards the environment and society.

1. Go paperless
2. Green audit
3. Energy audit
4. Work from home
5. Use daylight

6. No smoking zone
7. Save water
8. Recycle
9. Reuse

EMS is strategic equipment that helps an organization gain a competitive advantage. It increases productivity and a better customer image. It also improves employee morale. But the development and growth are achieved by HR people and also who have invested fully in the green agenda. Companies should organize programs about cleanliness and how to reduce wastage at the workplace.

India is a developing country and public sector units are inseparable parts so that the area of green HRM is less explored in these units. (Barla, October 2011) It is quite difficult for public enterprises to gain a competitive advantage. There is a huge scope for researchers to work on that area. There is cutthroat competition in the world and public enterprises of India are not that much competition to gain the advantage. There are very few Indian companies that followed green HRM policies. These are LG, HCL, HAIER, SAMSUNG, TCS, ONGC, INDUSIND BANK, ITC, WIPRO, and MRF TYRES. These are the companies who follow the go green policies and make the environment pollution-free and reduce their cost.

ADVANTAGES OF GREEN HRM

1. Lesser pollution
2. Reduce wastage
3. Reducing travelling cost
4. Made things easy
5. Stronger public image
6. Increase productivity
7. Increase customer confidence
8. Better utilization of resources
9. Increase in usage of green products
10. Increase employee morale

LITERATURE REVIEW

There are limited numbers of firms that adopt GHRM in their organization. People have lesser knowledge about GHRM. Moving to industrialization, which increases business production, technology, and other business activities that increase ecological hazards The paper Suggests that the employees should be trained with foundational skills like to teach them to collect waste data, to raise the eco-literacy level, they should be encouraged to participate in environment-friendly practices (Jabbar & Abid, 2015).

This is necessary to go green for the preservation of natural resources for the future generation. There are very limited firms that adopt GHRM. It also helps companies to enhance their public relation and create goodwill. GHRM helps in improving the productivity of the company and delivering tangible benefits (Mehta & Chugan, 2015)

The Concept of green scholarship has come into the limelight (Renwick, Jabbour, Muller-Camen, Redman, & Wilkinson, 2015). If GHRM is widely using then it will increase in reservation and preservation of natural resources (Chowdhury, Sanju, & Asaduzzaman, 2017).

GHRM is the need of the hour, the requirement of the 21st century to outlast in the contemporary biz world by having an edge over competitors and developing a green image in the market (Mv, Arumvgam, & Vijai, Feb2018). Adopting GHRM would help to reduce the cost of organizations and also it will not lead to loss of their top talent and also it would make their employees more conscious and aware of environmental changes (Kulshrestha & Shrivastava, 2018).

NEED/IMPORTANCE OF THE STUDY:

Now a day's going green is mandatory for all organizations. Helping create sustainable earth is important to every person on the planet. From lesser utility bills, making the environment pollution-free, contributing to social responsibility, and stopping the effect of global warming 'going green' is important. Going green is a personal choice for many people.

OBJECTIVES:

1) To provide a basic understanding of GHRM.

2) To create a green workplace.

3) To Highlight significant practices green practices adopted by the firms.

RESEARCH & METHODOLOGY

The study is based on secondary resources. The data is collected from various research articles, journals, books, the internet, project work, websites, reports, etc.

FINDINGS

On the basis of the study we found that customer is more aware of environmental issues. So it will have some benefits and limitations. Going green is helpful in sustainable development. It's just that people are lesser adopt and mix with green environment. We also found that the area of green HRM is less explored in public sector enterprises. Many companies implement EMS to gain a competitive advantage. HR professionals are the ones who are directly responsible for the implementation of policies and practices in the organisations. More and more employee awareness programmes should be implemented in the organisations. Green products are slightly higher than other products. Extra cost will be paid for switching the green products. Data risk comes up with the implementation of green policies.

LIMITATIONS OF GREEN HRM

1. Extra cost for switching
2. Data risks
3. Increase price of the product
4. Misunderstanding
5. Need more money
6. Green product slightly costly than normal product
7. People are not adapt these concepts easily

SCOPE FOR FURTHER RESEARCH

Green HRM policies and practices result in developing environmental perseverance because it focuses on reservation and preservation of natural resources, benefit structure, eliminating environmental discrete. If we use green products it will help in sustainable development and contribute to CSR. As we know the area of green HRM is less explored in Indian PE'S. So there is a huge scope for a researcher to expand the green area and help people to understand the green concept.

RECOMMENDATIONS

Based on the above study we recommend exploring the area of green HRM in public sector enterprises. Convince more and more people to use green products and use green policies. It will benefit not only the organization but for the environment also. It will make the environment pollution-free, lesser wastage, and it will contribute to CSR also. It makes the environment healthy. More and more employee empowerment programs need to be introduced in the organizations. CSR should be mandatory to the organizations so that they contribute to the society. Organizations need to make green products cheaper so that there is no need to pay the extra cost for purchasing the green products. More and more employees need to be engaging in the green activities. Green rewards should be introduced in the organisations. HR professionals took the initiative to adopt the green policies and it will be introduced at the planning level also so that it can be indulged at the every level in the organisation.

CONCLUSION

Based on the above study green HRM is based on the green movement, which is related to saving the earth and environment from future disasters. Most of the companies follow green human resource management policies. Some companies follow EMS as a strategic tool to gain a competitive advantage. Companies know that customers are more about environmental issues so it's their responsibility to fulfil their expectations by using these green policies companies are pollution-free. It will also encourage employees and society members to use eco-friendly products. It is concluded that green HRM has some advantages like less pollution, less wastage, and increase productivity and there are also have some disadvantages like a risk of data loss and high price and there is also a risk of misunderstanding in receiving a message. Even not every employee follows the green policies for the growth of our country and to save the natural resources.

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A Study of Strategic HR Practices for Higher Education Institutions in India

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ABSTRACT
The recent emerging technological trends in higher education has led to reorientation and repositioning of the role of HR inhigher education system. Higher education institutes have recognized the importance of strategic HR practices and their impact on running the Institutes as efficient educational and business enterprises catering to the needs of emerging skill-based workforce that India requires. Higher education institutes today are already trying to respond to numerous changes that are prevailing in the global environment. Education systemswere conventionally run by academicians exclusively, but this has now been challenged by scientific and technological developments and paved the need for new requirements particularly in training and personnel management.

This trend has seen path breaking changes in the recent two years wherein hybrid learning has come to stay with major ramifications in the way education will be imparted as also how Institutes will be governed to keep them in tune with changing times.

The changing trends in higher education in India requires an effective management of the institutes' faculty and staff. It is thus conclusive that there is a rising need of increased professional management of higher education institutions. HR helps in analyzing the current trends and information which are required for personnel transactions in higher education institutions.

The aim of the study is to explore the cognizance of strategic HR practices to be adopted in an emerging technological era and their impact on efficient management of higher education institutions in India.

Keywords: Higher Education Institutes, Human Resource, HR Practices, Training and Development, Recruitment, Performance Appraisal

INTRODUCTION

The recent decade has marked a revolution in higher education. The key factor that has massified this change is globalization. The recent technological and pedagogical changes have created an environment that has led to reorientation and repositioning of higher education system. Universities and other higher education institutions are in the process of adapting to the changes and have become more entrepreneurial because of the intensified demands with respect to higher education. There is an increasing response to all sorts of changes that are prevailing in the global higher education system (Cloete, et al., 2002). Higher education institutions were traditionally run by academicians exclusively, however over the last fifteen years, the traditional set of characteristics and academic control in higher education have been challenged by number of developments and globalization. International mobility, Global comparison, marketization and several other factors have gained momentum in higher education (Teichler, 2003). Scientific and technological development has brought new requirements for higher education particularly in training the trainers. The curriculum and program need a continuous update (Soledad, et al., 2021).The evolution of education has brought the presence of transforming teaching role, artificial intelligence, education for sustainable development etc. When talking about education, we need to go to the roots and see if higher education institutions have adequately trained and developed professionals, are the resources required to meet the new challenges adequate? Are the resources being utilized economically and sustainably positioned?

What is Higher Education system?

Higher education is termed as tertiary education which is final stage of formal learning. Higher education is provided by the universities, academies or other institutions. It includes teaching, research, exacting applied work etc. Higher education, in addition to formal learning, also helps in skill enhancement, critical thinking and reasoning and also opens to the wide knowledge of arts and sciences. General elements of higher education include theoretical as well as applied aspects. Higher education system prepares one for the professional level.

Higher Education System in India

Higher education in India is one of largest education systems in the world. The policy framework for higher education is designed carefully by ministry of HRD(Human resource Department) and UGC (University Grants Commission). The number of universities in India has increased to 1013 in 2021 from just 25 in 1947. There are around 440 State universities and 54 Central universities in India. The higher education system in India is primarily controlled by MHRD and UGC which aimto bring world class opportunities of higher education and research to the country so that Indian students can place themselves at global platforms.

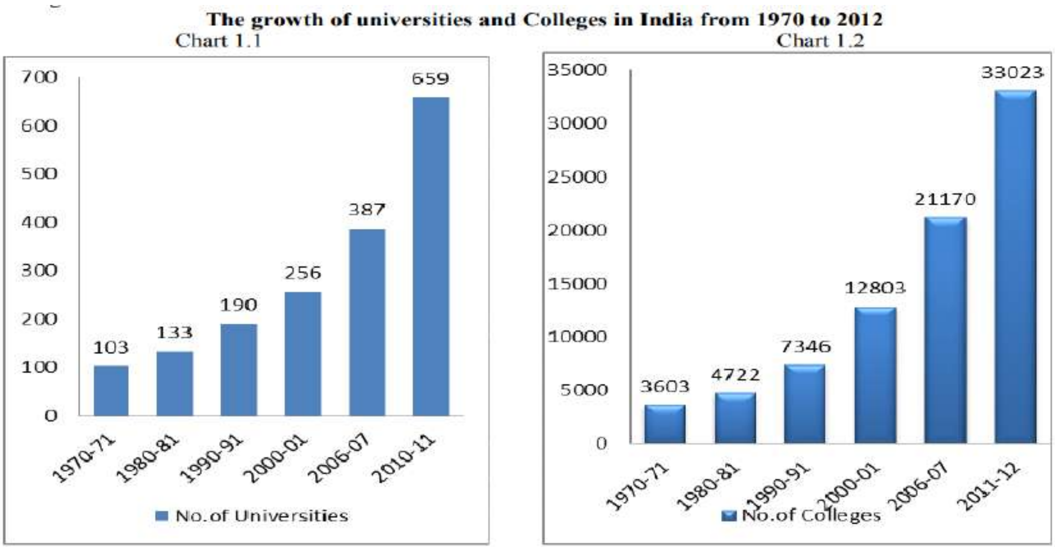

Figure 1: The Growth of Universities and Colleges in India

Source: Education in India: Twelfth Five Year Plan (2012-17) and beyond FICCI higher Education summit 2012

Despite being the world's largest growing education system, Indian higher education system has to face certain peculiar challenges. Most severe challenges faced by higher education system in India are:

Enrolment: The gross enrolment of students in higher education in India is very low as compared to other countries. The enrolment of students is increasing over years but there is still little difference made on ground and the number of institutes required to accumulate the gross enrolling rate of students is comparatively low.

Quality: The foremost challenge in higher education is ensuring quality since a large number of universities are not able to meet the quality standards of education and are unable to keep themselves in the list of top educational institutions.

Infrastructure: Insufficient infrastructure is another constraint in higher education system in India. There are a large number of colleges or higher education institutions which are poorly built and are running in a distressed condition.

Accreditation: As per the NAAC data(Higher Education in India:Twelfth Five Year Plan (2012-2017) and beyond FICCI , 2012), not all higher education institutes are accredited. And only around 30 % universities are accredited.

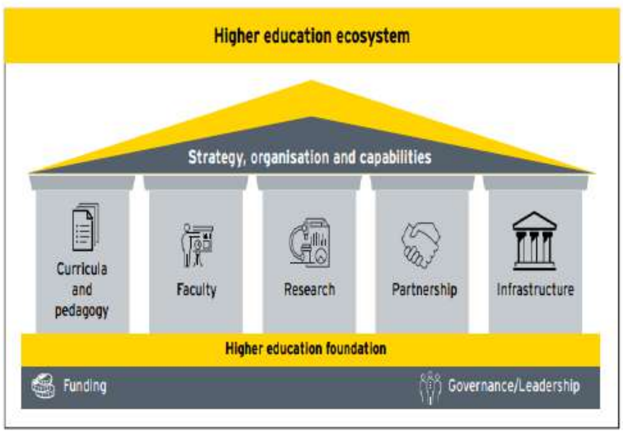

Figure 2: Higher Education System

Source: Higher Education Ecosystem (Jhingal, 2021)

Emerging Trends in Higher Education in India

With emerging demand of extensive education system in India, there is a need of continuous evolving of education practices in India. The higher education system is responsible for nurturing and empowering professionals. Universities and higher education institutes need to keep up with the new trends and revamp existing systems(IBMR, 2020).

1) **Adapting Online Higher Education**: With global changing scenarios and pandemic, institutions have adapted to online mode of instructions. Even though it is a small beginning, hybrid programs have come to stay and will be the future.
2) **Demand for International Courses:** There is a surge in the demand of colleges and universities providing international courses and certificates.
3) **Focus on Skill Development**: With around 13 million individuals entering the workforce every year, only a small percentage of them are able to find suitable jobs.Higher education needs an urgent reorientation to cater for skill based educational needs.
4) **AI in Higher Education**: Existing higher education system must develop course curriculum that caters to advancements of artificial intelligence. AI should be used as a learning tool by the education system in India.
5) **Holistic Course Curriculum**: Universities in India are still working to impart theoretical knowledge although there are some colleges and institutes that have incorporated internship in their degree programs. They have already setup innovation and entrepreneurship cells in their campus.

Figure 3: Diagrammatic Representation of Changing Higher Education Landscape in India

Source: Self

Role of HR in Higher Education Institutes

The HR department has an important role to play in managing the higher education organizations. Role of HR is to support the robust procedures of education and ensure quality and equality for all staff. HR professionals must be familiar with their sector to perform their job with appropriate level of knowledge and sensitivity. Higher education is complex in nature and thus it requires diverse mix of curriculum activities and specialist HR expertise. HR professionals deliver value in three domains: Talent, leadership and capability (Ulrich, 2019). There has been a rising need of more professionalized management as a necessary condition for efficient operation of educational program in higher education institutions. There is a need of not only adoption of new initiatives and policies but also there is an increasing need of greater planning and efficient allocation of resources in higher education institutions. Human resource department (HRD) provides the framework required for development of knowledge, skills, abilities and opportunities needed for successful performance of higher education system.

HR collects appropriate data, maintain and analyses the current information required for personnel transactions (promotion, termination, hiring etc.). HR policies are the system of decisions framed by any organization that supports administrative personnel functions, performance management and resource planning etc. Every institution has its own set of circumstances that needs to be tackled with different set of policies and practices.

The higher education institutions should meet the following objectives:

1. Recruitment and selection process should be developed as per the changing needs.
2. Help in creating better learning environment for faculty and staff members.
3. Maximize their motivation for learning and development.
4. Optimization of the skills of the faculty and staff members.

LITERATURE REVIEW

Higher education refers to the post-secondary education, training and research guidance in universities which are authorized to provide higher education(World conference on Higher Education in 1998, 1998). Due to striking development of information technology in recent years, movement of people, technology and information, there is diversification in the forms of higher education (Approaches for Systematic Planning of Development Projects/Higher Education, 2000). The higher education system has shifted to a hybrid model, where the purpose of higher education is to create an educational system that is more inclusive and aims to become more knowledgeable and just (Kromydas, 2017).

Higher education has now moved to a new era and environment where it has confronted an array of challenges and changes. These new forces have resulted in significant shifts which directly impacts goals, process and decision-making in higher education (Kezar & Eckel, 2003). The challenges require rethinking to provide a coherent and meaningful experience in education (Ramaley, 2014). The higher education sector in India have seen and is still undergoing the biggest shift ever. The need of the students is evolving and they yearn for personal and adaptive learning paths based on the competency level (Jhingan, 2021). The millennials are surrounded by technology and the landscape of education is continuously evolving. When it comes to learning, there is drastic shift to digital transformation around the globe (Leverage, 2021). Flexible learning, career pathways, innovation are the insights of the changing trends in higher education in recent years (Belland, 2021).

(Bontis, 1996) states that human capital has sustainable advantages in the everchanging globalized world. Human resource is more relevant to the new technologies. Further the study states that human resource management is a set of activities and functions needed for development of the organizations. (Keller, 1983)States that colleges and universities have become more inclined in formulating a strategic approach to HR in their organizations. (Lenginick- Hall & Beck, 2011)foundthat organizations with strong strategic capabilities can integrate the HR processes into their central strategies to gain the desired result. Elevating professional development of the faculty and staff in higher educational institutes and investing in human resource information system are the trending initiatives that are to be adopted in higher education (Cuevas, 2021).

Training and Development

(Smylie & Wenzel, 2006) found the effectiveness of teaching and learning process and HRM practices like staffing, vocational development training, communicate, reward, evaluation are important factors that contribute to effective learning and teaching process. (Olian & Rynes, 1984)Emphasized that importance of training and development in conjunction with development of institutions and it should be aligned with strategic objectives of the institution. (Bush & Ames, 1984)found that the colleges and universities have barely focused on Training and Development of their employees to maintain the learning and knowledge process of faculty and staff.

Performance Appraisal

(Devanna, 1984)States that for effective Human resource Management, performance and appraisal is a cornerstone. Performance appraisal provides the information needed to make strategic decision by assessing the changes required in strategic decision. (Corson, 1975)found that the efforts to analyze the teaching performance are mostly inconsistent and faculty can alleviate their shortcomings through the combination of assessments like student and peer evaluation and staff evaluation. (Turk, 40-54)Found that well-functioning performance appraisal system would help the educators to make a difference in their faculty and staff and would keep them motivated to learn and enhance their skills.

Recruitment and Retention

(Hansel, 1991)found that growth of a university depends on its ability to recruit and retain their talent for long term to reap the advantages over others. According to (Boice, 2000), faculty or staff begin their carrier with high morale which gradually fades away due to low satisfaction or increased stress. (Bataille & Brown, 2006) found that there is a growing need of improved retention as it also improves the quality of staff and faculty in the institution. (Hagedorn, 2000) states that successful retention of faculty in higher education institution is gaining popularity and it further requires research on the best practices for better retention.

Statement of the Problem

The outlook of the higher education has changed drastically over the recent decade. Rapidly developing technologies, emerging methodologies in education system have posed significant challenges to higher education institutions. The current changes in higher educationdemand talented workforce to include faculties and staff members who will need to function in a reoriented environmentwith innovative HR practices and policies that will ensure futuristic objectives of education are fully met.

OBJECTIVES

1. The primary objective of the study is to explore the cognizance of Strategic HR practices in higher education.
2. To recognize the key HR practices to be adopted by higher education institutions in India
3. To find the impact of the key HR practices on higher education institutions in India.

RESEARCH METHODOLOGY

The study is based on the various HR practices adopted by different higher education institutions over the world and India. A large number of articles and journals have been gone through to derive the conclusion. The existing study is based on the extensive literature review of the studies that has been conducted in area of higher education. The source of data for this study is mainly secondary. The main source of the data for the study is gathered from journals, conference proceedings, articles, books and online sources like websites, online reports etc.

FINDINGS

The study helped to establish that although higher education institutions are attempting to meet requirements as per the emerging changes that are taking place in higher education, still there is a lag when it comes to effective implementation of HR practices in higher education institutes. With changing patten in education system and emerging trends in technologies and methodologies that are being witnessed in higher education, it is the high time that the HR professionals involve actively in acquiring competency in restructuring practices that are required to meet the changes that are taking place in higher education institutes.

RESULTS AND DISCUSSIONS

The study conducted shows that although the higher education institutes and universities in India have grown statistically but most of these institutes are still following the traditional and conventional ways to manage and develop their faculty and staff members. The programs associated with training and development of the staff as well as students are not sufficient to meet the changing trends in higher education. This is the appropriate time that HR professionals restructure their practices designed for performance analysis, training, continuous information exchange, motivating employees, preparing of faculty and staff members for changes that occur. Flexibility is the key- HR professionals must collect the data on how the academic unit is to be perceived and then shape the practices and policies to derive the desired results in a changing scenario of higher education in India.

RECOMMENDATIONS

There is lot that is required to be implemented and inculcated in practices when it comes tothe role of HR in higher education needs and it is conclusive that urgent and innovative restructure of their HR policies and practices are put in placeto gain edge and competency in higher education and beyond. In order to understand guidelines to effectively recruit, retain and manage faculty and staff members, HR managers will have to think beyond traditional practices and will require to follow up close co-ordination with the employees for effective implementation of HR practices.

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A Study on Workplace Discrimination and LGBT Employees in Indian Organizations

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ABSTRACT
LGBT is and initialism which means Lesbian, gay, bisexual and Transgender. A person might have different sexual orientations. Over the past years, India has made unprecedented progress towards acceptance of LGBT people. However, there are no statutory laws to prevent discrimination of LGBT people. Although, the society has become more open towards the acceptance of LGBE people. Organizations in India has become more inclusive towards LGBT employees. Over last few years sexual orientation has come up as a visible strand within diversity management in most of the organizations. Yet, LGBT employees face discrimination and harassment at workplace. Discrimination at workplace affects their productivity at workplace. Still there are organizations which do not have concrete policies to prevent discrimination of LGBT employees. The effective implementation of LGBT policies and practices at workplace is governed by the role of HR professionals in that organization. The present study aims to find the discrimination of LGBT employees at workplace in India. Further it aims to study the various policies and practices adopted by some firms for making their workplace LGBT inclusive. The study is based on extensive literature review and case studies of few organizations in India.

Keywords: LGBT, Homosexuality, Employees, Discrimination, Organization.

INTRODUCTION

The recent years have been a center of discussion for the right & protection of LGBT people all over the world including India. Despite the fact that society is moving forward in acceptance of differences in the sexual orientation, still a large part population is still uncomfortable and confused towards non-heterosexual attitude (Sharpe, 2002). LGBT is an initialism which means Lesbian, gay, bisexual and transgender or we can say it is an umbrella term for sexuality and gender identity. In brief, it refers to anyone one who is non-heterosexual.

Over the past, world as well as India has made unprecedented progress towards the equality for LGBT community. Butthere are no statutory non-discrimination laws which protects LGBT people from discrimination. There are no concrete reasons for the discrimination, but prevalence of heterosexualism in the mainstream society. A large section of the society considers the homosexuality to be a disease and people are homophobic. This attitude has resulted in discrimination and oppression of the LGBT people. In India, no progressive change has taken place as far as homosexuality is considered. Homosexuals still remainthe victims of violence, bullying etc. But LGBT is now a strong growing community in India. LGBT people are making their ways from metro cities to sub-urbans as well as rural areas of the country. The judiciary has also legalized the same Sex marriage which was a criminal offence earlier. But the strong reaction of the society is that most of the people still consider homosexuality as western culture phenomenon. This is the reason why large population of LGBT community still remains closeted.LGBT people are excluded to fully participate in the mainstream society with equal opportunity and dignity and this is a human rights issue. The human right violation of LGBT people reduces their economic output.

Work Place Discrimination and LGBT Employees

LGBT are disproportionate targets of bullying & victimization (Alemdia, Johnson, Corliss, Molnar, & Azrael, 2009). They are more likely to be threatened and bullied at school or other places which makes them feel unsafe (Durant, Krowchuck, & Sinhal, 1998). Although, there are no concrete evidences so as to why there is discrimination against LGBT people. It has been found that LGBT people are threatened and blackmailed. They are stigmatized, sexuallyabused (Bhaskaran, 2002).

Homosexuals are discriminated in every front of their lives. They are bullied and marginalized in school. In fact, in most of the cases, the homosexual child is disowned by their parents or they are subjected to medical treatments to get homosexuality cured. They are not able to find a respectable jobs for themselves. This discrimination and fear of being stigmatized & marginalized force then to remain closeted about their sexual orientation. Not only this, LGBT people are often target at workplaces and they contently fear of being fired from the work places forms of discrimination. More over there is a society of mental health services and also lack of knowledge amongst health professionals about LGBT issues which further deepens the problems for the LGBT people. LGBT people are frequent targets of violence and they are denied access to education, discrimination encourage LGBT people from pursuing jobs which diminishes their contribution to economy.

Homosexuality and workplaces behavior

Over last few years sexual orientation has come up as a visible strand within diversity management in most of the organization(Bell, Ozbilgin, Beuregard, & and Surgevil, 2011). Equality in terms of sexual orientation has gained momentum due to increased social justice, legislative and business care needs (Colgain, Creegan, Mckearney, & Wright, 2007). Empowerment of LGBT employees is promoted. However, all organizations are neither comfortable nor willing to articulate LGBT friendly work place in their organization.Being a stigmatized minority group, LGBT individuals might lock social contact with others(Diamond & Lucas, 2004). LGBT people still face prejudice and discrimination at workplace. Moreover, they do not get any kind of protection from employment discrimination. They face both subtle and overt form of discrimination. While seeking jobs, LGBT employees receive around 30% less than their heterosexualcounterparts.Hostile and non-supportive working environment towards LGBT employees has negative consequences, like lower organization commitments, lower satisfaction etc. Around 11% of LGBT workers has reported that they lost job or denied promotion due to their sexual orientation (Singh & Durso, 2017). LGBT employees are usually engaged in covering their sexual orientation to avoid any kind of discrimination at work. The fear of discrimination prevents LGBT employees in bringing their full selves to work.

Although the heterosexuality is prevalent, there are organization which have levels of sexual orientation diversity and have come forward to make their work environment more LGBT friendly. However, despite including sexual orientation in their equal opportunity statements and policies, these policies do not address the issues of gender identity adequately. This is one of the reasons why LGBT employees still feel unsafe at work places. There are organizations in India that are doing great work and have scaled up to become equal opportunity providers for their LGBT employees.

LITERATURE REVIEW

Around 38 % percent of LGBT employees have reported that they have experienced one or more kind of harassment at workplace and 20% of LGBT people have been a victim of physical harassment once in their lives due to their gender identity (Mallory, Sears, & Conron, 2021). Almost 46% of LGBT employees remain closeted at workplace and they themselves consider it unprofessional to discuss sexual orientation at workplace (Lesbian, Gay, Bisexual, and Transgender Workplace Issues, 2021).

All people are equal irrespective of their race, gender, religion or sexual identity. Sexual preferences do not define anyone. But still there are people in the society who do not accept the differences in the sexual orientation (Shayrine, Cheska, Mae, Crisitne, & Leamay, 2018). An attitude is the organization of beliefs, feelings and tendencies towards anything, be it object, group or community (Ahmed, 2008). Sexual minorities are those whose sexual orientation includes people of the same gender and whose gender expression is different from specific gender norms which are assigned to them at birth. LGBT people face discrimination in physical, psychological and violent forms which restricts their ability to work and also, they suffer trauma (Badget, Nezhad, Waaldijk, & Rodgers, 2014).

LGBT people are hesitant to report crimes or violence as they fear that no one would believe them and reporting mat expose their sexual status (Padilla, Aguila, & Parker, 2007). LGBT people experience severe health issues like depression, anxiety, substance abuse. There is a failure of the system to provide prevention that meets the need of this population (Meyer, 2003). LGBT students are pressurized to drop out and even if they are denied admissions because of their sexual orientation. The study further finds that in India the sexual minority students are harassed by teachers and other students (Khan, Bondyopadhyay, & Mulji, 2005). Social support can alleviate the negative consequences among LGBT people. It would reduce the disconnect the homosexuals feel (Witt & Carslon, 2006).

Workforce reflects diversity, but firms has never included sexual orientation in the norms of diversity (Naff, 2001). (Ragnis, Cornwell, & Singh, 2007) found that job satisfaction is directly related to the support from co-workers towards LGBT employees. Different groups need different type of support from their colleagues or supervisors. For instance, LGBT employees might need support to identify their identity at workplace to gain self-worth (Waortman & Dunkell-Schetter, 1987). (Harvey, T., & Moeller, 2011) states that it has become the need of the hour to assemble diverse workforce to gain successful global performance. But the concept of being diverse is not yet clear. (Shore, Chung, Dean, Ehrhart, & Singh, 2011) defines the inclusion environment as the one in which policies, procedures and actions of the organizations with fair treatment of every employee irrespective of their race, religion and sexual orientation. The firms with LGBT supportive policies have significant impact and effect on job related variables like turnover intentions which is beneficial for firms as well as LGBT employees (Munoz, 2005). Work-life balance has gained attention from managers and policy makers due to changes in demographic trends. Thus, there is a need to encourage the spectrum of employee diversity (Taylor, Larsen, & Kananen, 2005). (Bell, Ozbiligim, Bearegard, & Surgevil, 2011) found that LGBT employees are usually excluded from diversity, literature. Diversity research still focuses mainly on visible minorities. Fear of discrimination and being discriminated are two most importance concern of sexual minorities, since they don't have any legal protection from workplace discrimination. (Bowen & Blackmon, 2003). It is important to share the best practices from a societal point of view, as sharing good practices related to LGBT employees would improve working policies and in turn it would improve motivation and jab satisfaction, thus improving over all efficiency of organizations (Colgian & Mc Kearney, 2011). (Homan, Van, Vankleef, & De, 2007)

Case studies of some companies in India and type of practices they have instituted to make workplace LGBT inclusive:

GODREJ

Godrej was a trendsetter to fight the prejudice and discrimination against Lesbian, gay and bisexuals at workplace. Godrej has founded a Culture lab which particularly works with diversity and inclusion team to create awareness about and among LGBT employees at workplace. It has also made some specific changes in its policies like the employees are allowed to choose the gender when they join.

INFOSYS

Infosys is one of the first IT company in India that has created an employee resource group named – "Infosys Gays Lesbians and You (IGLU) that brings LGBT employees together. This resource group encourages open discussions that helps the LGBT employees to perform better at workplace. Infosys actively organizes workshops and sessions to foster a culture of respect for LGBT employees.

INTUIT

Intuit is a Bangalore based organization which has its own pride network and it advocates to provide safe spaces to all its employees. Intuit has achieved 100% rating in Human right campaign's corporate equality index for many years for building awareness for LGBT inclusion at workplace.

BARCLAYS

Barclays has clear non-discrimination policies in India. It has further made the diversity strategy stronger by sponsoring India' first LGBT film festival. CEO of the Barclays attended the first night of the LGBT film festival.

IBM

IBM is strongly committed to provided its LGBT employees a safe and secure working environment. Their strong non-discriminatory policies have helped them to attract and retain new diverse talent. Diversity is the most crucial element of their corporate values. IBM has continuously achieved world's most LGBT inclusive company by the workplace pride.

HCL

HCL pledges to make their workplace a torchbearer for providing equality at workplace to their LGBT employees. HCL's LGBTQIA+ inclusion is aimed to foster a safer and supportive work environment for all LGBTQIA+ employees.

AMAZON

Amazon has developed a employee resource group named GLAMAZON that provides open platform for its LGBT employees. Amazon has added raising awareness to Alexa's skill which informs about pride fact. Amazon achieved Human rights campaign Foundation's 2019 corporate Quality Index.

MAHINDRA

Mahindra launched queer inclusion polices. It further provides adoption leave to its single parent and same sex partners. Moreover, it has added insurance benefits to the list of benefits to its LGBT employees. Mahindra Logistics has added five-year plan to hire queer people.

Tata Consultancy Services

TCS has extended its health benefit policies to its LGBT policies. It also covers the 50% cost of reassignment surgery under this insurance. Tata has become the first company to recruit transgenders people in their organization.

FINDINGS AND DISCUSSIONS

LGBT people face lifetime struggle to come out and deal with themselves. Although LGBT employees have gained visibility at workplace and thus there is a growing need for corporations to understand how can the LGBT issues are to be addressed efficiently. It has been found that organizations do not know how to react and deal when any LGBT employee disclose or reveals his identity at workplace. HR has to be more motivated to help in creating sustainable and equitable workplace for LGBT employees. Also, there is a need to look into the legal factors which are involved in acquiring the competency to successfully assist LGBT employees. HRprofessionals are the frontiers of the workplace that LGBT employees regards for his or her transition. Thus, HR professionals need to understand the terminology of LGBT issues with precision and consistency. HRcan provide awareness and sensitivity training so that all employees are aware and accept the challenges faced by LGBT employees.

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The Online Teaching and Learning in India: Issues and Challenges

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ABSTRACT
Education is the most important requirement for inclusive growth empowering individual and society opening up opportunities and promoting public participation in the development policies. Due to the current situation of Covid-19, online teaching learning process has become the norm for delivery of education in higher education institutions. E-learning solutions have replaced the conventional classroom teaching. The aim of this research paper is to understand the effectiveness of online teaching learning process from the perspective of students. It is to understand the benefits and obstacles of online learning faced by higher education institutions. A primary survey has been conducted among students of higher education to assess student's perspective regarding online learning. The survey highlights that fact that though students have to some extend adapted to online learning, they prefer conventional learning to online learning.

Keywords: Higher education, Students, Educational resources, Online learning, Challenges

INTRODUCTION

Education being a powerful instrument of social change has to be related to the long term national aspiration and to the goal of national development. It is the quality of the students coming out from our schools and colleges, which determines the future of our country. Education has to be linked to the changing needs of modern society. It helps to transform human beings from ignorance to enlightenment, from underdevelopment to faster economic, social development. Education is the most important requirement for inclusive growth empowering individual and society opening up opportunities and promoting public participation in the development policies.

India has made tremendous progress in the education sector with increase in the gross enrolment ratio at all levels of education. However, the medium of teaching and learning has been conventional chalk and talk method. The outbreak of Covid-19 affected the educational activities in India. In order to ensure continuity of education, schools and colleges have adopted online learning. E-learning solutions have replaced the conventional classroom teaching.

The aim of this research paper is to understand the effectiveness of online teaching learning process from the perspective of students. A survey has also been conducted to gain student's perspectives regarding online learning. The paper is divided in following sections. Section 2 deals with brief literature review. Section 4 explores the different educational resources used for teaching learning process. Section 4 studies the positive impact and challenges of online teaching. Section 5 is based on the results of the primary survey conducted among students to understand student's perspective on online learning. Section 6 is the conclusion of the paper.

SECTION 2: LITERATURE REVIEW

Joshi et al (2020) in their paper identify the barriers faced by teachers during online teaching and assessment in different home environment settings in India. According to them, there are four categories of barriers such as lack of basic training, lack of technical support, lack of technical knowledge and lack of motivation.

Onyema et al (2020) studies the global education systems. They investigate the impact of education through structured questionnaire to 200 respondents that consists of teachers, students ,parents and policy makers from selected different countries. The results show that Covid-19 has adverse effects on education including learning disruption and decreased access to education and research facilities job losses and increased students debts.

The purpose of Swarup et al (2020) paper is to identify the positive and negative impact of covid-19 pandemic on education sector in India. The paper provides a critical reflection on opportunities and challenges for internationalization of education and focus on how higher education system across the globe learns from each other to protect themselves from new challenges of Covid-19.

Jena (2020) highlights some measures taken by the Government of India to provide seamless education in the country. Both the positive and negative impact of Covid-19 on education is discussed and some fruitful suggestions are pointed out for carrying out educational activities during pandemic time.

Jena (2020), the higher education institutions have reacted positively and managed to ensure the continuity of teaching learning, research and service to the society with some tools during pandemic. The article highlights the major impact of covid-19 on HEIs and measures taken to provide educational services during the crisis.

Mittal (2020), Covid confronted most institutions with a sudden and unprepared shift towards online teaching and learning. The main factors impacting this change include the availability of technical infrastructure, capacity building of teachers and distance learning competencies including the availability of devices and networks with students.

Section 3: Educational resources available for online teaching learning.

The development of ICT has become one of the important elements in the modernization of education system. Colleges have initiated large scale investments in ICT in the classrooms. Traditional classrooms have given way to digital classrooms. To support digital teaching, classrooms are becoming smart classes connected to desktops, laptops and other devices. Different platforms such as laptops, tablets and mobile phones have changed the scope of teaching.

EDUCATIONAL RESOURCES:

While books are commonly used as educational resources, lectures play an important role in teaching. Digital technology is changing the lecture delivery process. Today teachers are using softwares like ZOOM, WEBEX, Microsoft Teams to conduct lectures and upload them for students to access them. New technologies are allowing teachers to use animation and simulation in class. For example, instead of a teacher teaching the role of stock exchanges, she can show videos on why stock exchanges were created and what is there role in financial markets.

Lecture delivery resources:

Teaching involves communication in some form. Today ease of recording videos or editing them is pushing the boundaries of recorded lectures. Teachers are creating videos or power points and unload these using softwares like Google classrooms. Demonstration is also an integral part of teaching. Digital technologies are reshaping the ways teachers are demonstrating complex topics. The practical are being conducted using virtual laboratories. In courses like mass media, students are taught news gathering and reporting using various film making tools.

EBOOKS:

Digital technologies are starting to supplement traditional paper based books. Many printed books have electronic versions which are less costly and can contain interactive segments. Today's libraries need to maintain stock of eBooks and e-journals in their repositories. With the help of Kindle reader, students and teachers can access different eBooks for reading and referencing.

ONLINE COURSES:

Today both teachers and students are updating their knowledge through various online courses .Massive open online courses (MOOCs) are free online courses that is available for anyone to enrol. Swayam is an initiative of Ministry of Human resource development to offer online courses to students. Students can also use platforms like swayam, NPTEL, COUSERA to gain additional knowledge and qualifications.

Communication and collaborations:

In digital era, the need for effective communication between students and teachers has increased significantly. It is important for a teacher to be able to communicate with students using multiple communication channels. Open source communication softwares such as Google Meet, ZOOM , Microsoft Teams allow teachers and students to communicate in real time. Moodle platforms are used by teachers for creating teaching material to online grading of students. Today apps are available to communicate with students in more effective manner.

Section4: Positive Impact and challenges of online teaching an learning.
Positive Impact of online teaching

1) Move towards blended learning: Recent years have accelerated the process of digitalisation of education. Educational institutes moved towards blended mode of learning. It encouraged all teachers and students to become more technology savvy. There is lots of opportunity for collaborative learning.
2) Increase in the use of learning management system: There has been greater demand for learning management system by educational institutions. It opened a great opportunity for the companies that have been developing and strengthening learning management systems for use in educational institutions (Misra, 2020)

3) Improvement in collaborative work: There is a new opportunity where collaborative teaching and learning can take on new forms. Collaborations can also happen among faculty/teachers across the world to benefit from each other (Misra, 2020)
4) Rise in online meeting: Pandemic lead to rise in teleconferencing, virtual meeting , webinars and e-conferences. Even the Orientation programme, refresher courses and short term courses under Career Advancement Scheme had been conducted using online platforms.
5) Enhanced digital literacy: The lockdown induced people to learn and use digital technology and this has increased the level of digital literacy.
6) World wide exposure: Educators and learners are getting opportunities to interact with peers from around the world. Learners adapted to an international community.

Challenges:

1) Unprepared teachers/students for online education: Teachers as well as students were not prepared for the sudden transition from face to face learning to online learning. It took a while for teachers to start conducting lectures using Zoom, Google Meet, Microsoft Teams or other learning management systems.
2) Disruption due to network issues: Even though lectures were conducted online, there are several issues faced by teachers and students during sessions. The most important is the network issues faced by them. The students get disconnected during lectures and teachers may have to cancel lectures due to connectivity issues. For students, they may have to share the laptops/desktops with other members of the family.
3) Access to digital world: As many students have limited access or no internet access and many students may not be able to afford computers, laptops or supporting mobile phones in the homes, online teaching –learning may create a digital divide among students. This creates negative consequences for poor students as they are unable to explore online learning. This may create a gap between the rich/poor and urban/rural students.
4) Lack of proper interaction: Virtual classes cannot be of interest to students who are tactile learners. Conventional classroom socialization is another major step missing in online learning. The real time sharing of ideas, knowledge and information is partially missing from the digital learning. As educational institutions continue to remain closed, many young people miss out on social interaction based activities which are necessary for learning and growth.

SECTION 5: RESULTS OF SURVEY

Objectives of the Survey

1) To highlight the benefits and obstacles of online learning in India.
2) To know the effectiveness of online learning from perspectives of students.

METHOD:

Sample: The key purpose of this research paper is to find out the general attitudes of students towards compulsory online learning amid Covid-19. The sample for the survey included 160 students currently attending online classes in College in Navi Mumbai.

Survey: An online questionnaire using Microsoft Forms was used to gather information about the attitudes of students regarding online learning. A modified version of Bernand, Braver, Abrami and Surkes(2004) 38-item questionnaire was used to assess the effectiveness of online learning.

Data analysis: The data obtained through an online survey were analyzed by frequency of student's responses and are stated in percentages. Demographic data were obtained using the likert scale and is reported in percentages of student's responses.

RESULTS:

The sample consisted of 160 students, out of which 107 (66.88%) were girls and 53(33.13%) were boys. Out of 160 students, 13(8.13%) were between the range of 15-17years whereas 147 (91.88%) were in the range of 18-20 years.

Table No.1 No. of hours on online learning

No of hours	**No. of students**	**Per cent**
< 1 hr	04	2.5
2-5 hrs	123	76.88
6-10 hrs	30	18.75
>10 hrs	03	1.87
Total	160	100

The first question was based on number of hours spent on online learning in which case 76.88% of the students answered that they spent 2-5 hrs on online learning and 20% of students spent 6 to more than 10 hrs on online learning.

Table No.2 There is no difference between online and conventional teaching

	No. of students	Per cent
Agree	21	13.12
Somewhat agree	48	30.00
Disagree	91	56.88
Total	160	100

While reporting to the question whether online and conventional learning is the same, 56.88% students reported that online learning is way different from conventional learning mode. Whereas 30% students somewhat agreed that there is little difference between online and conventional learning.

Table No.3 Online learning is better experience than conventional learning

	No. of students	Per cent
Agree	19	11.88
Somewhat agree	51	31.87
Disagree	90	56.25
Total	160	100

One of the less discussed areas of online education is the need for motivation for online learning. In traditional classes, students usually actively participate in academic activities due to their face to face engagement with teachers and peer groups. 56.25% students reported that learning in the conventional classrooms is a better experience than online learning while only 31.87% agreed that online learning is somewhat better than conventional learning.

Table No.4 Syllabus of each subject can be covered effectively through online teaching

	No. of students	Per cent
Agree	63	39.37
Somewhat agree	75	46.88
Disagree	22	13.75
Total	160	100

When the students were asked regarding coverage of syllabus, 39.37% agreed that syllabus could be covered through online mode while 46.88% somewhat agreed.

Table No.5 It is easy to complete group projects /assignments electronically

	No. of students	Per cent
Agree	85	53.13
Somewhat agree	45	28.12
Disagree	30	18.75
Total	160	100

When it came to group assignments, students do not face any difficulty as 53.13% reported they could manage group activity electronically.

Table No.6 Face to face contact with faculty members is necessary for learning

	No. of students	Per cent
Agree	115	71.88
Somewhat agree	37	23.12
Disagree	08	5.00
Total	160	100

While comparing the effectiveness of conventional and online learning, 71.88% students felt that face to face contact with their teachers are important for effective learning which is missing in distance learning mode.

Table No.7 Reasons for limited internet access

	No. of students	Per cent
Network issue	121	75.63
Too expensive	06	3.75
Used by other members	33	20.62
Total	160	100

As shown in table.7, 75.63 % students reported that internet connectivity is a major problem behind limited internet access. 20.62% reported sharing internet facility with other family members as reason for limited internet access.

DISCUSSION

Majority of the surveyed students reservations about online learning, lack of access to internet facilities, lack of proper interaction . Lack of contact with students and teachers were among the major challenge faced by students .The shift from traditional face to face learning to online learning has been a challenge to students. Many students do not have access to reliable internet services and thus struggling with online learning. Survey participants also reported that traditional classroom learning was more effective as compared to online learning.

CONCLUSION

Covid-19 has impacted the conventional methods of teaching learning across the globe. The higher educational institutes have opted for online lectures as an alternative way to continue education. Although online learning is needed for continuation for education in this present situation, it is not as effective as conventional learning. This is a challenge for faculty members to make online learning as motivating and interesting as possible. There is a need to blend online teaching and learning with conventional learning environment as we move towards further digitalisation of education.

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An Empirical Study of Students' Attitudes toward E-Learning during the Covid-19 Pandemic in India

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ABSTRACT

The outburst of COVID-19 has had a substantial influence on the educational system around the world; it has forced the closure of educational institutions, which has had a negative impact on the global student community. COVID-19 required containment and enforced isolation due to its transmissible nature, which had an important impact on teachers' and students' personal interactions. Computer-based learning has emerged as the closest substitute for off-line training in the nonexistence of traditional and conventional classroom teaching and one-to-one interaction. In light of this, it's important to look into students' perceptions and readiness for the online-learning system that's been implemented at universities during the COVID-19 epidemic. The quantitative approach has been used in this study, and responses from 256 university students, have been collected through an online survey. Results of the study suggest that pupils have a favourable attitude toward electronic learning and hence accept this new educational method. It has been proved practically the prominence of e-learning during the COVID-19 crisis. As a result, e-learning has arisen as a new method of increasing the learning process, with the potential for social media to enhance the learning output even more. The outcomes of this study will assist educational institutions and policymakers in taking this online-learning process to the next level in a more effective manner.

Keywords: E-Learning, COVID-19 Pandemic, Students’ Attitude

1. INTRODUCTION

Information technology has a huge impact on human existence, and its importance in education cannot be underestimated. Due to the shutdown of educational institutions, which creates obstacles for students' learning under the current COVID 19 pandemic scenario, the role of information technology has gained traction. During the quarantine period, information technology provides a solution for the continuing learning process via ground-breaking and learning management systems. It has given educators the opportunity to use IT to construct teaching and evaluation solutions for students' course work completion. Teachers, students, and institutional managers are all working hard to make the most use of technology and guarantee that the learning process is as efficient as possible. The definitive goal is to reduce the learning gap that lockdown causes.

The online learning platform has been recognized and enjoyed by educational institutions and students all around the world. Ease of use, learning flexibility, and a customizable environment are the reasons for this acceptability. Despite its many benefits, e-learning has a number of drawbacks, including social isolation, lack of face-to-face interaction between teacher and student, and connectivity concerns, among others. Before this ongoing pandemic that drove the world to turn to electronic learning solutions, e-learning had never been adopted and accepted as actual learning or as a formal way of education. Now, in the midst of a pandemic, most educational institutions are looking into and embracing e-learning to make it easier for students to adjust to the new normal. Teachers and educators are also experimenting with various e-teaching tools in order to provide their pupils with the most convenience feasible.

Teachers and students alike are in the process of adapting to this new teaching and learning style, as this e-learning wave is a relatively recent phenomenon. In the current situation of virtual teaching and the establishment of a new normal of teaching-learning methodology, it is even more important to learn about learners' opinions and to explore learners' inclination toward this novel teaching methodology, such as their degree of adaptation and, if any, amendments they would like to suggest for the same, or their desire to reject it entirely. In light of this, the purpose of this study is to investigate how e-learning was perceived during the COVID-19 lockdown period.

2. LITERATURE REVIEW

Armstrong, D (2011) & Biswas, B.; Roy, S.K.; Roy, F (2020) in recent years, there has been an increase in research into students' perceptions of e-learning and their expectations from it. Because of its expanding acceptance, the "National Center for Education Statistics" has observed an increase in the demand for e-learning. According to several studies, the majority of students enrolled in online courses are happy with their learning experience. However, research shows that a variety of factors influence how students perceive themselves. **Shrestha, E.; Mehta, R.S.; Mandal, G.; Chaudhary, K.; Pradhan, N (2019) & Pérez-Pérez, M.; Serrano-Bedia, A.M.; García-Piqueres, G.(2020)**

Al Kurdi, B.; Alshurideh, M.; Salloum, S.A (2020) Students' embrace of technology is influenced by factors such as age, gender, prior computer literacy, and learning styles. There is a lot of material out there that talks about "technology acceptance" ideas and how they might be used to research students' perceptions.

Australia, the United States, and the United Kingdom have each contributed research in the areas indicated. These studies show that the majority of students own internet-enabled gadgets like computers and smartphones. They communicate with these digital devices through official and informal networking venues such as email, blogging, and other social media platforms. The students' knowledge, expectations, and perceptions of e-learning are the basis for this research. To uncover probable answers, relevant literature is studied, especially in the field of user perceptions of innovation. The "theory of diffusion of innovations" is one of the most important theories for studying technology uptake in higher education so far. The way people perceive innovation, as defined by Roger, has a significant impact on how quickly they adopt it. The degree to which the innovation is viewed as being better than the comparative product, compatibility, consistency with present value set up, past behaviour and experience of innovation recipients, and the degree of complications associated with comprehending and implementing innovation.

Mlekus, L.; Bentler, D.; Paruzel, A.; Kato-Beiderwieden, A.L.; Maier, G.W (2020) Technology acceptance, according to the "Technology Acceptance Model," is determined by two variables: perceived utility and perceived ease of use. According to the "Technology Acceptance Model," perceived benefit and usefulness and ease of use are the two most essential deciding variables for technology acceptance.

Gray, J.A.; DiLoreto, M. (2016) in an online learning environment, the researchers looked at the effects of course structure/organization, learner interaction, student engagement, and instructor presence on student satisfaction and perceived learning. This research discovered a link between course format and student perceptions of learning. Furthermore, the results revealed that while student contact had no statistically significant impact on student happiness, the presence of an instructor has a statistically significant impact on perceived student learning. However, the results revealed that learner engagement has a major impact on how students perceive their learning. The statistics also revealed that the presence of an instructor had an impact on student satisfaction. Student involvement, the mediated variable, slightly mediated the impact of teacher presence on student satisfaction. Furthermore, the influence of both instructor presence and learner interaction on reported student learning was totally mediated by student involvement.

Chandra, Y (2020) the purpose of this study was to look into students' perceptions of academic stress during modern online education, as well as their coping techniques based on emotional intelligence. According to the study's findings, there were substantial discrepancies between male and female students' fears of academic failure and their online and home environments. Many of them have begun to redirect their attention to various creative hobbies and to enroll in online courses to master new technological skills. Students were attempting to cope with negative impacts coming from the present pandemic crisis in this new setting of online education by employing emotional intelligence and separating themselves from boredom and depressive thoughts.

2.1 A RESEARCH GAP

According to a survey of the literature, the majority of studies are conducted to determine students' perceptions and attitudes about e-learning, while studies on students' perceptions of e-learning during the COVID-19 pandemic are few and far between.

2.2 THE RESEARCH'S OBJECTIVES

1. Recognize the value of e-learning during a pandemic.

2. To investigate the advantages and disadvantages of online learning from the standpoint of students.

3. Examine students' attitudes toward e-learning during the Covid-19 lockdown period.

2.3 HYPOTHESIS:

1. H_0: There is no statistically significant difference in the E-learning may be an effective mode of education by the categories of the Gender.

2. H_0: There is no statistically significant difference in the E-learning may not be an effective mode of education by the categories of the Gender.

3. H_0: There is no statistically significant difference in the Problem faced during E-Learning by the categories of the Gender.

3. METHODOLOGY

This study is both quantitative and descriptive in character, and it analyzed both primary and secondary data. Data was collected from 256 students enrolled in various colleges in Mumbai University using a customized questionnaire. Students who are actively using e-learning platforms for their normal course during COVID -19 lockout are the survey's respondents. There were two sections to the questionnaire. Students' personal information is collected in Section A. During COVID-19, Section B of the Questionnaire assesses students' perceptions and attitudes toward the success of e-learning. The questionnaire was finalized after minor changes were made in response to the pilot survey's feasibility assessment. The researcher employed proper statistical tools and procedures for the validation and analysis of the data received from the sample respondents. The internal consistency of the manifest variables or the reliability of the latent constructs that were employed in the study were measured using Cronbach's alpha approach. The researcher used SPSS (version 26) software to examine the benefits of online learning and to investigate students' attitudes regarding e-learning during this continuing epidemic. Descriptive Statistics and Mann Whitney U test were you to analysis the data.

4. RESULTS AND FINDINGS

4.1 Descriptive Statistics: Frequencies and percentages were calculated.

Table 1 Frequency Table for Nominal Variables

Variable	***n***	***%***
Qualification		
Postgraduate	22	8.59
Professional courses	3	1.17
Undergraduate	231	90.23
Missing	0	0.00
Gender		
Female	117	45.70
Male	139	54.30
Missing	0	0.00
How often do you use the Internet?		
Daily	246	96.09
Weekly	3	1.17
Fortnightly	2	0.78
Monthly	5	1.95
Missing	0	0.00
Did you hear about e-learning prior to Covid-19 pandemic?		
No	46	17.97
Yes	210	82.03
Missing	0	0.00
Have you studied through online before pandemic situation?		
No	124	48.44
Yes	132	51.56
Missing	0	0.00
If you have the opportunity to choose, what would you prefer?		
E-learning	86	33.59
Traditional / On campus learning	170	66.41
Missing	0	0.00
Do you think e-learning is an effective way of learning in education?		

No	95	37.11
Yes	161	62.89
Missing	0	0.00
Do you think e-learning can help in improving the quality of education?		
No	57	22.27
Maybe	101	39.45
Yes	98	38.28
Missing	0	0.00
Do you think e-learning will help in overcoming the problems of education?		
No	57	22.27
Maybe	101	39.45
Yes	98	38.28
Missing	0	0.00
Note. Due to rounding errors, percentages may not equal 100%.		

Out of the total sample 8.59 % students were postgraduate, 1.17 % students were doing Professional course and 90.23 Students were Undergraduate. Out of the total respondents 44.70 were Female & 54.30 % Male. Almost 96.09 % were using internet daily. 82.03 % were aware of the E-learning concept prior to pandemic. 51.56% of the students have studied through online mode before the pandemic. 33.59 % of the students have opportunities to choose E-leaning as an option and 66.41 % had option of traditional mode. 62.89 % of the students thinks hat E-learning is an effective way of learning in education. 39.45 % of the student's thinks that E-learning might improve the quality of education and we can overcome the problems of education. And 38.28 % are of the option that it will definitely improve the quality of education and we can overcome the problems of education.

4.2 SUMMARY STATISTICS

The observations for E-learning may be an effective mode of education had an average of 9.35 (SD = 3.64, SE_M = 0.23, Min = 0.00, Max = 14.00, Skewness = -0.75, Kurtosis = -0.05). The observations for E-learning is not an effective mode of education had an average of 9.06 (SD = 2.73, SE_M = 0.17, Min = 0.00, Max = 12.00, Skewness = -1.22, Kurtosis = 1.42). The observations for Problem faced during E-Learning had an average of 17.82 (SD = 6.64, SE_M = 0.42, Min = 0.00, Max = 26.00, Skewness = -0.77, Kurtosis = -0.02). When the skewness is greater than 2 in absolute value, the variable is considered to be asymmetrical about its mean. When the kurtosis is greater than or equal to 3, then the variable's distribution is markedly different than a normal distribution in its tendency to produce outliers (Westfall & Henning, 2013). The summary statistics can be found in Table 1.

Table 1 Summary Statistics Table for Interval and Ratio Variables

Variable	M	SD	n	SE_M	Min	Max	Skewness	Kurtosis
E-learning may be an effective mode of education	9.35	3.64	256	0.23	0.00	14.00	-0.75	-0.05
E-learning is not an effective mode of education	9.06	2.73	256	0.17	0.00	12.00	-1.22	1.42
Problem faced during E-Learning	17.82	6.64	255	0.42	0.00	26.00	-0.77	-0.02
Note. '-' indicates the statistic is undefined due to constant data or an insufficient sample size.								

4.3**Reliability Analysis:** A Cronbach alpha coefficient was calculated for the E-learning may be an effective mode of education scale, E-learning is not an effective mode of education Scale & Problem faced during E-Learning Scale. The Cronbach's alpha coefficient was evaluated using the guidelines suggested by George and Mallery (2018) where > .9 excellent, > .8 good, > .7 acceptable, > .6 questionable, > .5 poor, and ≤ .5 unacceptable.

Table 2

Scale	No. of Items	α		Upper Bound
E-learning may be an effective mode of education	7	.81	.78	.84

E-learning is not an effective mode of education	7	.75	.71	.79
Problem faced during E-Learning	14	.89	.87	.91

Note. The lower and upper bounds of Cronbach's α were calculated using a 95.00% confidence interval.

4.4 HYPOTHESIS TESTING:

H_0: There is no statistically significant difference in the E-learning may be an effective mode of education by the categories of the Gender.

A two-tailed Mann-Whitney two-sample rank-sum test was conducted to examine whether there were significant differences in E-learning may be an effective mode of education between the levels of Gender. The two-tailed Mann-Whitney two-sample rank-sum test is an alternative to the independent samples *t*-test, but does not share the same assumptions (Conover & Iman, 1981). There were 117 observations in group Female and 139 observations in group Male.

RESULTS

The result of the two-tailed Mann-Whitney *U* test was not significant based on an alpha value of .05, $U = 8022$, $z = -0.19$, $p = .852$. The mean rank for group Female was 127.56 and the mean rank for group Male was 129.29. This suggests that the distribution of E-learning may be an effective mode of education for group Female (*Mdn* = 10.00) was not significantly different from the distribution of E-learning may be an effective mode of education for the Male (*Mdn* = 10.00) category. Table 1 presents the result of the two-tailed Mann-Whitney *U* test. Figure 1 presents a boxplot of the ranks of E-learning may be an effective mode of education by Gender.

TABLE 1 Two-Tailed Mann-Whitney Test for E-learning may be an effective mode of education by Gender

	Mean Rank				
Variable	**Female**	**Male**	*U*	*z*	*p*
E-learning may be an effective mode of education	127.56	129.29	8,022.00	-0.19	.852

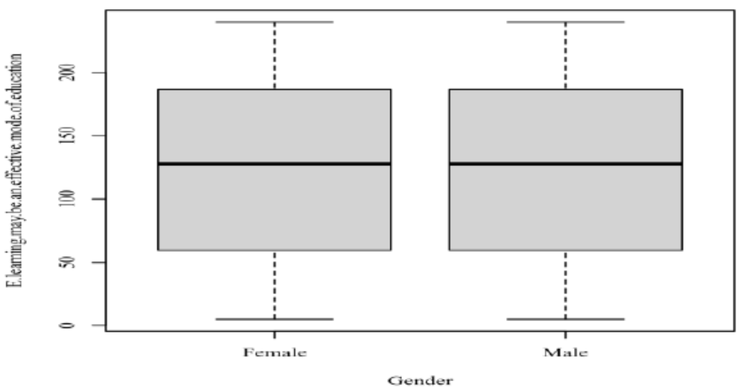

Figure 1: Ranks of E-learning may be an effective mode of education by Gender

H_0: There is no statistically significant difference in the E-learning may not be an effective mode of education by the categories of the Gender.

A two-tailed Mann-Whitney two-sample rank-sum test was conducted to examine whether there were significant differences in E-learning is not an effective mode of education between the levels of Gender. The two-tailed Mann-Whitney two-sample rank-sum test is an alternative to the independent samples *t*-test, but does not share the same assumptions (Conover & Iman, 1981). There were 117 observations in group Female and 139 observations in group Male.

RESULTS

The result of the two-tailed Mann-Whitney *U* test was not significant based on an alpha value of .05, $U = 9141$, $z = -1.73$, $p = .084$. The mean rank for group Female was 137.13 and the mean rank for group Male was 121.24. This suggests that the distribution of E-learning is not an effective mode of education for group Female (*Mdn* = 10.00) was not significantly different from the distribution of E-learning is not an effective mode of education for the Male (*Mdn* = 10.00) category. Table 2 presents the result of the two-tailed Mann-Whitney *U* test. Figure 2 presents a boxplot of the ranks of E-learning is not an effective mode of education by Gender.

Table 2 Two-Tailed Mann-Whitney Test for E-learning is not an effective mode of education by Gender

	Mean Rank				
Variable	**Female**	**Male**	*U*	*z*	*p*
E-learning is not an effective mode of education	137.13	121.24	9,141.00	-1.73	.084

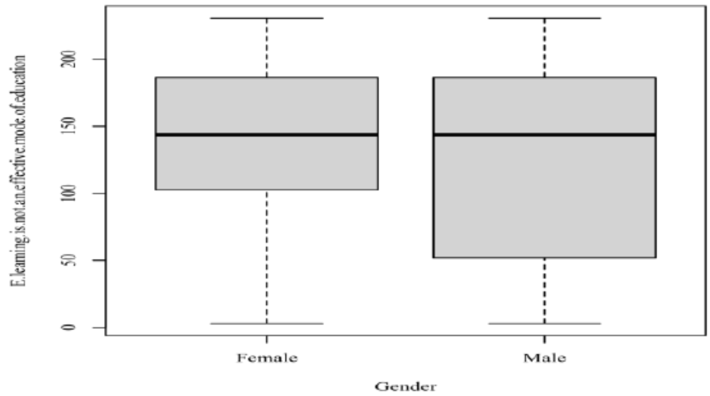

Figure 2: Ranks of E-learning is not an effective mode of education by Gender

H_0: There is no statistically significant difference in the Problem faced during E-Learning by the categories of the Gender.

A two-tailed Mann-Whitney two-sample rank-sum test was conducted to examine whether there were significant differences in Problem faced during E-Learning between the levels of Gender. The two-tailed Mann-Whitney two-sample rank-sum test is an alternative to the independent samples *t*-test, but does not share the same assumptions (Conover & Iman, 1981). There were 116 observations in group Female and 139 observations in group Male.

Results

The result of the two-tailed Mann-Whitney *U* test was significant based on an alpha value of .05, $U = 9569.5$, $z = -2.58$, $p = .010$. The mean rank for group Female was 141.00 and the mean rank for group Male was 117.15. This suggests that the distribution of Problem faced during E-Learning for group Female was significantly different from the distribution of Problem faced during E-Learning for the Male category. The median for Female (*Mdn* = 20.00) was significantly larger than the median for Male (*Mdn* = 18.00). Table 3 presents the result of the two-tailed Mann-Whitney *U* test. Figure 3 presents a boxplot of the ranks of Problem faced during E-Learning by Gender.

Table 3 Two-Tailed Mann-Whitney Test for Problem faced during E-Learning by Gender

	Mean Rank				
Variable	**Female**	**Male**	*U*	*z*	*p*
Problem faced during E-Learning	141.00	117.15	9,569.50	-2.58	.010

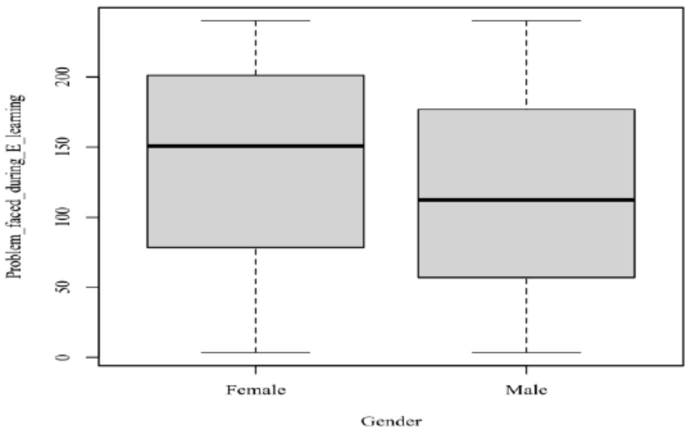

Figure 3: Ranks of Problem faced during E-Learning by Gender

5. CONCLUSION

During the continuing COVID-19 epidemic, the current survey examines university students' attitudes regarding e-learning. The study highlights students' preferences for e-learning since it allows them to interact with their lecturers, fellow students, and engage with their study materials while being comfortable and flexible in terms of geography and time. One of the main reasons why students choose e-learning is the ease with which they may obtain study resources. According to the findings, e-learning technology facilitates knowledge access, resulting in students developing a good attitude toward it. This conclusion is based on the usefulness, self-efficacy, ease of use, and student behaviour when it comes to e-learning. The study confirms the benefits of e-learning, such as the ability to study from any location, which is not available with traditional face-to-face learning. Furthermore, as students regard e-learning to be akin to face-to-face learning, the study indicates the identical experience of being educated as done through physical classroom teaching. According to the findings of this survey, e-learning has exploded in popularity in India in recent years, with students preferring online learning tools to engage with one another and with educators. Furthermore, in the lack of face-to-face interaction, students have embraced digital technology for the sake of learning. As a result, suitable measures should be taken to improve the quality of E-learning in order to aid students' learning during the Covid-19 pandemic.

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A Study on Measuring Service Quality between Selected Government and Private Hospitals amongst Patients of Vadodara and Ahmedabad Cities

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ABSTRACT
Healthcare system in country is pivotal. The whole world has witnessed it in COVID 19 pandemic. Quality service and treatment are two determining parameters of healthcare system. In India ancient healing treatment were widely used like Ayuveda, unani and siddha. Eventually Government has also increased importance to healthcare system after Independence. In this research study an attempt is made to measure service quality between Government/ Trust and Private hospitals. The factors affecting selection of hospitals were also studied in this research paper. The researchers have attempted to find relationships of patents' demographic profile with their expectations and perceptions.

Keywords: Healthcare, service quality, perceptions and expectations

INTRODUCTION
In India, indigenous systems like ayurveda, unani and siddha were largely the domain of individual practitioners who provided services for a price which was paid mostly in kind. Accounts of ayurvedic practice during the nineteeth century indicate that kings patronized ayurvedic practitioners by offering large sums of money. The state played a minimal role in assuming responsibility in providing services to the people.

There are two main ways of defining health; the positive approach, where health is viewed as a capacity or an asset to be possessed, and the negative approach, which emphasis the absence of specific illnesses, diseases or disorders.

The world health Organisation (WHO) has defined health as 'a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity' (1946). This definition is significant in stressing mental as well as physical aspect of health, and social as well as individual well-being. This definition has been criticized for being Utopian, though it is perhaps more appropriately viewed as an ideal towards which health care and other social actions may be orientated (Twaddle, 1974).

Health care system has been challenged in recent years to deliver high quality services with limited resources. Service quality is characterized by the customer perception of service. In services, what counts is the quality as it is perceived by the customers, i.e. that customers are the sole judge of quality (Berry, 1988) conceptualized a service quality model where he identified the two variables of service quality as expected service and perceived service. He observed that the discrepancy between expectations and perceptions is the primary determinant of customer's service quality assessment.

LITERATURE REVIEW
The main objective of any healthcare system is to facilitate the achievement of optimal level of health to the community through the delivery of services of appropriate quality and quantity. One another objective of health reform worldwide is to hold healthcare accountable for its resource use and the way healthcare services are delivered.

Dennish J Scotti and Joel Harmon (2009) assessed the importance of customer-contact intensity at the service encounter level as a determinant of service quality assessments. It showed that performance-driven human resources practices play an important role as determinants of employee customer orientation and service capability in both high-contact (outpatient healthcare) and low-contact (benefits claim processing) human service contexts. However, there existed significant differences across service delivery settings in the customer orientation and the similarity between employee and customer perceptions of service quality, depending on the intensity of customer contact. In both contexts, it was found that managerial attention to high-performance work systems and customer-orientation has the potential to favorably impact perceptions of service quality, amplify consumer satisfaction, and enhance operational efficiency.

Johan Hellings, Ward Schrooten and NiekKlazinga (2007) measured patient safety culture in five Belgian general hospitals. Safety culture played an important role in hospitals. The dimensional positive scores were found to be low to average in all the hospitals. The lowest scores were "hospital management support for patient safety", "non-punitive response to error", "hospital transfers and transitions", "staffing", and "teamwork across hospital units". The dimension "teamwork within hospital units" generated the highest score. Although the same dimensions were considered problematic in the different hospitals, important variations between the five hospitals were observed.

Peter Hensen, Meinhard Schiller, Dieter Metze and Thomas Luger (2008) evaluated the perception of hospital services by referring physicians and clinicians for quality improvement. Referring physicians in private practice and hospital clinicians at a large dermatology academic department providing inpatient and outpatient services at secondary and tertiary care levels were surveyed to determine their perceptions of service quality. A comparative questionnaire survey was established to identify improvement areas and factors that drove referral rates using descriptive and inferential statistics. Referring physicians' (n ¼ 53) and clinicians' (n ¼ 22) survey results concordantly revealed that timely and significant information about hospital stay as well as accessibility to hospital staff were major points for improvement. Significant differences between both samples were found with respect to inpatient services and patient commendation. Clinicians tended to rate their services and offerings higher than referring physicians (p ¼ 0:019). Geographic range was correlated with the frequency of patient commendation (p ¼ 0:005) and the perception of friendliness (p ¼ 0:039). The number of referred patients was correlated with medical reports' informational value (p ¼ 0:042).

Nurses heavily influence patient care quality and safety. **Ari Mawachofi and Stephen L. Walston (2011)** attempted to find factors affecting nurses' perceptions of patient safety. This paper aimed to examine socioeconomic and organizational/system factors affecting patient safety and quality perceptions. They found that improved patient safety and the likelihood that nurses use their own facility include: fewer visible errors; ability to communicate suggestions; information technology support and training; and a confidential error reporting system. Furthermore, nursing in these hospitals was dominated by foreign nationals. The high positive patient safety perceptions may be influenced by either individual or peer biases.

RESEARCH METHODOLOGY

Evaluating service quality is difficult than evaluating the quality of goods. Therefore, service quality measurements are, in general, made by means of using consumers' (patients) perception about the quality of the services. Patients' perception is the main indicator of quality in health care service. Quality of health care is the most optimal degree of health outcomes by delivery of cost effective and efficient professional health services to people. Hence, this study has focused the service quality perception of patients from health care service providers both Private and Government Hospitals.

The exploratory research design was used to collect data using survey method. The data are collected from Vadodara and Ahmedabad citites. The sampling design used non-probability convenient sampling.

From each selected hospital Twenty (20) respondents are selected using "non probability c0onvenience sampling and their interview were taken. Thus the sample size for the study turned out to be 40. The data collection instrument used in this study was structured, closed ended questionnaire.

OBJECTIVES OF THE STUDY

- To examine perception of patients / relatives towards private and Government hospitals.
- To analyze relationship between Demographic profile of patients and selections of Hospitals.
- To analyze factors affecting selection of hospitals by patients / relatives.

HYPOTHESIS

- Attitude and behavior of staff positively influence the satisfaction and relation with patients.
- Demographic profile of patients positively influences section of Hospitals
- The expectations and perception of selected respondents of selected hospitals of both the cities are equal.

PROFILE OF RESPONDENTS:

In present study out of 40 respondents, 50% respondents were from Vadodara whereas 50% were from Ahmedabad city

FREQUENCY TABLE

Table: 1 Demographic Profile of Respondents

		No. of Respondents	Percentage (n=40)
Type of Hospital	Govt. / Trust	20	50.0

	Private	20	50.0
Decision of choosing the hospital	Self	18	45.0
	Spouse	4	10.0
	Joint	2	5.0
	Family	16	40.0
Source of knowledge about hospital	Advertisement	3	7.5
	Family	24	60.0
	Friend	5	12.5
	Recommended	1	2.5
	Others	7	17.5
First visit to hospital	Yes	25	62.5
	No	15	37.5
Vaccinated	Yes	29	72.5
	No	11	27.5
Name of Vaccine	COVIDSHILD	19/29	65.5
	COVAXIN	10/29	34.5

Present study was carried out in Vadodara and Ahmedabad cities. Twenty patients' relatives from Government / Trust hospitals and equal number of patients' relatives from private hospitals were selected for present study. Out of total, majority (45%) had selected the hospital by themselves whereas 40% had take common decision. The major source of information about the hospital was family members. About 62% were visiting present hospital first time and 72.5% had got COVID vaccine.

Table 2: Demographic factors and selection/type of Hospitals

		Govt. / Trust (n=20)	**Private (n=20)**	**Total (n=40)**	**Chi-square Value**	**p-value**
Sex	**Male**	14 (70%)	10 (50%)	24 (60%)	1.667	0.333
	Female	6 (30%)	10 (50%)	16 (40%)		
Age (yrs)	21-30	8 (40%)	10 (50%)	18 (45%)	2.222	0.843
	31-40	6 (30%)	6 (30%)	12 (30%)		
	41-50	3 (15%)	3 (15%)	6 (15%)		
	51-60	1 (5%)	1 (5%)	2 (5%)		
	>60	2 (10%)	0 (0%)	2 (5%)		
Education	SSC	9 (45%)	12 (60%)	21 (52.5%)	5.071	0.288
	HSC	3 (15%)	5 (25%)	8 (20%)		
	Graduate	3 (15%)	0 (0%)	3 (7.5%)		
	PG	1 (5%)	0 (0%)	1 (2.5%)		
	Professional	4 (20%)	3 (15%)	7 (17.5%)		
Monthly Family Income (Rs.)	<50,000	15 (75%)	11 (55%)	26 (65%)	8.615	0.030
	50,000 - 1,00,000	0 (0%)	6 (30%)	6 (15%)		
	1-2 Lakh	2 (10%)	0 (0%)	2 (5%)		
	>2 Lakh	3 (15%)	3 (15%)	6 (15%)		

Above table depicts, the gender ratio, age distribution, educational qualification and monthly family income is provided for selected respondents form two types of hospitals. There is no significant difference in proportion of respondents according to their gender ratio (p-value=0.333), age distribution (p-value=0.843) and educational qualification (p-value=0.288). There is significant association between monthly family income and type of hospital (p-vlaue=0.030).

DESCRIPTIVE STATISTICS

Table3: Factors affecting selection of Hospitals

	Rank	Mean	Std. Deviation
Doctor qualification & exp	4	4.23	0.530
Doctor/staff behaviour & practice	2	4.84	0.472
Hospital Reputation	5	3.82	0.493

Facilities / Services	1	4.89	0.149
Location, cleanliness, food	6	3.43	0.506
COVID Protocol	3	4.58	0.572

Above table shows mean and SD of score given by selected respondents regarding important factors for choice of hospital. According to the respondents, facilities and services offered at hospital is most important followed by doctor / staff behaviour & practice, COVID protocol, Doctor qualification & experience, hospital reputation and location & cleanliness.

INDEPENDENT T-TEST

Table 4: Expectations and Perceptions measurement

	Type of Hospital	N	Mean	Std. Deviation	t-value	p-value
Expectation	Govt / Trust	20	4.76	0.271	0.104	0.918
	Private	20	4.75	0.382		
Perception	Govt / Trust	20	4.08	0.385	-3.106	0.004
	Private	20	4.52	0.513		
Exp-Per Ratio	Govt / Trust	20	1.18	0.112	2.281	0.028
	Private	20	1.07	0.179		

Mean expectation regarding hospital is not significantly differ between relatives at Govt / Trust and Private hospitals (p-value = 0.918) but significant difference is found in perception between relatives of these two types of hospitals (p-value = 0.004). Mean perception is high among relatives at private compared to Govt / Trust hospitals. As there is difference in perception between two groups, the expectation to perception ratio is also significantly higher among relatives at Govt / Trust hospitals compared to those at private hospitals (p-value = 0.028).

CONCLUSION

The whole world is passing through the phase of pandemic. Medical facilities and quality medical facilities are vital. The pandemic has increased importance of Health care system. Government and Private/ Trust Hospitals have put their best efforts to strengthen Health care system. In this research study an attempt is made to provide idea about Healthcare system in two major cities of Gujarat. It is found that income plays pivotal role in selection of Hospitals. It has been proved in the present study that facilities and services offered at hospital is most important followed by doctor / staff behaviour & practice, COVID protocol, Doctor qualification & experience, hospital reputation and location & cleanliness. Perception of Patients is found high increase private Hospitals as compared to Government Hospitals. The expectation to perception ratio is significantly high in Government and Trust than to Private Hospitals. So it can be concluded that the expectation to perception ratio is also significantly higher among relatives at Govt / Trust hospitals compared to those at private hospitals

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The Core Principles of Management for Business Management

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ABSTRACT
Management as a subject of administering the resources is a modem era development but before the scientific management has emerged there was technical management running from time to time beneath the surface which made the nomadic life of human beings revolutionized to live a life where they are free from any kind of threat.

The core principle of management lies in managing ourselves at the individual level towards ourselves at the higher level to ensure the personnel management for any business management to be successful at the larger plane.

Modem 21st century is a technological era where the ability to manage things is being done through technological management even though the nature of human effort has changed from physical to mind management the need for fundamental principles of core values of management are still highly valued principles.

Keywords: Technical Management, Personnel Management.

INTRODUCTION

The system of management in the making of a successful business fundamentally lies in the hands of the manager whose efficiency and ability to look or to forecast the needs of the future makes the business last for long to make at most profits with a fair service through the mechanism of principles of technical management.

The prospects of managerial methods to make some successful principles came out, especially from the problems of working together for the same objective, through the system of training for specialization, work division, and job timing at first laid a fundamental difference in the output of production with the maximum satisfaction from the employees.

For to achieve the targeted results in the business and to function with minimal efforts led to a major difference in the strategy to push the targets at a faster pace to get the maximum benefits from the business. With the growth in the industries and from the change towards modem mechanical establishments the change in the behavior led to further division in the system of running the business-like enterprise.

MANAGEMENT CONCEPT

The term management has been defined in a variety of ways -

1. Management as an Activity — Management, like playing, learning, and teaching, is an activity. It's the art of getting things done with the help of others. Interpersonal activities make up the management activities.

ACTIVATES BY DIVISION

EDUCATIONAL ACTIVITIES

2. Management as a process - Management is viewed as a process since it entails a succession of interconnected functions that contribute to the fulfillment of organizational objectives.

The following are the consequences of management as a process.

Integrated Process

Continuous Process

Interactive Process

Planning, organizing, staffing, directing, and controlling are the parts of the management process.

IMPORTANCE

- Management is vital because it aids in the achievement of group goals, enhances efficiency, develops a dynamic organization, aids in the achievement of personal goals, and contributes to society's progress. Managers that can inspire and encourage their people are genuine assets to their organizations. This form of contact not only boosts productivity and contentment among employees but also sets a positive example. Hiring managers seek out leaders who can recognize an employee's skills and encourage them to further improve their abilities.

- The finest managers can spot opportunities for improvement and know how to handle these concerns politely so that employees are encouraged to make positive adjustments rather than disheartened by their faults.
- One of the most critical roles of managers is to communicate effectively with both their direct reports and other managers throughout the organization. They're part of a complex network and must serve as a solid link between lower-level employees and upper management, or between sales, marketing, and production divisions.
- People skills are really important. You should be able to communicate clearly both orally and in writing. Memos packed with typos or hasty, perplexing meetings will not suffice. The finest managers are always able to provide a clear message and give useful, easy-to-understand information that will aid in the completion of the task at hand.
- Low-level managers require greater technical abilities than those at the top of the food chain. If you're vying for your first management position, you must show that you have a thorough grasp of the company as a whole. For this reason, many organizations promote their managers from the inside. If you don't know how to navigate your company's programming systems, you won't be able to manage a team of IT specialists. If a sales manager doesn't know how to complete a deal, he can't be productive.
- Almost every firm uses the term "innovation" as a buzzword. Your rivals are constantly working to produce the greatest new goods and services to stay one step ahead of you. Businesses that innovate successfully stay ahead of the pack, attracting new consumers with innovative products and keeping old customers satisfied with a steady stream of improvements. Hiring managers are on the lookout for fresh recruits who will offer new perspectives and ideas to the organization.
- Your industry expertise and experience should serve as a guide for all those you supervise, assisting them in achieving greater success. Managers are frequently tasked with providing training and coaching to their subordinates.
- This is a significant managerial skill that enables you to obtain outcomes, manage time, develop people, and boost morale, all of which contribute to better success for your colleagues and the company. To optimize the achievements of their team, new managers require essential abilities in the delegation, communication, motivation, and more.
- Any of the talents listed above can position you for managerial success if you include them in your resume. This is true for both people who are actively seeking a management position and those who are applying for lower-level positions. No matter what position you're applying for, make sure to highlight all of your relevant managerial abilities on your resume. Having the attributes of a competent manager will put you in a position to succeed at any level of the organization.

MANAGEMENT AND ITS 5M'S:

1. Men
2. Material
3. Money
4. Methods
5. Machinery

The above five terms are the much-needed inputs to escalate any business to hold up in the market for running in profit orientation, The time of industrialization and its results in the market economy laid the first foots steps of business to work for pro-market needs and in those times of acquiring wealth to conquer the power of one country over other led the human force to the steep rise of hard-working labor to stand as a monopoly not only in the market but in the reign of development at the cost of hard laborers work.

Systematic management and deeper exploitation of resources at the early stages of the industrial world led to the rise of transforming the traditional ways of living towards a fragmented way of life survival for to acquire the wealth to stand in the crowd of learned as a mere spectator of fast pace life with the work culture of employee and employers.

From the dispersed ways of exploitation of resources, the researches observations to make management studies for effective utilization of resources led to aspire for studies of employees to make necessary changes in the industries to manage and make some principles for managing the industries. The core level management studies and principles laid out by **Henry Fayol's 14 principles of Management.**

THE CORE PRINCIPLES OF MANAGEMENT:

According to Henry Fayol, the principles of management are the true guiding factors for managing any organization or body of management.

1. Division of work
2. Authority and Responsibility
3. Discipline
4. Unity of command
5. Unity of Direction
6. Subordination of individual
7. Remuneration
8. The degree of Centralization
9. Line of Authority/Scalar Chain
10. Order
11. Equity
12. Stability of Tenure of Personnel
13. Initiative
14. Esprit de corps/Team spirit

All the above principles are the fundamental/core values for any organization to grow strong for to achieve the targets set out for the management to do efficient business. To make any organization the need to earn profits with the decrease in human efforts is the foremost value given by management scientists like Henry Fayol.

Let us now look at what Fayol's concepts mean in today's corporate world, particularly in service-based and high-tech economies like the United States. Carl A. Rodrigues of Mont Clair State University in Upper Montclair, New Jersey, has published a paper on

In his study "Fayol's 14 Principles of Management,"

Sr.no	Name of principle	Then	Now
1	Division of work	Workers' specialization Designing a job	Generalization in the design of workers' jobs
2	Authority and Responsibility	Managers are given more authority.	Employees have more power.
3	Discipline	Controls that have been formalized	Peer pressure controls are used informally.
4	Unity of command	Only one boss reports to his or her subordinates.	Multiple supervisors report to subordinates.
5	Unity of Direction	There is only one plan and one boss for each function.	There are different plans and bosses for functions.
6	Subordination of individual	Employees are dedicated to the company.	Employees are devoted to the organization, and vice versa.
7	Remuneration	The rewarding system with Reasonable Pay	Reward scheme based on performance
8	The degree of Centralization	Decisions are made in a trickle-down fashion.	Ad hoc decision-making that is task-relevant
9	Line of Authority/Scalar Chain	Formalized, hierarchical communication route	The communication structure is less formalized and flatter.

10	Order	Internal information system for control reasons,	internal information system for coordination.
11	Equity	Commitment gained as a result of kindness	Ownership gives you a sense of ownership, which gives you a sense of commitment.
12	Stability of Tenure of Personnel	Employees should be trained and encouraged to stay.	Employee development and training continuously
13	Initiative	Managers come up with innovative ideas and put them into action.	Workers come up with new ideas and put them into action.
14	Esprit de corps/Team spirit	it is critical to maintaining excellent employee morale.	It is desirable to maintain a high level of staff morale.

MODEM ERA MANAGEMENT:

Modem management era is a technological era where the human hard work is being replaced by the mind/smart work through the technological advancement, the mind management and its behavior towards the work must be done with the at most care because the slightest mistake will lead to the collapse of the roots of management analyze the core principles of management for the new era managerial skills, the most important one is **Discipline** management where y to make a disciplined mindset for rightful work management.

Managers can use a variety of modern management practices within their organizations. Managers can utilize a combination of these tactics to guide them in leading their teams and achieving organizational goals.

The three modern management approaches are as follows:

1. A quantitative Approach

To handle complicated issues, the quantitative approach to management employs statistics and mathematical tools. Managers may analyze performance using approaches such as computer simulations or information models, depending on the business area. They may use this analysis to figure out what is working and what isn't in the firm, and then come up with ideas to fix or enhance the problems they identify. These tools and data may also be used by managers to assess the advantages and hazards of various concepts. This strategy can assist managers in making objective judgments that support the organization based on data and facts rather than personal emotions or sentiments.

2. Taking a precautionary approach

According to the contingency management strategy, no single management method fits every business. It thinks that the best management style is determined by the circumstances. This idea requires leaders to identify and implement several management styles for diverse scenarios rather than adopting a single management style. As a result, these leaders gain extra attributes and talents that enable them to effectively use a variety of management styles. The employment of a variety of styles can assist these leaders to become more adaptive and flexible in the workplace.

3. SYSTEMS APPROACH

Organizations, according to the systems approach to management, are a complex collection of numerous components that work together to achieve a shared purpose. A company is made up of several separate subsystems, such as departments. Rather than studying these subsystems independently, managers who use this approach look at how they interact and impact one another. They must also take into account their immediate surroundings as well as other influences that impact or affect these systems. The systems approach divides an organization into numerous components to further characterize it. These elements show how diverse segments of the company work together to achieve a similar goal:

Business management in the globalized era:

The challenging era where the new fundamentals of business are drawing prominence the very transition of industrial labor to new minds of changing the society is a welcoming move from the management sciences and its efforts to improve human force and the nature of work.

Management in the 21st century is less management and more like behavioral sciences to ensure the smooth functioning of business and personal life to foresee the greater possibility of the human aspiration to achieve the set targets for escalating life with the help of managerial sciences of management even in the business management.

The true nature of managerial skills and abilities lies within the thoughts of Improving the ways and means of working to improve the environment around which makes the employees output their production not only for profits but for the growth in the human effort to reach a goal with the collective work culture in management

CASE STUDY

Companies exist in a variety of shapes and sizes. Some employers maintain a close check on their staff, prohibiting even the use of cell phones in the workplace, while others insist on solemn quiet and colonial customs.

On the other hand, some companies enable workers to work from home and believe in a timetable that is more focused on results than preserving military discipline.

These organizations with a human face reach out to their employees in times of difficulty, offering assistance and even covering medical bills for suffering family members.

Gone are the days when people were primarily interested in high-paying positions in a harsh office environment. Even high-paid employees believe that, beyond a certain point, money is irrelevant; what matters is job happiness and a pleasant work environment.

At a time when work-related stress is wreaking havoc on employees' lives, it's heartening to see some organizations go to considerable lengths to guarantee that their people like their jobs and have a healthy work-life balance.

Great Place to Work Institute and Economic Lines performed a survey. A total of 700 businesses from 20 different industries were polled. MNCs outperformed Indian enterprises in terms of best workplaces, according to the replies of 1.8 lakh employees In India, Google was voted the greatest firm to work for.

CONCLUSION

Remember that, as a manager, you should align with your organization's vision, mission, strategies, leadership, systems, structure, and cultures for improved job satisfaction and career success. Treat people fairly and honestly in all you do, and do your best to follow and embrace your organization's as well as your ethics and fundamental beliefs. People are watching and watching how you walk the walk, so talk the talk and walk the walk. Give your all to your coworkers, companies, and clients. To achieve your organization's performance goals and to develop trust and positive relationships with your employees, you must be a successful manager.

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A Study of Consumer Protection Act and their Awareness among the Consumers in Satara District

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ABSTRACT

This research paper attempts to study awareness about the Consumer Protection Act amongst the Consumers in Satara district**.** The researcher has taken respondents belongs to the each tahasil of the Satara district. The researcher has taken all the 11 tahasils for the research work .Researcher has analysed such data by using descriptive statistics such as Mean and Standard Deviations. and findings and concluded some points. Such study is useful to the researcher to find out the level of awareness of peoples in Satara district about the Consumer Protection Act. This research is also useful for the District Consumer Forum and various related parties.

Keywords -: Consumer Protection Act, Mean, Awareness.

INTRODUCTION

In today's business world, as well as in the modern business world, there is rising rivalry among businesses, and they are only focused on profit. As a result, in today's commercial environment, the customer is on the defensive. Any individual who directly uses or consumes the product is referred to as a consumer. Consumers are sometimes duped by producers, suppliers, merchants, and businessmen. A customer has taken no action against such wrongdoings. Due to a lack of understanding of their rights and the Consumer Protection Act Consumers make up the majority of society, but they are disorganized. As a result, people are readily duped by producers or merchants through advertisements.

There has been a change in people's living standards and buying patterns over the last decade, with most young people preferring internet shopping. As a result, there are rapid changes in the marketing sector, but no changes in consumer rights. Consumer rights have undergone rapid and dramatic changes, such as policy changes as a result of globalisation and liberalisation, increased competition as a result of the entry of more private corporations and Firms ,in the industry downsizing, the introduction of new technology, and so on. As a result of these modifications.

The purpose of this study is to determine consumer awareness and the impact of the Consumer Protection Act on consumers and marketing organizations in Satara district. The goal of the study is to determine the level of consumer awareness in the Satara district. In addition, the influence of the Consumer Protection Act.

NEED OF THE STUDY

Every person is purchasing goods in their daily life. It is very important to know the peoples about the Consumer Protection Act. It is very difficult to peoples are come together and fight against the malpractices. In the rural area peoples are poor and uneducated and unknown about the rights of the Consumers. In to the Online buying the seller are not in front of the buyer therefore it is very difficult to told them whenever any defect into the product. Many seeds and fertilizers companies are entered into the market therefore farmers are confused about their purchasing and such seeds and fertilizers quality. The farmers are protected themselves against the malpractices and frauds. Therefore it is important to know about the awareness of consumers about the Consumer Protection Act.

OBJECTIVES OF THE STUDY

1. To understand the Consumer Protection Act.
2. To Study the awareness about the Consumer Protection Act amongst the Consumers in Satara district.
3. To draw conclusions and recommendations about the awareness of Consumers.

Population and Sample Size

11 Tahasils in the Satara district . Researcher has taken sample from each tahasil as per their Population . Satara district is the universe for the research study . Researcher had used the following formula for the determination of Sample size .

$n = Z^2 \times p.q / e^2$

Where n is the sample size , Z is the related critical value of desired confidence level . p is the standard proportion of an attributes that is present in the proportion , q (1-p) and e is the desired level of precision , taking 95 % confidence level $-^{+}$ 5 % precision , the required sample size is .

P = 0.5 and hence q = 1- 0.5 = 0.5

e = 0.05 and Z =1.96

$n = (1.96)^2 \times (0.05) \times (0.50) / (0.05)^2 = 384$

n = 384

Therefore we have chosen a sample size of > 384 i.e. 400. Researcher has selected 400 samples .

DATA AND SOURCES OF DATA

For this study data is collected through the Questionnaire . Primary data is collected through Questionnaire and filled form the respondents of the Satara district . Secondary data is collected through the different books ,Government reports , Newspapers , Research articles. The research work is depend upon the primary Data . Data have been collected through the Questionnaire and filled by the respondents . 400 respondents are taken for the research work . The respondents are belong from the each tahasil of the Satara district .

STATISTICAL TOOLS

Researcher has used different statistical tools for the research work . Frequency , percentage , Mean and Standard deviation is used .

DATA ANALYSIS AND INTERPRETATIONS

Table -: 1 Demographic profile of the Respondents

Variables	Respondents	Percentage
Area		
Urban	60	15
Rural	299	74.75
Semi-Urban	41	10.25
Total	**400**	**100**
Gender		
Male	272	68
Female	128	32
Total	**400**	**100**
Age		
Below 25 Years	102	25.50
25 to 40 Years	49	12.25
Above 40 Years	249	62.25
Total	**400**	**100**
Education		
Intermediate and Below	213	53.25
Graduate	118	29.50
Post Graduate	59	14.75
Diploma / Certificate Course	10	2.50
Other	00	00
Total	**400**	**100**
Occupation		
Students	86	21.50
Farmers	190	47.50
Housewife	45	11.25
Salaried Person	45	11.25
Businessman	26	6.50
Other	8	2
Total	**400**	**100**

Source – Primary Data

Above table 1 shows the Demographic profile of the respondents . It is clear that 74.75 % of the respondents are from rural area . 68 % respondents are male and 32 % respondents are female. As per the age of the respondents 62.25 % respondents are above 40 years . 53.25 % respondents education is Intermediate and below . As per the occupation of the respondents more than 50 % respondents are farmers .

Awareness about the Consumer Protection Act among the respondents

The following statements related to the awareness about the consumer protection act consist of some statements that respondents say or feel about their various views about the Consumer Protection Act. Researcher has used 5 point likert scale to indicate the extent to which samples are agree or disagree with each statement to describe the awareness of respondents about the Consumer Protection Act. Researcher has used Mean and Standard Deviation for analysis.

Table No. -: 2 Awareness about the Consumer Protection Act among the Respondents .

Sr. No.	Statement	Mean	S.D.
1	I have heard about the Consumer Protection Act	4.14	0.695
2	I have read about the Consumer Protection Act	3.62	1.012
3	I have knowledge about various consumer forums/ Commissions	3.18	1.062
4	I know about the procedure for filing complaint under Consumer Protection Act	3.17	1.082
5	I am confident to answer the question and present my case in the consumer forum/commission	3.50	1.036
6	I attend the Consumer Education Programmes	2.75	1.015
7	I have formed a Consumer Club	2.14	0.962
8	Overall I consider myself well aware about the Consumer protection Act	3.59	0.954

Source -: Complied by Researcher

Above table No. 2 Shows that the opinion of respondents about the Consumer Protection Act. Researcher has used 8 statement to find that the awareness of respondents about the Consumer Protection Act . The mean value renges from the 2.14 to 4.14 which shows that respondents are Strongly agree ,Agree and Disagee to the statements . The highest mean is 4.14 with S.D. 0.695 hence average number of respondents is Strongly Agree to heard about the Consumer Protection Act. The lowest mean is 2.14 with S.D. 0.962 hence average number of respondents are Disagree to have a formed a Consumer club.

CONCLUSION

From the above data analysis and interpretation. It is concluded that respondents are heard about the Consumer Protection Act .Most of the respondents are reading about the Consumer Protection Act. The respondents are disagreed about the formation of Consumer club. It is concluded that they are scattered. They are not come together for that particular issue. Respondents are not attending the Consumer Education programmee. But the most of the respondents are aware about the Consumer Protection Act . Respondents are not attending the Consumer Education programmee . It is concluded that most of the respondents are farmers and they are not well educated. It is found that most of the respondent’s age is more than 40 years.

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A Study on Social Networks and E-Commerce – (An Analysis)

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ABSTRACT
In recent years, social media has become more and more popular because it is playing an important role in empowering citizens, organization of community activism, social good and even used for coordination in emergency situations. The social media has become integral part of the current generation. Social network is computer mediated technologies that facilitate the creation and sharing of information, ideas, career interests and other forms of expression via virtual communities and networks. It uses web-based technologies to create highly interactive platforms through which individual, communities and organization can share, create, discuss, and modify user-generated content. It introduces substantial and pervasive changes to communication between businesses, organization, communities and individuals. In this study, we aim to analyse the influence of social media on the users. It is very beneficial to the current generation in multiple fields which includes education, e-commerce, marketing / advertisement, communication and social good, however, it also depicts that the information sharing on social media by the users lead to many privacy issues. Social networking has become popular and raised a controversial question on its profitability and future influences Therefore, the social media users should be very careful in sharing information as it can be wrongly manipulated.

Keywords: Social Media, Social Network, Impact On users, Facebook, E-commerce.

I. INTRODUCTION

A social network service focuses on the building and verifying of online social networks for communities of people who share interests and activities, or who are interested in exploring the interests and activities of others, and which necessitates the use of software. It involves plenty of relationships and interactions within a group of individuals, which often plays a fundamental role as a medium for the spread of information, ideas, and influence among its members. The social network could be a chat room, a discussion forum, or sometimes with rating and comment functions embedded in a e-shopping website, such as a social recommendation system. Ecommerce stands for electronic commerce. It means dealing in goods & services through the electronic media & internet. The rapid growth of e-commerce is being driven by greater customer choice & improved convenience with the help of internet the vendor or merchant who sells products or services directly to the customer from the portal using a shopping basket system or digital cart & allows payment trough debit card, credit card or electronic fund transfer payments. In the present scenario e-commerce market & its space is increasing in demand as well as an impressive display or range of a particular type of services. E-commerce is already appearing in all areas of business, customer services, new product development & design. E-commerce is widely considered the buying & selling of products over the internet, but any transaction that is completed solely through electronic measures can be considered e-commerce. E-commerce can be subdivided into different categories: business to business or B 2 B (Cisco), business to consumer or B 2 C (Amazon) & Consumer to consumer C 2 C (eBay) Social media is a relatively recent phenomenon. Over the last decade, the World Wide Web has seen a proliferation of user-driven web technologies such as blogs, social networks and media sharing platforms. Collectively called social media, these technologies have enabled the growth of user-generated content, a global community, and the publishing of consumer opinions (Smith, 2009). This movement now dominates the way we use the web and has given rise to popular platforms like Facebook, YouTube, Instagram and Twitter, where people connect, produce and share content. The social media revolution has led to new ways of seeking and obtaining information on the multitude of products and services in the market. It has enabled consumers to connect and discuss brands with each other quickly and easily (Powers et al., 2012). Consumer opinions on products and services are now increasingly dominated by strangers in digital spaces, which in turn influence opinions in the offline space (Smith, 2009). Social media have empowered consumers, as marketers have no power over the content, timing or frequency of online conversations among consumers.

II. LITERATURE REVIEW

Social media is one of the most active research areas, in the last decade, researchers have analysed different aspects of social media. In this section, we analysed and discussed existing work related to the impact of social media. In order to understand their customer in a better way and finding their inclination towards their products, the marketers and advertisers are always looking for a number of ways. This requires a lot of information to be gathered about the customers. This information could be gathered from social networks about online users which could be further analyzed to trace the behavior of consumers. The various businesses are using social networks like Twitter and Facebook to help them sell more products and services. Foux (2006) suggests Social media is perceived by customers as a more trustworthy source of information regarding products and services than communication generated by organizations transmitted via the traditional elements of the promotion mix. Russell S. Winer (2009) affirms that many companies today are using some or all of the new media to develop targeted campaigns that reach specific segments and engage their customers to a much greater extent than traditional media. Mangold & Faulds (2009) argue that marketing managers should comprise social media in the communication mix when developing and executing their Integrated Marketing Communication strategies and they presented the social media as a new hybrid element of promotion mix. Quiroga & Kamila (2010) describe how fashion companies promote themselves on social media platforms such as Facebook. Sanya & Umair (2010) analyse the trends of digital media within IMC over the years in Pakistan, the factors that have contributed to the change and explore the importance of digital media in the marketing mix in future. Mohan Nair (2011) takes social media as a complex marriage of sociology and technology that cannot be underestimated in its impact to an organization marketing communication, choice as to when to engage, how to manage and measure, and whether to lead or to follow is complex but not an impossible task. These cannot be answered simply by one formula because the context and the market dynamics are strong variables in these decisions. Taylor, Strutton, and Thompson (2012), found that social media users' message sharing behaviours are also attributed to the need for self-enhancement. When consumers perceive an online advertisement to be consistent with their identity, they are more likely to share the message with others because it is representative of who they are and what they like. Thus, advertisers should consider the symbolic and self-expression properties of their online ads and match them to targeted consumers' self-concepts. Kwahk studied the effects of social media on E-commerce. According to the authors, the information gets public as soon as it is uploaded on social media. This information can be browsed by many people which leads to a many-to-many spread of information. Furthermore, the statistics shown in the paper shows that there 70% of people visits regularly the message boards, social networking sites and blogs on social media to get information about a company, product or brand. The research analysis performed by the authors shows that almost half of the people purchase the product on the basis of product information / reviews collected from social media.

III. OBJECTIVE OF THE STUDY

The objectives of the study are:

1. To review the present status of social networks and e-commerce.

2. To analyse the present trends & opportunities of e-commerce in India.

3. To analyse the opportunities and challenges in social networks.

IV. Scope and Methodology of the study

The process used to collect information & data for the purpose of making business decisions by the use of social media. The methodology may include publication research, interview, surveys & other research techniques & could include both present & historical information. The researcher has used only secondary data that has been collected from various articles, journals, books, websites etc. It has been used to study the evaluation, conceptual framework, definition, key players, present trends, future prospectus & barriers of social media and e-commerce. All the data included is the secondary base & proper references have been given wherever necessary.

V. Present scenario of e-commerce in India: -

E-commerce is still in growing stage in India, but it offers tremendous opportunities In India e-commerce sector started their operations in late nineties among business to business users. The cost and speed of internet was the factor of growth at that time. The first ecommerce was rediff.com which was one of the portal for Indians and Non-Indians. From last five years we have seen a changes number of companies enabling e-commerce and internet technology. Today E-commerce has become an integral part of our society.

Leading E-Retailers in India in 2017

E- Retailer	Sales
Flipkart	
India Times Shopping	
Urban Ladder	
Snapdeal	
Firstcry	

Bigbasket	
Infibeam	
Zovi	

VI. Future opportunities in e-commerce: -

The E-commerce sector is growing rapidly in India. The internet users in India might still grow which is less as compared to other nations of the world. The accelerating growth of e-commerce is due to penetration and easily available smart phones in India.

Table: 1.2

Years	E-commerce sales in Billion US Dollars
2017	20.01
2018	24.94
2019	31.19
2020	38.09
2021	45.17

Barriers of E-commerce in India: -

Poor Internet facilities: -

Internet is considered as the backbone of e-commerce. But the penetration of internet facilities in India especially in rural areas is very less. Speed of internet is also the major challenge in our country. No doubt we are moving towards 5G internet services but still a lot has to be done.

FEELING UNSECURE: -

Feeling unsecure by customer is one of the major and continuing challenge for e-commerce in our country. Customers have to be confident about the dealers and payment process before making any payment.

VII. Opportunities and Challenges of Social Networks

A controversial problem arose when talking about social networking is whether it is profitable or not. But here we discuss more on social networking opportunities and challenges in both which E-enterprises should be motivated and prepared.

1. OPPORTUNITIES

Google, New Corp and many other E-businesses have shown great interests towards web-based social networks. There must be some reasons initiating them. Despite of the solid amount evidence that social networks redirected to e-business, there are many other interrelated implications. First of all, by finding the reality of decreasing trust from traditional paid messages, the trust from social network is crucial for advertisement. People are provided a number of high quality and personalized reviews of a product from trusted sources to convince them to buy. The idea lying in social networking is that valuation generated from trusts within specific social networks, and therefore, can improve profitability, effectiveness and efficiency of advertising. Also, by incorporating social networking and other technologies such as recommendation system, E-enterprises can reach useful data for predictions of market trends, customer behaviors and so forth. For example, an E-commerce website can identify opinion leaders with high influence and maximize the effectiveness of marketing based on a social network surrounding opinion leaders. It can help the company establish its competitive advantage differentiating from others.

2. CHALLENGES

Despite of the optimistic perspective some disputes exist suspecting its promising profitability and effectiveness. The main point of optimistic opinion is virtual social networking holds the same attribute of real social network so that persons inside the society trust each other, and the virtual nets promise the credibility for people. However, there is doubt about the similarities between the virtual and the physical one. According to, incredibility lies somehow in nowadays most popular social networks. For example, Myspace does not indicate to be a trusted community on college campuses; Advertising on Facebook or Myspace will either be unseen by Millennials or ignored etc. Simply thinking social networking as something money promising, however, probably may cause a failure of investment as customers or online surfers may consider advertisements offensive and intrusive. It is suggested that overstatement may arise and careful exploration should be conducted.

CONCLUSION

Social networks in a way are changing e-commerce and helping it towards new directions. With its help, e-commerce can conquer some problems facing by e-business enterprises. However, its opportunities and limitations should be carefully studied so as to be fully utilized. It is important to understand how much value created depends on innovative use of technologies than simply duplicate others activities. To establish competitive advantage requires great efforts, in which the activities are art more than science. For further researches, customized company strategies depending on different businesses situations can be improved. Improvements on recommendation systems and data mining are extremely important for queuing keywords and attributes of a social network so as to properly judge on users' preferences.

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The Great Bull Runs Due to Covid – 19 in India

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ABSTRACT
India, brought down by the COVID-19 epidemic, joined the world economy in an unprecedented downturn in 2020-21. Supply chain disruptions caused by the epidemic and rises in key food prices drove headline inflation for the majority of the year. Inflation, on the other hand, has eased since December 2020, owing to seasonal relaxation in food prices, but with an upside boost from adverse base effects in February and March 2021. On the strength of plentiful liquidity, monetary and credit conditions remained expansionary, and financial market circumstances eased significantly. A cyclical decrease in revenues, exacerbated by COVID-19, damaged public finances, while pandemic-induced fiscal measures pushed up expenditure. In this study we have tried to bring forth the impact of the Bull Run which was experienced by the Indian financial market during pandemic. In this study we have tried to bring forth the impact of bull runs which was experienced by Indian financial market during pandemic. The main purpose of this study is to consolidate events in the Indian financial markets.

Keywords – Bull Runs, Indian financial markets, is decreasing revenues, trends in MF's industry.

INTRODUCTION

As we all know that the economy is divided into three sectors namely primary, secondary and tertiary. In India the service sector accounts for 53.83%, industry sector contributes to 25.92%, while agriculture and allied sector share 20.19%. After the economic reforms post 1991 service sector has seen robust growth. IT sector is one sector which has contributed in the economy of our country. During this pandemic Indian financial market experienced a bull run many.

After the onset of the pandemic the world was plunged into a series of lockdown. Avail ability of cheap internet access to all segments of society and spurt of numerous starts up to zerodha and grow up stocks providing trading platform to common man to trade in Mutual Funds, equity. Futures and options, commodities and Forex have led to an influence of new and eager participants in the financial markets. This has increase the awareness about the opportunities and attractive schemes offered by these platforms like low brokerage, ease in leverage facilities. A penetration of mutual funds has grown in tie 2 and 3 cities for Mutual Fund distribution.

Due to positive sentiments prevalent in the market and appropriate geo-political factors indicating long growth in Indian economy. FII from developing countries have invested 1 lakhs crores in Indian economy. This leads to the increase in the Mutual Fund industry as well. Ease of investments in Mutual Fund's through apps and rigorous advertisement on different platforms, has helped the Mutual Fund to increase their AUM on huge scale. Various financial distributions like NJ etc. which are having pan India presence have brought in many individual distributors under them. Apart from this many private distributors are playing important role in distribution of Mutual Fund throughout India. AUM have increased by leaps and bounds in their period Mutual Fund houses have huge funds to manage. The requirement in finance sector (employment in finance sector has increased). Now there is no panic in Indian market if foreign investors withdraw their investment our own domestic investment is huge. India is considered a leader in developing countries HNI's in domestic and foreign market through hedge funds and alternative investment funds have invested in India.

Financial markets and the global economy were severely impacted by the COVID-19 epidemic. Large monetary and fiscal policy measures were required as a result of these unusual events. The academic community has produced an astonishing amount of study in the last year, recognising the shock's exceptional nature. The sources and repercussions of disruptions, as well as the influence of policy interventions, are investigated in empirical works.

OBJECTIVES:

1. To study the impact on Indian financial markets during COVID- 19
2. To analyse the growth rate of bull runs during pandemic period.

RESEARCH METHODOLOGY:

Research Design: The present study is descriptive as well as analytical in nature as it provides the description of financial markets attainment in India.

Data Collection: The study is purely based on the secondary data which is collected through various sites of Government of India, Books, Journals and other related sources.

INDIA'S FINANCIAL MARKETS - IMPACT OF COVID-19

COVID-19's breakout had an influence on global financial markets, causing a sudden tightening of financial circumstances. The stock market in India began to decline in mid-February 2020, and it fell after the World Health Organization declared COVID-19 a pandemic on March 11, 2020. From a high of 12,362 on January 14, 2020, the Nifty 50 had fallen by 38.4% by March 23, 2020, before making a partial recovery (Chart 1). Hotels, media, construction, electricity, auto, metals, and banks have been struck the hardest, while telecom, pharmaceuticals, personal care, tea and coffee, petroleum, gas, and IT have outperformed the broader market.

Financial markets were disrupted as a result of the COVID-19 crisis's consequences on enterprises and households, as well as the attendant uncertainty. In March 2020, even the US Treasury market exhibited symptoms of strain. Corporate bond markets and money market funds were also heavily impacted. Financial markets, crucially, swiftly recovered. During the COVID-19 meltdown in February and March 2020, the S & P 500 Index lost one-third of its value, but it regained it all by August 2020, and it has been increasing ever since. Similarly, corporate bond yields in the United States jumped high in February and March 2020 (compared to 10-year Treasury yields), but swiftly recovered and reverted to pre-crisis levels within the same year.

The Federal Reserve, which took prompt action to avoid a full-fledged financial crisis, can be credited for at least part of the quick recovery of financial markets in the United States. Still, these patterns have many people wondering whether there is a gap between financial markets and the real economy, and whether financial market indicators are relevant for economic recovery. A lethal virus wreaked havoc on people's health as well as the economy as a whole, causing financial markets to tremble in ways not seen since the Great Recession.

Low interest rates, more mutual fund knowledge, and strong investment performance will all contribute to an increase in assets under management (AUM) in the future. According to data available with the Association of Mutual Funds in India (AMFI), the mutual fund industry's AUM increased by 24% to Rs 38.45 lakh crore by November-end 2021, up from Rs 31 lakh crore at the end of December 2020.

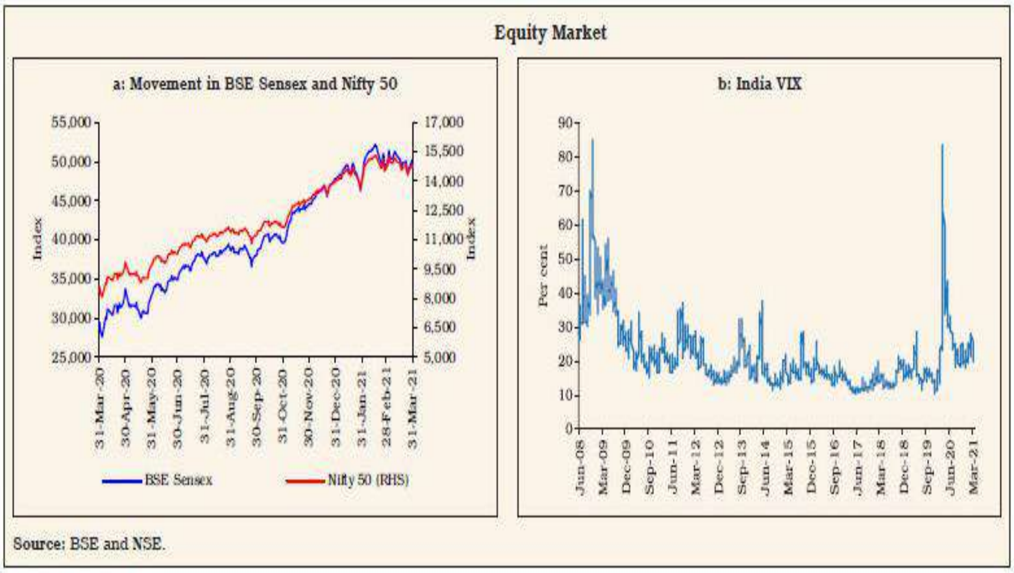
During the year, the number of investors are anticipated to have increased by 2.65 crore. A bit more than 72 lakh folios were added in 2020. In 2021, mutual funds received net inflows of Rs 1.93 lakh crore (till November). This included investments of Rs 71,600 crore in equity and Rs 14,500 crore in debt. With interest rates on the decline, investors are looking for alternatives to traditional investments. Furthermore, improved awareness of mutual funds has aided in increasing retail investor engagement in the mutual fund business. In the year, equity-oriented mutual fund schemes saw a net inflow of Rs 71,600 crore, a massive increase from the net inflow of Rs 9,410 crore in 2020. With a consolidation round presently on going, the ultimate mutual fund AUM figure at December's conclusion may settle a little lower or flat.

Due to a favourable base effect, mutual funds' net resources increased by 146% i.e to 2.15 lakh crore in 2020-21. In March 2020, mutual funds saw substantial outflows, mostly led by open-ended debt-oriented schemes, due to fears about the spread of COVID-19. In 2020-21, equity-oriented mutual funds' assets under management (AUM) climbed by 66.0 percent i.e. the end of March 2021 it was 10.0 lakh crore

EQUITY MARKET

The Indian equity market made a solid V-shaped recovery in 2020-21, following steep declines in 2019-20 amidst the outbreak of COVID-19, gradual relaxation of COVID-19 related lockdown security measures, and substantial FPI inflows. Furthermore, the domestic stocks market's recovery from April 2020 was supported by a strong rebound in global peers, which coincided with stimulus measures by governments and monetary authorities throughout the world, as well as encouraging signs about the development of a coronavirus vaccine. Overall, the BSE Sensex increased by 68.0 percent to 49,509 in 2020-21, while the Nifty 50 increased by 70.9 percent to 14,691 on March 31, 2021.

India VIX, which measures short-term volatility in the Nifty 50 index, dropped to 20.6 percent by the end of March 2021 after reaching an all-time high of 83.6 percent on March 24, 2020.



Source: BSE and NSE.

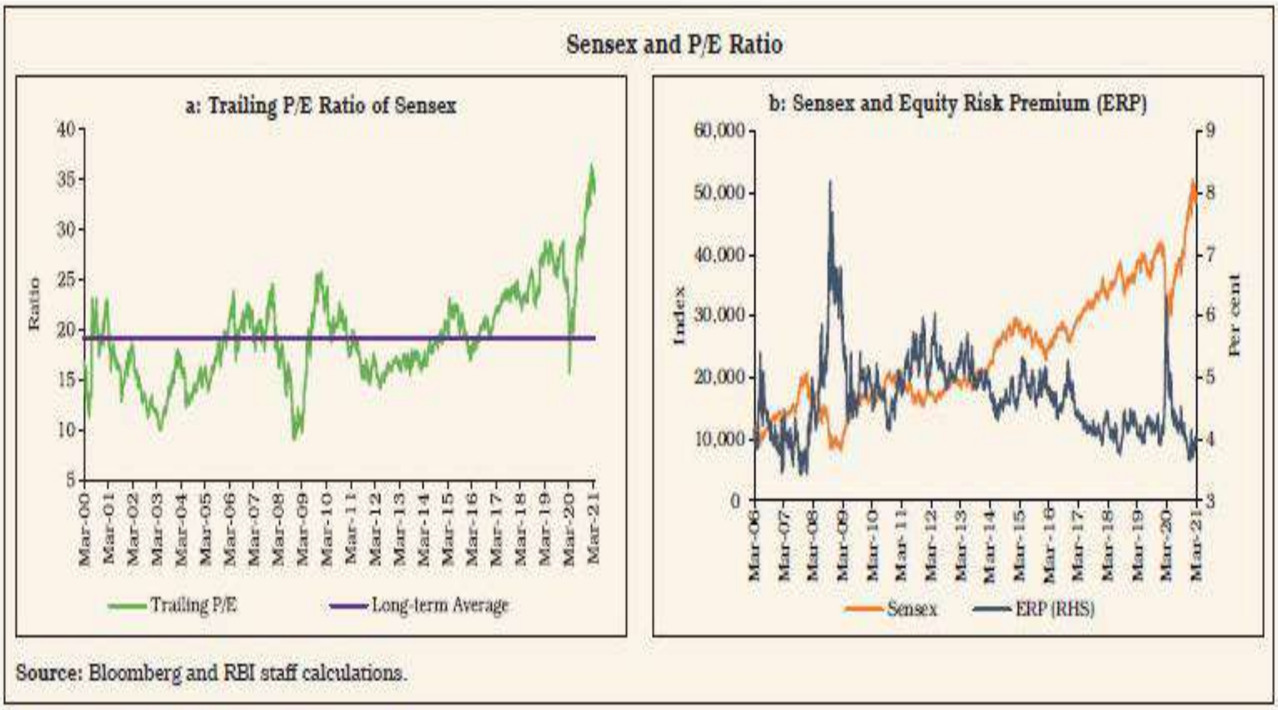
The Indian stock market is off to a great start this year, with April 2020 seeing the largest monthly gain in 11 years. On hopes of a second round of government stimulus and the Reserve Bank's announcement of various liquidity efforts, the BSE Sensex rose 14.4% during the month. Positive results from COVID-19 drug trials boosted market mood, as did the easing of lockdown restrictions in important markets. Poor economic data, a steep drop in crude oil prices, and the closure of six debt schemes by a mutual fund hampered equity gains. The Reserve Bank intervened immediately, providing mutual funds with a Rs. 50,000 crore special liquidity facility and putting a stop to a rush of redemptions from various mutual fund schemes. Due to intensification in US-China political tensions and fears of a second wave of coronavirus outbreaks, as economies began to lift lockdowns in May 2020, the slump deepened in lockstep with global peers. After the Reserve Bank of India unveiled the "Aatma Nirbhar Bharat" stimulus package and a significant policy repo rate cut on May 22, domestic markets took a break.

Strong global cues among re-opening economies and fresh stimulus measures by the European Central Bank helped the equities market bounce in June 2020, with the BSE Sensex having its best quarterly return (18.5%) since 2009. (ECB). However, the recovery was short-lived as markets were seized by gloomy sentiment as a result of a sustained spike in COVID-19 cases, simmering India-China border tensions, and numerous agencies' grim economic forecasts for India. The recovery accelerated in July and August, owing to positive results from coronavirus vaccine studies and increased backing from national governments throughout the world. The rise was fuelled by reports of disengagement between India and China over the border conflict, better-than-expected corporate profit results for 2020-21, high FPI inflows, and the Reserve Bank's adoption of a number of growth-friendly measures. However, by the end of August, the mood had shifted due to a new escalation in Indo-China border tensions. Trading has become cautious ahead of the Securities and Exchange Board of India's implementation of new trading norms on margin requirements (SEBI).

In September, the market remained under pressure as the continuing rise in COVID-19 cases in Europe sparked fears of a second wave of infections and the ensuing lockdown measures. On September 24, the BSE Sensex dropped by 1,115 points, its worst intra-day drop in more than four months, reflecting significant sell-offs in global shares. Following the opening up of the economy under the 'Unlock 5' guidelines, an improvement in the manufacturing purchasing managers' index (PMI) for September 2020, and strong goods and services tax (GST) collection data for September 2020, bullish sentiments returned to markets in October, indicating a resumption in domestic manufacturing activity. Furthermore, the Reserve Bank's announcement of a raft of liquidity and regulatory initiatives, as well as upbeat 2020-21 earnings figures, supported the increase. Domestic equities, on the other hand, saw cautious trading near the end of the month, owing to the uncertainty surrounding the US presidential election.

On the strength of a big rise in global stocks on encouraging developments concerning COVID-19 vaccinations and optimism that trade hostilities could lessen following the US Presidential elections, the Indian share market soared to new highs in November 2020. Furthermore, the government's approval of the 1.5 lakh crore production-linked incentive (PLI) programmes for 10 industrial sectors, as well as record high FPI inflows, aided the rise in domestic stocks. Market confidence remained high in December 2020, owing to better-than-expected GDP statistics for 2020-21 and upward revisions in India's GDP prediction for 2020-21 by the Reserve Bank and other international organisations.

Comparing the price-to-earnings (P/E) ratio to its historical trend is another way to measure stock market pricing. The actual P/E deviates from its long-run trend, indicating that the ratio is overvalued. Dividend yield indicators also indicate that markets are becoming overvalued. According to a breakdown of changes in equity prices from 2016 to early 2020, the rise in equity prices was mostly driven by lower interest rates and the Equity Risk Premium (ERP), with forward earnings expectations contributing to a lesser extent. Following that, a surge in ERP on COVID-19 fears contributed to a steep drop in equity prices as a result of the elevated risks. Equity prices, on the other hand, have made a strong comeback, assisted by the relaxation of ERP. Dividend yields are currently below their long-term averages. As a result, two-way price swings may be feasible in the future.



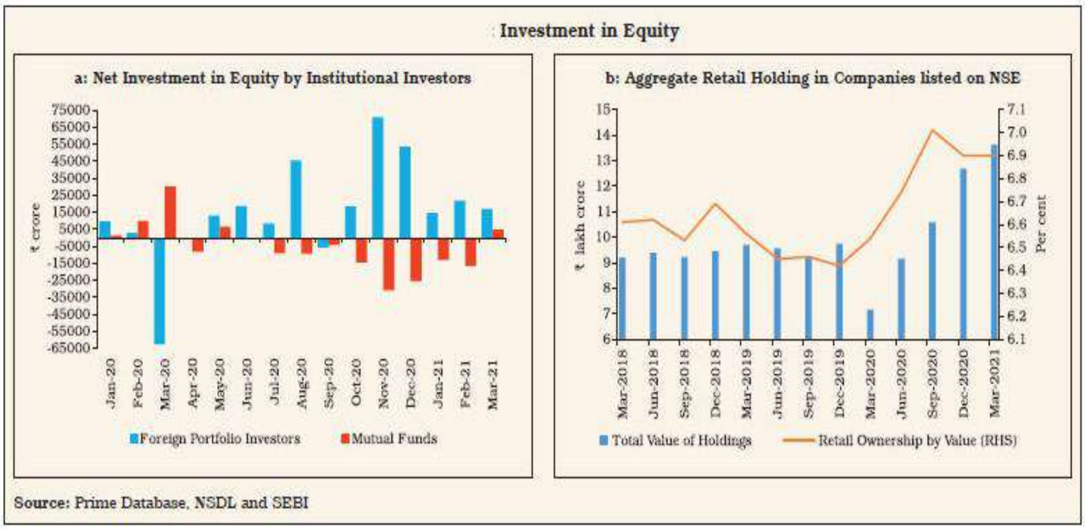
The overall market capitalization of BSE listed businesses reached a new high of 204.3 lakh crore at the end of March 2021, an increase of 80% over the previous high of 113.5 lakh crore at the end of March 2020. For the first time in almost a decade, the market capitalization to GDP ratio surpassed 100% in January 2021. In 2020-21, there will be a boom in IPOs, as well as the number of IPOs already in the pipeline.

FPIs remained net purchasers in the Indian equities market except for April and September 2020, with record inflows of 70,896 crore in November. In 2020-21, the Indian equity market experienced a net foreign direct investment inflow of 2.8 lakh crore, compared to a net foreign direct investment outflow of 6,204 crore the previous year. Mutual funds, on the other hand, were net sellers of 1.2 lakh crore in 2020-21.

The number of demat accounts opened by individual investors in stocks increased during the year, with 1.43 crore demat accounts formed in 2020-21, compared to 50 lakh demat accounts opened the previous year. Furthermore, retail ownership in NSE-listed businesses climbed to 6.9% at the end of March 2021 from 6.5 percent at the end of March 2020. Retail ownership in NSE-listed businesses climbed to 13.6 lakh crore at the end of March 2021, up from 7.2 lakh crore at the end of March 2020.

Primary Market Resource Mobilisation

During 2020-21, the major segment of the equities market saw increased activity. From 76,965 crore in the previous year, resource mobilisation through initial public offerings (IPOs), follow-on public offerings (FPOs), and rights issues climbed by 43.1 percent to 1.1 lakh crore in 2020-21. A total of 46,060 crore was raised through 57 IPO/FPO issues, with 27 of them for a total of 246 crore being listed on the BSE and NSE's small and medium enterprises (SME) platforms. From 55,642 crore the previous year, resource mobilisation through rights issuance grew to 64,059 crore in 2020-21. Preferential allotment and qualified institutional placement (QIP) resource mobilisation fell to 1.2 lakh crore in 2020-21, down from 2.3 lakh crore the previous year.



CONCLUSION

On the external front, amid profound recessionary conditions, a huge decrease in imports relative to exports resulted in a current account surplus, which, combined with strong net capital inflows, resulted in a large build-up of foreign exchange reserves. Indian financial markets are surviving numerous hiccups in their last 18 to 20 months of pandemic. To conclude, we can say that Indian economy will evolve like phoenix with full zest as a developed economy in this after COVID- 19.

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Covid -19 Pandemic Situation on Commercial and Social Life of Common Publics with Help of Government Support to People

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ABSTRACT
As the novel coronavirus (COVID-19) outbreak continues across the world, the one thing that has travelled as fast as the disease is conspiracy theories about its origins.

There have been claims that the coronavirus was accidentally leaked from the Wuhan Institute of Virology. Then, there have been allegations that the showed it was artificially engineered, bolstering claims the disease was not naturally caused.

On Sunday, In Global Times, a state-owned media outlet in China, claimed that researchers in China had evidence to prove that coronavirus might have "come from some natural recombination events among viruses in bats and other wildlife species.

The research team consisted of scientists from the Chinese Academy of Sciences and the University of Sydney.

Keywords: Covid-19, Outbreak, problem faced, commercial effects.

INTRODUCTION

The growing stress on common publics because of the changes in social interaction and the government-required COVID-related protocols that need to be followed in the workplace has significantly affected the efficiency of the public where hampered the growth of companies. The foremost explanation for this is the inability of the companies to adjust to the changing environment. The preceding set of principles regarding the happiness and engagement of employees has been made without consideration of a worldwide pandemic.

HISTORY

The first case of the COVID-19 pandemic in India was reported on 30 January 2020, originating from China. As of 8 May 2020, the Ministry of Health and Family Welfare have confirmed a total of 56,342 cases, and 1886 deaths in the country.[] Suggest the number of infections could be much higher as India's testing rates are among the lowest in the world. The infection rate of COVID-19 in India **is reported to be 1.7, significantly.**

The outbreak has been declared an epidemic in more than a dozen states and union territories & educational institutions and many commercial establishments have been shut down. India has suspended all tourists.

On 22 March 2020, India observed a 14-hour voluntary public curfew at the instance of the P.M Narendra Modi. The government followed it up with lockdowns in 75 districts where COVID-19. On 24 March, the prime minister ordered a nationwide lockdown for 21 days, affecting the entire .On 14 April; the prime minister extended the ongoing nationwide lockdown till 3 May.

GOVERNMENT ACTION:

Chief executive Director of the World Health Organisation's health emergencies programme, said that India had "tremendous capacity" to deal with the coronavirus outbreak and, as the second most populous country, will have enormous impact on the world's ability to deal with.

Other commentators worried about the economic devastation caused by the lockdown, which has huge effects on informal workers, micro and small enterprises, farmers and the self-employed.

Observers state that the lockdown has slowed the growth rate of the pandemic by 6 April to a rate of doubling every 6 days, And, by 18 April, to a rate of doubling every 8 days.

The Oxford COVID-19 Government Response report based on data from 73 countries, reports that the Indian Government has responded more stringently than other countries in tackling the pandemic.

It noted the government's swift action, emergency policy making emergency investment in healthcare, fiscal measures, investment in vaccine research and active response to the situation.

Some Important Decision of Government:

- Indian Institute of Chemical Technology, the Council of Scientific and Industrial Research (CSIR) and Cipla launched a joint venture to develop anti-COVID-19 drugs.
- Another Indian firm, Stempeutics, announced plans to introduce a stem cell-based agent for treating COVID-19 patients in critical situation.
- In March, a startup incubated in Pune's SciTech Park introduced 'Airon', a negative ion generator capable of reducing a room's viral load by 99.7%.
- In April, funds for a number of preventive agents were released to initiate research.
- On 23 March, the National Task Force for COVID-19 constituted by the ICMR recommended the use of hydroxychloroquine for the treatment of high-risk cases.
- They are also designing low-cost or mobile medical equipment.
- The focus was to increase the production of low-cost, compact and portable ventilators that could cater to multiple patients at a time.
- The government aims to double the current capacity of ventilators by June 2020 with.
- . The government has also requested major private automakers to explore the possibility of manufacturing ventilators at their plant.
- Pune-based Serum Institute of India announced that it would apply for clinical trials of certain strains from Drug Controller General of India.
- Recovered through plasma therapy said that the initial results of the plasma therapy treatment on four patients gave positive and encouraging results.
- . The ICMR have since started multi-centre clinical trials to ensure the treatments' safety.

IMPACT

Commercial establishments

On 19 March, announced the closure of all restaurants in the capital by 31 March in view of the ever increasing case of coronavirus. It was said that there will be a ban on eating in restaurants but food delivery will continue. He also said that 20 or more people will not be allowed to unite anywhere in the state. On 20 March, in Lucknow all restaurants, hotels, sweet shops have been closed till 31 March.

On 20 March, Delhi government announced that all malls in Delhi will close with only vegetable, grocery and medicine shops remaining open.

Shops in Mumbai, Pune and Nagpur will remain closed till 31 March.

During this period, the essential services will continue. Medical services will be available.

On 22 March, Punjab chief minister Amarinder Singh has said that in view of coronavirus, the state has ordered lockdown till 31 March.

All essential government services will continue and shops for essential goods such as food, medicines etc. will remain open.

The chief minister of Rajasthan Ashok Gehlot said public vehicle will be banned till 31 March, along with all the malls and shops will remain closed.

Impact on Air-Transportation:

FLIGHTS

IndiGo cancelled flights starting 18 March to prevent international travel.

This ban will continue till 31 March.

On 17 March 2020, Go Air suspended its international flights till further notice.

On 19 March, the Government of India announced that no international flights will be allowed to land in India from 22 March.

On 23 March, the union government announced the suspension of all domestic flights in the country starting 25 March.

IMPACT ON RAILWAYS:

On 17 March, Western Railways hiked platform ticket charges from Rs. 10 to Rs. 50 across 250 stations.

Central Railways cancelled 23 trains.

On 19 March, Tejas Express running between Lucknow Junction to New Delhi and Varanasi to Indore will remain canceled till 31 March.[

On 20 March, Delhi Metro was scheduled to remain closed on 22 March due to Janata Curfew.

On 22 March, metro services across India were suspended till 31 March.

On 21 March, in view of Janata curfew, Indian Railways announced the cancellation of 3,700 trains across the country.

On 22 March, the government cancelled all train services in the country baring goods trains, that is around 12,500 trains, and all non-essential passenger transport including interstate transport buses.

IRCTC suspended the bookings for 3 private trains till 30 April.

After the Prime Minister Modi extended the nationwide lockdown till 3 May. the Indian Railways not only extended the suspension of all its passenger trains during the period but also suspended all ticket bookings till further notice.

IMPACT ON ROADWAY

On 19 March, bus services between the cities of Maharashtra and Madhya Pradesh have been postponed from 21 to 31 March 2020.

Punjab government imposed a ban on public transport including buses, auto rickshaws and tempos from 21 March.

Public transport including buses, mini buses, maxi cabs and auto services were banned in Srinagar.

Confirmed cases, deaths, and recoveries by state and union territory

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COVID-19 pandemic in India by state and union territory

S.No.	State/Union Territory	Total cases	Deaths	Recoveries	Active cases
1	**Andaman and Nicobar Islands**	33	0	33	0
2	Andhra Pradesh	1847	38	780	1029
3	**Arunachal Pradesh**	1	0	1	0
4	Assam	54[a]	1	34	19
5	Bihar	550	5	246	299
6	**Chandigarh**	135	1	21	113
7	**Chhattisgarh**	59	0	38	21
8	**Dadra and Nagar Haveli and Daman and Diu**	1	0	0	1
9	Delhi	5980	66	1931	3983
10	Goa	7	0	7	0
11	Gujarat	7012	425	1709	4878
12	Haryana	625	7	260	358

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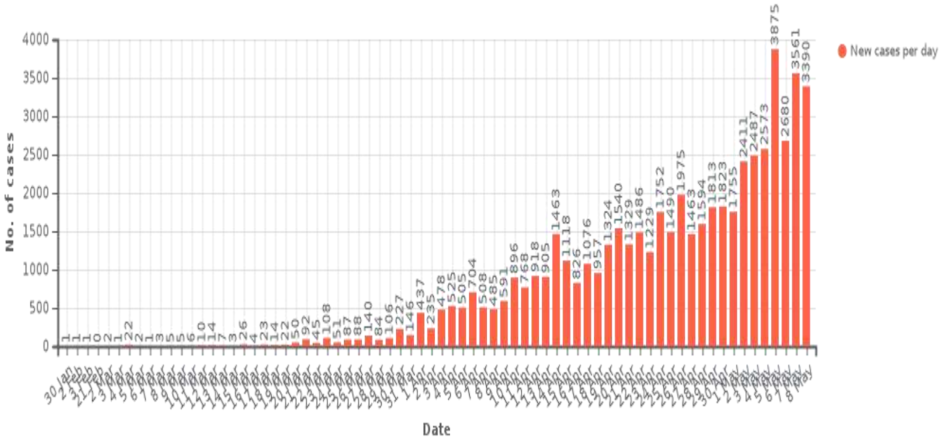
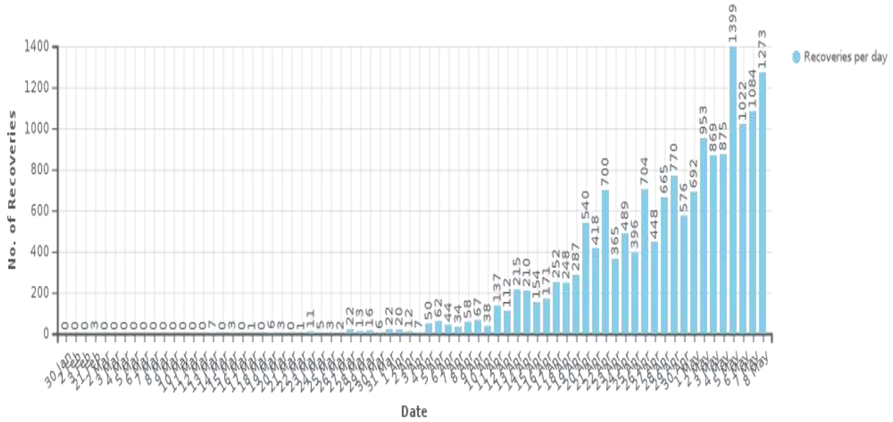
COVID-19 pandemic in India by state and union territory

S.No.	State/Union Territory	Total cases	Deaths	Recoveries	Active cases
13	**Himachal Pradesh**	46	2	38	6
14	**Jammu and Kashmir**	793	9	335	449
15	Jharkhand	132	3	41	88
16	Karnataka	705	30	366	309
17	Kerala	503	4[b]	474	25
18	**Ladakh**	42	0	17	25
19	**Lakshadweep**	0	0	0	0
20	Madhya Pradesh	3252	193	1231	1828
21	Maharashtra	17974	694	3301	13979
22	**Manipur**	2	0	2	0
23	**Meghalaya**	12	1	10	1
24	**Mizoram**	1	0	0	1
25	**Nagaland**	0	0	0	0
26	Odisha	219	2	62	155
27	**Puducherry**	9	0	6	3
28	Punjab	1644	28	149	1467
29	Rajasthan	3427	97	1596	1734
30	**Sikkim**	0	0	0	0
31	Tamil Nadu	5409	37	1547	3825
32	**Telangana**	1123	29	650	444
33	**Tripura**	65	0	2	63
34	Uttar Pradesh	3071	62	1250	1759
35	**Uttarakhand**	61	1	39	21
36	West Bengal	1548	151	364	1033
Total		**56342***	**1886**	**16540**	**37916**
**Inclusive of 111 foreign nationals*					
As of 8 May 2020[497]					

FOOTNOTES





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Ethics and Integrity in Leadership for Organizational Development in the FMCG Sector

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ABSTRACT
The ethical leadership in passionate and human organizations is examined in this research. Leaders that practice ethical behavior demonstrate long-term benefit by instilling the proper ideals in productive organisations. Humble, caring for the greater good, striving for balance, taking pride in their work, and treating each individual with respect. Moral game-changers work in tandem with their evolving corporate environment. By their actions, they revitalize the ethics of the ever-changing organization. In companies, the role of ethics in developing leadership is critical. At the same time as public cooperation, non-moral and non-ethical leadership can be perilous. The high-profile controversy involving high-ranking officials' involvement in unlawful activities has resulted in an increase in student involvement and broad media coverage of the leadership process. Leaders function as role models for their followers, maintaining relationships with Managers-Down and demonstrating the organization's moral bounds. They appear to be trustworthy, courageous, and truthful. When a leader "speaks" by actively interpreting internal ideals, he builds trust and respect among his followers. Further research in the realm of conduct has resulted as a result of this. As a result, the focus of this research is on moral issues. In this creative leadership, leadership, including moral leadership and other ethical convictions, better appreciates the value of behavior and performance. This research also included a thorough examination of ethics analysis as well as the similarity and diversity of other leadership-related formats. One of the goals of this research was to give definitions to each leadership style and size in order to verify that ethical leadership differs from each style. This study article concludes with future directions and findings.

Keywords: Ethical leadership, honest leadership, leadership philosophy, ethical convictions, and determined for balance

1. INTRODUCTION

This research is being carried out to better understand leadership ethics and integrity in the FMCG sector, as well as their impact on the organization's success and development. Previous research has primarily concentrated on leadership behavior, organizational commitment, and employee job satisfaction (Lian and Tui, 2012). The majority of these researches have been undertaken in western economies, and there are few references accessible for developing economies (Mosadeghrad and Fedrosi, 2013). Furthermore, the current study focuses specifically on the FMCG industry, which is one of the fastest expanding sectors with a lot of R&D and innovation going on to keep the sector growing. The study and development focused on job satisfaction, organizational commitment, work environment, and leadership behavior, whereas previous studies focused on job satisfaction, organizational commitment, work environment, and leadership behavior. And, in the context of the rapidly rising FMCG sector in developing economies, organizational culture that promotes learning among employees through successful leadership styles is a less investigated subject.

2. REVIEW OF LITERATURE

According to Ishikawa and Xu (2015), the relationship between transformational leadership and R&D team performance in Japanese companies has a positive effect on performance via a mediating positive effect on team efficacy and communications both within the team and between different teams within the organization. However, their research found that transformative leadership had a detrimental influence on team performance due to the mediating effect of the consensus-building norm.

Rodriguesz and Ferriera (2015) investigated the impact of transformational and transactional leadership styles on employees' corporate citizenship behavior. Transformational leadership is positively related to OCB's employee prediction through creative factors related to the external organizational environment, such as creating a supportive organizational climate, co-operation between colleagues or members of the team, and a self-training environment, according to their findings. The transformational leadership style has been demonstrated to have a stronger predictive power for OCB than the transactional leadership style. The relationship between organizational citizenship behavior and ethical leadership, which underpins trust-based mechanisms, was investigated by Newman et al. (2013). Their findings revealed that ethical leadership fosters cognitive trust, which in turn fosters emotional trust.

Browns and his colleagues chose the following definition based on a thorough review of the literature: "A moral embodiment of personal activity and personal relationships, and promoting behavior with fans through communication, strengthening, and decision-making" is how ethical leadership is characterized (Brown et al., 2005, 120). This description emphasizes that 1) ethical leaders' actions serve as a model for subordinates, with their actions being acknowledged as appropriate; and 2) ethical leaders' actions serve as a model performance for subordinates. 2) Moral leaders communicate with and support their followers' actions (i.e., they value ethics in their social context) (Bass & Steidlmeier, 1999). 3) Ethical leaders strive to act ethically all of the time, which is why they set the company's standard of conduct and encourage good behavior among employees (Minks et al., 1999), as well as punishing inappropriate behavior. 4) Ethical leaders consider ethical integrity when making judgments, assessing the outcomes of their actions, and wishing to make the same decisions at the top. The preceding definition distinguishes ethical leadership from optimistic leadership performance by emphasizing the leaders' demeanors; in this way, specific traits distinguish true behavioral performance.

A leader in ethics, according to Ciulla, is an effective leader (Ciulla, 1995). However, in actuality, we find a more effective but unethical or ineffective but ethical leader. It is sometimes effective and efficient, according to Ciulla. There's also the issue of excellent leadership; in the long run, be reasonable and appropriate. A unique behavior can be remedied within the organization, but it is unethical in society. They may have good intentions, but their incapacity leads to unethical outcomes (Ciulla, 2005).

Enderle presents two leadership goals that clearly describe the behavioural conduct in all administrative decisions, which is a critical prerequisite for responsible leaders who will not be able to replace personal responsibility in decision-making. Overconfidence indicates the bare minimum of moral and moral power (Enderle, 1987). (Murphy & Enderle, 1995, 126). A psychologically educated teacher, according to Howard Gardner, a professor at Harvard Graduate School of Education, asks, "What kind of person should I be, an employee, and a citizen?" What will the world look like if everyone who works at my job accepts the same spirit I do? (Kannair, 2007).

Extreme behavior is consistent, considers the welfare of others, and considers the implications of human acts. However, immorality can still interfere with a person's moral sense as they grow in the right or wrong route. Leaders of behavioral acts demonstrate the long-term consequences, inequities, and benefits of their actions. They are prepared to fight the battle on the market, where it matters: Do the right thing, in order to fulfill your standards and convictions.

Leaders set an example for their followers and demonstrate the organization's moral bounds. The process of development and communication with new people reveals proper and desired behavior. The numbers were read by the personnel by looking at the action leaders. When a leader "speaks" through translating internal dialogues, he also shows his followers' confidence and regard. Employees are willing to follow policies if their bosses are willing to provide contributors or firms in general.

When leaders take the lead in serious behavior, the requirements of the fans and the issues of individuals involved disappear fast, allowing them to comprehend the current conflicts instinctively (Enderle, 1987). The expanding skills of supporters who are involved in this process reflect good leaders, and this is not about ability, but about knowledge and worldwide opinion (Ciulla, 2005). Ethical leadership has a favorable impact on fans and organizations, resulting in visible leadership effectiveness, fan satisfaction, increased commitment, and problem reporting (Brown et al., 2005).

In a follower-leader relationship, behavior should be a process rather than a one-time, little occurrence. Leaders should communicate ethical standards and evaluate real-world examples on a frequent basis to influence fan behavior (Brown, 2007). This indicates that simply having a code of conduct in place isn't enough to ensure ethical behavior in the workplace. All life-cycle medications should be treated with care. Moral leaders are seen to be persons who do not tolerate moral failings. They punish those who are morally reprehensible (L. K. Trevino, Brown and Harman, 2003). Trevino and her colleagues interviewed top management and ethics experts in the United States and discovered that they should be regarded as a moral leader who is respected, decent, truthful, and responsive.

According to a recent study, qualities like honesty, integrity, sincerity, and trustworthiness are linked to a successful leader's vision (Bass and Stegdill, 1990). Marcic emphasizes five key components of a leader-affiliation connection based on the philosophy: honesty, unity (seeking differences in decision-making), respect and dignity (the foundation of real life), fairness, service and client), and humility (Marcic, 1997). Rubin, Drorff, and Brown looked at the results of transformational leadership in a group of ninety-nine people and discovered that ethical leaders were seen as possible by their bosses. Surprisingly, leaders who demonstrate technical leadership are less likely to attract short-term followers than those who do not (Rubin, Dierdorff and Brown, 2010)

The opportunity to act inappropriately in the workplace is limitless, and regrettably, this material is frequently discovered. What are the benefits of being well-behaved? Employers for ethics companies can be carefully chosen, as long as they are aligned with the company's ideals. Similarly, many people strive for a high-quality reputation for excellence. Consumers want to do business with a reputable company, and business partners want to do business with reputable companies since only these companies can foster trust connections (Bazerman, 2008).

Why do people in organizations (managers and subordinates) act badly? According to new managers, they are continuing to follow the four primary organizational orders: work comes first; prove that you are honest and a team player; it is not a crime; and don't spend too much money on moral behavior. These rules are insufficient to construct and organize a corporate body. Surprisingly, only the young ones are new managers who believe that ethics should pay off as the company grows. To address the challenge of reporting potential behaviors, (Gentile, M. C., 2010) suggests the following: Deal with conflicts as a matter of course; Be aware that behavioral issues are a component of your job; own yourself and act legally; difficult to quantify (challenge what is commonly called) Typically, a property's newbie status (new state) is opened; to communicate incorrect opinions; to take long-term risks; has supplied many ways to illegal acts.

3. RESEARCH OBJECTIVES

1. To assess the impact of ethical leadership styles on an organization's R&D strategy.
2. To assess the impact of moral leadership styles on an organization's business environment.
3. To investigate the role of ethical leadership styles in the FMCG sector's organizational development.

PURPOSE OF THE STUDY

Ethical leadership is crucial to work because it encourages successful co-operation among managers and subordinate relationships by highlighting good performance within the administrative centre, which is in accordance with honesty and trust. Moral leaders have proven to be loyal and honest, according to Brown and Trvino (2006). This is necessary in high-octane operational environments, yet it might have a pessimistic impact on the work's outcome. As a result, the goal of this study was to investigate the inspiration of reliability and moral leadership by depending on the leader, based on a comprehensive comprehension of content and rational opinion.

Hypothesis of research study

Null hypothesis H01: Leadership moral styles have little bearing on an organization's R&D strategy. A

Alternative hypothesis H1: The research and development strategy of FMCG firms is strongly linked to leadership morale.

Null hypothesis H02: The business environment of an organization is unaffected by leadership styles.

Alternative hypothesis H2 Leadership styles have a significant positive impact on an organization's commercial climate.

Null hypothesis H03: In the FMCG industry, there is no link between ethical leadership styles and organizational upliftment during plan implementation**.**

Alternative hypothesis H3: In the FMCG sector, there is a considerable positive relationship between ethical leadership styles' accountability during plan implementation and organizational upliftment.

Null hypothesis H04: The R&D strategy of an FMCG company is unrelated to the company's business environment.

Alternative hypothesis H4: The R&D strategy of an FMCG company is unrelated to the company's operating environment.

Significance of the Research Study

The current research will contribute significantly to the administration and leadership literature, broadening the understanding of the function of leaders and different leadership styles in boosting the organization's research and development culture. The study's goal is to examine the impact of leadership styles on the organization's

R&D strategy as well as their impact on the business environment, in order to improve innovation behavior. By better understanding distinct leadership styles and their impact on team innovation behavior, business or work environment, and organizational development in the FMCG sector, the study will have major managerial consequences.

Policymakers will benefit from the research since it will improve their grasp of the R&D culture and business environment. This will widen the breadth of comprehending the path of organizational development through research and development, as well as the ability to influence the business environment within organizations. The study will contribute to the body of information on ethical leadership styles and organizational development by expanding on what is already known.

Furthermore, the findings of this study are critical because they can be used as a guide by SMEs in the FMCG industry to decide the type of leadership style and methods that can be employed to improve performance and raise competitiveness on the worldwide market.

Furthermore, this research is important for academia since it fills a gap in the literature on the specific leadership styles and techniques that FMCG companies require to increase their success. As a result, the study serves as a resource for researchers, students, and academicians interested in the issue.

4. RESEARCH METHODOLOGY

The systematic plan that is established to rationally perform the research investigation is referred to as research methodology. It explains how the study will be conducted, including the strategy, approach, and data gathering techniques. The research paradigm for this study is positivism since it tries to identify the relationship between groups of variables. In addition, the research will use a descriptive research design with a quantitative research technique.

Distribution of the sample

S. No.	FMCG Companies	No. of managers/ Team leaders respondents	No. of Subordinates respondents
1.	Hindustan Unilever Limited	1	1x10R
2.	ITC Limited	1	1x10R
3.	Dabur India Limited	1	1x10R
4.	Britannia Industries	1	1x10R
5.	Godrej Consumer Products Limited (GCPL)	1	1x10R
6.	Parle Agro	1	1x10R
7.	Amul	1	1x10R
8.	Pidilite Industries	1	1x10R
9.	Patanjali Ayurved	1	1x10R
10.	Haldiram	1	1x10R
Total	10 Companies	10R	100R

For this quantitative study, primary research data will be obtained using survey tools such as closed ended questionnaires. To gain a theoretical knowledge of the study's premise and to further extend the understanding of the basic concepts used in the study, qualitative secondary data will be obtained from journals and past research studies. This will aid in the creation of questionnaire questions as well as the construction of hypotheses. Primary data will be acquired from selected respondents via questionnaires based on the Likert scale.

Because this study is being conducted in the FMCG industry, the sample population for the study is made up of FMCG enterprises in the Delhi NCR area. The top ten FMCG firms based on market share will be chosen using information available on the internet. Managers and team leaders from R&D departments will be chosen as research participants. The sample unit will consist of 100 managers and team leaders, as well as 600 other managers' assistants.

For statistical analysis of the primary data collected, SPSS software will be used. To assess the link between the independent and dependent variables in this study, hypothesis testing and correlation analysis will be used. The data will be analyzed and interpreted using the Chi square method, Pearson's correlation approach, Simple percentage analysis, and Graphical representation methods. The study will be conducted in an ethical manner to ensure that the results are free of bias and that they are valid.

Following statistical tools will be used:

1. The pilot analysis will employ reliability, validity, and factor analysis.
2. Graphic depiction through the use of pie charts and frequency polygons.
3. Pearson Bivariate Correlation,
4. Standard Deviation, Median, and Mean
5. For a pair sample test, use the T-test.
6. Kruskal–Wallis H test (non-parametric)
7. Analysis of the sample organizations' SWOT (Strengths, Weaknesses, Opportunities, Threats)
8. Pest Analysis

5. Findings of Research Study

• The research and development strategy of FMCG firms is strongly linked to leadership morale.

• Leadership styles have a significant positive impact on an organization's business climate.

• In the FMCG sector, there is a considerable positive relationship between ethical leadership styles' accountability during plan implementation and organizational upliftment.

• Ethical leadership has a favorable impact on employees' job happiness.

Future Limitations and Suggestions

In terms of time and money, the current study has several limitations. Because this is an academic study, it is constrained by funding constraints. In addition, the researcher must complete the study within a certain time frame, which restricts the sample size and population chosen for this study. Although it is desirable in the future to explore the interplay between leadership styles, R&D strategy, and business environment in other sectors and industries, such as the service sector, which is a large and quickly increasing sector, the research will be limited to the FMCG sectors. Due to time and financial restrictions, the study's approach is a quantitative survey based on closed-ended questionnaires. Further research using a qualitative approach based on interviews and themed focus group discussions can help develop a theoretical framework for leaders and managers to understand the interplay between different leadership styles and organizational development through an organizational culture and business environment that promotes learning and the implementation of effective leadership models.

LIMITATION OF DATA

1. A sample size of 100 team leader responses and 600 subordinate respondents does not accurately represent the entire universe.
2. The study is limited to only ten FMCG businesses, which does not provide an accurate picture of the entire FMCG industry.
3. Respondents occasionally fail to provide precise information due to personal reasons.
4. Respondents may or may not be present at the time of the survey.

The data is analyzed depending on the responses of the respondents. It's possible that respondents' responses are skewed.

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The Efficiency of Educational Games on Mathematics Learning at the Primary School Level

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ABSTRACT
These days, children study plenty from video games, these games have productive and educative features. There has been development in science and technology and this progress has changed the lifestyle of many. This growth and development additionally alter the teaching and learning method. According to these changes, a new age group of educational tools has been planned to aid the student to learn in a modern way. In general, games are used as active educational tools for enhancing the learning and comprehension of complex issues. The sole purpose of this research is to examine the activeness of educational games on mathematics learning of students at the primary school level of the Mumbai District. Outcomes exhibited that the educational games affect the motivation and mathematics learning of students and improve their intellect quotient (IQ).

Keywords: Learning, Mathematics teaching, educational games, Academic motivation.

INTRODUCTION

These days, with the advances in technology and the generalization of electronic devices such as computers, more advanced games became common. In general, in lower ages, the games are environmental variables that may disturb the acquisitive learning and conceptual capability of people. One of the active games on children's learning is a computer game that needs fast dealing out of information and delivers logical and very fast responses. Based on the conducted studies, most of the experts have faith that enjoyment is one of the most important features of games. Fun and enjoyment of a game will enable the process of learning and please most of the basic needs of the kids. An educational and productive aspect of the game is that individuals want to grow in the game and alter the way of playing. It seems that progress and desire to win in-game motivate the passive students to think.

Games especially computer games along with learning-teaching activities may help the learning of the student and increase its inner motivation and interest by creating challenges and adventures and giving control of the game to the player. Training and repetition with custom settings make memorizing content easier for the students. Providing instant feedback to make a player impulsive for testing her hypotheses will help her to learn from the results of their acts. Passing from different levels of the game will provide a desire to continue the game's progress in learning for her. Activating the past knowledge for answering the puzzles makes her an active learner. Since the general goal of education in general education courseemphasize the primary course for preparing students for lifetime learning and acquiring innovative scientific literacy to live in society as an inhabitant, employee, spouse, or parent, it is essential to acquire knowledge, skills, and necessity attitudes for a suitable life. Children will learn numerous colors, shapes, and directions within games and obtain valuable experiences when playing. The educational materials will be learned willingly and without stress during the playing. The game will enable the children to establish a better relationship with others. Educational games with a purpose for training specific goals must be programmed from the beginning. The learner is obliged to pass all missions step by step.

Therefore, it cannot be called a game. Learning courses such as mathematics are known as one of the most important mental activities. Mathematics is associated with numerous signs, the signs that are used for discovery, perception, and understanding of numerous compounds, patterns, and relations in the world. Children are not eager to learn mathematics, that's because the subjects of mathematics are inflexible and have logical issues. Thisissue is one of the major problems in this course. Based on the examinations, the ability to play is an important feature of the human. Games are used as an active educational tool for improving learning and comprehension of complex issues. Children that benefit from educational innovations have a higher academic level than the oneswho lack these tools. In other words, games play an important educational role and discovery because of the connection and close relation with motivation to discovery and fulfilling the personal curiosity.

OBJECTIVES

The sole purpose of this research is to examine the activeness of educational games on mathematics learning of students at the primary school level

REVIEW OF LITERATURE

Ozdogan (2011) said that children are always interested in computer games. They start playing even before learning to walk and talk. They have more attentiveness when they are playing. Playing can be a significant tool in learning for children. Children live with mathematics and grow with it and use the mathematical processes during playing.

Hirza et. al, (2014) in a survey examined the improvement of instinctive skills for realistic mathematics learning. This study aimed to examine the enhancement of instinctive skills of students in a comparison of teaching realistic mathematics with teaching conventional mathematics. The sample was 164 students in the fifth grade of Palm Bang primary school. The research plan was to study pre-test, post-test, and control group tests. Data were analyzed by SPSS. Outcomes showed that the class based on REM showed more development.

METHODOLOGY

The present study has a functional goal. Information was gathered from the secondary source like articles, journals, and numerous website

Educational Computer Games and Their Features

Educational computer games are the utmost important educational games. In computer games, the players are a creator, not only they are a reader, but also, they are writers. In general, the players in low-level programming the game with their acts and results. A good game lets the player solve a problem with numerous solutions and their method. In a game, the players feel agency, control, and a real sense of ownership of what they have done, nowadays in education, the process of learning is rarely appealing. The process of a computer game is very interesting and attractive. The attitude of children to computer games is an attitude thatwe hope the learners have toward learning.

JEE in 2007 believed that the compound games collected all the arousing factors that cannot be seen in any other media. When the person does not feel a responsibility to what he is learning, the learning will not be achieved. A good computer game makes the individual grateful and involved by identity. This is an identity character which is the player creates in the game or game gives it to the player. The other factor in the appeal of computer games is their interactivity. Nothing will happen in the world of the game except what the player decides to do rather. In a good game, words and deeds are placed in a mutual association between the player and the world. The term educational entertainment is given to computer games at present. Computergames are a subsection of real games and typically, computer games have an educational goal, especially for pre-elementary students and beginners.

The computer games have the following features

- **Non-integrated learning experience**

It can be understood that learning is attained through the game experience and the player will emphasis the game instead of learning from it. Typically, educational games are not able to integrate the game experience and learning.

- **Learning by repetition and practice**

Computer games typically encourage the player to learn the responses. There is no need to explain the basic rules to them. Learning principles in computer games are derived from recurrence and practice instead of subject knowledge.

- **Low internal motivation:**

Motivation is significant in educational games. Most educational games highlight the external motivation rather than the internal motivation caused by the game. External motivation is not connected to the game. It contains optional rewards such as scoring for the implementation of a mission. On the other hand, inner motivation may be the feeling of ability caused by the completion of a mission. Motivation has an educational effect that will lead to strong learning. Providing inner motivation for computer games is low.

- **The absence of teachers**

There is no requirement for the presence of teachers in educational games. The learners can learn the context and skills alone by these games

- **Easy gameplay**

Most educational games have calm gameplay. Though easy gameplay is operative, especially for younger players and beginners, there is a need for more progressive games than commercial games to inspire the player.

Mathematics Learning Methods

1- Traditional method

2- Modern method

Traditional and modern are two features that cause a great revolution in teaching and learning. Using the computer for teaching and learning is vital. The teacher can present resources to teach the student in the form of multi-media software which covers audio, video, and graphics using a computer. The visual and auditory senses will be involved in learning by using the computer and multi-media software. Experiential findings in the area of psychology showed that nearly 75 Percent of learning is accomplished by visual sense and 13 percent through auditory sense. Therefore, the use of computers and multi-media software is one of the finest methods for teaching and student learning. According to the studies about the use of computer and multi-media software for teaching, we can say that educational software can advance the learning results when they are accompanied by the traditional method of teaching in the classroom. It will have good efficiency in the area of solving the problem of learning, issues,and individual differences by presenting numerous examples, adjusting the speed of training, and repetition of material. Another benefit of this software is an increase of interaction among students and also between teacher and learner.

The Effect of Learning in Standards of Academic Progress

About the criterion of academic learning, it must be said that academic learning is one of the numerous ways and is resolute by different criteria. One of these criteria is the GPA of the student in a semester and a whole academic year. An additional criterion of academic learning is calculating the scores of students in a single course of study. An additional method is using total scores of all courses of study in a year. The final criterion is academic learning throughout some years or a course. If we study a score of a single course of a group of numerous courses of studies in the area of a special subject, or GPA of numerous academic courses as a criterion for academic learning, these criteria will have diagnostic matters and problems. For example, the use of a single score from an exact academic course has less dependability and validity than a score based on the mixture of some scores. Applying the obtained scores from numerous academic courses in different areas for attaining the GPA of class scores is a tough and problematic matter because these scores contain scores that are attained from numerous fields of studies and are combined in a combined scale, while each of the students can have numerous signs of progress in each issue.

CONCLUSION AND DISCUSSION

Mathematical education is the formation of situations within which the cognitive structure of children can be appeared and changed. Piaget believed that cognitive structures will be developed only when the children build their own learning experience. Therefore, the learning must be spontaneous and full of sensory experiences. Mathematics is not just like other courses of study. It cannot be learned by saying and showing. The mathematics education should be appropriate for the cognitive, emotional, mental, and motor growth of the person. According to the role of new technologies in the modern world that create more opportunities for generalization and education of schools, and shift the emphasis from education to learning, the main issue is how we can create active and stable learning in students in the era of knowledge and technology so that they became spontaneous and be active in learning and have high motivation. In this area, it should be understood that the active environment such as the use of information and communication technology in education will lead to the reconstruction of content in mind. In another word, it creates a new behavior in the learner and causes the person to believe in his abilities morethan past and increases the learning motivation in students.

According to the results of this study, it can be concluded that educational games influence the mathematics learning of the students at the primary school level, and increase their IQ. Alongside this study, a survey concluded that educational games influence the progress and mathematics scores of the students showed the efficiency of education by using the games on the student's mathematics progress. The result of his study is similar to the results of the present study. Therefore, the use of educational computer games is suggested in the education of numerous sciences.

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A Study on the Evolving Function of Controlling and it's Impact on Organisational Effeciency

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ABSTRACT

The controlling function of management to this date remains an important function for increasing the organizational efficiency. Controlling is an evolving function. It has been suggested that controlling is a key framework in an organization by which the chances that people make correct decisions under supervision and these decisions are congruent with the goals and objectives of the entire organization. Controlling as a separate function in an organization helps improving business efficiency through transparency and overview of the departments in such a way that business results achieved are highest. Controlling takes place when the manager and other departmental heads cooperate. Controlling was initially discovered in USA in the 20th century, while Europe and Russia discovered the uses of controlling in the start of the 21st century. The main aim of this paper is to study the evolution of controlling as a management function and also to analyze the impact of controlling on organizational efficiency. This paper uses research obtained from secondary sources such as articles, journals, etc. Close to 83% of business organization feel controlling is one of the most dynamic function that improves efficiency. Results of this paper indicate that controlling, though evolving continuously, remains an important management function which improves organizational efficiency.

Keywords: Controlling, Organization, Efficiency, Management, Evolving

INTRODUCTION

The word controlling is derived from the English verb 'to control'– which means to manage, to run or to keep in check. The concept of controlling as a management function was coined in the 1970's of the 20th century as a vehicle to prevent crisis situations and bankruptcy. Controlling has been evolving constantly since its discovery. In accordance to modern concepts, controlling is having foresight to take action to improve efficiency; whereas earlier controlling was only used to take corrective action, to rectify mistakes. Internal control has become the strength of every organization. Controlling encompasses a number of operational and strategic management techniques: registration, analyzing, planning and finally controlling. Controlling uses a various number of systems to of constant assessment from different points of business organizations, organizational managers and employees. Initially, controlling was used as a method to exert direct authority over employees so as to guide and control them to increase efficiency. The development of controlling was greatly influenced by the economic crises of the early 20th century. Financial, organizational and managerial control was used for achievement of organizational objectives. The years of depression led to the awareness that successful management is strongly related to inter-company planning. This, on its turn, led to evolution of the views of controlling: from the historical accounting view in the understanding of controlling and its functions as oriented to future events. However, in the modern context, controlling is an individuated field of management in an organization. Controlling function is used for taking operative and strategic managerial decisions and policies. Controlling can be used to improve organizational efficiency. The very existence of the organization depends on the level of control exhibited in the organization. The steps included in the controlling function are: Setting performance standards, Measurement of actual performance, Comparison of actual performance with standards, Analysis deviations, and Taking corrective action. The controlling process uses subtle skills to make sure that each employee achieves his/her goal by himself/herself. However this only works when there are certain guidelines and criteria that are made use of. If too much control is exhibited, then this can have negative effect on the organizational efficiency.

REVIEW OF LITERATURE

1. Oleg Dimonov and Plamen Iliev (2010) studied the evolution of controlling as a management function. They found that controlling had its origins in the 20th century. They also found that controlling has revolutionized managerial techniques and has become an integral method of increasing organizational efficiency.

2. Amoo Temitope Grace and Adeyiga Adebayo (2013) studied the effect on controlling on organizational efficiency of the public sector banks in Nigeria. They studied the effect of controlling on 9 public sector banks in Nigeria. The results indicated that controlling is important to improve organizational efficiency, however, too much controlling lead to decrease in productivity of the employees.

OBJECTIVE OF RESEARCH PAPER 1. To study the importance of controlling function in an organization. 2. To provide guidelines for effective controlling and improvement of controlling. RESEARCH METHODOLOGY This study is about the evolution of controlling as a management function and its effect on organizational efficiency. This paper makes use of data from secondary sources. The paper makes use of secondary data due to insufficiency of time, funds and skill. The data is taken from secondary sources such journals, articles, previous research papers on the topic, etc. The study has used qualitative data for its analysis.

IMPORTANCE OF CONTROLLING

Controlling is extremely important in maintaining the organizational efficiency of the organization. The importance of controlling becomes clear when the overall efficiency of the organization improves. Controlling is important for the following reasons:

(1) Controlling helps in implementation of plans. Due to controlling, mistakes and deviations are immediately noticed and corrective action is taken. Hence, the difference between expected results and actual results are kept to a minimum. This improves efficiency in the organization.

(2) While performing controlling, the manager compares actual performance with the set standards. In case of need for improvement, the manager makes appropriate changes.

(3) Controlling makes it possible to use human and physical resources efficiently. Under controlling, it is ensured that no employee deliberately delays his work performance. In the same way, wastage in all the physical resources is checked.

(4) The controlling function makes an effort to boost the morale of the employees. Controlling makes employees work with dedication for achievement of goals. Controlling helps keep employees in check. Employee efficiency can be improved, which in turn improves efficiency of the organization.

(4) Controlling ensures order and discipline. When controlling function is exercised, all the undesirable activities like theft, corruption, delays and anti organizational attitudes are checked.

(5) Coordination among all the departments of the organization is necessary in order to achieve the organizational objectives successfully. All the departments of the organization are interdependent.

However there are constant interdepartmental actions that are taken for the working of the organization. By using the medium of controlling, it is easier to find out whether the organization is functioning in accordance to the set standards. If not, the causes of such deviation are found out and corrective action is initiated and hence, coordination and efficiency in the organization is improved. However, too much controlling is detrimental to the efficiency of the organization. Often controlling is met with resistance in an organization. Controlling curtains employee freedom, this leads to frustration, which in turn reduces the efficiency of the organization.

GUIDELINES TO IMPROVE CONTROLLING

Controlling remains one of the most important functions in modern management. Controlling of financial section of the organization can lead to higher profits, accountability and reduction of siphoning of funds. To some extent, all organizations rely on their employees to guide and motivate themselves, and this self-control can be increased with some care in hiring, screening, and training. However controlling of personnel becomes important as employees are rarely self motivated. Controlling of personnel in limits can lead to higher productivity, higher motivation and improvement of efficiency in an organization. However the effectiveness of the controlling depends on the managerial skills of the middle and subordinate level of management and also the attitude of the employees. For control over results, the most serious constraint is the ability to measure the desired results effectively. The management should be sure what results are desirable for the organization. Ideally, the management should: (1) assess the correct performance areas — the ones for which results are truly desired; (2) be precise— not determine efficiency by only crude estimations; (3) be timely in performing controlling and (4) be objective. While perfect controlling measures are rarely available, reasonable surrogates can often be found or developed. However, this principle only works if there is reasonable control in the organization. Too much control kills creativity in the organization. Control can be checked by following various guidelines. Some of them are: (1) Consistency between strategy choice and managerial style. (2) Recognition of organizational climate, reward system and structure. (3) Relying on job performance measure and providing incentives accordingly. (4) Recognizing individuality among different subordinates and using only controlling method when required. (5) Understanding degree of control required for different employees within different levels of the organization.

SIGNIFICANCE OF RESEARCH PAPER

This paper shall be of great use to the managers and controllers of an organization, in order to inculcate appropriate levels of internal control in the organization to improve overall efficiency as well as prevent risks in an organization. This paper will assist organizations to have a better understanding regarding the benefits of controlling.

To the managers of the organizations and to various individuals, this research will help them identify the appropriate internal controlling techniques and their effect on organizational performance and efficiency. As for managers in small and medium enterprises, the result of this research will help them to reduce the level of risk and fraud within their organization so as to increase the organizational goodwill as well as profit. The research will provide an eye opener to managers regarding the fact that if controlling is not practiced in an organization, then this would jeopardize the goal of the organization. Moreover, this study will be relevant also to management students as they will be exposed to the various methods of controlling as well as their overall effects on the organization. Policy makers as well as various researchers may benefit from this research as this paper can serve as a guide to study the effects of controlling and also help them to find the various negative effects of controlling on the organizational efficiency. The study of the effect of internal control on organizational performance is a wide area of study that researchers can tap into. So, this study would benefit researchers in looking beyond the scope of the present study and impacting to the knowledge already acquired. However, the most important use of this paper is to mangers of organizations, which regularly make use of controlling function in their day to day lives.

LIMITATIONS

This study is not exploratory as it is based only on secondary data from journals, newspaper articles, websites, etc. Constraints on time, funding and skill also are limitations that cannot be overlooked.

CONCLUSION

From the findings of this paper, it is concluded that controlling is important for improving organizational efficiency. It can also be concluded that controlling function only works when it is reasonably applied in an organization. Thus, the opportunities of utilizing controlling are great in number if suitable conditions can be introduced and developed. Controlling can be used especially by the subordinate management. Refuting claims that controlling is only needed in big powerful organizations, controlling can be used in all organizations, big or small. Thus, controlling comes up to be one of the most serious instruments for increase of the efficiency of business and for the faster overcoming of the economic crisis, and the recovery and accomplishment of the objectives set before the business. It is important also to note how controlling has evolved from a principle in the early 20th century to a management function which is extremely important in today‘s modern world.

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Impact of Leadership Styles on Employee Performance

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ABSTRACT
In the present age of competition, the success of an organization or institute largely depends on the people leading it. Leaders play a crucial role in the organizational structure as they have direct effect on the productivity of the employees. The Human Resource Assets of a company i.e., the employees usually tend to follow their leaders. This research paper is an attempt to study the impact of Leadership Styles on Employees' job performance. Over the last several centuries history has witnessed numerous Leaders and their styles and also the consequences of their leadership on the human race. It is always a leader who determines the fate of a country or an organization as they can take it to the Zenith or Nadir.

The Study shows that workers' performance is enormously influenced by their leader's style of leadership. In the last few decades, the leadership styles have evolved with the times but certain fundamental traits remain the same. Integrity, Honesty, Communication Skills, Compassionate, Motivational, Collaborative etc. are some of the most desirable characteristics of a leader as per general opinion.

Keywords: Leadership Styles, Human Resource Assets, Employee Performance, Zenith, Nadir.

INTRODUCTION

"Integrity, Insight and Inclusiveness are the three essential qualities of Leadership." – Sadhguru

To survive & be successful an organization needs an excellent leader and highly dedicated staff. In the contemporary dynamic and highly competitive world retaining the human recourse assets is one of the biggest challenges faced by the organizations all over the world. Research shows that effective organizational leaders play a very important role in not only in attracting the right type of work force but also in reducing staff turnover. The absence of a strong leader can be a reason for employees exiting frequently as result the company's growth is adversely affected. At the same time a Tyrannical Leader can also be one of the main reasons for employees leaving the company.

An employee's performance is influenced by various factors like work culture, company policies, leadership, channels of communication etc. Research shows that the organizational leaders and their leadership style have an enormous impact on employee's work performance. It is the leader who is directly or indirectly influencing the other factors like work culture, company policies. The leaders, based on their leadership styles determine whether to have an open-door policy, employee recognition and incentive schemes or not. Employees prefer Recognition, Appreciation, Motivation and Opportunities for growth more than just getting a paycheck at the end of the month. Happy and satisfied employees perform better compared to those who feel undervalued.

According to Keith Davis, "Leadership is the ability to persuade others to seek defined objectives enthusiastically. It is the human factor which binds a group together and motivates it towards goals." Successful leader is one who understands the organizational goals and inspires the employees to attain those. In the present scenario employees expect a leader to be Compassionate and Understanding as they count team work, interpersonal communication as fundamental elements of organizational administration. In the 21st Century, Leaders are also expected to be role models for the future generation.

OBJECTIVES

- To study the various Leadership Styles.
- To assess the impact of Leadership Styles on Employee Performance.

RESEARCH METHODOLOGY

- Primary Source – Data collection through a structured questionnaire.
- Secondary Source – Books, Journals, Newspaper, Internet etc.

LITERATURE REVIEW

Leadership is precisely interpreted as the all-embracing assumption that employees are profoundly influenced by their leaders in their beliefs and behaviors, and therefore, the quality of the relationship that builds between a leader and his follower is predictive of end-results at the individual, group, and organizational levels of analysis [**Gerstner & Day, 1997, p. 827**).

Adaptive leaderships are a phenomenon that exists in contemporary organizational structure that the leaders can employ for effectiveness. Theories sustains the conviction that the adaptive leadership is an inherent offshoot of transformational leadership and that it is just not another imitation of yet another leadership theory, but is also rooted in nature [**Bass's,2003**].

The style of adaptive leadership has been acknowledged, defined, enunciated, and employed, with an assortment and classification of results set up for theoretical study and validation. Subsequent sets of principles, theories, and prospects have been created that extracts a set of standards and models for what is expected of adaptive leaders and how to grow into an adaptive leader.

A company can perform successfully by model leadership and by honest and continuous communication. Leadership is believed to be a feature that has a significant influence on the performance of organization, managers and employees [**Wang et al., 2005**].

Transactional leadership depends on contingency sustenance which indicates that the subordinate understands that an incentive will be gained when performance goals are achieved [**Bass & Riggio, 2006, p.8**).

Charismatic leaders are those who have three primarily add-on features -ability to foresee future developments and be far-sighted, is an innovative thinker and shows empathy and endows co-workers. [**Chio, 2006, p.24**]

Charismatic leaders can motivate subordinates to function effectively without having the need to trigger their position of power; they have a vision and the ability to convince subordinates to endorse that vision. Additionally, charismatic leaders' characteristics incorporate determination, energy, self-confidence and ability; in addition, they are not afraid to be unconventional and distinctive [**McKenna, 2006**].

Distributed Leadership Model explains that leadership can be shown by people across an organization irrespective of their positions or roles in the organization. Heifetz et al observes leadership and management as discrete but important behaviors that complement each other as part of a larger system of action.

Leadership, from Heifetz's point of view demands a learning strategy. The adaptive needs of present time seek leaders who undertake responsibility without awaiting any revelation or request. An unrequited query can prompt oneself to lead [**Heifetz & Laurie, 2011, p. 78**].

DATA ANALYSIS & INTERPRETATION

Leadership is an attribute, a skill which can be inherent or acquired and it can be definitely improved. Strong leadership is an essential prerequisite for an organization to be successful. Organizational leadership has to deal with extremely demanding and challenging circumstances quite often. In such situations the leader has to remain steadfast and lead with authenticity so that people can follow and do the right thing. An organization without a robust leader is like a ship without an expert captain at the helm. A leader needs to understand human psychology to deal with the diverse group of employees effectively. The study shows that each leader has his/her own individual style of leadership which is developed over the years.

Chankya, the well-known Indian scholar, specified 5 'Essential Traits' like - Effective Communicator, Team Player, Exceptional Administrator, Insightful and Strategist, of a true Leader. These leadership capabilities meant for Rulers and Sovereigns of ancient eras are still applicable to contemporary Corporate Leaders. According to him an Ideal Leader has the aptitude of Leadership, Intellect, and Strength. He opined that these skills are intrinsic in an individual, however appropriate training is crucial to augment it. An individual can attain success by merits and not just by having a higher position.

Chankya has also highlighted the benefits of Strategic Communication for leaders. According to him it is crucial to get the correct message, through the suitable channel, to the right individual at the appropriate time to accomplish the anticipated outcome. It means effectively communicating to a preferred audience with the accurate message. He cited several circumstances like, talking to the soldiers at the time of war, communicating with your opponent, speaking to one's own compatriots during crisis and peace time, where appropriate communication is vital to achieve targets.

LEADERSHIP INVOLVES:

- Creating a strong Vision for the organization.
- Sharing the Vision with the team and inspiring them to enthusiastically follow.
- Providing Information, Knowledge and Technique to achieve the Vision.
- Empowering the team members by delegating responsibility & authority.

- Coordinating and managing the conflicting interests of all members & Stakeholders.

FIGURE 1

LEADERSHIP STYLES

Leaders plays a crucial part in the success or failure of any organization. They develop their own style of leadership based on own personality traits, influence of mentors, future goals, and organizational environment etc. According to the research the various types of Leadership Styles are;

- **Transactional Leadership**

Transactional leadership is contingent on ambitious people who perform well in an organized, planned setting. Transactional leaders are not very good fit for organizations where creativity and innovative ideas are valued.

- **Autocratic Leadership**

The Autocratic Leadership Style means all decision-making authorities are with the leader as they are authoritarians. Autocrat leaders wield high levels of control over the employees and the team.

- **Transformational Leadership**

Transformational leadership generates useful and constructive changes in the workers. The leaders motivate and inspires employees, choosing to persuade rather than orders people.

- **Charismatic Leadership**

A charismatic leadership style can be like Transformational Leadership Style, as the leader has a magnetic personality and inserts volumes of passion into the team, is also very determined in motivating others forward.

- **Democratic Leadership**

Democratic Leader take the ultimate decision but before that they encourage other team members to be part of the decision - making procedure. This helps to augment job satisfaction level of the employees; it also aids to improve people's capabilities.

- **Laissez-Faire Leadership**

In the Laissez-Faire Leadership Style, the manager offers minimum input and employees are free to contribute and take decisions. The employees have the authority to take decision must determine the goals and resolve complications on their own.

- **Bureaucratic Leadership**

This is style accentuates measures and conventional methods irrespective of their benefits in changing environments. Bureaucratic leaders try to resolve problems by adding levels of control, and their authority comes from monitoring the movement of information.

- **Adaptive Leadership**

This style of leadership aims to deal with intricate, long-term issues or difficult situations. Adaptive leaders try to find solutions to recurrent organizational complications through methodical modification, and is founded on the awareness that problematic situations can be solved better with participation from all the stakeholders.

- **Inclusive Leadership**

A genuine leadership style that is impartial and doesn't discriminate based on colour, race & religion etc. It involves managing & leading various group of people efficiently. They make employees feel appreciated for their efforts, respecting their individuality in an empathetic, objective way.

FIGURE 2

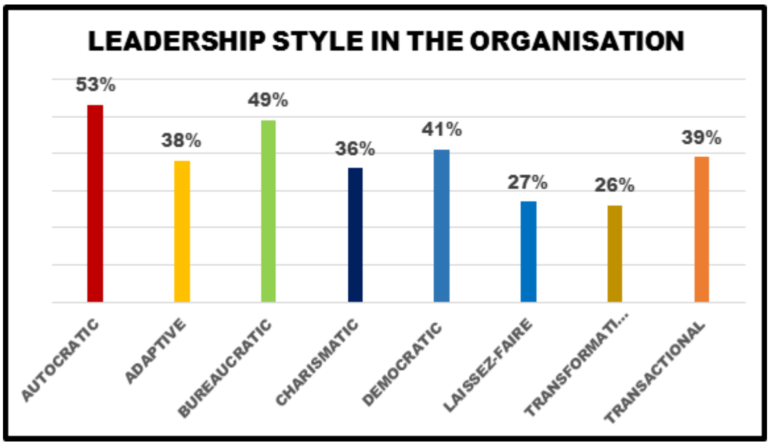

FIGURE 3

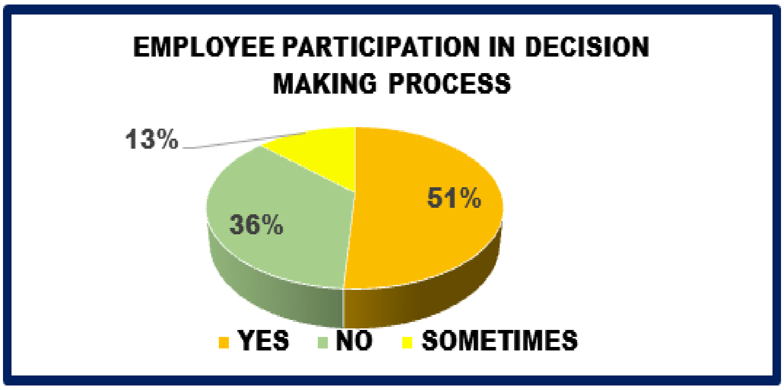

FIGURE 4

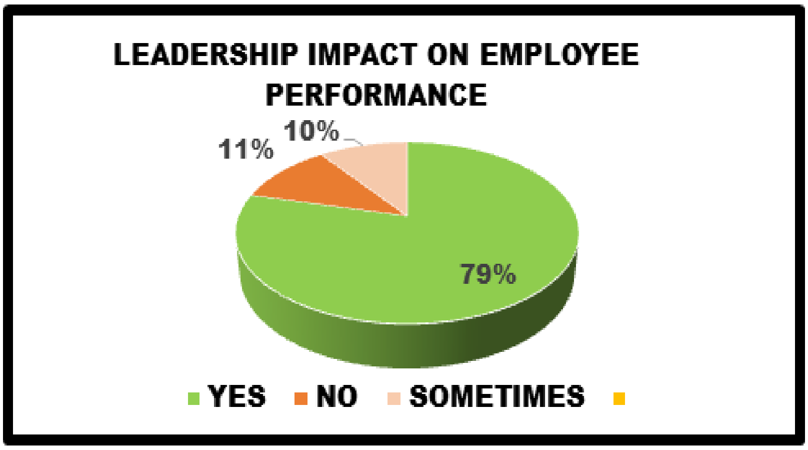

FIGURE 5

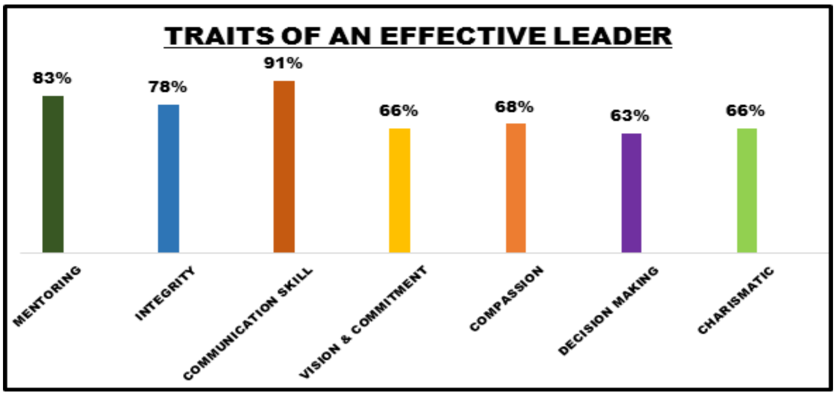

FIGURE 6

COMPARISON CHART – LEADER VS. BOSS

FIGURE 7

  LEADER	  BOSS
▪ INSPIRES EMPLOYEES	▪ DRIVES EMPLOYEES
▪ DEPENDS ON RESPECT & HONOR	▪ DEPENDS ON AUTHORITY
▪ CARES FOR EVERYONE'S WELL-BEING	▪ CARES FOR EVERYONE'S PRODUCTIVITY LEVEL
▪ SAYS 'WE'	▪ SAYS 'I'
▪ INSPIRES ENTHUSIASM	▪ INSPIRES FEAR
▪ GIVES CREDIT	▪ TAKES CREDIT
▪ SAYS 'LET'S GO'	▪ SAYS 'GO'
▪ ASKS	▪ ORDERS
▪ KNOWS HOW IT IS DONE	▪ SHOWS HOW IT IS DONE
▪ LISTENS MORE	▪ TALKS MORE
▪ ENCOURAGES	▪ CRITICIZES
▪ SEEKS SOLUTIONS	▪ GIVES ANSWERS
▪ DELEGATE	▪ MICROMANAGE
▪ CREATES LEADERS	▪ PRODUCES FOLLOWERS

RECOMMENDATIONS

Organizations really need to implement strategies to develop positive leadership as it benefits not only the employees but also the management. Therefore, companies should give more thought to the employees' welfare, career advancement, and equal job responsibilities of all the employees. Leaders should recognize if their leadership style is positively or negatively influencing the employees.

CONCLUSION

Research proves that an organization's leadership style definitely has a huge impact on employee performance. Another aspect which is greatly influenced by the leadership style is employee turnover and it is a major concern for the companies. The study also highlights the fact that each and every member of the organization plays an important role in its success or failure but the leaders play a very crucial part.

Lack of effective leadership [Laissez-Faire] or negative [Autocratic] is detrimental for the performance of the employees. Inclusive, Democratic, Charismatic, Transformational & Adaptive Leadership Styles have a positive impact on employee morale and performance. The survey shows that most of the employees feel their bosses have a long way to go before they can be regarded as leaders.

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Study of Investment Behaviour of Women in Mumbai, the Financial Capital of India

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ABSTRACT
New-age women not only take charge of their money but are also doing it in the male-dominated fields. Women have a say in investment patterns. women invest more carefully and thus manage risk better, women are more confident about their investment decisions and earn more return. Women investors turned more pugnacious in the domestic equity market than ever before amid the ongoing Covid-19 disruption. The overall aim of this research is to gain knowledge about key factors that influence investment behavior and ways these key reasons impact investment decision-making processes among women. There is no alternative effect playing its part in the financial markets amid falling interest rates and rising gold prices.The study gives an insight about the investing pattern of women. Women are perceived as not taking risks but her strength of managing risk is projected as her weakness. Lockdown has just been an accelerator allowing women to deepen their capital market knowledge via digital platforms and manage investment. This research aims at identifying the investment behavior of women investors by taking their responses on various factors like knowledge, discipline, age and risk return etc.

Keywords: Investment behaviour, women, Mumbai, financial capital

INTRODUCTION

The Indian financial sector has managed a crisis due to availability of data and ready availability of advanced as well as simple analysis tools like advanced excel, R software and even easy online availability of different analyses . The investments in the security market are increasing in terms of volumes and number of investors. As the number of investors is increasing, participation of women has also increased. Mumbai is the financial capital of the country due to the Bombay stock Exchange, the share market investment opportunities available and everyone in Mumbai directly or indirectly is an investor in the capital market. Women investors are more active in the domestic equity market than ever before the ongoing Covid-19 effect on the economy. There is no alternative impact playing its role in the financial markets decreasing interest rates and increasing gold prices other than this the work-from-home (WFH) option also gave them a chance to participate in the equity market.The growing need to manage and contribute financially to meet household expenses with unpleasant pay cuts and lay-offs has made them to explore share trading, women are looking for alternatives to the decreasing bank's fixed deposit (FD) interest rates, "Lockdown has given opportunity to women to increase and update their capital market knowledge via digital mode, increasing gold prices, low returns on bank's fixed deposits and real-estate investments are the factors for moving savings from physical to financial assets, the attractive valuations since March 2020 have resulted to an increase in number of women investors investing in the equity markets. The average age of such women is 33 years.women want high profits in a very short period of time without too many entry/exits. Women investors have started actively managing their money and are quite successful at it. Earlier, most of them would avoid share investment but now with simple technology and access to knowledge about markets, their participation has increased.

Women participation in the share market is increasing due to financial literacy among women as quick and reliable information is available and within reach of women. In addition to this Women are more disciplined so have risk tolerance i.e. women manage risk better than men and also sometimes earn more returns from their investments. Except for this, women invest more carefully in their financial resources and have shown high confidence regarding their financial behavior. This paper is the study of the investment behavior of women residing in Mumbai, with reference to their preference for investment alternatives, their knowledge, risk behavior, the level of confidence regarding their financial decisions, are the factors which influence their investment decisions.

LITERATURE REVIEW

Schubert et al. (1999) find no influence of gender on financial decisions.

Masters and Meier (1988) found no difference in the risk taking propensity of male and female entrepreneurs.

RESEARCH OBJECTIVES:

1. To study the relationship between age group and investment decisions.
2. To study the relationship between learning status and risk taking attitude.
3. To study the knowledge base of female investors about various investment options available.

HYPOTHESIS-

1. H 1 :There is a significant relationship between age and investment decisions.

   H 0 :There is no relationship between age and investment philosophy.

2. H 1 :There is a significant relationship between knowledge and Risk taking Attitude.

   H 0 : There is no relationship between knowledge and Risk taking Attitude.

RESEARCH METHODOLOGY:

This study is based on the responses of a selected sample of 100 women investors. The data was collected through online questionnaire surveys and convenience sampling is used. Non parametric test Chi-square is used to test the hypotheses along with the graphical representation.

ANALYSIS & INTERPRETATION

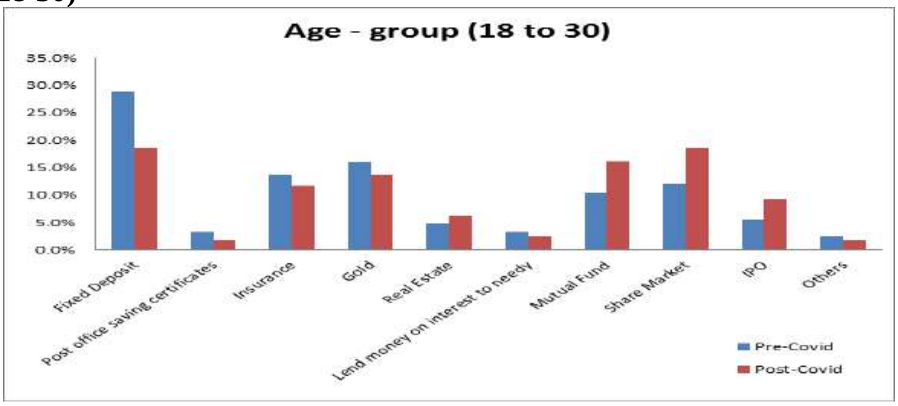
OBJECTIVE 1:

To study the relationship between age group and investment attributes

- **CROSSTABULATION:**

This part has been divided as per age-group and their investment choices/attributes, to understand their preference Pre-Covid and Post-Covid.

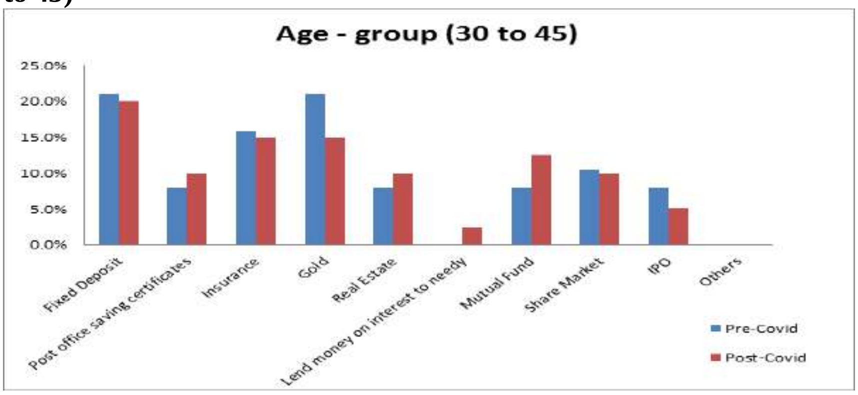
i. **Age – group (18-30)**



INTERPRETATION

From the above graph, we can observe that there has been a drop in some investment choices by the investors (falling in the age- group "18-30") Post- Covid situation such as Fixed deposit, Post office saving certificates, Insurance, Gold, Lending money on interest. We can say that covid outbreak had a negative impact on these investments. Whereas, we can also observe a surge in few investment choices after covid situations such as Real estate, Mutual fund, Share market and IPO.

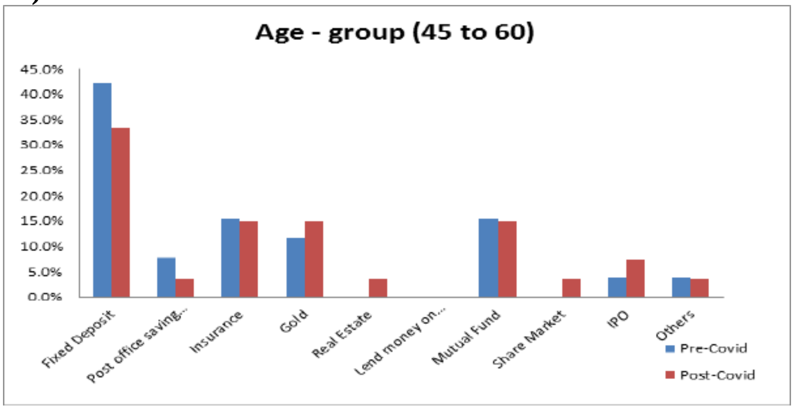
ii. **Age-Group (30 to 45)**



- **INTERPRETATION**

From the above graph, we can observe that there has been a drop in some investment choices by the investors (falling in the age- group "30-45") Post- Covid situation such as Fixed deposit, Insurance, Gold, Share Market, IPO. We can say that covid outbreak had a negative impact on these investments. Whereas, we can also observe a surge in few investment choices after covid situation such as Post office saving certificates, Real estate, Lending money on interest, Mutual fund.

iii. Age-Group (45 to 60)



- **INTERPRETATION**

From the above graph, we can observe that there has been a drop in some investment choices by the investors (falling in the age- group "45-60") Post- Covid situation such as Fixed deposit, Post office saving certificates, Insurance, Mutual fund. We can say that covid outbreak had a negative impact on these investments. Whereas, we can also observe a surge in few investment choices after covid situations such as Gold, Real estate, Share Market, IPO.

OVERALL CONCLUSION:

The investment attribute that got affected the most due to covid outbreak, according to all age groups taken into consideration is "Fixed Deposit". The reason behind this could be many people losing their job, pay cut, failing to pay the rent, etc. Surviving on "Fixed Deposit" could have been the only good solution amidst this covid situation.

The investment attribute that has been booming in this pandemic, according to all age - groups is the "Real Estate". Real estate has continued throughout the pandemic. Surprisingly, it has prospered during covid.

OBJECTIVE 2:

To study the relationship between learning status and risk taking attitude.

This objective has been analysed with rest to 2 parts:

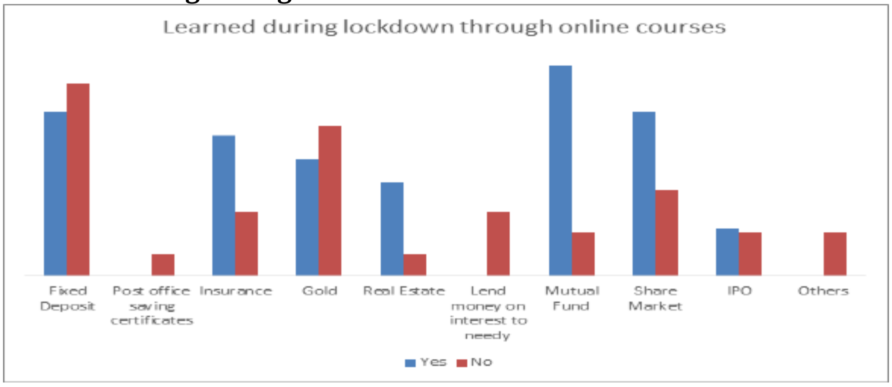
a) Financial Study Background and Investment in Share Market

Financial Study Background		Invested in Share Market
Yes	Count	26
	%	74.3%
No	Count	9
	%	25.7%
Total	Count	35
	%	100.0%

INTERPRETATION:

Here, we have considered the respondents who have invested in the sharemarket. We observe that out of the total who has invested in the share market, 74.3% have some kind of financial study background. Investing in the share market with this kind of knowledge justifies the risk in investing in the share market. On the other hand, 25.7% are those who do not have any financial study background and still have invested in the share market. Respondents with no financial knowledge take a high risk by investing in the share market.

Online courses learning during lockdown and investors Post-Covid investment choices.



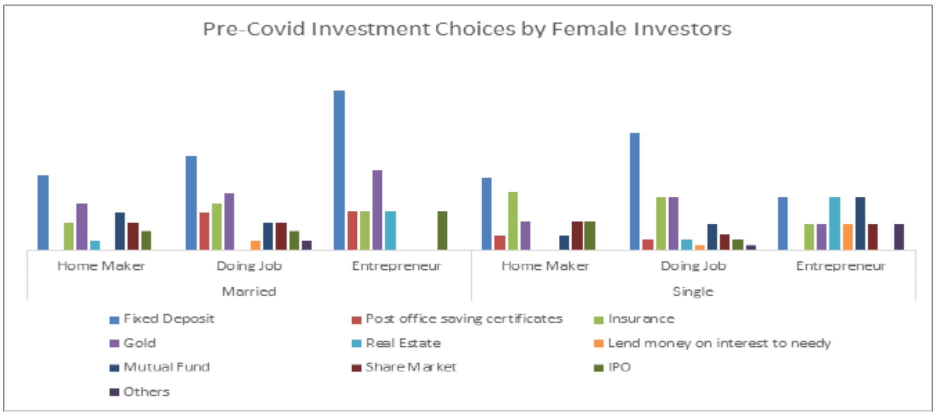
INTERPRETATION

Many people have bear losses amidst this covid situation. Also, due to work from home many of them have got some time out to actually go for some kind of financial education. Hence, there is a good number of respondents who went for online courses on finance education during lockdown. To know their risk taking attitude we mainly focus on the respondents who do not have any financial study background and have pursued online courses during lockdown. We study their investment choices based on such online courses. We observe that most of them have invested in Insurance, Real Estate, Mutual Fund, Share Market and IPO.

OBJECTIVE 3:

To study the knowledge base of female investors about various investment options available.

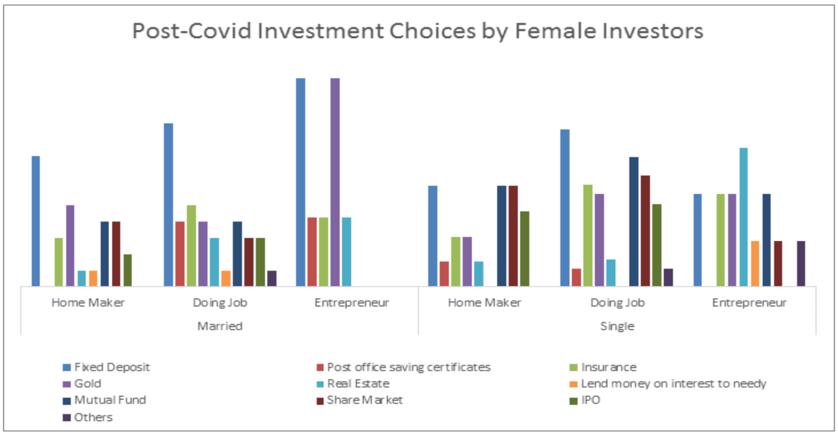
i. **Pre-Covid Investment choices**



- **INTERPRETATION**

From the above graph, we observe female investors pre-covid investment choices categorized according to marital status and working status. Overall, most of the married women with different working status preferred investing in 'Fixed Deposit' over other investment options. Most of the single Homemaker women and the one Doing Job mostly invest in 'Fixed Deposit'. Whereas, the investment choices of Single Entrepreneur women are 'Fixed Deposit', 'Real Estate' and 'Mutual Fund'

Post-Covid Investment choices



- **INTERPRETATION**

From the above graph, we observe female investors post-covid investment choices categorized according to marital status and working status. Overall, most of the married women, homemaker and with Job preferred investing in 'Fixed Deposit' over other investment options. The investment choices of Married Entrepreneur are 'Fixed Deposit' and 'Gold'. Most of the single Homemaker women and the one Doing Job mostly invest in 'Fixed Deposit'. Whereas, the post-covid investment choices of Single Entrepreneur women are slightly different than pre-covid choices, as in they majorly invest 'Fixed Deposit', 'Insurance' and 'Gold'.

HYPOTHESIS

Hypothesis 1:

H_0: There is no relationship between age and investment philosophy.

vs

H_1: There is a significant relationship between age and investment philosophy.

- **CHI-SQUARE TEST**

Investment Philosophy		Age- Group		
		p-value	**Decision Criterion**	**Conclusion**
Study Market before Investment		.570	> 0.05 (greater than 0.05)	No significant relationship
Follow tips available through various means		.024	< 0.05 (less than 0.05)	Significant relationship

- **CONCLUSION**
- Since p-value > 0.05, we do not reject H_0 and conclude that There is no significant relationship between age and philosophy that they study the market before making investment. Whereas for the other case p-value < 0.05, thus we can reject H_0 and conclude that significant relationship between age and investment philosophy that they do follow tips available through various means. Hence, we can say that any age group finds it important to follow tips in order to make the right investment.

Hypothesis 2:

H_0: There is no relationship between knowledge and risk taking attitude.

vs

H_1: There is a significant relationship between knowledge and risk taking attitude.

- **CHI-SQUARE TEST** In the hypothesis, we have considered 2 parts:

i. Financial Background and investors risk taking attitude by investing in Share Market

ii. Investors making investment choices after taking education on finance during lockdown through online courses.

i. Financial Background and Share Market

	Share Market		
	p-value	**Decision Criterion**	**Conclusion**
Financial Background	0.010	< 0.05 (less than 0.05)	Significant relationship

- **CONCLUSION**

Since p-value < 0.05, we reject H_0 and conclude that significant relationship between financial background and investors' risk taking attitude by investing in share market. In other words, we can say that having a financial background may build investors' confidence and help them to strategize their money invested in the share market. Financial background plays a vital role in investments.

ii. Investors making investment choices after taking education on finance during lockdown through online courses.

Investment choice	Learnt during lockdown through online courses		
	p-value	**Decision Criterion**	**Conclusion**
Post-Covid	0.009	< 0.05 (less than 0.05)	Significant relationship

INTERPRETATION

Since p-value < 0.05, we reject H_0 and conclude that significant relationships between investors risk taking attitude by making investment choices based on the finance education taken during lockdown through online courses. In other words, Covid outbreak gave many investors a chance to enhance their finance education, especially for those who have none or minimum financial knowledge. Most of the investors went for some education during lockdown through online courses. Although it is a good thing to learn something new, it is also a bold step to make a decision based on a new learned knowledge. In a way, we can say that it is a risk investors are ready to take.

CONCLUSION

The research conducted to study the investment behaviour of women in Mumbai is carried out with the objectives of To study the relationship between age group and investment decisions. To study the relationship between learning status and risk taking attitude.and .To study the knowledge base of female investors about various investment options available. and the outcome is on the basis of the chi square test which rejects the null hypothesis and accepts the alternative hypothesis that There is a significant relationship between age and investment decisions. and also there is a significant relationship between investors' risk taking attitude by making investment choices based on the finance education taken during lockdown through online courses. Covid outbreak gave many investors a chance to enhance their finance education, especially for those who have none or minimum financial knowledge. Most of the investors went for some education during lockdown through online courses. Although it is a good thing to learn something new, it is also a bold step to make a decision based on a new learned knowledge. In a way, we can say that it is a risk investors are ready to take.

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The Psychological Impact of the Covid-19 Pandemic on College Students in India

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ABSTRACT
A COVID-19 pandemic has been spreading all over the world since December 2019. The pandemic has brought various adverse effect not only the risk of death from infection but also unbearable psychological pressure. Due to COVID 19 pandemic there has created a mental health crisis among college students all over India due to lockdown limitations, overwhelming numbers of COVID-19 cases, financial difficulty etc. Fear, anxiety, and sadness are common among college students as a result of the mental health crisis.

The main objective of this study was to estimate the psychological condition of college students during a pandemic and explore factors that prompt their anxiety. This study was conducted using a Google Forms questionnaire. The Google Form consisted of questionnaire based on GAD-7(7 - item Generalized Anxiety Disorder Scale) and also participant’s basic information was considered therefore it included both qualitative and quantitative analyses in the study. The estimates of the strengths of associations were demonstrated by the odds ratio (OR) with a 95% confidence interval (CI), which was used to evaluate the association.

Keywords: COVID-19, College students, Psychological

INTRODUCTION

The SARS-CoV-2 virus causes Coronavirus Disease (COVID19), an infectious disease. The coronavirus circulated rapidly all over the world which caused an outbreak of severe infectious pneumonia. The pandemic brought a risk of death and psychological pressure on students in the rest of the world. Due to the increase in spread covid-19, strict isolation measures and the starting of schools, colleges, and universities across the different parts of India were delayed due to which it affected the mental health of college students.

The one of the most frequently used diagnostic self-report scales for screening, diagnosis, and severity assessment of anxiety disorder is 7-item Generalized Anxiety Disorder scale (GAD-7). The GAD-7 compared to others takes very little time to complete and is easy to score. Among other tools GAD-7 is the most widely used to measure of anxiety which is useful in clinical practice and research due to its diagnostic reliability and efficiency. Also, one of its uses is for the assessment of the severity of anxiety disorder, diagnosis, and screening, as well as for post-traumatic stress disorder and panic disorder.

Various methods took place for guiding students so they can deal effectively and appropriately regulate their emotions during public health emergencies and also avoid losses caused by crisis events. Therefore, we investigated biasedly and analysed the mental health status of college students during the pandemic for the following purposes.

i. To evaluate the mental situation of college students during the pandemic;

ii. Theoretical basis to be provided for psychological interventions with college students and

iii. To provide a basis for the promulgation of national and governmental policies.

METHODOLOGY

The Generalised Anxiety Disorder Assessment (GAD-7) comes into light which is a seven-item instrument that is used to measure or assess the severity of generalised anxiety disorder (GAD). This is based on a score of 10 or greater than that in GAD-7 which represented a sensible cut point for identifying cases of GAD. Of which cut points of 5, 10, and 15 might be explained as representing mild, moderate, and severe levels of anxiety on the GAD-7 scale. The Generalized Anxiety Disorder (GAD-7) questionnaire is a seven-item, self-report anxiety questionnaire designed to assess the patient's anxiety status within the 2 weeks. The screening tool named GAD-7 can help one find out if he/she might have an anxiety disorder that needs to be treated. It determines how many typical symptoms you experience and, depending on your responses, places you on a scale ranging from mild to severe anxiety.

Score	Risk Level	Suggested Intervention
0-4	No to Low risk	None
5-9	Mild	Repeat on follow up
10-14	Moderate	Further consideration required

15 -21	**Severe**	**Go for treatment plan.**

I. STUDY POPULATION AND SAMPLE: -

The target population consisted of several students across different parts of India. Cluster sampling was used to sample the respondents in the target population.. We judged the mental health of these students during the COVID-19 outbreak by using structured questionnaires. The questionnaires were unsung to ensure the confidentiality and reliability of data**.**

II. **RATING INSTRUMENTS: -**

The study instrument comprised a structured questionnaire packet that inquired tallied information which included gender, region, place of residence settlement who diagnosed them, and source of parental income. The questionnaires consisted of a total of 12 multiple questions, of which 7 of them were based on GAD-7, and the rest consisted of participant's basic information. The GAD-7 is made up of seven items that are based on seven key symptoms and asks how often respondents experience these symptoms. Respondents use a four-point Likert scale to rate their symptoms from 0 (*not at all*) to 3 (*almost every day*), such that the total score ranges from 0 to 21.

III. DATA ANALYSIS: -

The estimates of the strengths of associations were demonstrated by the odds ratio (*OR*) with a 95% confidence interval (CI), which was used to evaluate the link between COVID-19-related stressors, including economic and daily-life-related stressors related to delays in academic activities, , as well as anxiety levels. Odds ratios are used to compare the relative odds of the occurrence of the outcome of interest (e.g., disease) given exposure to the variable of interest (e.g., health characteristic). The 95% confidence level is most commonly used for analysing, but other levels such as 90% or 99% are sometimes used.

RESULT

I. Level of anxiety among college students during the pandemic

Table 1 Number of students with different anxiety levels

ANXIETY LEVEL	NUMBER	RATIO
Normal	**72**	**33.65%**
Mild	**80**	**37.39%**
Moderate	**53**	**24.76%**
Severe	**9**	**4.20%**

The table above shows how the pandemic impacted college students' mental health in several ways. Around 33.65% of the 214 college students showed no anxiety symptoms, whereas the proportions of students with mild, moderate, and severe anxiety were 37.39%, 24.76%, and 4.20%, respectively.

UNIVARIATE ANALYSIS

Table 2 Univariate analysis of college student's anxiety about the pandemic

VARIABLES	TOTAL	ANXIETY LEVEL			
		NORMAL	MILD	MODERATE	SEVERE
GENDER					
Male	**112**	**45**	**41**	**22**	**4**
Female	**102**	**27**	**39**	**31**	**5**
PLACE OF RESIDENCE					
Urban	**184**	**62**	**66**	**47**	**9**
Rural-Urban	**21**	**6**	**10**	**5**	**0**
Rural	**9**	**4**	**4**	**1**	**0**
STEADY FAMILY INCOME					
Yes	**176**	**60**	**67**	**43**	**6**
No	**38**	**12**	**13**	**10**	**3**
LIVING WITH PARENTS					
Yes	**193**	**63**	**75**	**46**	**9**
No	**21**	**9**	**5**	**7**	**0**

RELATIVE OR ACQUAINTANCE GOT COVID-19					
Yes	**121**	**31**	**46**	**38**	**6**
No	**93**	**41**	**34**	**15**	**3**

The demographic and selected characteristics of the study population are shown Table

Table 2 shows the demographic and selected characteristics of the study population. Approximately 112 males and 102 females out of a total of 214 college students responded. The respondents were from all over India, with 4.2 percent of them living in rural areas and the bulk in urban areas. 82.24 % lived with their parents, while 9.8 % of parents of students did not have a consistent source of income. The majority of individuals (56.54 %) had COVID-19-infected relatives or acquaintances. Living with parents had a considerable impact on anxiety, with students who lived alone reporting lower levels of anxiety. Furthermore, because majority of the population is urban, the rate of anxiety in urban areas is higher than in rural-urban and rural areas.

II. Ordinal regression analysis

Table 3 Ordinal logistic regression analysis of factors influencing college student's anxiety

FACTORS	NUMBER	STD.ERROR(SE)	ODDS RATIO(OR)	OR (95% CI)
PLACE OF RESIDENCE				
Urban	**184**	**0.417**	**0.98**	**(0.43, 2.23)**
Rural-Urban	**21**	**0.506**	**1.3**	**(0.48,3.5)**
Rural	**9**	**0.687**	**0.62**	**(0.16,2.39)**
STEADY FAMILY INCOME				
Yes	**176**	**0.383**	**0.89**	**(0.42,1.89)**
No	**38**	**0.383**	**1.12**	**(0.53,2.38)**
LIVING WITH PARENTS				
Yes	**193**	**0.466**	**1.55**	**(0.62,3.86)**
No	**21**	**0.466**	**0.65**	**(0.26,1.61)**
RELATIVE OR ACQUAINTANCE GOT COVID-19				
Yes	**121**	**0.294**	**2.29**	**(1.28,4.08)**
No	**93**	**0.294**	**0.44**	**(0.25,0.78)**

Table 3 shows the results of an ordinal multivariate analysis of factors linked to anxiety during the COVID-19 crisis. Significant components from the univariate analysis were included in the ordered logistic regression analysis. Living in rural areas, as opposed to urban areas, was found to be a protective factor against anxiety among the individuals (OR = 0.62, 95 percent CI = 0.16 – 2.39). The stability of students' family income was proven to be a protective factor against anxiety (OR = 0.89, 95 percent CI = 0.42–1.89), whereas students living with their parents (OR = 1.55, 95 percent CI = 0.62–3.86) was not. Having a COVID-19-infected relative or acquaintance, on the other hand, was found to be a risk factor for anxiety (OR = 2.29, 95 percent CI = 1.28 – 4.08)

CONCLUSION

According to studies, public health emergencies can have a variety of psychological repercussions on college students, including anxiety, dread, and worry, among other things. This study's principal objective was to assess college students' psychological well-being during a pandemic and look into the elements that influence their anxiety. According to the survey conducted, 66.35 percent of college students have experienced anxiety as a result of the COVID-19 epidemic. COVID-19-related anxiety among college students could be linked to the virus's impact on their studies and future employment prospects. The students' anxiety on the other hand, could have been created by the quarantine's constantly rising distances between people.

The results of this study shows that college students' anxiety about the pandemic was linked to their residency, parental income, if they lived with their parents, and whether a relative or acquaintance had been infected with COVID-19. This difference suggests that the pandemic induced similar stress and unpleasant feelings in male and female students. Living in cities, as opposed to rural locations, was found to be more favourable to reducing college students' anxiety, according to the multivariate logistic regression analysis. During the COVID-19 crisis, the stability of family income was also a key determinant in students' worry, which could be explained by increasing psychological and economic pressure. Because of the COVID-19 pandemic, over half of all college students have suffered anxiety. College students who lived in urban areas, lived with their parents, and had a secure family income were less likely to experience anxiety during the COVID-19 pandemic. Having a COVID-19-infected relative or acquaintance, on the other hand, was an independent risk factor for anxiety.

When confronted with public health emergencies, college students' mental health suffers significantly, necessitating the attention, assistance, and support of society, families, and colleges.

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Customer Satisfaction and Customer Retention W.R.T. Food Industry in India

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ABSTRACT
Food & Beverages are an important link between you and the menu. The importance of providing quality service in the food industry has received much attention from researchers and staff. Traditionally, service quality has become an important factor in customer loyalty, high profitability, and market share. Various studies have been conducted on the quality of service and customer satisfaction, but few have focused on hotels and restaurants. The main purpose of this study was to investigate the impact of service quality on customer satisfaction with food. The purpose of this study was to identify the impact of the quality of service items on customer satisfaction. This is concrete and concrete in five respects. This study emphasizes the importance of size response and assurance in determining service quality. In this study, the two sides combined contributed 33% of the difference in service quality. Clients, especially university staff such as students and faculty members, put the importance of response, perhaps because they do not have time to relax and seek help immediately. Restaurant managers can create and evaluate benchmark points for clients that improve customer loyalty and compare themselves to competitors.

Keywords: Integrity, Service quality, retention

INTRODUCTION
Current business organizations know that consumer loyalty is an important part of business success and, at the same time, plays an important role in enhancing market reputation. However, its product and prominence, skills, reliability, sales function and customer service are the most important points needed to meet or exceed customer satisfaction. Satisfied customers for the most part go back and buy more. The hotel industry is changing rapidly due to technological change; hotel managers will need to step up to the plate in terms of guest preferences, food quality and changing customer habits (Liana Victorino, 2005). The food and beverage department is one of the main revenue points for the hotel; means a stone service designed to satisfy a basic human need for hunger and the joy of eating and drinking to the satisfaction of both physical and mental. Customer Satisfaction: Overview Customer Satisfaction is one of the most important topics for researchers and organizations to do more research to get better results, and organizations are improving customer relationships and customer satisfaction. To increase qualifications, the organization is growing in the market. Satisfaction increases customer loyalty and depends on the relationship.

BOOK REVIEW
Customers play an important role in the food service industry. Every business organization needs to keep customers happy. Good customer service is one of the things that makes businesses successful and maintains long-term relationships. It is very important that the hotel industry always keeps customers happy and fully satisfied. Special visitor care has a direct impact on economic growth (S. Margabandhu, 2014). One of the most important findings from the research of Parasuraman, Zeithaml and Berry (1994) is that service quality can be measured by comparing customer expectations against their perceptions of real service experience. Customer satisfaction with services is defined as the level of service performance that meets or exceeds customer expectations (Kumar, 2012; Lombard, 2009; Santouridis & Trivellas, 2010). Malik (2012) measured the gap between service expectations and customer service perceptions of the service provided by the four service industries (banking, transportation, couriers and communications) and assessed the impact on their satisfaction. Customer satisfaction is considered an important factor affecting customer retention (Ahmed et al., 2010; Danesh et al., 2012; Huppertz, 2008; Lombard, 2009; Omar et al., 2011). Therefore, companies need to learn how to retain customers and not just consider their satisfaction.

RESEARCH METHOD
TEST MODEL
The survey concept model is primarily developed for customer satisfaction and customer retention related to service quality. It assesses the impact of service quality on customer satisfaction and customer retention, as well as the impact on customer satisfaction on customer satisfaction. This survey can be categorized as descriptive analysis based on methods used to obtain data of interest and its relevance.

DATA COLLECTION
The target group for this survey is all customers (students) who provide the service at 10 nearby restaurants with limited service.

RESEARCH IS IMPORTANT
Purpose and Significance of the Survey The purpose of this study is to investigate the relationship between food quality and service quality, taking into account customer intent, and determining whether these ideas affect service satisfaction. Customer satisfaction helps to improve efficiency, with proven profitability and positive customer impact. As competition in the hospitality industry intensifies, customer demand is becoming increasingly needed, and the tourism industry needs to understand their concept of quality service. Excellent service, quality of food, new ways of cooking, fast response, low prices, and innovation in the hotel industry need to be improved to make the restaurant customer behavior more attractive. here it is. In this regard, food and service quality ideas may reflect a positive impact on customer satisfaction.

RESEARCH OBJECTIVES
The purpose of this study is to discuss the relationship between the four variables of customer service quality, product quality, customer satisfaction, and customer loyalty.

• Consumer food satisfaction assessment for quality

• Investigate the relationship between food and service quality and customer satisfaction.

• Investigate the impact of food quality and service quality on customer satisfaction. Measure satisfaction with food quality and service within the consumer segment.

• Investigate the relationship between food and service quality and customer satisfaction.

• Investigate the impact of food quality and service quality on customer satisfaction.

CONSTRUCTION OF THE HYPOTHESIS
Some of the principles of research above are considerations. Compatible hypotheses have been developed to measure the level of different customer objectives.

H1: Food satisfaction and service quality in consumer numbers

Determining the relationship between food quality and customer satisfaction related to food and quality of customer satisfaction service.

H2: The relationship between food and service quality and customer satisfaction and maintenance level

In order to investigate the relationship between service quality and customer satisfaction, we used Pearson's method of correlation to investigate the relationship between service quality and customer satisfaction. Eleven variables have been identified to achieve good relationships and customer satisfaction.

LIMITATION
The sample chosen for this study is a student sample, so care should be taken when submitting results to other people.

RESEARCH ANALYSIS AND INTERPRETATION
The statistical structure of a sample of the results of the census was constructed using data obtained from the study.

76% of male customers, 24% of female customers, 62% of customers aged 25-34 years, most clients graduate and most work in the private sector. It was noted that restaurants serve quality food and service, and when customers are satisfied with the service, the number of visitors is often increased and commended by friends and relatives verbally.

DATA ANALYSIS
Hypothesis 01: Ensuring Pride of Food Quality and Service Among Consumer Statistics For this purpose, the figures obtained are used for food and specialized providers to be proud of consumer demographics. The cost of P is 196 times greater than the cost of P and it is over that vain speculation is common and there is no difference between the age group in terms of sponsor pride.

Hypothesis 02: The Link Between Food and Service Quality and Customer Pride

The connection between the diet and the diversity of suppliers raises the pride of the sponsors. Sponsor Satisfaction is calculated 5 different ratings for all categories. Commonly calculated food and diversity of suppliers and the active signal of the relationship indicators raises the correlation of variables, so that the food and the specialty providers have a greater relationship with the client's pride.

It is found that the impact of special diets on sponsor pride is 61% and the unique effect of suppliers on consumer pride is 42% very simple. looking at the interaction between suppliers and consuming special size and the pride of the sponsors, in addition to the interaction between the specialized provider and the retention of the sponsors. Considering the fact that each supplier and special diets can have a significant impact on a client's pride, which can no doubt contribute to the retention of the sponsor. In addition, it is suggested that sponsor pride may facilitate communication between the specialized provider and the retention of the sponsor. With regard to special diets, the results of these observations have confirmed that special diets have a positive impact on the pride of the sponsors. Similarly, the pride of the sponsors has a positive effect on the retention of the sponsor and mediates the connection between the specialized provider and the retention of the sponsor.

CONCLUSIONS AND SUGGESTIONS

This study investigated the impact of customer perception and customer satisfaction on the quality of service based on the range of service provided by the hotel. The purpose of this study was to investigate the relationship between service aspects and quality of food and customer satisfaction, as well as the relationship between service quality and customer loyalty. Research assumes that both service and food quality have a positive impact on customer satisfaction, which in turn has a positive impact on customer loyalty. In addition, research has suggested that customer satisfaction mediates the relationship between service quality and customer retention. In short, this study found an important correlation between service quality and food quality, as well as customer satisfaction. In addition, the quality of service has a positive impact on customer retention. Similarly, customer satisfaction has a positive impact on customer retention and mediates the relationship between service quality and customer retention. The results of this study suggest that quality of service not only improves customer satisfaction, but also leads to customer retention. In order to maintain hotel performance, the hotel must take feedback from their customers related to food quality and service and take appropriate action to provide better service and quality food in order to maintain a long-term relationship with the customer. It can also help in the hotel business and hotel growth. Catering providers need to continue to improve all aspects to exceed expectations. Food service providers need to carefully design their menus and set up SOPs in their workplaces to promote a relaxed and comfortable diet. Restaurant managers can create and evaluate benchmark points for clients that improve customer loyalty and compare themselves to competitors.

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A Study of Effect of Pandemic on International Trade and Guidance for India

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ABSTRACT
Globalisation has resulted in the nations coming closer. It has been linked by international trade and capital movements. International trade has been fostered by the development of the shipping lines, ports and other land based infrastructure. However, the year 2020 saw a catastrophic event in the form of a pandemic, resulting from a virus against whom we were defenseless. The pandemic took a huge toll on lives with USA, Brazil, Spain, Italy, UK, China and India becoming notable victims. The economies were equally hit. The governments in order to check the spread of this new virus had to shut down economies, isolate themselves internationally by blocking air travel and quarantine measures. Supply chain bottlenecks started creeping in. Container crisis started hitting the exports which take place through sea routes. By now countries had been dependent on supply chains from foreign countries. With restricted air travel and nonavailability of ships, the supply has decreased and entire global economy is bearing an inflationary outlook.

The paper is analyzing the problem, how Indian economy has been affected, what are advantages for India and the way ahead.

Keywords: Pandemic, Shipping, Trade, GDP

INTRODUCTION

The world has been progressing through interconnectivity. Establishment of international trade had been prime driver of nation's development through activity beyond `its national borders. In the second half of the last century, the world powers, battered by the World Wars, Great Depression and the newly liberated colonies started the work of rebuilding their nations with greater zeal and enthusiasm.

As the geopolitical equations started changing, the commodities especially oil replaced gold as principal object of interest. Trade connectivity were governed by political lineages and caution. Trade blocs were created but India has been following a cautious approach, apart from being one of the founding members of NON ALLIGNED MOVEMENT. While the developing nations guarded their domestic markets the developed nations were equally protective about technology transfer and domestic agricultural markets.

As the Asian nations embarked upon economic development, they embraced LPG (Liberalisation, Globalisation and Privatisation) in the 1980s. India followed suit. China had been slowly adopting the capitalist model and started opening up in the last decade of the twentieth century. As the twenty first century started, huge inflows and outflows of capital started taking place between the developed and developing nations. The rhythm was abruptly interrupted by the subprime crisis that erupted in USA and slowly engulfed the whole world. Capital flows drastically dropped and trade was hit. The central banks acted in a coordinated manner and started easing monetary policies. Trade and capital flows started picking up. USA continued to dominate the world theatre by acting as the largest trade partner of most of the countries.

RESEARCH OBJECTIVES :

1. Study effect of pandemic on foreign trade and shipping logistics
2. Study relation of supply chain logistics with GDP and inflation

METHODOLOGY

The research paper attempts to analyze the effect of pandemic on international trade through a comparative study of pre pandemic and post pandemic times. The paper takes into account both Indian and global figures. The year 2020 has been taken as the focus year as the year witnessed maximum devastation in the world and most of the lockdowns took place in most of the countries.

HYPOTHESIS :

1. Shipping logistics has been affected by pandemic. This has resulted in decrease in international trade.
2. Supply chain bottlenecks is the main cause of inflation in the world currently.

LITERARY REVIEW

1. "The impact of COVID-19 on international trade : Evidence from first shock" by Kazunobu Hayakaya and Hiroshi Mukunoki in published in Journal of Japanese and International Economies (Volume 60, June

2021), had studied the effect of COVID 19, but had inferred heterogeneous effect on international trade. Also the effect of shipping crisis has not been incorporated.

2. "After the Panic: Are Financial Crises Demand or Supply Shocks? Evidence from International Trade" by Felipe Benguria & Alan Taylor, published in American review Journal , Dec 2020, studies the negative impact on international trade, but tries to demonstrate that although the imports declined but exports were steady and doesnot recognise the supply chain crisis caused by the shipping industry.
3. "Disruptions and Resilience in Global Container Shipping and ports : the COVID-19 pandemic versus the 2008-2009 financial crisis" by Theo Noteboom et al, has studied supply chain disruptions. However the study was mainly focussed on comparison between 2008-09 crisis and has not gone deep in analysing causes related to labour. Also the period of study was limited to October 2020 data.

FINDINGS:

Table 1: Exports of top 5 commodities by India (in Rs crores)

Name of category	Apr- Mar 2020	Apr-Mar 2021	% growth	% share
Petroleum products	292,339.97	190,896.34	-34.70	8.84
Drug formulations, Biologicals	113,003.65	141,207.04	24.96	6.54
Pearl, Precious & Semi Precious stones	63,599.45	60,166.48	-8.60	6.20
IRON AND STEEL	65,774.73	89,928.15	36.12	4.17
Electric machinery and equipment	63,599.45	60,166.48	-5.40	2.79
Total	**2,219,854.18**	**2,159,043.22**	**-2.74**	**100.00**

(**Source :**Ministry of Commerce, GOI)

The figures shows that the major export from India is Petroleum products having a share of 8.84 % of the total exports. For the financial year 2020-21, they have diminished by 34.70%, year on year basis. This may be due to the decreased activity in developed nations. Due to pandemic the export of drugs, medicines and vaccines have risen by 24.96 %. The economic survey have revealed that there has been an overall export growth of 16.5% in the current fiscal, vis a vis a negative growth rate in the last fiscal.

Table 2: Imports of top 5 commodities by India (in Rs crores)

Name of category	Apr- Mar 2020	Apr-Mar 2021	% growth	% share
Petroleum crude	728,112.25	439,656.16	-39.62	15.08
Gold	199,249.74	254,288.47	27.62	8.72
Petroleum products	197,055.27	171,696.97	-12.87	5.89
Pearl, Precious & Semi Precious stones	159,066.48	139,023.79	-12.60	4.77
COAL,COKE AND BRIQUITTES	158,865.17	120,533.84	-24.13	4.13
Total	**3,360,954.46**	**2,915,957.70**	**-13.24**	**100.00**

(**Source:** Ministry of Commerce, GOI)

An analysis of the top 5 imported commodities reveals that the crude petroleum is the most important import forming about 15.08% of the total imports. However it has registered a degrowth of 39.62 % over 2019-20. This was the result of severe decrease in economic activity due to lockdowns imposed and labour force returning back to homes in fear of contracting COVID-19. According to the economic survey released on 31st January, 2022, imports have registered an overall growth of 29.5% against a negative growth in 2019-20.

Table 3 : Top 5 Indian export destinations (in Rs crores)

Country	Apr-Mar2021 (YoY % growth)	Share
USA	1.49	17.69
China	33.59	7.28
UAE	-39.61	5.71
Hong Kong	-3.28	3.48
Bangladesh	22.92	3.31

(**Source :**Ministry of Commerce, GOI)

An analysis of top 5 export destinations reveals USA being the most important export destination with a share of 17.69 % has clocked a growth of only 1.49 %. Most of the nations have registered negative growth, notably UAE, with China pulling up Indian export figures.

Table 4 : Top 5 countries of import to India (in Rs crores)

Country	Apr-Mar2021 (YoY % growth)	Share
China	4.52	16.55
USA	-15.65	7.33
UAE	-8.46	6.73
Switzerland	12.27	4.59
Saudi Arabia	-37.05	4.11

*(**Source** :Ministry of Commerce, GOI)*

A country wise analysis of the imports reveals that China is our largest partner (16.55% share) and have registered a moderate increase of 4.52% over last year. US and Saudi Arabian imports (petroleum) have registered significant degrowth owing to decrease in economic activity in 2020.

Table 5 : April to December comparative Indian trade figures

		Apr-Dec2021 (USD Billion)	**Apr- Dec2020 (USD Billion)**	**Apr- Dec2019 (USD Billion)**	**Growth vis-à-vis Apr-Dec 2020 (%)**	**Growth vis-à-vis Apr-Dec 2019 (%)**
Merchandise	Exports	301.38	201.38	238.27	49.66	26.49
	Imports	443.82	262.76	364.18	68.91	21.87
	Trade Balance	**-142.44**	**-61.38**	**-125.91**	**-132.07**	**-13.13**
Services	Exports	177.68	150.09	160.13	18.39	10.96
	Imports	103.30	85.00	97.24	21.52	6.23
	Net of Services	**74.39**	**65.08**	**62.90**	**14.30**	**18.27**
Overall Trade (Merchandise+ Services)	Exports	479.07	351.47	398.41	36.31	20.25
	Imports	547.12	347.76	461.42	57.33	18.57
	Trade Bal	**-68.06**	**3.70**	**-63.01**	**-1937.96**	-8.00

(**Source** :Ministry of Commerce, GOI)

A comparison of the Indian foreign trade figures in the period April to December for the years 2019, 2020 and 2021 reveals that in 2020 there had been significant decrease in both merchandise and services exports and imports. This has resulted in a trade surplus (3.7 billion USD). However the trend was reversed in 2021(Apr-Dec). The trade deficit increased from 63.01 in 2019 to 68.06 USD billion in 2021. Maximum lockdowns were imposed in the period Apr-Dec 2020. This is a clear correlation of foreign trade with pandemic in the Indian context.

Table 6: GDP growth (%) of India's trading partners and leading emerging markets

Country	2019	2020	2021
World	2.5	-3.5	5.3
USA	2.2	-3.5	5.7
European Union	1.6	-6.2	4.0
UK	1.4	-9.9	6.7
Japan	0.3	-4.7	2.4
Russian Federation	1.3	-3.0	3.8
China	6.1	2.3	8.3
India	4.6	-7.0	7.2
Brazil	1.4	-4.1	4.9
South East Asia	4.4	-3.9	3.5
West Asia	1.3	-2.9	3.5

(**Source :** UNCTAD secretariat report, base year 2015, in US Dollars)

The analysis of GDP growth of major economies over the last 3 years reveals that the world was growing 2.5 % in 2019, but growth dipped in 2020 to -3.5% but again recovered by 5.3% in 2021. This trend was reflected in all major economies. Except China(2.3%), all the economies contracted. Indian economy which was growing at 4.5 % (US Dollar terms) contracted 7.0%. UK contracted the most as it was worst affected in terms of percentage of population. After vaccinations the scourge diminished and growth picked up. The analysis clearly demonstrates GDP growth of all the countries were affected by pandemic.

SHIPPING CRISIS

Shipping is responsible for 80 % of the global trade. It involves around 1.9 million workers. The top 5 countries constitute around 44 % of the workforce.

Table7: World's 5 largest Seafarer Supply nations

Rank	Country
1	Philippines
2	Russian Federation
3	China
4	India
5	Indonesia

(**Source :** UNCTAD report as mentioned in the literary review)

Philippines sends around 700,000 seafarers to seas contributing around USD 30.1 billion in 2019 to domestic economy. While the global vaccination was around 53% in Aug 2021, Philippines' record was 18 %. During change of sailors, only vaccinated workers were taken on board ships. Since home countries were in charge of vaccination, lack of vaccination constricted labour force in the shipping industry.

Table 8 : Shipping volume data

Year	Volume (millions of tons loaded)	Change (%)
2016	10295	2.7
2017	10716	4.1
2018	11019	2.8
2019	11071	0.4
2020	10648	-3.8

(S**ource** : UNCTAD report as mentioned in the literary review)

The analysis of global shipping volume data reveals that volume increased from 2016 to 2019 but dipped in 2020. This was because of the lack of demand owing to reduced economic activity, ships getting stranded in high seas as they were carrying COVID affected sailors and reduced availability of vaccinated sailors.

Table 9 : World container port traffic in 2020

Region	Change (%) over 2019
World	-1.20
Asia	-0.40
Africa	0.00
Latin America & Caribbean	-1.80
North America	-1.90
Europe	-4.20
Oceania	-0.08

(**Source :** UNCTAD report as mentioned in the literary review)

The analysis of global container port traffic reveals that in 2020, all major ports in the world had registered decrease in port traffic. This implies lesser number of ships were plying. Container ships either were not allowed to leave port, or could not load/ unload due non availability of vaccinated workers. Also because of presence of infected sailors in the ships they were not allowed to berth at the ports. The problem was most acute in the European ports and least in the African ports.

Table 10 : Inflation in major developed economies

Country	Consumer Price Index
USA	7.04
UK	4.80
Japan	0.80
Germany	5.31

France	2.75
Canada	4.80
Italy	3.90

(**Source:** OECD data https://data.oecd.org)

The analysis of inflation data of major economies using the Consumer Price Index shows that almost all countries had been experiencing inflation. USA was worst hit clocking 7.04% inflation, highest in last 39 years. This data

SUMMARY OF ANALYSIS :

1. India has registered degrowth in foreign trade, both exports and imports in 2020, especially in crude petroleum and petroleum products, but clocked commendable rise in exports of drug formulations, vaccines, etc
2. Except China all major trade partners of India witnessed reduced foreign trade activity. These countries had registered negative growth in 2020. Only China registered positive GDP growth but reduced.
3. In the period Apr-Dec 2020 major lockdowns were implemented. The comparison of foreign trade figures in that period reveals negative growth in 2020 but growth in 2019 and 2020. It implies pandemic was single largest factor responsible for reduced foreign trade.
4. A comparison of GDP growth (in US Dollar terms) of major economies in the years 2019,2020 and 2021 shows all economies and world as a whole has registered negative growth. This implies pandemic was the single largest factor for negative growth in the world.
5. Shipping, through which 80 % of world's trade takes place has registered reduced volumes and port traffic only in 2020. This was because of ports blocking infected ships and lack of availability of vaccinated workers and sailors. The merchandise could not be loaded and unloaded. This has resulted in countries not having access to merchandise. This has created a supply chain bottlenecks. With lack of containers the developed countries and developing countries were facing a short supply of both raw materials and finished products.
6. The GDP figures indicate a lowering of demand. Hence, prices are expected to fall. But an analysis of inflation in major economies shows that economies are registering inflation (except Japan). USA being the world leader in international trade has been worst hit by the supply chain problems in shipping industry. Consequently, it is exhibiting the largest inflationary spiral.

The above analysis clearly proves that the hypothesis that:

1 Shipping Logistics has been affected by pandemic. This has resulted in decrease in international trade.

2 Supply chain bottlenecks is the main cause of inflation in the world currently.

CONCLUSION

It has been established that the pandemic has affected the global GDP growth and international shipping industry. This has created supply chain disruptions. As a result inflation has been rising globally. Although Indian exports has been growing but we may be affected by the imported inflation. Central banks in developed countries may have no option but hiking interest rates and tightening liquidity. The capital flows may taper off leading to lesser FII activity. Under such circumstances, considering the findings, trends this research wishes to suggest :

1. Develop domestic consumption by encouraging more MSME participation in manufacturing and stress on quality products.
2. Encourage retail participation in capital markets. This will be able to offset the lack of FII participation.

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Digital Opportunities for Small Businesses-Post Covid Scenario

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ABSTRACT
This research paper tries to have gauge about the influence of Covid-19 pandemic on Digitization of small businesses in India. In the process, pre-existing threats and opportunities regarding digitization in the market have been discussed. For example- the availability of technology and ubiquitousness of smart phones in the hands of consumers. Further, the adverse effects of the pandemic and simultaneous progress during the pandemic, in the form of widening of digital space, compulsions to use technology to avoid direct contact and adaptation attempts made by the general public, business and the government have been discussed, as well. The hypothesis has been examined. And, the relevant threats and bottlenecks in achieving the maximum digitization have also been discussed. The research also provides suggestions to combat the challenges in the full potential growth regarding digitization of small businesses.

Keywords: COVID-19, Pandemic, Business model, Small Business, Digitalization, Digital Transformation

INTRODUCTION
Digitalization is the most significant and prominent word nowadays. Digitalization can be defined as the use of digital technology to transform a company model and create new revenue and worth-producing possibilities; it is the process of transitioning to a digital business. Pervasiveness is the nature of cash, as it is present all over, it's simple to use and keep, and it's quite convenient. The difficulty in measuring a country's progress from cash to digitization stemsfrom the fact that, due to the anonymity of cash transactions, it is extremely difficult to determinethe actual number of cash transactions, and hence the volume of all such transactions.

Adverse Effects of Pandemic
The pandemic that the world is witnessing since 2019 has not only brought health problems with it but has greatly impacted the world economy as well. Indian market has also suffered a great deal and the small businesses took the hardest hit. Several factors contributed to the economic crisis which are- jobs and pay cuts, low cash flow in the market, disruption of supply chains, encumbrance of lockdown and the uncertainty that came along. As we all know, every single sector is affected by the global pandemic i.e. Covid-19. If we talk about some specific sectors which majorly get affected because of this pandemic is the business sector, specially that business which deals with customers directly, or can say the business of retailers. This pandemic changed everything and specially the scenarios of doing business and making plans to achieve the goals.

This paper tries to find out the impact of global pandemic i.e; Covid-19, on the digitalization of small businesses. All the aspect is being looked into, such as- how the transformation of digitization takes place after the pandemic, the adverse effect of Covid on small vendors and the consumer group, difficulties and challenges for small vendors or retailers in adoption of digitalization, also tries to find out the possibilities in between the negative impactof Covid-19 on small businesses, the institutional or regulatory push for digitalization in the economy is being discussed in present paper. By discussing all the aspects and dimensions of impact of this pandemic this paper tries to prove the hypothesis, which is, Covid has positive impact on digitalization of small businesses.

Digital transformation after Covid-19 pandemic
Many people are concerned about the future, companies have made many of the adjustments, in response to the epidemic as the globe hopes for culmination to the pandemic. Many of these alterations are very certainly permanent. Since the pandemic, many of the hurdles to digital adoption that previously existed, such as network security to allow workers to work remotely, have been removed; it will be much easier for businesses to operate from a distance. Companies have already made momentous expenditures to secure their digital security, while simultaneously developing a high-tech stack that enables workers to do work from home.

Many of these improvements are expected to continue, including features such as flexible scheduling that allow individuals to work from home as needed. Companies are beginning to recognize the value and potential of digital adoption. Adopting technology is more than just saving money, especially when it comes to business innovation. It also gives us an edge over our competitors and seizes new opportunities in the industry. Technology or digitalization allows companies in different industries to connect with individuals around the world at any time. Many companies were just beginning to realize that many of these features could have been offered to them before the pandemic. Face-to-face meetings and activities were limited because of Covid19, but they quickly learned how effective technology was. Pandemics have helped accelerate digital transformation and changed the dynamics that tend to drive the development and adoption of future creativity. Even after the epidemic is over, companies still have a better understanding of the potential of this type of state-of-the-art technology, so they can better understand future opportunities.

Firms, particularly retail companies and shopkeepers, must be able to digitize their services and continuing their sales operations virtually through the Internet in order to avoid closing up shops. Business models are adjusting to the current scenario as a result of new acquisition channels, higher exposure, home working, and more collaborative working techniques. They are based on the evolution of omnichannel in order to increase the number of sales media and channels. As a result, the digitalization of operations is now unavoidable if they are to continue, particularly in the face of an unprecedented epidemic.

Difficulties in adoption of Digitalization

Retailers and day-to-day workers are primarily impacted by this pandemic. Since small businesses are not easy to use digital platforms, they are often known only by their specific region-specific population. Small business entrepreneurs also find the obscurity in obtaining the advancement of technology. Small vendors somehow do not gain the scale of economies as the consumers in general are not so familiar with their presence over digital platforms. So, they tend to collaborate with big and market influencer IT facilitators like- Amazon and Jio-Mart, and because of this collaboration the small vendors have to share their profit margins with them, as well as they have to comprise their individual identities.

One of the major problems while adopting digital platform is the **Cyber Threat.** As the economy is moving towards digitalizing itself, simultaneously the cyber threat is raising parallelly, which pays an important role in threatening the small vendors at the time of thinking about digitalizing their businesses. Digital change introduces new risks and need adequategovernance, management, and protection.

Larger risk implies a greater chance of missed opportunities, not just the risk's bad outcome. A positive risk has the ability to bring value to the organization, which is why anyone seeks the opportunity risk of digital transformation. To capture the true value of an enterprise on its digital journey, vision, techniques, procedures and data must be closely linked and managed. Not only entrepreneurs, even buyers and users are threatened by cybercriminals as they can also be fooled by fake names and brands. The payments may also get wrongly transferred because of unsecure networks and IT systems. This will further raise the trust issue in consumers to deal digitally to any businesses, as well as the small vendors also hesitate and be less excited in the expansion of theirbusiness activities through digital platforms.

Secondly, at the disposal of small retailers there is lack of availability of IT expertise. Approximately, 95 percent of companies are experiencing difficulties with the technology they have selected to strengthen their business purposes. More often than not, businesses struggle to adapt to the changes in business activities brought on by technological solutions distributed all over the foundation's length and breadth. It is a big question in front of small vendors to cope up with the new era of digitalization of the economy, as they are not so familiar to this IT systems and it is not easy for them to get IT experts for the growth of the business and related activities.

Thirdly, the major problem in front of retail businesses is the trust issue on the digitalized world. As the economy is growing tremendously through digitization, simultaneously fraudulent activities are increasing day by day and consumers are also becoming conscious. Majorly, the consumers are more concerned about the hacking of their personal information, which is provided to every business sites to deal with online. Many of these frauds have come to light as large corporations buy consumers' personal data from small sellers that run their businesses online. For example:- Facebook- Whatsapp controversy and The Facebook-Cambridge Analytica data scandal.

Opportunities in Dismay

India's adoption of digital platforms has intensified because of the corona virus pandemic and subsequent lockdown. The rapid adoption of digital technology has now surpassed that of the previous six years. People have used applications and digital infrastructure for almost every need throughout the lockdown, including payments, receiving government Direct Benefits Transfer (DBT), shopping and food procurement, and prescription delivery and tele-consultations, skill development, and children's education, as well as interaction, work delivery, and management, are all available. When India rebounds from the pandemic, we will see that there has been an irrevocable shift in attitude, with media tools becoming the preferred venue for any venture. There are numerous ways we may take benefit of those possibilities/opportunities for growth in the economy, productivity improvements, and enhanced quality of life and providing Indians with distinctive services on a large scale.

Every situation which seems worse has hidden opportunities to innovate. The hindrances caused by this pandemic can be shifted towards the digital platforms and hindrances can be converted into favorable options by taking step ahead in the digital platforms such as; digital markets, internet business or e-business, by developing business apps, software and websites. By assuring an effective management of IT networks and systems any business can reach to their customers directly as well.

Nowadays, every procedure can be easily handled or managed on a single click. By the means of digital media a strong channel can be managed with more proficiency and can connect to more customers over there. It is being common these days that businessmen or entrepreneurs all over are proceeding through digital platforms fearlessly as because the collection process also become easier with so many payment apps like: PhonePe, Gpay, PayTM, Amazon Pay, etc. by securing the payment modes one can easily go with these digital opportunities as because they have low risk quotient.

It is not like; there were no digital platforms before, as because of this pandemic, it becomes known to each and every citizen of our country. Even the people lived in rural areas are aware of these digital platforms and also frequently and actively using these business apps and websites to fulfill their basic as well as specific needs and wants. They are also aware of the efficient use of these digital platforms and for this, we can give some credit to this pandemic as well.

As more individuals purchase online and small companies go digital, the Covid epidemic will hasten digital adoption in India. India's overall online shopping base, at 30% of its internet population, is modest when compared to China's 78 percent and the United States' 70% plus. By 2027, India's 670 million internet users would have increased to 914 million, and online shoppers will have increased to 590 million from 190 million in 2020. While digital adoption in India has been improving over the last several years with increased 4G adoption and rising internet penetration, the entire operational base remained still tiny.

Regulatory push for digitalization of Economy

While the world is facing the unprecedented distress, government and other stake holders have come forward to revive businesses. It is the need of the hour that the contribution of businesses in the economy and its impact on the large population in India is recognized. To push the digitalization of the economy mainly through digital mode of payments in the economy, RBI has fabricated a blended DPI (Digital Payments Index) to apprehend the rise of mode of payments digitally across the nation.

Mainly RBI-Digital Payments Index consists of five parameters which facilitates with the measurement of involvement and engagement of digital paying modes in the India with the respect of several periods of time.

These five parameters are as follows:-

i. **Payment Enablers** (weight 25%)

ii. **Payment Infrastructure-** Demand-side factors (10%)

iii. **Payment Infrastructure-** Supply-side factors (15%)

iv. **Payment Performance** (45%) and

v. **Consumer Centricity** (5%)

March 2018 has been taken as the reference year. This index will be publicized on RBI’s official site semi-annually with time duration of 4 months from March month of 2021 onwards.

- **“Index Value for 2019 and 2020:**
  - The DPI for March 2019 and March 2020 worked out to be **153.47 and 207.84 respectively,** indicating appreciable growth.

- **Digital Payments Scenario:**
  - **DATA ANALYSIS:**
- During the **second quarter (Q2) of 2020-21, Unified Payments Interface (UPI) payments** recorded an **82% jump in volume** and a **99% jump in value,** compared with the same quarter last year, according to the WorldlineIndia Digital Payments report.

- In Q2, **19 banks joined the UPI ecosystem,** bringing the total number of banksproviding UPI services to 174 as of September 2020 while the **BHIM App wasavailable for customers of 146 banks.**
- In Q2, there were **over 51.8 lakhs Point of Sale (PoS) terminals** deployed bymerchant acquiring banks, which is 13% higher than the same quarter of the previous year.
- A merchant acquiring **bank is a bank that processes payments on behalfof a merchant.**
- In 2018, the **Bank for International Settlements (BIS) ranked Indiaseventh** among the 24 countries where it tracks digital payments.

O **RECENT INITIATIVES:**

- The **National Payments Corporation of India (NPCI) has recently**

given approval to WhatsApp to go live with UPI in a graded manner, startingwith a maximum registered user base of 2 crore.

- The NPCI has also **issued a cap of 30% of the total volume of transactionsprocessed in UPI,** which is applicable to all Third-Party App Providers (TPAPs) and is effective from 1st January 2021.
- The RBI has created a **Payments Infrastructure Development Fund (PIDF)** to encourage acquirers to deploy Points of Sale (PoS) infrastructure- both physical and digital modes - in tier-3 to tier-6 centres and north eastern states."

Recently, the **Reserve Bank of India (RBI)** has announced the creation of Rs. 500- crore Payments Infrastructure Development Fund (PIDF).

KEYPOINTS

- **"Aim:** PIDF has been created to **encourage deployment of Point of Sale (PoS) infrastructure,** both physical and digital, in **tier-3 to tier-6 centres** and **north easternstates.**

o The setting of PIDF is in line with the measures proposed by the **vision document on payment and settlement systems in India 2019-2021**.

o It is also in line with the **RBI's proposal to set up an Acceptance Development Fund** which will be used to develop card acceptance infrastructure across small townsand cities.

- **Corpus:** It has a corpus of Rs. 500 crore in which **the RBI has made an initial contribution of Rs. 250 crore.** The remaining will come from the card-issuing banks andcard networks operating in the country.
- **Recurring contributions:** The PIDF will also receive recurring contributions to cover operational expenses from card-issuing banks and card networks. RBI will also contributeto yearly shortfalls, if necessary.
- **Governance:** The fund will be **governed through an advisory council** but will be managed and administered by the RBI.
- **Need:** Most of the PoS terminals in the country are concentrated in tier 1 and 2 citiesbecause of the high cost of merchant acquisition and merchant terminalisation.

o The **merchant on boarding** and **training** is a key challenge for enhancing the reachof digital payments in smaller towns and cities.

o Merchant on boarding means adding the new merchant in a payment gateway system.

- **Benefit:** It will give a push to digital payments across India.

o Reduce demand for cash over time."

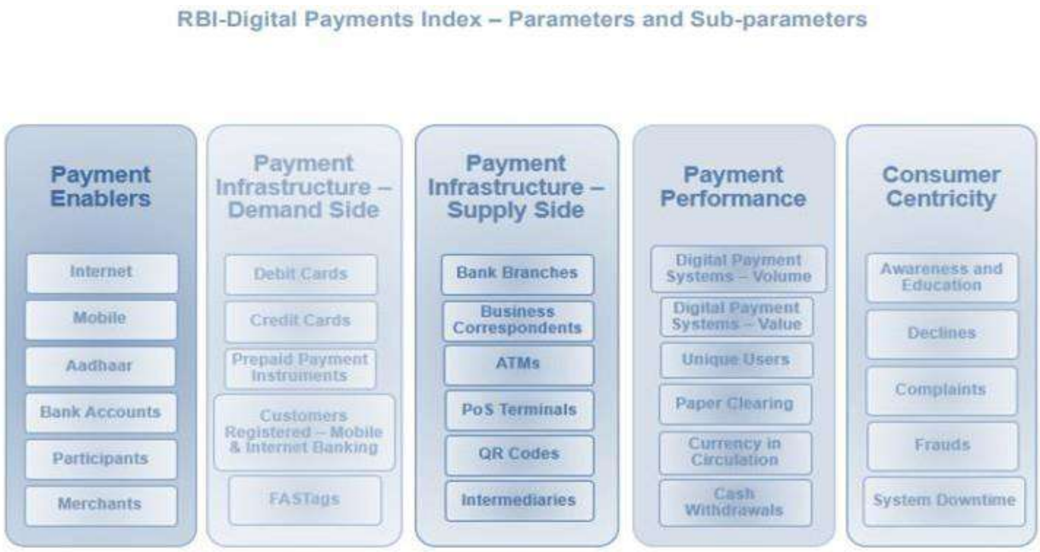

Table 1: RBI-Digital Payments Index – Parameters and Sub-Parameters Source

Source- RBI Report (2020)

RESEARCH METHODOLOGY

The methodology for the present research project is the doctrinal research method. The relevant statutes, related documents, reports and research papers are being critically examined. At the end of the project, the finding of the study is summarized and the suggestions also specified. In the research study, APA rules will be used for the citation.

HYPOTHESIS

H0- *Covid-19 has no impact on digitalization of small businesses*

LITERATURE REVIEW

Before attempting to conduct research on any problem, it is essential to conduct the survey of related literature. It includes the work already done and published in the form of books, research papers, research articles, journals, newspapers, seminar papers and the like. The researcher, therefore, has conducted an in-depth survey of the literature available on the problem and the present section is devoted to it.

- ✓ **Iyer, K. (n.d.). (2020)-** In this article the author focused on the digital transformation of the economy and considers the pandemic Covid-19 as the turning point for the MSMEs. The role of regulatory and institutional authorities in the further growth of economy andthe struggle of MSMEs is being pointed out in this article.

- ✓ **Doshi, S. (2020)-** This study is driving focus on the hike of the use of digital platformsduring Covid-19. The author finds that how this pandemic Covid-19 is becoming the accelerator to the digitalization. Also, the contribution of technology and artificialintelligence in the growth of digitalization in the payment system of the economy.

- ✓ **Schwab, K & Zahidi, S (2020)-** In the report named as “The Future ofJobs Reports 2020” the writer states some points on the difficulties faced by different sectors of society because of digitalization. Mainly concerned on the jobs displacementsand the disruptions in labour markets, also point out the situation of recession and itsimpacts on the different communities of the society.

- ✓ **India, P. T. of (2020)-** The study is concerned about the impact of Covid-19 on the labour and the impact of digitalization on them as well. The data which is used in study shows the affected percentage of labours and workers groups is majorly affected by this pandemic Covid-19. This study also paves the way towards the possibilities in the problem which is arisen because of this global pandemic.

RESEARCH GAP

The present paper states the opportunities available in dismay and focuses on how the economy can be accelerated with the adoption of digitalization by the small vendors and small business as well. Paper is focusing on the detailed working of head financial institution- RBI and the suggestions to meet out the current challenges for the economy in the adoption of digitalization. The paper fills the gap by suggesting some ways and states some data to highlight the impact of digitalization on small businesses along with the small vendors. Also, focuses on the role of digitalization in the growth economy. The research paper highlights the technological hacks and cyber threats involve in the procedure of digitalization of small businesses and also suggest the ways to cope up with the difficulties in being there on digital platforms.

CONCLUSION AND SUGGESTIONS

From the above discussion we come to know that there is opportunities and possibilities to grow even after this pandemic, but there are some difficulties and challenges too, to be in the growth of the economy. There are few points or suggestions on which the government, small vendors and regulatory financial institution known as RBI needs to work on. Following are such points which are suggested in respect of the economic development through digitalization:-

- **Strong Encryption:-** The strong end-to-end encryption is the necessity of the digital world, to keep the privacy of information between the senders and receivers. The developers need tobe more dedicated to find effective solutions for the security and protect the trust of consumers as well as of the vendors.
- **Strengthen the IT systems:-** The IT systems and networks plays an significant role in development of digitization. Every vendors need to get an expert for their electronic systems,likewise, the government also need to take steps towards the training of skilled person to make them expert to handle the challenges of digitalization after this pandemic.
- **Cyber Security:-** As the cyber threat increasing day by day the system need to follow the strict action to stop that. The data of business is very sensitive and easy to get hacked by the criminal minds. So there must a layered security model, which ensures the proper working of the cyber security procedures which initiates with the internet and ends with the human resources of the businesses.
- **Data Protection Act:-** However, the Personal Data Protection Bill has been passed in 2019, but there is need of amendment in this bill. There are some loopholes in PDP bill. The government needs to reconsider the concept of personal data in the bill and make it broader. Also, there is urge to be more robust and expand the area of the clause and provisions under it, because the digital world is growing really faster and the nation needs to grow smartly anddevelop positively along with the world.
- **CERT-In (The Indian Computer Emergency Response Team):-** CERT-In is nodal agencywho deals with the cyber threats such as; phishing and the problem of hacking. There is urge for more experts and professionals in this agency also with the advanced training session to make the personnel aware of the new possibilities of threat and loops of the systems.

In the present study we can conclude that in India, the Corona virus accelerated the adoption of frictionless digital age. The digital-first approach has laid the groundwork for democratic reform.Since the commencement of the COVID-19 shutdown in late March, India has disbursed over $5billion in financial or cash benefits to its most vulnerable residents, exclusively through digital payments. Technology has revolutionized financial services by making them more accessible and affordable. Consumers are transitioning from cash to cards, wallets, apps, and UPI in India, which is accelerating the digitalization of financial services. India's operational landscape has shifted to make digital more approachable and frictionless. It is one of the world's most advanced digital payment environments. Now here is the era to apply our knowledge and accelerate digitalization at wide scale. Also, it become necessity for small vendors or retailers, to be the partthe growing economy, they have to move their planning steps forward along with the adoption ofdigitalization on their all the business activities. India is establishing itself as a worldwide powerhouse for cashless transactions, with technologies such as UPI gaining momentum and being lauded as significant in providing inexpensive digital payment options to the last mile. Thesteps taken by the Indian government and the Central Bank of India are really appreciable and further consolidation of those steps would be required.

From the above states data and discussion the hypothesis of this paper i.e; *Covid-19 has no impact on digitalization of small businesses* has been proved wrong. Above discussion proves that there is impact of pandemic (Covid-19) on the digitalization and that impact is positive. The small vendors now also being aware of the opportunities created through digitalization and changes there planning scenario make them to stand along with the growing economy of the nation. Hence, the null hypothesis is rejected on the basis of above stated data.

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Motivational Aspects of Black Friday Sale in Perspective of Customers

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ABSTRACT
Marketing methods have exaggerated the value of Black Friday offers, but the exclusivity of the event has also been a significant factor in luring customers. In some Black Friday massive sales strategies, brands that already have a loyal client base may focus more on exclusivity rather than offering the same prices to everyone. There has been an increase in Black Friday sales in recent years due to increased online purchasing and consumers avoiding busy areas, as well as overall fear and some other motive that pushes them to purchase into the sales. The functional motivators and the hedonic motivators are the focus of this research. According to the findings, the study examines eight different aspects of customer behaviour during the Black Friday sale in light of the aforementioned two motivators. This research serves to contribute to the research of motivation towards black Friday sale, viewed upon from the consumer's perspective. By uncover meanings for functional and hedonic motivation dimensions towards consumption events online, using Black Friday Weekend as an empirical example, this research aims to provide valuable insights for online retailers that may lead to potential business opportunities.

Keywords: Black Friday sale, Customers, functional and hedonic Motivation, online purchasing

INTRODUCTION

Black Friday has grown into a significant opportunity for marketing and sales campaigns for e-commerce enterprises wanting to grow sales. Businesses worldwide have adopted Black Friday as a marketing strategy in recent years, mostly for competitive and sales growth reasons." Black Friday was introduced to Sweden in 2013 by Elgiganten, a home electronics retailer, and has subsequently been duplicated by a wide range of enterprises. Thanksgiving Day is known as "Black Friday" in the US, and in many places, it signals the beginning of the holiday shopping season. In terms of consumption, BF is a unique blend of traditional shopping for lower prices and holiday traditions for social interaction ". BF shopping, with its steep discounts (e.g., door busters), reflects the thrill of the hunt for great deals. BF has become one of the most popular Thanksgiving social activities in the US, because to the plethora of door buster deals and festive shopping environment.

Lennon et. al (2018), Digitalization is increasing the appeal of Black Friday sales. A new business model is evolving for consumer product manufacturers and merchants as the digital era and online shopping grow. As companies shift away from store-based or geographically focused business models, customer-centric business models with essentially no borders have grown increasingly common. Consumers are now technologically conscious and shop on their phones to help firms navigate this transformation. As a result, customers are increasingly interested in Black Friday sales.

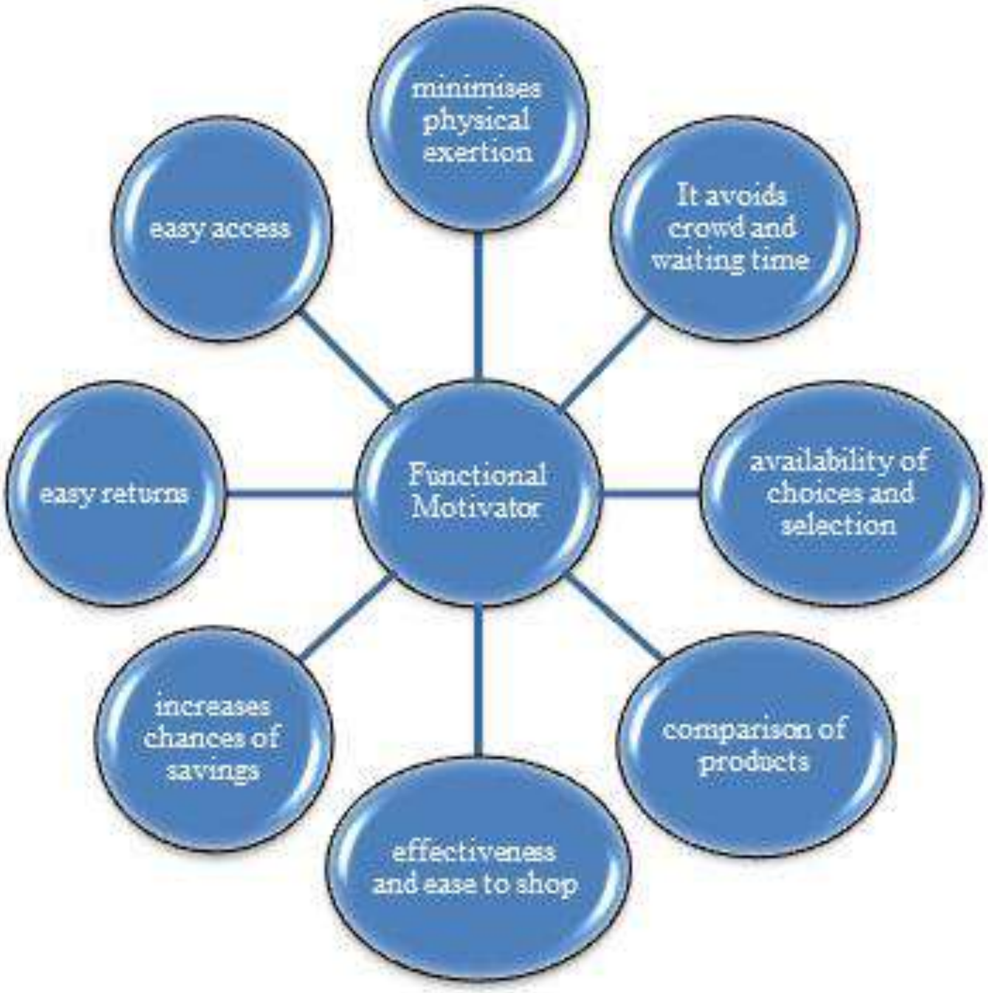
Customers can choose from a wide range of products at low prices. The most popular categories of consumer goods during the event were fashion, home electronics, beauty, health and media. It is undeniable that today is the best day for a vendor to engage with their clients. The fact that it always happens the day after Thanksgiving allows customers to start their Christmas shopping Mohsin (2021). While sales events like Dusshera, Diwali, and Holi are popular in India, there are additional opportunities.

Despite the fact that Indians are becoming more westernised and enjoy Christmas and New Year's Eve, Black Friday offers have made their way into the Indian internet-shopping zone via international websites like Amazon. Holiday shopping behaviours can shed insight on multichannel shopping habits, which many companies are increasingly concerned about. Retailers are eager to learn about consumer buying behaviours so they can maximise their efforts and profits during this time period. Consumers may expect a fun shopping experience on Black Friday. Many families shop together after Thanksgiving Swilley & Goldsmith (2013).

ELEMENTS OF THE BLACK FRIDAY DEAL THAT MOTIVATE CUSTOMERS

The term "motivation" comes from the Latin "movere."People require a reason or a cause to act. Motives arise from the desire to meet basic needs. A person may feel inadequate or deprived physically or psychologically. Customers may be inspired to buy by both internal and external factors. The consumer's motivations play a key influence in determining whether or not to make a purchase. A customer's desire to buy is one of the most important incentives for marketers. Buying a specific product or service is a person's motivation, which can be subdivided Prabhu (2019).

These include functional and hedonic motivators. The hedonic motivation is the desire to boost pleasant experiences (e.g., pleasure or happiness) and lessen negative ones (e.g. to comprehend human experience and behaviour, one must comprehend hedonic motivation. Hedonic pursuits improve subjective well-being and initiate and sustain good behaviours. Kaczmarek (2017), buying a product for functional or economic reasons is called a functional motivation.



a) Minimises physical exertion: because of the Black Friday sale, consumers are more likely to purchase things online. In today's fast-paced world, many people are looking for ways to get their work done in less time and with less effort. It is called Black Friday, and it is a big deal.

b) It avoids crowd and waiting time: Given that Black Friday is an online sale, there will be no crowds and no waiting period for the consumer to have their turn.

c) Availability of choices and selection: Black Friday offers a significant number of products from a variety of different brands. Any of the products are available for purchase at a discount or as part of a deal.

d) Comparison of products: On Black Friday, a shopper can compare products and brands to ensure that they are getting the best deal possible.

e) Easy returns: large number of customers accepts that product return is so easy in black Friday sale, if a consumer is not satisfies then he may go for return the product and this motivates him to shop in black Friday sale.

f) Increases chances of savings: Consumers benefit from huge discounts and offers on products as compared to the regular time of year when they shop during the Black Friday sale.

g) Effectiveness and ease to shop: Additionally, the Black Friday deal offers buyers an easier return option, which encourages them to shop more during this period.

h) Easy access: black Friday is a one-week sale and it can be avail at any time in the period.

Hedonic Motivators

a) It creates online shopping achievement: Consumers nowadays are shopaholics, and the Black Friday sale represents a significant shopping opportunity for them.

b) Motivates to self-gift: Customers purchase things to give as gifts to themselves during the Black Friday sales event.

c) It gives a chance to go with trends: Consumers are now following the herd; the Black Friday sale has become extremely popular among clients, who want to be part of the latest fashion trend.

d) Pleasure of bargaining: black Friday sale delivers so many deals to the consumers.

e) Enjoyment: The pleasure of shopping with friends and family, and the opportunity to socialise while taking advantage of Black Friday sales.

f) Privacy: consumers are getting a separate account to shop in black Friday sale among various online shopping apps.

g) Social influence: A significant reason for participating in the Black Friday sale is social influence, which is another aspect of motivation.

h) 24*7 accesses: The fact that a consumer can access the Black Friday sale at any time and whenever he wants to shop within the sale encourages him to shop whenever he has the opportunity.

REVIEW OF LITERATURE

Arnold, M. J., & Reynolds, K. E. (2003) this study creates a complete inventory of customers' hedonic purchase motivations. The results of an exploratory qualitative and quantitative investigation are utilised to construct a excitement, pleasure, purpose, worth, socialisation and idea shopping factors are all included in this six-factor scale. Cluster analysis of adult customers' six-factor hedonic purchasing motivation profiles reveals five distinct buyer groups. The planned scale's utility is evaluated in terms of future research and retail strategy.

Zulu, N. (2019) this study looked into why middle-class customers are buying less luxury goods on Black Friday. It helps retailers and economic growth and stability. Customer satisfaction was found to be negatively impacted by information processing decision- making and external dimensions of the environment, as indicated by the study. Black Friday shopping intentions and behaviour. Middle-class shoppers who meet the requirements could expose their personal and the many other' shopping habits through Fourteen semi-structured questionnaires. The objectives and final decision of participation in Black Friday shopping were heavily impacted by middle-class shoppers' positive attitudes, lack of societal standards, and limited perceived behavioural control. In addition, customers' Black Friday behaviour was shown to be influenced by the lack of simplicity and accessibility for them. Research into South African Black Friday shopping habits is needed.

Kwon, & Brinthaupt, (2015) “Despite its great popularity, little research has been done on Black Friday buyers' intentions, features, experiences, and behaviours. This study examined a wide range of Black Friday shopping behaviours and experiences, as well as reasons and outcomes. In this study, author surveyed both

Black Friday shoppers and non-Black Friday shoppers throughout the recent Christmas season. Black Friday shoppers were more hedonic than non-shoppers, as expected given the Christmas season".

Avc, & Yldz, (2021), in their study, recent social changes influence both brands' marketing strategies and their target audiences' behaviour. Originally termed "Black Friday" in the United States, these massive sales events are known by several other names in Turkey, including "Legend Friday, Legend Days, Super Friday", In the era of massive discount days, the consumer's perspective on consumption was shifted. On days when substantial discounts are available, consumers are more likely to make purchases based on hedonic and utilitarian consumption incentives, as well as their desire for social and psychological pleasures. "Between May 5th and May 15th, the survey was distributed to 621 pupils at a private school in Istanbul. The data for this study was collected and analysed using SPSS 21 and AMOS 24". Customer purchasing intent was influenced by both hedonic and utilitarian consumption incentives during significant discount days.

PURPOSE OF THE STUDY

This research contributed to the investigation of Black Friday sales motivations. Using Black Friday Weekend as an empirical example, this research intends to find meanings for functional and hedonic motivation factors toward online consumption events, which may lead to prospective business prospects for online merchants.

OBJECTIVES

- To provide the overview of black Friday sale
- To analyse two main motivational aspects (functional and hedonic motivation) of black Friday sale in perspective of customers
- To understand the consumer attitude towards the black Friday sale

HYPOTHESIS

- H1: There is no significant difference between functional motivational aspects black Friday sale in perspective of customers.
- H2: There is no significant difference between hedonic motivational aspects black Friday sale in perspective of customers.

RESEARCH METHOD

Descriptive and quantitative research methods were used in this study to meet the research objectives and evaluate the hypothesised model.

Sampling and Data Collection

The study included online shoppers from Mumbai. No sample frame for this population made probability sampling impossible. Instead, convenience sampling was used. A systematic self-administered survey was distributed via Google Forms. Using this method, the researcher analysed 200 valid responses. This sample size is adequate for the statistical analyses utilised in this work.

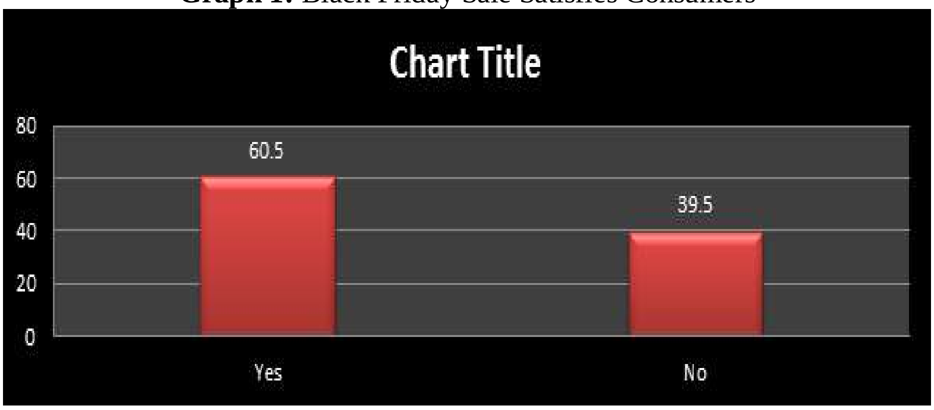
Research Instrument

An examination of customer attitudes toward black Friday sales is the focus of this paper, as explained above. This research has been aided by the findings of previous empirical studies.

Data Analysis and Interpretation

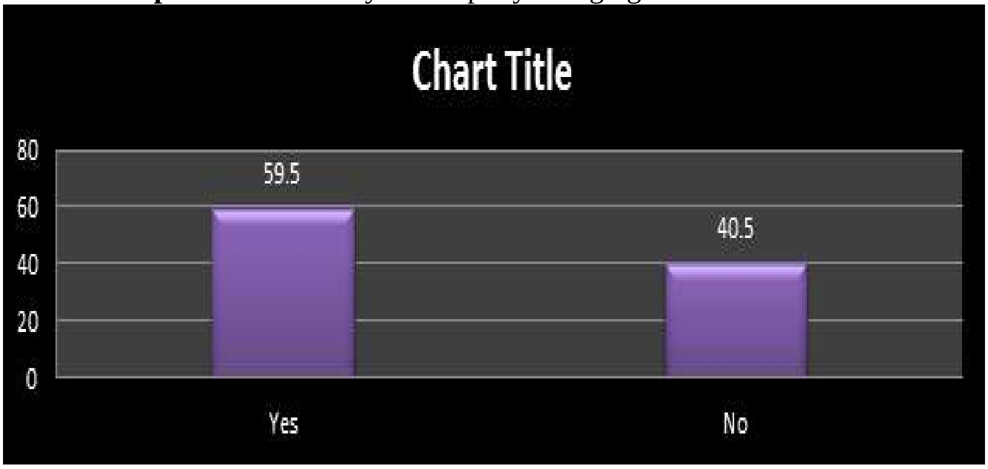
SPSS statistical techniques were used to analyse the acquired data.

Graph 1: Black Friday Sale Satisfies Consumers



The above table analyses that Black Friday Sale Satisfies Consumers, the respondents are in favour of the statement that they are satisfies with the black Friday sale as they get numerous branded products on heavy discounts.

Graph 2: Black Friday Sale rapidly changing consumer behaviour



According to the graph 2, it can be seen that respondents are huge favour that the Black Friday Sale rapidly changing the consumer behaviour as it provides maximum benefits to the consumers in the form of discounts, sale, offers etc.

Independent Samples Test										
		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference Lower	Upper
P1	“Equal variances assumed	.303	.582	-.296	198	.768	-.04687	.15842	-.35927	.26554
	Equal variances not assumed			-.294	182.400	.769	-.04687	.15967	-.36190	.26816
P2	Equal variances assumed	.589	.444	.276	196	.783	.04318	.15654	-.26553	.35189
	Equal variances not assumed			.274	179.759	.784	.04318	.15760	-.26781	.35417
P3	Equal variances assumed	.641	.424	.279	196	.781	.04567	.16386	-.27749	.36882
	Equal variances not assumed			.279	186.292	.780	.04567	.16351	-.27691	.36824
P4	Equal variances assumed	6.177	.014	-1.236	196	.218	-.20000	.16186	-.51922	.11922
	Equal variances not assumed			-1.214	171.611	.226	-.20000	.16471	-.52511	.12511
P5	Equal variances assumed	3.179	.076	-2.223	198	.027	-.33738	.15179	-.63671	-.03805
	Equal variances not assumed			-2.192	176.835	.030	-.33738	.15392	-.64113	-.03363
P6	Equal variances assumed	.055	.815	.338	198	.736	.05436	.16097	-.26307	.37179
	Equal variances not assumed			.338	188.816	.736	.05436	.16093	-.26310	.37181
P7	Equal variances assumed	.023	.881	.729	195	.467	.12247	.16808	-.20903	.45396
	Equal variances not assumed			.726	182.143	.469	.12247	.16867	-.21033	.45526
P8	Equal variances assumed	.550	.459	-.210	196	.834	-.03409	.16263	-.35483	.28664
	Equal variances not assumed”			-.208	179.091	.836	-.03409	.16416	-.35803	.28985

INTERPRETATION

According to the above statistical test, it can be seen that in Functional Motivator eight parameters were taken to test the motivation level of the customers for the black Friday sale. P1 stands for ‘Minimises physical exertion’ and its significant value is .769, P2 stands for ‘It avoids crowd and waiting time’ and its significant value is .784, P3 stands for ‘Availability of choices and selection’ and its significant value is .780, P4 stands for ‘Comparison of products’ its significant value is .226, P5 stands for ‘Easy returns’ its significant value is .030’, P6 stands for ‘Increases chances of savings’ its significant value is .736, P7 stands for ‘Effectiveness and ease to shop its significant value is .469, P8 stands for ‘’Easy access its significant value is .836’. Now it is clear that out of seven parameters of functional motivator only P5 that is Easy returns, consumers are well motivated to shop from black Friday sale but still conscious for the products they purchase from it and then it will get return if the consumer is not satisfied with the merchandise. Therefore the null hypothesis is accepted “There is no significant difference between functional motivational aspects black Friday sale in perspective of customers”, here the respondents are in favour of most of the functional motivators for the effectiveness of black Friday sale.

HEDONIC MOTIVATOR

Independent Samples Test

		Levene's Test for Equality of Variances		t-test for Equality of Means						
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference	95% Confidence Interval of the Difference: Lower	Upper
P1 "	Equal va Equal variances assumed	1.148	.285	.023	194	.982	.00357	.15768	-.30741	.31455
	Equal variances not assumed			.023	189.193	.982	.00357	.15730	-.30671	.31385
P2	Equal variances assumed	1.038	.310	.110	196	.913	.01928	.17568	-.32718	.36574
	Equal variances not assumed			.110	191.432	.912	.01928	.17479	-.32549	.36404
P3	Equal variances assumed	.749	.388	.273	193	.785	.04492	.16475	-.28002	.36986
	Equal variances not assumed			.275	190.760	.784	.04492	.16333	-.27725	.36709
P4	Equal variances assumed	.303	.582	-.296	198	.768	-.04687	.15842	-.35927	.26554
	Equal variances not assumed			-.294	182.400	.769	-.04687	.15967	-.36190	.26816
P5	Equal variances assumed	.061	.805	1.303	198	.194	.20964	.16091	-.10768	.52695
	Equal variances not assumed			1.305	189.957	.193	.20964	.16061	-.10717	.52644
P6	Equal variances assumed	5.154	.024	2.482	196	.014	.38646	.15571	.07937	.69354
	Equal variances not assumed			2.513	194.697	.013	.38646	.15380	.08312	.68979
P7	Equal variances assumed	3.065	.082	1.464	197	.145	.24331	.16625	-.08455	.57116
	Equal variances not assumed			1.474	192.814	.142	.24331	.16509	-.08231	.56892
P8	Equal variances assumed	.033	.856	1.115	196	.266	.17955	.16099	-.13795	.49704
	Equal variances not assumed"			1.113	185.104	.267	.17955	.16131	-.13870	.49779

INTERPRETATION

From the above table the elements of Hedonic Motivators were analysed to understand the consumer purchase behaviour in black Friday sale. P1 stands for 'It creates online shopping' achievement' and its significant value is .982, P2 stands for 'Motivates to self-gift' and its significant value is .912, P3 stands for 'it gives a chance to go with trends' and its significant value is .784, P4 stands for 'Pleasure of bargaining' and its significant value is .769, P5 stands for 'Enjoyment' and its significant value is .193, P6 stands for 'Privacy' and its significant value is .013, P7 stands for 'Social influence' and its significant value is .142, P8 24*7 stands for 'access' and its significant value is .267.

Among all the elements Hedonic Motivator only one element has the lesser significant value which means that respondents are worried about privacy while shop on black Friday sale. People are more concerned about the privacy matter related to payment, personal information etc are generally shared internet and due to this people are not going for black Friday sale. Thus, privacy is issue, which demotivates the consumers. Rest all the elements are helpful in motivating the consumers. Therefore, the null hypothesis is accepted that "there is significant difference between hedonic motivational aspects black Friday sale in perspective of customers".

CONCLUSION

Individual buying motives can be classified into two meta-dimensions: functional motivators and hedonic motivators. Each of the two dimensions contains eight elements that represent the motivational features of consumer purchase behaviour during the Black Friday sale, as revealed by this study: The Independent Samples Test was used to conduct the statistical analysis, and the results corroborate the presence of functional motivators, with the Hedonic motivator scoring the highest. This should inspire businesses to categorise their important clients based on their primary buying objectives, allowing them to develop satisfactory communication tactics that can influence customers' decisions to shop during the Black Friday sale. Conceptually, the discovery of these two new purchasing motivations could represent a significant step forward, even to the point of triggering a Black Friday sale. People's perceptions of themselves and others, as well as their reasons for shopping and consuming, will be better understood through the advancement of this research.

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A Study on Customer Perception of Mobile Banking Usage in the Mumbai Region

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ABSTRACT
Banks are experiencing a phenomenal change from the branch based banking to branchless banking. The ATM's seems to be history now with the advancement and adoption of technology by the banks. The increase in number of the internet and the mobile subscribers has gained attention of the banks to take it as an opportunity and succeed, but limitations follow the opportunities. There are barriers that exist in the adoption of the mobile banking services offered by the banks. The study aims to identify the factors that affect the customers satisfaction in the use of mobile banking services. The study is based on the primary data collected from 125 respondent's in Mumbai who are bank customers using mobile banking services using a well-structured questionnaire. The data is analysed using cross tabulation, percentages and statistical technique One way ANNOVA. An academic research study aims to help in suggesting appropriate factors for Mobile Banking companies to target potential customers.

Keywords: Mobile Banking, Demographic Variables, customer satisfaction.

INTRODUCTION

The advancement in Information and Communication Technology has made a significant impact on the Banking Sector. Innovation is considered as a nearest companion and has now become the way of life. Banks are seen to have taken this as a challenge and have implemented all possible efforts to explore the ways in which the Information and Communication Technology can be used in providing banking services to its clients. All initiated with the records made digital, allowing ATM facilities, Internet Banking or E-Banking Services and now exploring the mobile platform to allow its customers for fulfilling their banking needs. The mobile banking facility has also helped the banks to increase the number of customers they cater as now the banking can reach even to rural places. There are various banks who provide contactless as well as branch less banking. Banks consider mobile banking as a cost effective way for providing banking services to the customers which shall empower them capture new market segments and also increase the efficiency.

The use of mobile banking applications allows the customers an amazing feature of mobility and round the clock accessibility. The customers can access their accounts from anywhere and at any time. Even the customers are finding contactless banking more beneficial as it helps them avoid travelling for visiting the bank branch. It has helped customers to save time. The adoption of the mobile banking services is greatly affected due to the increase in the awareness among the customers of how they perceive the service. Customers have now started identifying their expectations of the benefits of using mobile banking services so as to raise their satisfaction. As the requirements and the expectations grow with the passage of time, the banks even see a need to keep its customers satisfied.

The number of mobile phone subscribers is significantly rising around the world and is expected to rise rapidly. Mobiles have become an important medium of communication for almost each individual. Thus banks have identified mobiles to be a great channel to not only increase their customer base but also significantly save on the cost and make profit. Banks have now been able to provide all the banking services may it be accessing account balance, remitting money, transferring amount to term deposit, controlling the transaction limit, etc. through the mobile banking application.

REVIEW OF LITERATURE

Amiri Aghdaie, S., Faghani, F. (2012) – The researchers in their study have used the SERQUAL model to determine the relationship between customer satisfaction and the mobile banking services. The findings of the study showed that factors such as empathy, reliability, responsiveness and tangibility were positively correlated with the level of satisfaction derived by customers. The factor assurance had no relation over customer satisfaction. Compared to various other studies which used the SERQUAL model, this study supported all the factors of the model which were found to have failed in the other similar studies. It only concentrated on the service quality factors and ignored the other factors which have influenced the customer satisfaction.

Kahandawa K, Wijayanayake J (2014) – The study revealed that factors such as ease of use, usefulness, a perception of risk, relative advantage and lifestyle of users influenced the customer satisfaction in financial institutions. The study does not apply any established models such as the SERQUAL model. The study revealed that the current expectations of the customers had a significant influence on the customer satisfaction, but it failed to conduct a detailed analysis to identify those needs or expectations of such customers.

Bharti M (2016) – The study revealed that impressive distinctiveness, security, extensive efficacy, inventive virtual environment, regular timely updates and enhances personalisation had no association with customer satisfaction related to mobile banking services. Supportive access is a significant factor which showed a direct association with customer satisfaction related to mobile banking services. The study mainly focused on the e-banking features on customer satisfaction and expectations identified by other studies. It failed to analyse the other features of mobile banking. The study suggests that the banks need to increase awareness of mobile banking among the customers.

Hossain N, Hossain Y (2015) – The research study identified the most influencing and the least influencing factors on the customer satisfaction of mobile banking users of banks. The study revealed that responsiveness and reliability had a significant influence on the customer satisfaction. It also mentioned that the customers expected the same service and quality on each purchase of service. The suggestions of the study shall benefit banks to place more emphasis on the highly influencing factors and gain maximum profit.

Jannat, M., & Ahmed, I. (2015) – The research study identified the highly influential factors on customer satisfaction of mobile banking users of second generation banks. It revealed that accuracy, convenience, cost effectiveness, ease of use, security and trust, system availability and transaction speed are the highly influencing factors on customer satisfaction. It signified a strong relationship of the factors and customer satisfaction. But the study fails to conclude that these are the only factors that determine customer satisfaction.

OBJECTIVES OF THE STUDY

1. To determine the factors affecting customer satisfaction of mobile banking in Mumbai
2. To study how a demographic profile of customers affect the factors influencing customer satisfaction in Mumbai.
3. To identify the most influencing factor affecting customer satisfaction of mobile banking users in Mumbai.

SCOPE OF THE STUDY

The development in the banking method is considered to be a revolution in the banking sectors. The banks have shifted their service delivery method from branch based operations to the digital method, which is a challenge for the banks due to the continuous developments in the ICT. The banks have to rigorously keep updating and developing its system which requires huge investments. The digitalisation of the financial system has developed immense competition in the banking sector. A great competition is experienced not only among the public sector banks, but now these banks have huge competition from the private as well as the foreign banks. It becomes highly important for the bank to be competitive to sustain for which it needs to fulfil the expectations of the customers. It becomes really essential for the banks to provide maximum customer satisfaction for which it needs to analyse the expectations of the customers. The bank needs to identify the influential factors on customer satisfaction on using mobile banking services.

HYPOTHESIS OF THE STUDY

H_1 – The age has no significant influence on perception towards factors affecting customer satisfaction for mobile banking services in Mumbai.

H_2 – Gender has no significant influence on perception towards factors affecting customer satisfaction for mobile banking services in Mumbai.

H_3 – The educational qualification has no significant influence on perception towards factors affecting customer satisfaction for mobile banking services in Mumbai.

H_4 – The occupation has no significant influence on perception towards factors affecting customer satisfaction for mobile banking services in Mumbai.

RESEARCH METHODOLOGY

The current study is conducted in the Tier I city of Mumbai. The study is based on the primary data collected through a well-structured questionnaire from 125 respondents who are customers of various banks using mobile banking services provided by them. The study used the IBM SPSS Statistics 19 software for the analysis of the data.

DATA ANALYSIS

A total of 125 the responses were collected and validated. The responses were found valid and usable for the study.

Table 1: Respondents Profile

Demographic Variable	Characteristic	Frequency	Percentage
Age	10 – 18 Years	6	4.8
	18 – 45 Years	96	76.8
	45 – 60 Years	21	16.8
	60 Years and Above	2	1.6
Gender	Female	76	60.8
	Male	49	39.2
Qualification	HSC or Below	11	8.8
	Graduation	49	39.2
	Post-Graduation	57	45.6
	Professionals	8	6.4
Occupation	Service	48	38.4
	Self – Employed Student	37	29.6
	Housewife	19	15.2
	Retired	19	15.2
		2	1.6
(Source: Compiled from Primary Data)			

Above table represents the profile of the respondent from whom the data has been collected. A total of 125 responses were collected of which almost 61% respondents are female. The maximum of 76.8% responses are from the customers who belong to the age group of 18 to 45 years followed by 16.8% from 45 to 60 years of age, 4.8% from 10 to 18 years age and only 1.6% responses from age group 60 years and above. Since the study region is Mumbai, it seems that's most of the respondents are educated with 39.2% graduates and 45.6% post graduates. 6.4% respondents possess a professional qualification and only 8.8% have a qualification of HSC or below.

Table 2: Reliability Statistics

Cronbach's Alpha	Number of cases	No of Items
0.94	125	18
(Source: Compiled from Primary Data)		

Above table 2 shows the results of the reliability analysis of Cronbach Alpha value. The reliability analysis helps to identify the consistency between the survey scales. According to Nunnally J. C. (1994), a Cronbach's Alpha value above 0.7 is accepted. The Cronbach's Alpha value calculated is 0.940 which indicates that the data is reliable.

Table 3: Result of ANOVA of Customer Perception on Age

Statement to the Respondents	Sum of Squares	df	Mean Square	F	Sig.
Simple to use	2.750	3	.917	.745	.527
Screen size immaterial	4.514	3	1.505	1.136	.337
Fulfil all Banking requirements	1.684	3	.561	.449	.718
Easy accessibility	.613	3	.204	.173	.915
Speed of transacting	.371	3	.124	.108	.955
Well Organised information	.475	3	.158	.158	.924
Language options	4.570	3	1.523	1.708	.169
Anytime Access	.376	3	.125	.092	.964
Launches quickly	.722	3	.241	.210	.889
Immediate solution to problems	.956	3	.319	.250	.861

Accurate information available	.826	3	.275	.261	.853
Protects my information	1.867	3	.622	.504	.680
Highly secured	5.281	3	1.760	1.491	.221
Regular changing password helpful	3.069	3	1.023	1.061	.368
Successful completion of transaction	.234	3	.078	.076	.973
Records maintained accurately	.109	3	.036	.036	.991
Low transaction charges	7.286	3	2.429	1.855	.141
Saves travel time	1.157	3	.386	.480	.697
(Source: Compiled from Primary Data)					

Above table 3 reveals the result of ANNOVA for customer perception to use of mobile banking for the age of the respondents. The result suggests that there is no significant influence of age on the customer perception for any of the factors affecting customer satisfaction for using mobile banking services. Hence the null hypothesis H_1 is accepted that age has no significant influence on perception towards factors affecting customer satisfaction for mobile banking services in Mumbai.

Table 4: Result of ANOVA of Customer Perception on Gender

Statement to the Respondents	Sum of Squares	df	Mean Square	F	Sig.
Simple to use	5.771	1	5.771	4.866	.029
Screen size immaterial	.335	1	.335	.251	.617
Fulfil all Banking requirements	4.097	1	4.097	3.386	.068
Easy accessibility	6.121	1	6.121	5.459	.021
Speed of transacting	5.235	1	5.235	4.834	.030
Well Organised information	2.187	1	2.187	2.254	.136
Language options	1.763	1	1.763	1.958	.164
Anytime Access	1.559	1	1.559	1.169	.282
Launches quickly	.686	1	.686	.609	.437
Immediate solution to problems	.503	1	.503	.400	.528
Accurate information available	.792	1	.792	.764	.384
Protects my information	2.414	1	2.414	1.995	.160
Highly secured	1.641	1	1.641	1.377	.243
Regular changing password helpful	.004	1	.004	.004	.948
Successful completion of transaction	.231	1	.231	.229	.633
Records maintained accurately	1.123	1	1.123	1.143	.287
Low transaction charges	3.373	1	3.373	2.555	.112
Saves travel time	1.423	1	1.423	1.805	.182
(Source: Compiled from Primary Data)					

Above table 4 reveals the result of ANNOVA for customer perception to use of mobile banking for the gender of the respondents. The result suggests that there is no significant influence of the gender on the customer perception for any of the factors affecting customer satisfaction for using mobile banking services except 3 statements ie. simple to use, easy accessibility and the speed of transacting. As there is no significant influence of all factors except 3, the null hypothesis H_2 is accepted that gender has no significant influence on perception towards factors affecting customer satisfaction for mobile banking services in Mumbai.

Table 5: Result of ANOVA of Customer Perception on Qualification

Statement to the Respondents	Sum of Squares	df	Mean Square	F	Sig.
Simple to use	7.798	3	2.599	2.187	.093
Screen size immaterial	2.718	3	.906	.676	.568
Fulfil all Banking requirements	8.285	3	2.762	2.310	.080
Easy accessibility	13.913	3	4.638	4.312	.006
Speed of transacting	11.171	3	3.724	3.541	.017
Well Organised information	4.196	3	1.399	1.442	.234

Language options	1.108	3	.369	.401	.752
Anytime Access	5.432	3	1.811	1.368	.256
Launches quickly	14.302	3	4.767	4.619	.004
Immediate solution to problems	12.210	3	4.070	3.445	.019
Accurate information available	2.032	3	.677	.649	.585
Protects my information	.558	3	.186	.149	.930
Highly secured	.788	3	.263	.215	.886
Regular changing password helpful	.080	3	.027	.027	.994
Successful completion of transaction	9.133	3	3.044	3.203	.026
Records maintained accurately	9.856	3	3.285	3.546	.017
Low transaction charges	5.407	3	1.802	1.360	.258
Saves travel time	3.699	3	1.233	1.575	.199
(Source: Compiled from Primary Data)					

Above table 5 reveals the result of ANNOVA for customer perception to use of mobile banking for the qualification of the respondents. The result suggests that there is no significant influence of qualification on the customer perception for any of the factors affecting customer satisfaction for using mobile banking services except 6 statements ie. easy accessibility, speed of transacting, launches quickly, an immediate solution to problems, successful completion of the transaction and records maintained accurately. As there is no significant influence of all factors except 6, the null hypothesis H_3 is accepted that qualification has no significant influence on perception towards factors affecting customer satisfaction for mobile banking services in Mumbai.

Table 6: Result of ANOVA of Customer Perception on Occupation

Statement to the Respondents	Sum of Squares	df	Mean Square	F	Sig.
Simple to use	4.913	4	1.228	1.005	.408
Screen size immaterial	18.380	4	4.595	3.766	.006
Fulfil all Banking requirements	2.243	4	.561	.447	.775
Easy accessibility	3.574	4	.893	.763	.551
Speed of transacting	1.754	4	.438	.385	.819
Well Organised information	3.620	4	.905	.921	.454
Language options	7.686	4	1.921	2.200	.073
Anytime Access	5.553	4	1.388	1.041	.389
Launches quickly	4.933	4	1.233	1.102	.359
Immediate solution to problems	10.684	4	2.671	2.219	.071
Accurate information available	9.244	4	2.311	2.331	.060
Protects my information	2.907	4	.727	.588	.672
Highly secured	9.699	4	2.425	2.101	.085
Regular changing password helpful	1.259	4	.315	.319	.865
Successful completion of transaction	1.534	4	.384	.375	.826
Records maintained accurately	1.857	4	.464	.464	.762
Low transaction charges	1.555	4	.389	.284	.888
Saves travel time	1.106	4	.276	.341	.850
(Source: Compiled from Primary Data)					

Above table 6 reveals the result of ANNOVA for customer perception to use of mobile banking for the occupation of the respondents. The result suggests that there is no significant influence of occupation on the customer perception for any of the factors affecting customer satisfaction for using mobile banking services except 1 statement – screen size is immaterial. As there is no significant influence of all factors except just 1 statement, the null hypothesis H_4 is accepted that occupation has no significant influence on perception towards factors affecting customer satisfaction for mobile banking services in Mumbai.

It is revealed from the study that simplicity to use, speedy and accurate transaction completion, the availability of all information with language option, access at any time and from any place, security of user information and lower cost are the factors that affect customer satisfaction. The banks should consider the mentioned factors while designing or upgrading their mobile banking application to ensure success in providing the services. The study also revealed that the demographic features of the customers have no significant influence on these factors. The banks are not required to customize the application based on the demographic profile such as age, gender, educational qualification and occupation.

FINDINGS, CONCLUSION AND FUTURE DIRECTIONS

Now days, mobile phones are no more considered as luxury. Everybody now owns a mobile phone in the society. It had created opportunities for businesses to grow. It has helped even the banks to provide wide choice of services over the mobile phones and gain advantage of high profitability. But it's not that easy as we feel. The banks should be able to provide maximum satisfaction to the customers to sustain in the highly competitive world. Thus the aim of the study was to determine the factors that influence the customer satisfaction in mobile banking services. There is no single factor which is influenced by all the characteristics of the demographic profile.

The study reveals that mobile banking has great potentials and opportunity. It shall be of great benefit for the banks to reach the in depth rural places which they failed to cater yet. The study only aimed on the customers of Mumbai and therefore avails a future scope of research in the semi urban or rural areas.

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A Study on the Impact of Work Stress on Work Performance of Nurses of Multi Speciality Hospitals with Special Reference to Trichy

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ABSTRACT
Healthcare professionals are generally, more prone to stress and professional burn-out, as they are exposed to life and death experiences in a regular basis and are also accountable for human lives, whereby their lack of action or indecisiveness can have serious effect on patient's health and in worse case scenarios, their lives as well. Stress has nowadays become a prevalent state in everyday human life especially among different employees at various levels of job. The purpose of this research is to study relationship between Job stress and performance among the hospitals nurses in Trichy. Data for the study was gathered from both primary and secondary sources. The questionnaires were distributed to the nurses. Systematic random sampling method was used to select nurses from various directorates to solicit their views on the subject matter. This makes it representative of all the nurses in the hospital. The data collected were analyzed by the used of frequency tables, percentages, bar charts. Empirical results from the data indicate that workload, work timings, working environment, Conflict among colleagues, pay packages extra allowances for extra work and supervisors etc are other major causes of stress in nurses. It was extracted from the research that stress affects the output, and quality of work and the inner peace of the nurses in turn it leads to dissatisfaction and fatigue in their work.

Keywords: Healthcare nurses, Stress, Work Performance

1. INTRODUCTION
Healthcare professionals are generally, more prone to stress and professional burn-out, as they are exposed to life and death experiences in a regular basis and are also accountable for human lives, whereby their lack of action can have serious effect on patient's health and in worse case scenarios, their lives as well. Stress has nowadays become a prevalent state in everyday human life especially among different employees at various levels of job. On the one hand stress is the motivational force and on the other side it is the cause of depression. In fact the lack of stress is the end of life, as there is no enthusiasm towards the accomplishment of goals. When an employee is at the work place there are different stressors that are having a direct impact upon the performance of employees. Work stress exists when people perceive that they have difficulty in coping with the demands relating to work and that their sense of well-being is being threatened. Many stressors associated with healthcare nurses have been identified. For examples, shortage of staff, work overload, too much administrative work, lack of support from superiors and peers, work ambiguity, etc. were some stressors commonly encountered by nurses (Tsai, 1993, Tyler & Cushway, 1995؛ Simoni & Paterson, 1997). These stressors were found to be negatively related to nurses, physical and psychological well-being (Boswell, 1992, ؛ Tsai, 1993). A number of researchers have defined stress in different words such as, Kazmi, Amjad, & Khan (2008), have defined stress as "a change in one's physical or mental state, in other words disturbance or imbalance from normal state."

1.1 Work Stress of Nurses:
The topic of work stress in nursing has been documented for more than forty years and occupational stress in nursing is reported to be increasing in many countries. The assumption that nurses are prone to job stress and burnout - its most severe form – is grounded in a vast literature on occupational stress demonstrating that nursing is a "stressful" occupation. Work stressors in nurses include high workloads, unbalanced and increased working hours, physical fatigue, the emotional load of dealing with patients, their families and those whose behaviors are difficult, uncertainty concerning treatment, and lack of staff support, conflict with supervisors, other nurses, and medical staff, dealing with death and dying, issues involving patient care, peer pressures, anxieties about technical knowledge and skills.

1.2 CAUSES OF STRESS:
It could be demonstrated that causes of stress could be classified into psychological, physiological, cognitive and affective categories. These factors require association with the environmental factors that have been identified extensively. Therefore, causes of stress should be looked at from both the individual perspective with all facets of a person's life together with the person's environmental pressures both at work and at home. The figure below draws a relationship summary between work content and work context causes of stress as presented by multiple studies:

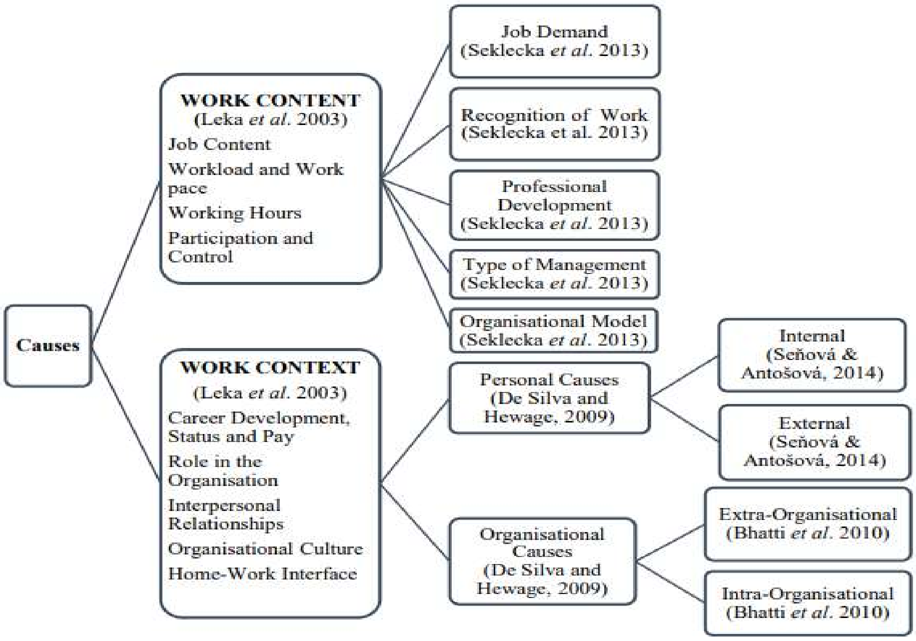

Figure 1. Causes of work-related stress

1.3Effects of stress :

Work stress remains a significant concern in nursing affecting both the individual and the organization where they work. When available resources for nurses are unable to match their psychological and physical needs at that particular moment in time, the effects are observable in all areas. The effects of stress may generally be categorized into three broad classifications: individual effects, organizational effects, and societal effects. The more nurses get stressed, the more their performance reduces hence the need for replacement, which results in retrenchment or resignation of nurses and increased cost of recruitment.

2. REVIEW OF LITERATURE:

A numerous empirical study has found regarding workplace stress and employee performance as it becomes a crucial issue. Hawksley (2007) noted that stressed healthcare workers have poor work life balance and work-related stress affects their performance. Kazmi, Amjad and Khan (2008) urged that, poor work relationships, lack of support at work and poor planning negatively affects productivity of employees. e. Rajbhandari and Intravisit (2017) revealed that hospitals need to make effort regarding personalization of service to maximize quality of care. Soegot and Narimawati (2017) revealed that there are negative effects of stress on employee performance. Mawanza (2017) documented that employees poor work relationships, lack of support at workplace, and poor planning negatively affects employee’s productivity Adhikari, Sapkota and Supakankunti (2019) found that, better management practices of hospital are strongly connected with the hospital performance. Dawadee (2020) documented that workload, supervisor support, working environment, and work life balance have positive impact on employee’s performance however, role ambiguity has negative impact. Diamantidis and Chatzoglou (2019) revealed that job environment and support from management strongly impacts job performance, while factors adaptability and intrinsic motivation directly affects job performance.

3. OBJECTIVES OF THE STUDY:

The Objectives of the present study is stated below:

- To ascertain the causes of Stress among nurses.
- To find out the influence of Stress on Work Performance of Nurses.
- To examine the impact of Stress on Work Performance of Nurses.
- To ascertain the relationship between Stress and Work Performance.

4. LIMITATIONS:

- There is a possible sampling bias as the study was done in one city hence a singular source of data.
- The conditions in the specific sample hospitals may vary considerably from the conditions in other hospitals.
- Only limited respondents are taken for the study. Hence, there may be variations.

5. METHODOLOGY:

Data for the study was gathered from both primary and secondary sources. The primary source dealt with information gathered from selected nurses. Data collection was achieved by the use of questionnaire and interview to solicit information from the nurses. The secondary data is taken from the available book, journals documents, etc. It comprised of all nurses of various directorates at the hospital. Seventy (70) questionnaires were distributed to respondents. Systematic random sampling method was used to select nurses from various directorates to solicit their views on the subject matter. This makes it representative of all the nurses in the hospital. The data collected were analyzed by the used of frequency tables, percentages, bar charts.

6. FINDINGS:

Objective 1: Causes of Stress

The data collected indicated that workload was the major cause of stress among nurses. Workload is a situation in which a person faces too many roles or too great a variety of expectations. Nurses who have a heavy workload are dissatisfied with their job, thus affecting their motivation for high-quality performance.

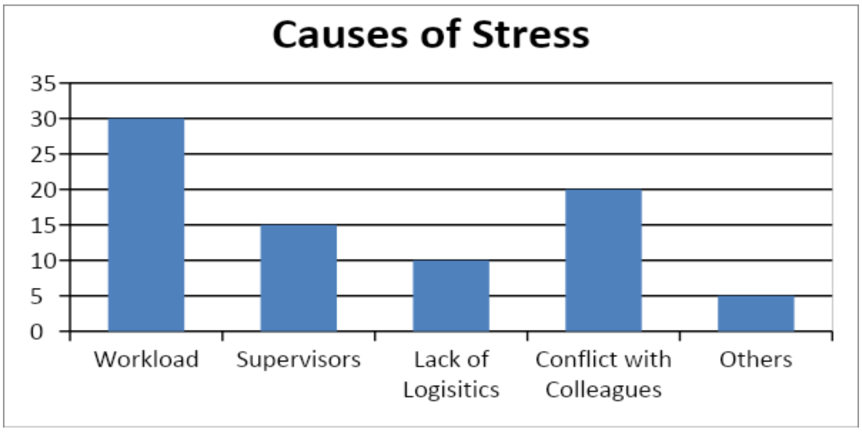

Chart 1: Causes of Stress

Objective 2: Influence of Stress on Work Performance

56% of Respondents strongly agree that stress affects their performance, 41% of respondents agree that stress affects their work performance, and only 1 % of respondents agree and strongly disagree that stress affects their work performance. So, majority of the respondents strongly agree that stress affects their work performance.

Influence of stress on Performance	Respondents	Percentage
Strongly Agree	39	56
Agree	29	41
Disagree	1	2
Disagree	1	1
Total	70	100.00

Table 1. Influence of Stress on Performance

Objective 3: Impact of Stress on Performance of nurses

When the respondents were asked whether stress affects their performance 38.57% said stress affect their work output, 27.14% said stress affect the quality of their work and finally 2.86% said stress affects their personal lives such as relationships at home.

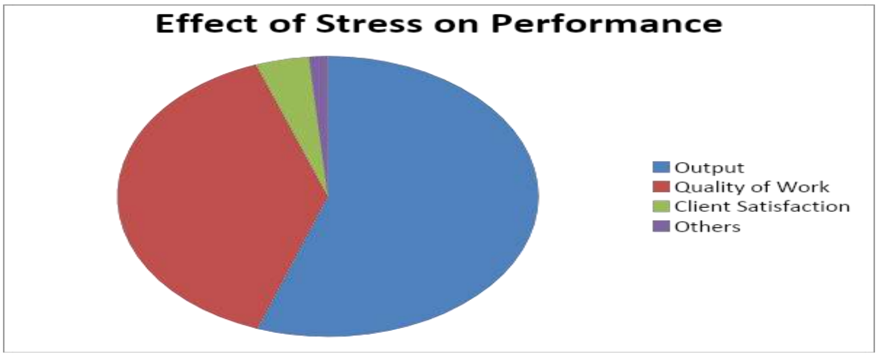

Chart 2: Effects of stress on Performance of Nurses

Objective 4: Relationship between Stress and Work Performance of Nurses
When the respondents were asked whether stress has relationship with performance, 100% of the respondents accepted that stress has relationship with performance.

Chart 3: Relationship between Stress and Work Performance of Nurses

7. CONCLUSION

In conclusion, it said that stress is a natural phenomenon that can be experienced by all human beings irrespective of gender or social status. Thus this subject matter must be well understood especially by healthcare sector in order to have a good policy direction to help promote high performance among nurses in the hospital and other such health institutions. But there are exceptions in cases of nurses because, they are not only looking after themselves but also next to God they are the life savers of others. Hence, they are playing dual responsibility in their work. So, we can conclude that the work environment, work content, work context, shift timings, role conflict, role ambiguity and personal stressors create tensions, burdens, stress, depression, and mental illness which cause serious impact on the health of the nurses (physiological and psychological illness). There are solutions for all problems when, the employer and the employee have cordial relationship and proper understanding in the work environment.

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A Study on Motor Insurance Product and Factors Affecting Motor Insurance Marketing with Special Reference to Mumbai Sub Urban Area

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ABSTRACT
After the amendment of Motor Vehicle Act in 2019, it is mandatory to all the vehicles that operate in a public space to hold a motor vehicle insurance coverage and third party liability cover cannot be skipped by policy holders. Insurance companies mainly sells two types of insurance products Third Party Insurance and the other is Comprehensive Insurance. As the number of vehicle owners are increasing in India, the need for motor insurance is also increasing. In addition to this motor vehicles are exposed to several types of risk like damages due to rain, accidents, legal liability due to death , injuries, etc., Insurance is a protection against unexpected financial loss. It serves the customers by offering them different benefits in their policy. Due to the recent uncertainties, people have become more aware of different insurance policies. The present study tries to analyse the various factors affecting policy holder's decisions and also the expectations of the policy holders, so that motor insurance companies can market this insurance service well.

Keywords: Motor Vehicle Insurance, Awareness factors, Improvements needed

INTRODUCTION
Marketing a service is a difficult task, that too insurance falls under the category of unsought service. But motor insurance is service which is becoming popular, as vehicle owners are recently becoming more aware of the need for this. At the same time due to liberalisation policy of the nation there are many players entered in this market. So the insurance companies develop the marketing strategies to capture the market. In this study an attempt is made to understand the awareness level of the policy holders and the expectations of them.

SOURCES OF DATA & TECHNIQUES USED
Through a structured questionnaire primary data is collected. Data collected from a sample size of 155 motor vehicle insurance policy holders. Area covered of Suburban area of Mumbai. Secondary data is collected through websites, journals, and newspapers. Statistical Technique is used to measure the reliability test and descriptive statistics, chi square test, graphs and tables are utilised to analyse the data

LIMITATIONS OF THE STUDY:
Study is conducted in the Suburban Mumbai. Policy holders of different regions of Mumbai may have different need and awareness level about the motor insurance policy so cannot generalise the findings to all parts of India. The conclusion that is drawn cannot be applied to the whole of India. There is no 100% guarantee of accuracy in the collection of primary data, as data is collected through google form.

OBJECTIVES OF THE STUDY:
To analyze various factors contributing to the insurance marketing.

To study the customer's expectation from the insurance product for a better service.

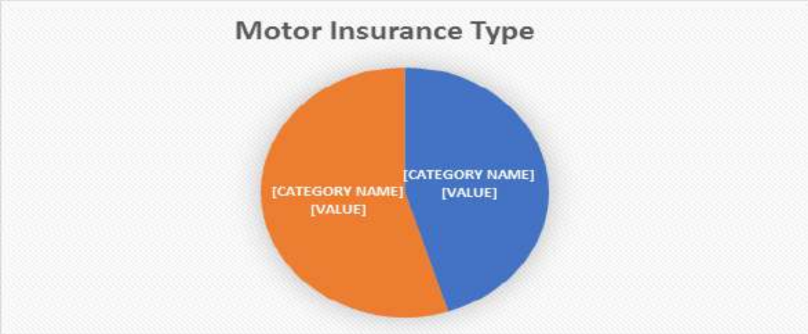
HYPOTHESIS1:
H_0: There is no significant relationship between demographic factors and insurance service.

HYPOTHESIS2:
H_0: There is no significant relationship between insurance product and the need of

improvisation/improvement.

ANALYSIS AND INTERPRETATION OF DATA:
Table 1: Type of Motor Insurance opted by policy holders

Motor Insurance Type		
	Frequency	Percent
Third-party insurance or liability cover	70	45.2
Comprehensive insurance cover	85	54.8
Total	155	100.0



INTERPRETATION:
54.8% of the respondents have opted for Comprehensive insurance cover and 45.2% of respondents have opted for Third-party insurance o liability cover.

Table 2 showing Mode of Purchase

Mode of Purchase		
	Frequency	Percent
Offline	83	53.5
Online	72	46.5
Total	155	100.0

Most of the consumers prefer Offline mode. Remaining 46.5% chose the online mode while buying the motor insurance product.

TESTING OF OBJECTIVES:
Objective 1.To analyze various factors contributing to the insurance marketing

a.Awareness Factor: Reliability statistics obtained Alpha value of .853, indicate a high level of internal consistency for the scale (factors).

Table 3 showing the Descriptive statistics about awareness factors

Awareness Factors	Mean
I am aware of companies offering motor insurance	1.67
I am aware of the benefits of motor insurance	1.74
I am aware of different types of motor insurance offered	1.92
I am aware of different terms and conditions required for motor insurance	1.90
I am aware of product features provided by the motor insurance policy	1.95

INTERPRETATION:
Above table gives us the awareness level of consumers regarding the motor insurance service.According to the respondents, the average response for the marketing factors is 2 (approximately). Hence, we can say that consumers agree that they are well aware of all the benefits and features offered by the insurance company.

B. MARKETING FACTOR
Reliability statistics obtained Alpha value .778, which indicates a high level of internal consistency for scale (factors)

Table 4 showing the Descriptive statistics about awareness factors

Marketing Factors	Mean
Brand name is an important factor for me to select a particular company for motor insurance policy	1.82
Promotional offers influence my motor insurance buying decision	2.34
Attractive schemes influences my buying decision of motor insurance	2.18
Advertising and word of mouth are relevant factors for selecting a company	2.15
Marketing initiatives of motor insurance companies have positive impact on purchase decision of motor insurance by customer	2.15

The above table gives us the understanding of customers behaviour and expectations. According to the respondents, the average response for the marketing factors is 2 (approximately). Hence, we can say that the customers agree to all the points discussed above and their purchasing decision depends on such marketing initiatives taken by the company.

C.SOCIAL FACTOR

Reliability statistics obtained Alpha value .561, indicates a moderate level of internal consistency for scale (factors).

Table 5 showing the Descriptive statistics about social factors

Social Factors	Mean
A motor insurance policy provides a sense of security regarding different needs for me and my family	1.96
Rising social awareness about motor insurance products has positive influence on the buying decision	1.86

The above table helps us to understand the social factors of the policy. According to the respondents, the average response for the marketing factors is 2 (approximately). Hence, we can say that the customers agree to all the points discussed above and their purchasing decision depends on such marketing initiatives taken by the company.

Objective 2: To study the customer's expectation from the insurance product for a better service.

Table showing the improvements suggested by the policyholders

Improvement Suggested		Motor Insurance Type	
		Third-party insurance or liability cover	Comprehensive insurance cover
Premium charged	Count	37	32
	%	68.5%	58.2%
Officers / Agents easily approachable	Count	26	21
	%	48.1%	38.2%
Knowledge of the agent about the policy	Count	19	37
	%	35.2%	67.3%
Promptness in issuing the policy	Count	16	19
	%	29.6%	34.5%
Help/Support of the agent/officer in issuing and after issuing policy	Count	19	19
	%	35.2%	34.5%
Transparency of the Policies	Count	21	30
	%	38.9%	54.5%
Bonus for next premium payment	Count	27	27
	%	50.0%	49.1%
Speed in Claim settlement	Count	23	41
	%	42.6%	74.5%
Attitude of Surveyor	Count	11	18
	%	20.4%	32.7%
Agents attitude in guiding the claim settlement	Count	20	12
	%	37.0%	21.8%

Company's attitude in settling claims	Count	25	18
	%	46.3%	32.7%
Total	Count	54	55

Above table explains the improvements suggested by the policy holders regarding services offered by the insurance company.

HYPOTHESIS1:
H_0: There is no significant relationship between demographic factors and insurance service.

Vs

H_1: There is a significant relationship between demographic factors and insurance service.

- **Chi-Square test**

Demographic Factors vs Motor Insurance Type			
	p-value	**Decision Criterion**	**Conclusion**
Gender	0.124	> 0.05	No significant relationship
Age Group	0.002	< 0.05	Significant relationship
Occupational Status	0.117	> 0.05	No significant relationship
Marital Status	0.767	> 0.05	No significant relationship
Family Monthly Income	0.05	≤ 0.05	Significant relationship
Nature of Family	0.386	> 0.05	No significant relationship

Motor insurance policy is generally divided into 2 types of cover, Third party insurance cover and Comprehensive insurance cover. In here we study the purchase of motor insurance with respect to different demographic factors. Also, we test the parameters for significance. On comparing different demographic factors with motor insurance type, we observe that age group and monthly family income show a significant relationship. On the other hand, since the p-value of other demographic factors are greater than 0.05 (> 0.05), hence we say that these factors do not show a significant relationship with the motor insurance type. Since, age group and monthly family income shows a significant relationship we study its bifurcation further and observation found was that most of the respondents from age group 18-30, 41-50 and 51-60 have opted for Comprehensive insurance cover. Whereas, most respondents from age group 31-40 have opted for Third-party insurance or liability cover. We also observe that most of the respondents whose monthly family income is less than 50,000 have opted for Comprehensive insurance cover. Whereas, most of the respondents whose monthly family income is Above 50,000 have opted Third-party insurance or liability cover.

HYPOTHESIS2:
H_0: There is no significant relationship between insurance product and the need of improvisation/improvement.

Vs

H_1: There is a significant relationship between insurance product and the need of improvisation/improvement.

- **Chi-Square test**

Chi-square	35.336
df	11
p-value	0.000

The chi-square table is statistically significant since p-value = 0.000 < 0.05, hence we reject H_0. We conclude that there exists a significant relationship between insurance product and need of improvement.

Suggestions based on the Study:
In our study, we have considered two types of insurance "Third party insurance or liability cover" and "Comprehensive insurance cover". We have studied the comparison with respect to motor insurance type and improvement required. We will take into account few important improvement suggested by consumers with respect to each insurance cover.

According to consumer who opted for Third Party Insurance cover, the most important improvement required is changes in the "Premium charged", followed by other few suggestions namely Officers / Agents easily approachable, Company's attitude in settling claims, Speed in Claim settlement, Transparency of the Policies and Agents easily approachable, Company's attitude in settling claims, Speed in Claim settlement, Transparency of the Policies and Agents attitude in guiding the claim settlement.

According to consumer who opted for Comprehensive Insurance Cover, the most important improvement required is “Speed in Claim settlement”, followed by other few suggestions namely Knowledge of the agent about the policy, Premium charged and Transparency of the Policies.

CONCLUSION

With time consumers needs keep changing, hence the insurance industry needs to keep adding or modifying their insurance covers and products. Therefore, we can say that the insurance products and the need of improvement is directly related to each other. Better customer service is a priority of any business. In order to increase the purchase, it is necessary to understand customer’s requirements and expectations. In addition to the current service provided by the policy, the improvement suggested by the customer would also prove beneficial.

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The Study of Online Buying Behaviour of Gold Jewellery among Women with Focus on Mumbai Suburb

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ABSTRACT

Gold is considered as a symbol of status among us Indians. It is a metal gifted in all special occasion in an individual's life. Even today gold is considered as a safest investment option compared to any other metal. This research seeks to unravel whether boom in online shopping has caught on with jewellery shopping as well. Main objective of the study is to understand consumer behaviour when they are buying jewellery from online platform Most of the branded jewellers are present on the online space seeking customer attention. In the study 53 responses were collected from women residing in Mumbai suburb. The research attempt to find whether awareness about the availability of online jewellery has actually translated into sale in ecommerce platform. The study also tries to understand consumer behaviour behind the purchase of gold jewellery on the digital platform.

Keywords: jewellery; excitement; suburb; digital platform

INTRODUCTION

Indian gold market is quite evolved and flooded with variety of designs and offerings. Indians are very traditional when it comes to buying gold and make huge investment in this precious metal. While marrying off a daughter, gold is given as stree dhan which can be called as caution deposit for daughter's future. Gold has emotional value too and are passed on from generation to generation. But with price of gold going north, people are conscious of wearing it in public. Many cases of theft in broad daylight are also reported which is making people alert and wary of getting their gold out of locker. But young generation has developed taste for light weight jewellery and many companies are catering to the same. To appeal to this generation, many gold jewellers are getting into online space. This research attempts to find consumer behaviour as far as buying gold jewellery on digital platform is concerned.

E-Commerce is growing exponentially all over the world and has seen huge surge in gold jewellery business as well. Though proprietor run entities and family owned proprietor were primarily the owner of gold jewellery business. But in last few years we have seen corporatisation of jewellery business. Technology has also been embraced and significant increase in presence on online platform is observed thanks to e-commerce websites and applications. Initially customers were apprehensive of spending much on buying jewellery online but in last few years customers are found to be confident of investing more money on online jewellery shopping.

According to a study by McKinsey and Company, the share of the online jewellery market in Asia is set to double, from 6% to 12% by 2020. About 18% of the sales are expected to be made online by 2025 taking its worth to about $79 billion annually. Estimates indicate that this would make e-commerce the world's third-largest luxury market, after China and the United States. This growth opportunities are attracting all kind of big and small players who are competing among themselves to make their presence on digital platform. (Placeholder6) (Singh, 2020)

FACTORS INFLUENCING CUSTOMERS TO BUY GOLD JEWELLERY ONLINE:

1. Customers find it **convenient** as they can visit their preferred brand online at any point of time and make purchase.
2. Incomparable variety available at online store. Physical store might have issues of stock unavailability but not so in digital platform.
3. Customer get better price while buying online compared to physical store.
4. Price comparison can be made so easily in online store which otherwise is not possible.
5. Shopping can be done peacefully without bothering presence of the crowd.

FACTORS NOT PREFERRED BY CUSTOMER WHILE BUYING JEWELLERY ONLINE

1. Problem of network and connectivity can spoil the shopping experience.
2. Some websites are not user friendly and difficult to manoeuvre.
3. Customer are wary of product defects while buying online.

4. Customer feel insecure providing bank account information.

LITERATURE REVIEW

Many researches are done to study factors motivating or contributing to online shopping attitudes and behaviour. (Manek & Khaparde, 2015) in their research said that people need to be educated about availability of jewellery online to get positive buying behaviour towards online jewellery shopping. More effort in building trust is another thing highlighted by them. (Srivastava, 2013) in her research found a mixed reaction towards online shopping of gold jewellery in India. Her research revealed that the shopping behaviour for expensive and important products like jewellery is still traditional and it will take some time for the change in the attitude of the buyer.

OBJECTIVE OF THE RESEARCH

To find motive behind online jewellery shopping.

To study awareness of online jewellery shopping.

To understand whether excitement about online gold jewellery shopping is translated to actual sale.

RESEARCH METHODOLOGY

The data for this research project is collected through questionnaire. A structured questionnaire is framed as it is less time consuming, generates specific and to the point information, easier to tabulate and interpret. Moreover, respondents prefer to give direct answers. Both type of questions i.e. Open ended and closed ended, is used.

Primary data are collected through questionnaire. A structured questionnaire was prepared and circulated online in familiar group. Both open ended and close ended questions were asked.

Secondary data was collected from internal sources like articles in journals, newspaper articles.

In a convenience sampling data was collected from 53 respondent residing in suburban Mumbai. Though the form was circulated among 100 respondents, due to constraint of time the research progressed with 53 responses.

ANALYSIS AND INTERPRETATION

TABLE1. Age, Employment status and Income Level of the respondent

AGE	25 TO 35	36 TO 50	MORE THAN 50
	31.8%	63.6%	4.6%
EMPLOYMENT STATUS	**YES**		**NO**
	95.5%		4.5%
INCOME LEVEL	**20000 TO 30000**	**30000 TO 60000**	**MORE THAN 60000**
	20%	40%	40%

Most of the respondents are in the age group of 36 to 50. Women in this age group indulge in most of the jewellery shopping in India.

20 % of the respondents were in the income range below Rs 30,000. 40 % earned more than Rs 30000 per month and another 40% earned more than Rs 60000. It is observed that gold buying is equal among people earning from 30,000 to 60,000 and more than Rs 60,000. Thus, it can be assumed that for gold loving Indians, high income is not the criteria to purchase expensive metal rather they buy whenever they can afford it.

Since convenience method of sampling was used and questionnaire were circulated among teachers and College Professor, income level is observed to be on the higher side.

ANALYSIS OF CONSUMER BEHAVIOUR WITH RESPECT TO BUYING ONLINE GOLD JEWELLERY

Factors That Hold People from Buying Gold Online	Trust issue	Need to feel and touch	Traditional mindset of buying gold from shop	Fear of being duped	Buying gold is not a worthwhile investment	No disposable income
	-	50%	-	-	-	50%
Factors That Attract	**Popular Brand On**	**Attractive Price**	**Fair Policy Of Return**	**Quality Of Gold Guaranteed**		

Customers To Buy Online Gold Jewellery	**Online Platform**	**Incentive**		
	-	75%	-	25%
Reason For Buying Gold Jewellery	**Investment Purpose**	**To Look Fashionable**	**For Gifting**	**For Special Occasion**
	25%	-	-	75%
Payment Concern While Buying Online Jewellery	**Making Prepayment**		**Getting Jewellery Of Compromised Purity after payment**	**Lack Of Choice of different payment mode**
	80%		20%	-
Sought After Feature In Online Gold Jewellery	**Lightweight Jewellery**	**Variety Of Design**	**Less Making Charge**	**Convenience**
	-	20%	20%	60%
Preferred Mode Of Payment In Online Jewellery Shopping	**Cash On Delivery**		**Making Online Payment At The Time Of Order**	
	100%		**-**	
Do Customer Want Online Jewellery Shopping In Future	**Yes**			**No**
	60%			**40%**

FINDINGS

- All respondent were aware of the availability of gold jewellery on online platform.
- All the respondent were asked whether they have purchased any gold jewellery online. To this only 46 respondents out of 53 answered and 80% of the respondent who answered said that they have not done online jewellery shopping. This indicate that though there is an awareness about availability of gold jewellery online but that is not translated into actual sales.
- In the study, when the reason for not buying gold jewellery online was asked, out of many choices half of the respondent answered that they avoid online jewellery shopping because they don't have enough disposable income and other half said they want to touch and feel and ensure quality of the jewellery before buying. There were no responses for trust issues, traditional mindset or fear of getting duped. No body even responded whether they feel buying gold is a worthwhile investment or not.
- It was also found in the study that attractive price and discounts will motivate customers to buy online jewellery. Other concern of the customer is quality of the jewellery. So if the jeweller give assurance of quality, more people will be willing to buy.
- The reason cited for buying gold jewellery is special occasion like festival and marriage as 75% responded in favour of it. Only 25 % said they buy jewellery to invest. Nobody seems to buy gold for looking fashionable or for gifting.
- The study also revealed that the greatest fear of the customers about buying online jewellery is the quality. Their concern is they should not get jewellery of compromised quality.
- When asked for the factors that attract ladies online for buying gold. The responses were convenience as 60% of the respondent answered in favour of it. 20 % each pointed out variety of design and less making charges as the reason for buying gold jewellery online.
- All the respondents are in favour of paying cash on delivery when it comes for payment for buying gold jewellery online as they cannot trust any other mode of payment here.
- 60 percent of the respondent are very positive about buying gold jewellery from online platform in future. 40% are still not in favour of buying precious metal from digital platform.

CONCLUSION AND SUGGESTION

- There is an awareness about online availability of gold jewellery but actual purchase is very less.
- The customer specially women need to be nudged and to buy jewellery in the digital platform and for that companies have to come up with offers and promotions.
- All these jewellers attempting to sell online also has to remove apprehension from the mind of the customer with regard to quality of gold in online shopping. For that they can go for certification from an authority which is widely respected and accepted by the customer.
- Feel and touch component of buying is very important for Indian buyers. So, Companies have to think in that regard. Caratlane has started with policies wherein customers can see and return the jewellery which need to be followed by other jewellers as well.
- Buying Gold jewellery in every festival is still not considered affordable by most of the middleclass women. Companies have to understand that and introduce and market light weight jewellery which are fashionable, affordable and ensure quality.

CONCLUSION

In India, gold is held in great value and has been symbol of power, wealth and achievement. Gold also lead in the list of investment as value of gold have increased many times over the years. Gold is considered auspicious and no festival or occasion is complete without members of the family specially the female members adorn themselves in gold jewellery. E-commerce is revolutionising buying habit of Indian customer and gold is also no way behind. Online jewellery shopping is becoming attractive with all kind of precious metals like gold, silver, platinum diamond made available online. Moreover, to make gold affordable, lightweight contemporary jewellery are made on 18karats or 14 carats gold. Convenient delivery supported by many payment options like cash on delivery and other advantages like easy instalments, discounts have made online jewellery shopping stress free and enjoyable. However, large ticket size jewellery above Rs. 1 Lakh are still sold in stores but customers first conduct thorough research online before buying the same. Online jewellery platforms plays a crucial role in influencing offline sales.

Though there is an awareness about its availability but actual purchase is much less. Gold jewellery manufacturer need to think of strategy to make online gold jewellery buying an attractive proposition.

There is immense scope of future study in this area. The current study was limited to few ladies concentrated in suburban Mumbai. The study can be taken up pan India to get more detailed view about the consumer behaviour about the same..

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Is Online Drug Store Delivery the Need of the Hour?: A Study

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ABSTRACT
For many years, the friendly local pharmacist was seen as a cure-all for all medical issues. He was the man to see for anything from a minor sickness to broad medical advice. With emergence of online shopping now coming into the picture even for pharmaceuticals and daily medical needs, the traditional pharmacist guidance seems to be getting outdated and obsolete.. In order to understand and grasp a better idea of ordering drugs online, a survey was conducted wherein participants were asked to evaluate the following items on a scale of one to six. For the clients to participate, a questionnaire was created. The questionnaire had six variables, each and then had to be ranked from 1 to 6, with 1 being the most important and 6 being the least. Quick service, doorstep delivery, simple payment mechanism, privacy, lower drug costs, and a lower error rate were the variables selected to address. A total of 100 people were questioned. A personal interview was done, with a direct and structured questionnaire. Quick service came out on top, followed by doorstep delivery, lower medication costs, privacy, a simple payment method, and a lower error rate. The findings indicated and also confirmed that there is a strong association between online shopping convenience and increased sales output using the Likert scale and regression analysis utilizing the SPSS programme.

Keywords: Pharmacist, counseling, payment mode, doorstep delivery, privacy

1. MAIN TEXT

In today's world, where the consumer is king, and he/she has the world at their fingertips, it's only natural to want to keep them satisfied at all times. The online way of delivery looks to be the ideal route in this age of epidemic.

So, what does a pharmacist need to do in order to make their consumers happy? To find out, a questionnaire was devised and created with six different variables that had to be ranked.

The main and primary variable chosen was a reduction in pricing in cost of medicines . The cost of online medicines is lower than the cost of drugs acquired in a pharmacy. Furthermore, there are discounts available when ordering a significant quantity of medications.

Quick service was chosen as the second variable. When you place an order, you can usually expect delivery within a few hours. One could argue that if you go to a drugstore, you can receive it in a matter of minutes. However, this necessitates making the trip to the pharmacy. Furthermore, in this era of epidemic, is it safe to visit drugstores? Added to the advantage of online delivery , priority orders are usually delivered in a much quicker span as compared to normal circumstances .

The next variable is doorstep delivery. It is not necessary to go to the pharmacy to obtain the commodities or drugs. All you have to do is sit at home and send a message to the pharmacy, instructing them to bring your medication. In most circumstances, the parcel is delivered in a matter of minutes. Furthermore, if you have a large number of items to order, online delivery appears to be a decent option. Adding to the fact consumers experience greater safety especially during the covid 19 pandemic times, which in turn also boosts up the company's customer relationship.

The convenient payment mechanism was the fourth variable. Once taught and clarified, the online payment method is straightforward. It's also more secure. To make purchases, you'll need a debit/credit card or access to online banking. After that, it's merely a matter of clicking.

Reduced error rate was chosen as the following variable. In a drugstore, there will inevitably be a large number of people vying for the pharmacist's attention. The pharmacist is pressed for time to deal with all of them and explain everything to them. In such a case, billing errors might arise, resulting in a loss of money for the consumer as well as a loss of the drugstore's reputation.

Privacy was the last variable to be chosen. Being delivered at home eliminates the need to interact with anyone other than the delivery person, who can just leave the package on the doorstep and leave. Unlike going to a drugstore, where everyone can see what you're buying, you'll have complete privacy this way.

These variables were put in a questionnaire which was given to the public/customers to be ranked as per their importance .

2. LITERATURE REVIEW:

According to Bandivadekar (2020)Online pharmacies are one of the types of enterprises that have evolved from a physical store to an online location,. Bandivadekar believes that internet stores have numerous advantages, including convenience, cost savings, and time savings. "There are several hazards linked with online drug sales and purchases, including non-compliance with drug sale and buy legislation, such as the selling of medications without a prescription, counterfeit medicines, drug misuse, self-medication, and so on," she continues. pps (365-373)

On the other hand Ariffin, Yajid, and Azam (2020) mention customers' faith in internet pharmacies et al. They go on to mention how a single image effects clients' perceptions of risk and trust when shopping for drugs online.

Bhattacherjee (2014) shares this viewpoint, believing that trust is essential in online pharmacy. Bhattacherjee proposed three areas of trust: compassion, integrity, and the ability of the trustee.

Chaturvedi, Singh, and Kumar agree with the foregoing, believing that online pharmacies can also provide the privacy that traditional pharmacies cannot. Chaturvedi et al go on to suggest that in order to preserve standards, online pharmacies must be supervised and regulated.

Finally, Prashnati, Sravani, and Noorie (2017) believe that internet pharmacies would lead to people self-medicating and misusing medications, particularly those classified as Schedule X or H.

3. OBJECTIVE:

1. To find out what is most looked for and expected in delivery of drugs and pharmaceutical products through online shopping.

HYPOTHESIS OF THE STUDY

HO. There is no significant relationship between convenience in online shopping and increment in sales output

HI. There is significant relationship between convenience in online shopping and increment in sales output

4. RESEARCH DESIGN:

A random, direct, structured questionnaire was used to conduct a personal interview with 100 people who visited a pharmacy in Goa. The research was performed out in an exploratory approach..

Data analysis: Statistical analysis software to determine the information obtained. The data was analyzed using the Statistical Package for Social Sciences (SPSS) version 20.

The SPSS application was used to perform descriptive statistics such as correlation analysis, regression analysis, and calculating regression coefficient differences. The data was analyzed using Pearson's Correlation Coefficient. The procedure was developed to determine if there was a link between online shopping convenience and higher sales output.

5. FINDINGS:

The data was analyzed using Thurstone Case V scaling. The variables A, B, C, D, E, and F were initially compared. A- Medicines are less expensive. B- Prompt service C-delivery to your door D- Payment method that is simple F-Privacy and E-Reduced error rate

Using Thurstone scaling we get,

Table 1

	A	B	C	D	E	F
A	0.5	82/100	73/100	46/100	47/100	57/100
B	18/100	0.5	30/100	15/100	15/100	17/100
C	27/100	70/100	0.5	19/100	12/100	19/100
D	54/100	85/100	81/100	0.5	43/100	54/100
E	53/100	85/100	88/100	57/100	0.5	44/100
F	43/100	83/100	81/100	46/100	56/100	0.5

Converting to decimals we get,

Table 2

	A	B	C	D	E	F
A	0.5	0.82	0.73	0.46	0.47	0.57
B	0.18	0.5	0.3	0.15	0.15	0.17
C	0.27	0.70	0.5	0.19	0.12	0.19
D	0.54	0.85	0.81	0.5	0.43	0.54
E	0.53	0.85	0.88	0.57	0.5	0.44
F	0.43	0.83	0.81	0.46	0.56	0.5

We derive the following numbers from the Thurstone Case V scaling table:

Table 3

	A	B	C	D	E	F
A	0	0.92	0.61	-0.1	-0.08	0.18
B	-0.92	0	-0.52	-1.04	-1.04	-0.95
C	-0.61	0.52	0	-0.88	-1.18	-0.88
D	0.1	1.04	0.88	0	0.18	0.1
E	0.08	1.04	1.18	0.18	0	-0.15
F	-0.18	0.95	0.88	0.1	0.15	0

Adding the values of each column we get,

Table 4

	A	B	C	D	E	F
	-1.53	4.47	3.03	-1.74	-1.97	-1.7

We can get the values of each column by adding them together.

Table 5

	A	B	C	D	E	F
	0.44	6.44	5.00	0.23	0	0.27

HYPOTHETICAL TESTING

H0: There is no significant link between online shopping convenience and increased sales production

H1: There is a significant link between online shopping convenience and increased sales production.

ANOVA[a]

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	6.254	1	6.254	11.839	.001[b]
	Residual	52.300	99	.528		
	Total	58.554	100			

a. Dependent Variable: Increment in sales

b. Predictors: (Constant), Convenience Shopping

Coefficients[a]

Model		Unstandardized Coefficients		Standardized Coefficients	t	Sig.
		B	Std. Error	Beta		
1	(Constant)	3.401	.374		9.094	.000
	Conveniance Shopping	.278	.081	.327	3.441	.001

a. Dependent Variable: Increment in sales

The model's significant value from ANOVA is 0.001. This demonstrates that the link between sales growth and online shopping is statistically significant. The relevance of the research is demonstrated by the f-statistic probability. If the p value is less than 0.05, the result is significant, according to the standard. The p value in this study is 0.000, which is less than 0.05, indicating that the research model is statistically significant. As a result, the study's independent variable, online shopping, has a substantial association with the study's dependent variable, sales increase. The relationship can be deduced from this. This finding demonstrates that there is a link between sales growth and online convenience shopping.

The study established that there is a relationship between increment in sales and online convenience shopping. This result is reasonable in that people will shop online more because of the convenience and ease of shopping. From the regression table, the regression equation y = b1x1 + A can be expressed as Employee Performance = 0.278(Convenience in shopping) + 3.401 This implies that sales will increase by 0.278 for every one unit increase convenience and ease in shopping. That is, whenever there is ease in shopping convenience , sales will increase by 27.8%. The beta coefficient in regression is 0.327 positive. Thus it is evident convenience in shopping has 32.7% influences on pharmaceutical sales. Hence the significance of the hypothesis is proved . Hence H1 is proven.

6. CONCLUSIONS

1. Because everyone believes in speedy delivery or quick service, it was ranked first and most important. If a person is told that a delivery would arrive at a specific time, the parcel should arrive at that time to avoid any complications for the patient.
2. Doorstep delivery came in second, indicating that most consumers preferred the concept of receiving their medications at home rather than having to go to the pharmacy. In this epidemic era, it is preferable to stay at home or avoid going to any retail centers. Thus also reducing the fear and chaos among people seeking medications.
3. Pharmaceuticals of a lower cost were placed third. As a result, online purchases are less expensive than offline transactions. Customers, on the other hand, appreciated quick service and doorstep delivery more than lower drug costs, implying that they valued the above mentioned two factors more than lower drug costs.
4. People prefer to have some level of privacy when purchasing drugs, which came in as the fourth most important factor. If they go to a drugstore, the people in the area and the pharmacist will be able to observe the purchase being made, potentially invading the customer's privacy.
5. Online purchases show a simple payment method. To make payments, all that is required is a debit/credit card or access to online banking. And in today’s age where everyone uses UPI payments like Google pay and Paytm, it tends to be more appreciated
6. Because errors are not always present or happening on a substantial level, a lower error rate was not considered important. However, mistakes might happen, especially if the drugstore is busy and the personnel has less time to respond to the consumers..
7. According to regression analysis performed with SPSS software, there is a substantial association between sales growth and convenience shopping.

7. LIMITATIONS OF THE STUDY:

1. The research was limited to 100 clients who visited pharmacies. A few questions were eliminated after it was discovered that they were incomplete or unranked, and new consumers were chosen.
2. Besides the Thurstone Case V scaling and Regression Analysis other tools and techniques could have been utilized as well , but these two were however felt to be appropriate for the study .

SUGGESTIONS:

- The same study could be conducted a year later and checked for consistency.
- Secondly decrease in error rate should be given its due importance as patients eagerly waiting their medications should not receive the wrong prescriptions or drugs thus causing further issues .

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Exploring the Impact of Factors on Consumer Functionalities with Regards to Online Shopping - An Empirical Analysis

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ABSTRACT

Now-a-days, the buying demeanor of Indian consumers has switched to online drastically, as there is keen interest and influence of social media, where the products are being exposed continuously. With the expansion of speedy growth in the internet, consumers are being aware and they have sufficient knowledge in making the things to be happen easier, faster and safer. It seems that the consumer using internet started to make purchase on their own not by visiting any outlet. Accordingly it makes the consumer to shop online whatever they want, wherever they require, from anywhere to everywhere at their footstep. It also makes available products with massive diversification on seller side and anyone who geared up to place an order from buyer side can place conveniently where they are residing. Presently, COVID pandemic also shifted the consumer to buy through online since it's important to avoid crowds as much as possible in public places. Hence, this research intends in identifying the motives and factors which influence the behavioral aspects of consumer to shop online. For the purpose, the researcher has chosen146 samples respondents. Structured questionnaires were distributed to consumers who shops online. In the view of selecting respondents, random sampling technique was used. Statistical tools like percentage analysis, chi- square analysis, ANOVA were used to analyze and interpret the data gathered. The findings of the research discovered that the advancement in technology plays a vital role on shopping facilities provided to consumers which make them to feel comfortable with the online mode of purchase as it is the very convenient and the safest mode of purchase.

Keywords: consumers, factors influencing, online shopping, purchasing behaviour, technology

INTRODUCTION

The traditional technique of doing internet shopping business has been significantly changed by modern technologies. The popularity of online purchasing is continuously increasing. The development of technology opened the door for new methods of distributing shopping products to customers, such as Online Shopping. The majority of individuals do not have enough time to visit a store and buy their requirements. Way of life in most of the metro cities is quite fast-paced, and working people have very little leisure time. People who are unable to visit retail shops due to lack of time, travel congestion, and late working hours, as these are the key reasons for using the internet to purchase things. Despite the fact that internet shopping is getting more popular, some consumers still prefer to gather product information and correlate it with other things primarily online before purchasing products in a physical store. Consequently, online businesses constantly enhance their business operations in order to cater to the requirements of their consumers, and to make it easier for them to purchase products online. The opportunity to compare purchases with related things based on pricing, colour, size, and quality is one of the most intrinsic benefits of online shopping. It helps consumers to save time and to avoid shopping in crowded places. By building their own e-product and increasing their financial resources, online retailers may enhance their sales base and financial resources and service that adapts to the customers' changing demands. Due to its distinctive features for both businesses and customers, such as buying at any time of day or night, minimizing overhead expenditures, and offering a large choice of items, online shopping has been witnessing remarkable progress in recent years. Consumers' payment methods have also been upgraded for their convenience. The novel paradigm of online buying is an excellent example of India's economic renaissance.

LITERATURE REVIEW

Kavitha(2017) the researcher has examined customer purchasing behaviour in relation to online shopping as well as the challenges that consumers face when doing so. The objective of study is to analyze the level of satisfaction of consumer towards online shopping. Primary data were collected for this study from 100 samples chosen randomly to analyze the behaviour using percentage analysis and ranking technique. **Kavitha Rajayogan & Muthumani(2017)** studied the factors influencing online buying behaviour with regard to chennai consumers. Questionnaires were used to obtain primary data from 125 respondents. The findings of the study demonstrated that several demographic parameters such as age, gender, marital status, family size, and income had a substantial impact on on-line buying in Chennai. **Santhi & Nanda Gopal (2018)** According to this research paper the relationship between the demographic variables and factors of consumer attitude were explored. From the research it was concluded that the product quality and the website design have a good influence on online buying. **Vijayalakshmi &Lakshmi (2018)** made an attempt in understanding the online buying behaviors and various factors relating to it. The researcher collected primary data using questionnaire from 200 respondents using convenient sampling technique. This research showed that the consumers were very eager to buy the online goods at reasonable prices. **Veena & Namrata Rani(2019)** The researchers in this study discussed the consumer buying behaviour towards online shopping in Bangalore and also confirmed that the factors like accessibility, easy use, comfort, user friendly, offers & flexible time contributed for the growth of online shopping. The first hand information were collected from 120 online purchasers; data were analyzed and interpreted with the help of simple percentage, table, graphs and charts. **Ma. Florisa T. Quijano, Arjhel V. Domingo, Jennilyn C. Mina(2021)** in their research paper, they analysed the consumer buying behavior of online shoppers in relation to their 'add to cart' experiences. This study revealed that majority of the shoppers were female, who belonged to the age group of 21–30 years old, most of whom were students. They concluded that consumers should read the product description and user reviews carefully before making a chioce of their purchases.

OBJECTIVES

- To examine the buying behavior of customers towards online shopping
- To determine the factors that influence customers' decision to purchase online.
- To analyze the satisfaction level of consumers towards online shopping.

RESEARCH METHODOLOGY

Research is carried out by considering both primary as well as secondary data. Primary data were collected through a structured questionnaire. Secondary data were from Research articles, Journals, Magazines and websites. Respondents were chosen from various areas in and around Kumbakonam using simple random sampling technique. The researcher collected data from 146 sample respondents. Statistical tools used for data analysis were percentage analysis, chi- square analysis and ANOVA.

HYPOTHESES

H_0: Age has no significant impact on ease and convenience to shop online.

H_0: Age has no significant impact on shopping during offers and discounts.

H_0: Gender has no significant impact on ease and convenience to shop online.

H_0: Gender has no significant impact on shopping during offers and discounts.

H_0: Monthly income has no significant impact on online shopping**.**

DATA ANALYSIS & DISCUSSION

Table 1 Age group of online shopping respondents

Variables	Particulars	No. of respondents	Percentage
Age group	Below 20 years	26	18
	21 – 30 years	54	37
	31 – 40 years	47	32
	41 – 50 years	11	8
	Above 50 years	08	5
	Total	**146**	**100**

Source: Primary data

It is found from the above table that 37% of respondents fall under the category of age group from 21 – 30 years. It shows that young generations are fond of purchasing more online.

Table 2 Gender of the respondents

Variables	Particulars	No. of respondents	Percentage
Gender	Male	79	54
	Female	67	46
	Total	**146**	**100**

Source: Primary data

From the above table, it is seen that, male consumers tend to fulfill more of their needs and wants. They purchase more also to carry out their responsibility of meeting the needs of their family.

Table 3 Monthly Income of the respondents

Variables	Particulars	No. of respondents	Percentage
Monthly Income	Below Rs. 20,000	23	16
	Rs. 20,001 – 40,000	32	22
	Rs. 40,001 – 60,000	54	37
	Above Rs. 60,000	37	25
	Total	**146**	**100**

Source: Primary data

It is found from the table, that majority of the respondents' monthly income level (37%) is between Rs. 40,001 – Rs 60,000.

Table 4 Online shopping moments

Variables	Particulars	No. of respondents	Percentage
Shopping moments	Necessity to buy	36	25
	Impulse buying	28	19
	Sales discount or offers	49	33
	Festive celebration	33	23
	Total	**146**	**100**

Source: Primary data

It is evident from the table that, majority of respondents (33%) were inclined to make online purchases during offer period on discount. When it comes to necessity, they purchase whenever need arises.

Table 5 Mode of payments of respondents

Variables	Particulars	No. of respondents	Percentage
Mode of payments	Debit/Credit Card	27	18
	Internet Banking	14	10
	UPI/ E – wallet	46	32
	Cash on delivery	59	40
	Total	**146**	**100**

Source: Primary data

It is to be understood that most of the respondents use Cash on Delivery (COD) as a preferred mode to make the payment for the products at the time of delivery. Although there is an option of cash on delivery, in order to increase the digital transactions, 32% of the respondents have used UPI and E-Wallet to make payments while placing orders.

Table 6 Satisfaction level of the respondents

	Particulars	No. of respondents	Percentage
Level of Satisfaction	Highly satisfied	58	40
	Satisfied	41	28
	Neutral	23	16
	Dissatisfied	16	11
	Highly dissatisfied	08	5
	Total	**146**	**100**

Source: Primary data

Above table gives an idea about the level of satisfaction of consumers towards online shopping. Majority of the respondents i.e., 58 respondents (40%) agree that they are highly satisfied of online buying, 41 respondents (28%) are satisfied and rest 5% respondents are not fully satisfied with purchasing online due to the reasons like inferior quality of product, delay in delivery, variance of order, damaged products etc.,. Suppliers have to take care of the grievances of the consumers.

Table 7 ANOVA

Factors		F value	Sig. value
Age	Ease and convenience	1.082	.368
	Offers and Discounts	1.126	.347
Gender	Ease and convenience	1.355	.246

	Offers and Discounts	1.274	.261

The above table depicts that the demographic factor age has no significant impact on ease and convenience to shop online and age factor also has no significant impact on shopping during offers and discounts since the significance value is greater than 0.05. It shows that respondents of different age group shop online not only during offers and discounts. Secondly, gender also has no significant impact on ease and convenience to shop online. Thus gender also has no significant impact on shopping during offers and discounts.

Table 8 Cross Tabulation between Monthly income and Online shopping moments

Particulars		**Online shopping moments**				**Total**
		Necessity to buy	**Impulse buying**	**Sales discount or offer period**	**Festive celebration**	
Monthly Income	Below Rs. 20,000	7	4	7	5	23
	Rs. 20,001 – Rs40,000	8	9	7	8	32
	Rs. 40,001 – Rs 60,000	14	11	20	9	54
	Above Rs. 60,000	7	4	15	11	37
Total		36	28	49	33	146

Source: Primary data

From the above table, it is inferred that the respondents of the income range from Rs. 40,001 – Rs 60,000 mostly purchase online during the time of sales discount or offer period.

Table 9 Chi-Square Tests

	Value	df	Asymp. Sig. (2-sided)
Pearson Chi-Square	7.470[a]	9	.588
N of Valid Cases	146		

Sig. value (0.588) is greater than p value (0.05). Hence the hypothesis framed H_0: Monthly income has no significant impact on online shopping moments is accepted. Thus it is proved that the monthly income of the respondents has no impact on online shopping moments.

FINDINGS

- Majority of respondents fall under the category of age group from 21 – 30 years.
- Male consumers tend to fulfill more of their needs and wants.
- Majority of the respondents' monthly income level is between Rs. 40,001 – Rs 60,000.
- Majority of respondents make online purchases during offer period on discount.
- Most of the respondents use Cash on Delivery (COD) to make the payments.
- Majority of the respondents are highly satisfied of online shopping.
- Age has no significant impact on ease and convenience to shop online.
- Age has no significant impact on shopping during offers and discounts.
- Respondents of different age group shop online not only during offers and discounts.
- Gender also has no significant impact on ease and convenience to shop online.
- Gender also has no significant impact on shopping during offers and discounts.
- Respondents of the income range between Rs. 40,001 – Rs 60,000 mostly purchase online during offer period.
- Monthly income of the respondents has no impact on online shopping moments.

RECOMMENDATIONS

The suggestions for online marketers are given below:

- Customize the check-out procedure to satisfy the expectations of the customers – for simple products
- Ensure the site design is constantly updated, user-friendly, and accessible to use.
- Include all accessible information, including frequently asked questions, on the product page.

- Consider the return and cancellation policy as flexible to make refund process.
- Build up a support email address and a live on-site can considerably improve consumer experience.
- Identify and meet their unique requirements, as well as guide them to the best choice to satisfy their objectives.
- In this competitive era Customer satisfaction is inevitable for customer retention.

CONCLUSION

Number of online customers has been escalating every day as consumers find online shopping to be more convenient than traditional method of shopping, but sellers are under pressure of retaining the customers due to lack of direct face-to-face interaction, lack of understanding, and the possible negative consequences of making purchases online. When the process comes to online, identifying the requirements and expectations of consumers has become a complicated affair for the marketers. Convenient and simple purchasing is an essential aspect that influences online purchasing, thus marketers should put in extra effort in this area to boost consumer experience. Online shopping security is very important in ensuring a positive shopping experience for customers, retailers, and any other involved in online commerce. Online Shopping should enhance their advertising and service strategies effectively by increasing knowledge about Information Technologies and services which create a good perspective of online shopping in order to increase usage and satisfaction. Online industry's most targeted group is indeed the youth, and they have the potential to make a substantial contribution to India's online retail growth. In future, consumers may be more inclined to purchase online at an affordable price. Hence, with the widespread penetration of the internet, consumers can purchase anywhere, anytime (24x7) with easy and secure payment options. There will be an enhanced intention for online shopping in India.

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Analysing the Struggles of Women Entrepreneurs Post Covid -19

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ABSTRACT
The outbreak of Covid-19 had an adverse effect on the entire human race and especially to the underrated female genders of the society. Businesses across the world collapsed due to the spike in epidemic.The persisting gender inequalities and the widespread epidemic has caused women entrepreneurs to take a backseat in sustaining their businesses. The familial commitments and the vividness of role a women is expected to perform within a society also served as a major factor for many ambitious ladies to toss off their varied aspiring dreams.Hence this paper will focus upon the literary text of Louisa May Alcott's Little Women to highlight the real struggles and complexities of a female protagonist who aspired to be an entrepreneur. Although there have been numerous themes of domesticity and feministic approaches toward the text,the focal point of this paper is to explore the protagonist's ambitious struggle to be an independent lady.

Keywords — Women, Business, Struggles, Domesticity.

CHP 1: INTRODUCTION

Entrepreneurial activities cannot be restricted to a particular gender of the society. Societal etiquette stands as a strong barrier for female genders to flourish and showcase their talents in every aspect of life.Women are caught up in the rigidity of the patriarchal norms and the societal control which constantly suppress them within the households.As Schumpeter defines entrepreneurship and highlights the concept of innovation in *Theory of Economic Development*. We understand innovative ideas are the key values mandatory for a business person. Women are the resource and hidden talent of a community, capable to manage any roles but are denied the same. "Women are the real architects of society"(Stowe, Quotefancy Exp1 L3). The age-old customs of inequalities inherited since the evolution of humankind and the differentiation happening since the birth of a child are the boundaries set up for each gender in the society. According to Butler's gender performativity theory she urges that *"*Gender is … a set of repeated acts within a highly regulatory frame…"(Butler. *Gender Trouble* 43). In other sense gender is constructed and each gender either male or female exclusively are expected to conform to their responsibilities laid down by the society.

Increased Globalisation and better living standards have flourished the economy yet the female gender couldn't avail the facilities as they are still confined to domesticity. Religion and other cultural factors also have a strong influence on our society. According to biblical reference, women are expected to be submissive to men. "It is vain to expect virtue from women till they are in some degree independent of men"(Wollsontecraft. *Vindication on the Rights of Women* Ch9).

Women employed in various service sectors are deprived of their basic rights and are exploited in every means. "Sexual harassment confuses rewards for performance with rewards for attractiveness and sexual availability"(Farell,Az Quotes Exp 1 L1). Although few rendered services of women are addressed towards the development of an economy, a large number of women indulged in unpaid services like household plots, nourishment of a family seems ignored and undervalued by the society. The unpaid and selfless services rendered by them is considered as a sole responsibility of the female community and the hard work involved for the same seems ignored. "[P]iety, purity, submissiveness and domesticity were thought to be natural to women" (Cruea,Susan. *Changing Ideals of Womanhood During the Nineteenth Century Woman Movement* 3).Here lies a true fact that women employed are allowed to work only if the household chores are fulfilled within a family. Therefore the above discussion about inequalities and struggle of the female community is further elaborated in the following chapters by exploring Alcott's literary work *Little Women* to represent the protagonist's limitations and complexities to acquire her ambition of being an entrepreneur.

CHP 2: JOSEPHINE MARCH'S LIMITATIONS AND COMPLEXITIES.

The novel centres around the personal experiences of Louisa May Alcott and is considered to be a semi-autobiographical work which represents the life journey of four March sisters(Margaret,Josephine, Elizabeth and Amy).This paper will exclusively focus on Josephine March (main protagonist) of the novel and explore her life struggles to be an entrepreneur. Being the second eldest in the family, Josephine exhibited a mature personality and wished to perform great deeds in life. A brave young girl who represented more of a tomboyish appearance is also known as (Jo March). She never socialised and hated to do the same.She didn't practice tricks to persuade people or flatter them as she lacked socialisation and was blunt at times. She was rebuked "to … behave better"(Alcott. *Little Women* Ch1)by her siblings. As we understand that persuasive nature is one of the mandatory skills of an entrepreneur, Josephine undervalued the ability of the same and seems too awkward while socialising. "We're all social beings.We internalise ideas from our socialisation" (Adichie. QuotesLyfe Exp 2 L3).

She strongly wished to support her family financially by pursuing her passion of writing as her profession and somewhere back of the mind dreamt to be rich. Economic independence was her ambition and penned down many poems and articles which later was rewarded with a remuneration for the same. The familial condition of Jo March was unstable as her father was serving the military in the Civil War. " It's so dreadful to be poor!"(Alcott. *Little Women* Ch 1)sighed Meg the instance wherein the March sisters discussed their terrible conditions and obeyed their mother's proposal to avoid spending for pleasure during Christmas. We find Jo's resemblance with the author of the novel as Alcott became a writer for financial stability.

Jo disliked to be dependent and never really liked favours, she did an eccentric act by selling off her hair (her only beauty) for monetary reasons to assist her mother as Mr. March's(father) health conditions were worsening. "I was wild to do something for Father"(Alcott. *Little Women* Ch15). We understand that she was a woman ahead of her times and exhibited a headstrong attitude who was determined to face any obstacles. She had the audacity to take bold decisions in life, a necessary trait of an entrepreneur during uncertainties and business depressions. "The biggest risk is not taking any risk"(Zukerberg,Az Quotes Exp 2 L4).

The darkest days of Jo's life was when Elizabeth was diagnosed with scarlet fever, the beloved sister with whom she had a rapport. The world around her turned upside down as she failed to control her emotions and pains for Beth. When we analyse the further chapters of the novel, we realise although Beth could conquer the waves, she really couldn't manage to heal and her fragile body couldn't survive pains and aches. "I could never be like you, and then I was miserable Jo"(Alcott. *Little Women* Ch36).Josephine nursed her well during the last days and very soon Beth was taken to eternity. Here we find a resemblance with today's scenario wherein Covid struck mankind and the entire world was striving hard to sustain themselves. Jo's life too had uncertainties as she was clueless about her decisions. She was in pain, when she realised her familial conditions were worsening and also her sister's absence troubled her the most.
After a flurry of tragic events she leaves for New York to chase her unacquired dreams and indulges in survival jobs like teaching and sewing.Later she took up writing adventurous works and managed to make money from the same "Wealth is certainly a desirable thing"(Alcott. *Little Women* Chp 27)exclaimed Jo. Her passion for writing was driven by greed and she produced poor works and published it anonymously, Mr. Bhaer, who was a guide and friend, rebuked her acts and made her realise the betrayal towards her readers by penning down trash and publishing it for the sake of profit. "Quality means doing it right, when no one is looking" (Ford,AzQuotes Exp 4 L6). We observe that throughout, she strives to seek financial stability and independence through crooked means and fails to achieve success.

Jo's idea of settling down with Mr. Bhaer, who's a professor, backfires as they were in utmost poverty struggling to make their living better. Amidst her miserable conditions Jo kept the flame within her burning and with perseverance establishes a home like school for boys and manages to make a living. "Plumfield my own, and a wilderness of boys to enjoy it with me"(Alcott. *Little Women* Ch 47). Since aunt March left the Plumfield property, it favoured Jo and she utilised it for the establishment of school and hostel for the rich and poor lads alike. Her decision to offer schooling for the astrayed and backward kids demonstrates the idea of running a business not only for profit maximisation but also to serve the society in a possible manner as she also tasted the bitterness of life."A business that makes nothing but money is a poor business"(Ford, Quotefancy Exp 3 L1).Gradually the home school flourished and Josephine March now owns a reputed institution by her constant efforts and determination. Although we observed that Jo wished to be a writer by profession, her long cherished dream was to own a business. She also expresses her wish to continue writing and produce good books for her readersHence we can state that Josephine is an artistry to all the females in the society striving to pursue their ambitions.

CHP 3: CONCLUSION

The novel highlights the portrayal of Josephine March, an iron lady who faced several limitations and complexities in life. We also get an exact picture of Louisa Alcott, author of the novel who has a resemblance to the character. Although Jo March is a fictional character, she really serves to be an inspiration to the females in the society. When women were caught up in domesticity, Josephine dared to be different and ambitious. The novel was published around the 19th century, an era of turmoil for the females in the society. Women were not allowed to be employed in American society and many female writers published their works under pseudonyms. Alcott's pen name was A.M Bernard and during such unconventional times she portrayed a strong fictitious lady who always had her ways of overcoming challenges. Women facing many struggles post Covid 19 are also addressed through this paper by analysing Jo's mental strength and her strong will to face life with unwavering hopes amidst uncertainties.Hence this paper has made an attempt to limelight Josephine March's struggles and her constant efforts to pursue her desire.

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Venture Capital and Digitalisation Shaping the Financial Ecosystem Post Covid -19

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ABSTRACT
Venture Capital (VC) firms provides the adequate funding to the startup and helps them to build the ideas into global business. These businesses are considered as high risk and high reward investment. In the current context when world is struggling with the impacts of Covid-19 and is referred as "black swan" by economist and consultants' worldwide. When it comes to VC firms, the impact is felt more because of the various macroeconomic factors. In the given paper, the author tries to understand how VC firms have evolved post Covid-19 inculcating the hybrid approach wherein conducting virtual meeting followed by in –person meetings and adoption of digitalization for meeting their business goals. The researcher has used secondary data to understand the growth and adoption of hybrid model and digitalisation post COVID -19 for growth achieving the desired goal of firms. This data comprises literature review from journals/books, published sources, Newspapers, websites, blogs, and podcasts. Results reveal that the COVID-19 pandemic has affected the global economy and has left the world in uncertainty and instability. Despite the challenges, VC firms have successfully paved their way in adopting new age technology and implementing algorithms to process voluminous data. Not only this, the hybrid model approach has helped them to overcome the current dynamics of the business.

Keywords - Technology and Digitalization, venture capital, Private Equity, Startups, hybrid approach

INTRODUCTION
The term venture capital is formed by two words, "Venture" and "Capital". As per dictionary, 'Venture' is a course of proceeding the outcome of which is uncertain but which is accompanied by the risk of danger of loss. "Capital" means resources to start an enterprise. Venture Capital is not a new concept. Venture capital came into existence around 1947 with the first American venture firm which came into existence. With the gradual development of ICT, integrated circuit, creation of NASDAQ ,these gave a boost to American VC Industry post 1970. It is the financial Intermediary providing financial aids to the start-ups. Venture capital investments gained institutional quality with the foundation of "American Research and development Corporation of Boston" (Okuyan, Çalışkan 2000) Venture capital firms are working hard to come up with the current scenario post COVID-19 .Literature highlights that with the adoption of new technologies, advent of entrepreneurial finance that emerged around 1950s (Drover et al., 2017) lead to the changed landscape of entrepreneurial ventures. Venture capital is thus supplementing the conventional financial mechanism and creating new industries such as IT, biotechnology, healthcare etc. In one of the survey it was seen that 76% of Swiss SMEs from different sectors expected that adoption of digitalisation would shape their market and would transform them in the coming years. (Greif, Kühnis, & Warnking, 2016) .Another research showed that in Sweden, VC industry invested more on R&D, Electronic Equipment that was not taken care by government seed capital financing (Dahlstrand and Cetindamar, 2000). Technology has transformed VC sector as to be wiser in the years to come. Information and communication technologies innovation impacts positively influencing VC Investment firms (Muhammad Zubair Khan, Zafir Ullah Khan, Affan Hameed,2020).One of the major challenges in private equity firms are Fierce market competition, Unremarkable digital presence and Outdated technology and technology is the only solution to address successfully these issues. (Alex,MintyMint)

OBJECTIVES
- To study the emergence of Venture Capital firms and its impact on the Economic growth.
- To study how digitalisation has shaped the entrepreneurial ecosystems
- To Study the hybrid model adopted by VC Firms post COVID-19 pandemic

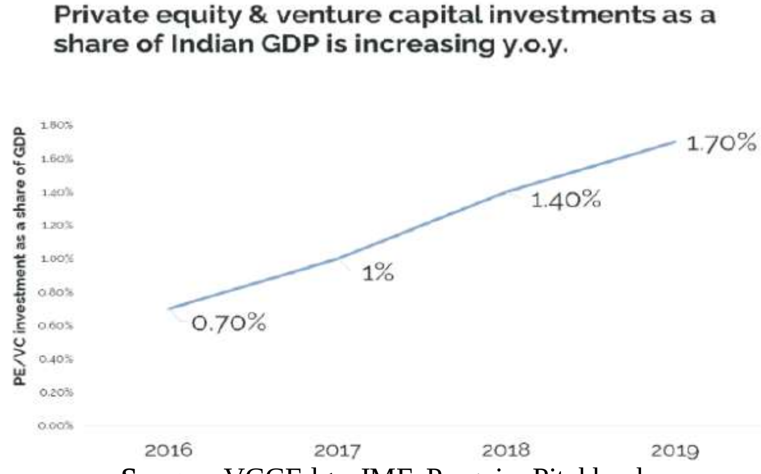
RESEARCH METHODOLOGY
The research have been taken ahead based on secondary data sources. Data are collected through the websites, articles, journals, data from Ministry of Finance, RBI reports, Government reports, Books, published sources, Newspapers, blogs, and podcasts.

LITERATURE REVIEW

Venture capital‘s development play a vital role in shaping any country’s economy especially in job creation (Gompers & Lerner 1999, Amason & Sapienza 1993, Gregorio & Shane 2003). Some of the well-known VC firms in India that supports digital transformation for startups are Endiya, Pi Ventures, Sequoia Capital and Blume Ventures. The entrepreneur finance came into existence around 1950 when new technology was changing the landscape of the business (Drover et al., 2017). Venture firms uses the market place and take the advantage of the market to gain the market shares (Chesbrough and Rosenbloom, 2002).These financial intermediaries focuses on funding potential ventures, which carries high risk factors. As per the published report about 42% of the investors showed that COVID-19 would have negative impact on early-stage investing activity.Start up valuations will be declined in the short term (Case Collins, 2020-2021).AI/Algorithm/Big Data can be used as a can provide a powerful advantage for VCs. The trend to explore and implement the new age technology will help the firm to achieve higher goals. (Guy Kurlandski,Forbes Councils Member 2020).AI and algorithm are used by VC firms for competition analysis.The digital tools are used by Investors and Accelerators for managing and screening the portfolios.Digitalization will unleash the superpower of VC .Techniques using unsupervised machine learning and principal component analysis is used to predict investment risks (Xiao Jean Chen,2021).VCs have been hit hard due to COVID -19 Pandemic. However, researchers predicts and speculates that VC industry have been spared with the worst effect since they are able to work remotely and have sufficient cash and not much debt. Since many VC firms focusses on new age technologies, they might benefit in this uncertain environment (Michael Rapoport, 2021) Venture capital firm’s looks for financing of those businesses that has promising, non-traditional business models, which differ significantly from the established companies (Christensen, Raynor and McDonald, 2015).

The Impact of Venture capitalist on the economic growth

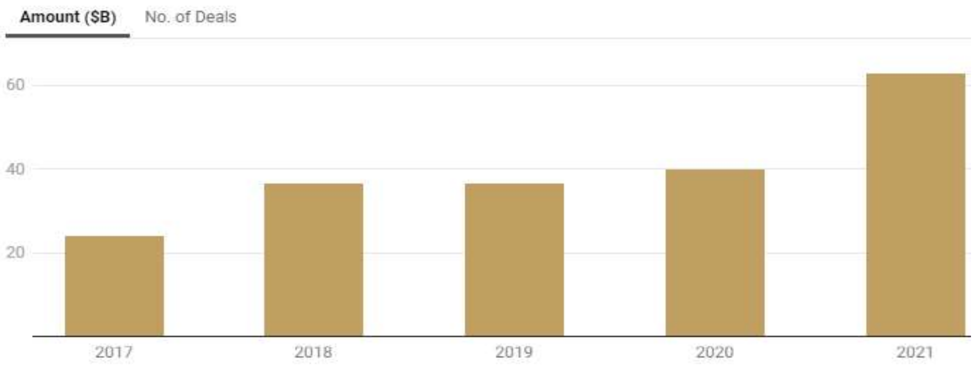
Venture capital firms plays a vital role in the growth and development of country’s economy through capitalizing on granting resources for the innovation and the development of the new product, promoting innovation, Creating wealth and job through variety of opportunities that any startups get to offer per report by NVCA, Firms invest more than $22 billion every year in USA and approximately 2.7 percent money is invested in seed stage companies .In Every stage , from seed stage to later stage ,funding are done by the VC firms and contributes to the overall development of an economy .AS per survey by Stanford university, In USA public companies backed by venture capital employ four million people which is one-fifth of the total market capitalization.(ABC investments,2019).Venture capital helps significantly in improving growth and ability of SMEs ,profitability and innovation of the firms .In India there is an upswing in investment and consumption. Hence, Indian economy is expected to flourish many folds. Some of the important macroeconomic factor contributing to its growth comprises of foreign investments, Demographics and promising economic growth. India is one of the India is the fastest growing trillion-dollar economy in the world with exceeding growth rate since the start of economic liberalization in 1991 (Abhishek Shah,2020).India will remain one of the youngest nations in the world with one of the largest working-age populations.



Source: VCCEdge, IMF, Prequin, Pitchbook

India’s GDP is expected to reach INR 330 trillion by 2024 with a nominal GDP CAGR of 8.2% over 2019-24. This growth rate is expected to surpass the emerging markets comprising of Indonesia (7.8%) ,South Korea (4.8%), Brazil (4.7%) and China (8%)

PE-VC Investments in India (2017-2021)



Excludes Private Equity Investments in Real Estate
Source: Venture Intelligence • Get the data • Created with Datawrapper

Top Private Equity Investments (2021)

Company	Sector	Investors	Amount ($M)
Flipkart	E-Commerce	Antara Capital, Tencent, Qatar Investment Authority, CPPIB, SoftBank Corp, Franklin Templeton PE, Tiger Global, GIC, Others	3,600
Hexaware Technologies	IT Services & BPO	Carlyle	3,000
MphasiS	IT Services & BPO	Blackstone	2,800
Encora	BPO	Advent International	1,500
BYJUS	E-Learning	Footpath Ventures, GSV Ventures, ADQ, Owl Ventures, B Capital Group, Prosus Ventures, Silver Lake, Blackstone, Others	1,399

Source: Venture Intelligence • Get the data • Created with Datawrapper

In the above diagram it depicts the growth of VC investments in 2021($34.7 Billion across 1,070 deal excluding real estate investments) which rose over 200% as compared to 2020 ($11.4 Billion across 795 deals). 2021 witnessed 97 mega deals ($100M+ rounds) worth $24 Billion, compared to just 28 such investments worth $5.5 Billion in 2020. (Vibeesh, 2022)Around $1 Billion worth investments were made in the year 2021.Flipkart's $3.6 Billion Pre-IPO round (which marked the re-entry of SoftBank Corp to E-commerce giant's list of shareholders, following its exit to Walmart in 2018).(Ananth Narayanan,2021) .In one of the interview ,Shailendra Singh said that there are lot of investments which are done recently in the online payments space which is helping India succeeding globally .

Digitalization and Venture Capital Firms

Gobble (2018) defines digitalization as “the use of digital technology, and probably digitized information, to create and harvest value in new ways.” In the age of "SMAC technologies" (SMAC = social, mobile, analytics, and cloud computing), almost every aspect of life and work is digitalized (Legner et al., 2017).Startups Investors should have the capability to identify and predit the industries where innovations can do wonders in achieving the desired goals .It is needed as an investors to identify the macro level trends in order to formulate their plans accordingly .Big Data, Algorithm and machine learning can pave the way to success for VC firms. Data shows more than 25 VC Firms are using AI to improve and enhance their processes. It is expected that 56% of institutional investors will increase their usage of AI ,thus expanding their budgets upto 40%.Those firms which would successfully adopt the new age technologies will achieve greater heights and would pave the way for future of funding tech (Guy Kurlandski,2020).Big data ,machine Learning and AI can be effectively used for investor’s decision making .These digitalised technologies will help the investor’s to identify market gaps and enhancing their current pricing models.

Digitalisation has shaped the scenario portfolio startups. Enterprises are making effective use of the automation and thus utilizing socio-technical transformation (Legner et al., 2017).AI algorithms can help to screen the largest deal flow in seconds, which took days post-implementing AI.AI/Algorithms are used for competition analysis.

Role of Machine Learning in VC Firms

Machine-learning-based model is formed from the database, which analyses the potential seed deals with promising results.

These algorithms helps to make better investments decisions. From the given set of data, series-A round is formed which explores many characteristics for each deal. From the analysis, few characteristics are identified for the seed deals, which can be most predictive of future success.

Machine-learning-based model creates an investment recommendation for each deal being reviewed .Few factors which are considered while reviewing such as total money raised, syndicate lead's area of expertise and investors' historical conversion rates.

Therefore, we combined machine learning, which produces insights we would otherwise miss, with our human intuition and judgment not. We have to learn to trust the data model more, but not rely on it completely. It is really about a combination of people and tools. (McKinsey Quarterly, 2017)

Role of Algorithm in VC Firms

Sourcing and screening form an important part to investors since 1940. It is estimated that around 60% investor's value are created by Sourcing and screening. Hence, there is always a scope for the improvement. In the recent years few VC firms have reinforced their sourcing with web crawlers'. But still major VC Firms remain unchanged with the usage of technology and implanting and making changes in the existing processes. Algorithm are used to augment the investment decision and accelerating better and investment options. Implementing AI will help the VC Firms to create greater value for the investors. It can be used to screen prospects based on factors including run rate, recurring revenue and headcount. Implementing algorithm will save time and resources and thus will lead to safer investment. For instance, in mortgage Industry, algorithms are helpful since this can predict defaulter more accurately than the traditional underwriters. Similarly, when a software firm implements Algorithm in their operations, the result is more bias free especially when any hiring is taken into consideration since Usage of Algorithm makes the hiring free from gender bias, skin colour etc.

Role of machine learning in VC

Post Financial Crisis, VC became attractive since there was a tremendous decrease in the interest rates and achieved higher returns. It was only after a decade when the market gained its pace and matured, many companies were created and hence, it became difficult to obtain sustainable returns investing in risky early seed companies. We all are aware of the fact that Investing in the current years have become too competitive. With the usage and implementation of the machine learning, Venture capital are paving its way to success.

Machine leaning can help to solve the below problems:

- It helps the investors to study the market trends and market gaps
- Managing learning helps in managing investor's portfolio effectively
- To compete and succeed in the market on competitor's front
- To determines efficient pricing and valuation model
- Helps in determining and predicting the various risk and minimise it efficiently
- It helps the VC firms to identify companies' growth stages which in return helps them to invest at the right time
- Machine Learning helps VC Firms to identify and filter the companies based on their preferences which can have a potential future growth
- It helps to track and analyse employee satisfaction in portfolio companies and competitors alike

Hybrid Model approach

Hybrid Model approach is a model where employees partially work in office and partially from home. This model is adopted by most of the companies in the hour of crisis. Venture capital is one such sector which has sustained effectively in the pandemic and is progressing gradually. As per Gunderson Dettmer workplace sample, it predicted that 60 percent of more than 250 venture firms will be adopting hybrid return-to work model in future (Gunderson Dettmer,2021).Many investors have adopted online meetings ,virtual calls for their discussions and have also successfully closed numerous deals online .VC Firms have paved their way by hybrid model i.e. conducting online meetings blended with in person meetings to finalize the commitments and deals .Report further states that more than half of the offices have been opened post pandemic but employees reporting to office premises has not been made mandatory .37 percent of the companies are not planning to make mandatory of their staff to return to the workplace. Firms are proving them to come to office only at least two times a week. However, the employers are making mandate for all their staffs to get themselves vaccinated and follow the COVID protocols while present at their workplace. Hybrid model has thus emerged as a dominant return –to –work approach globally. There are lot of challenges that lies in the hybrid work model approach since managing the employees remotely without hindering their productivity has to be looked upon well. Secondly, employees are getting comfortable with this model and are not seeking very keen to return to their workplace. Thirdly, 39% companies have admitted that they do not have a proper infrastructure or communication platform to support the hybrid model effectively. (Connor Bilboe, 2021).

FINDINGS

- As per one of the Harvard researcher Paul Gompers , the investor in year 2021 spent on an average 118 hrs on screening. Sourcing and screening form an important aspect of venture capital. The practices of these have remained the same since 1940.With the inception of AI, the venture capital firms are able to solve sourcing and screening problem creating greater value for investors. (Xiao Jean Chen,2021)
- Algorithms are helping the venture capital firms for achieving investment decisions and reaping insights from data. These technologies help in taking better and faster investment decisions
- The usage of Machine learning help ventures capital firms to understand the various growth stages so that it can help them to take decision on investments. Machine learning technology implementation will help the firms to determine hiring strategy, business actions, and many more indicators
- Digital Transformation and innovation with hybrid model are helping the VC firms to achieve goals without hampering their productivity. Many industries worldwide are tweaking the hybrid model to get the best out of this. As per one of the surveys by Nasscom and job portal indeed, approximately70 per cent of IT companies are adapting the hybrid model and have found that 66 per cent of the respondents were comfortable working remotely .
- Hybrid model is helping companies saving cost and minimising operational expenses including office rents which forms the major expense heads in companies' P&L account.
- Venture capital firms are the heart to the entrepreneurial activities for economic growth of nations. Researchers show that the venture capital improves and promotes profitability, catalyses financing the development of new products and growth of SMEs
- Encouraging and promoting and developing new products.

SUGGESTIONS

- In the hour of crisis Post COVID -19 pandemic, established as well Startups have realised the need of having an updated technology inorder to ensure a promising future growth combating the challenges and existing competitions. The usage of technologies such as RPA, AI and digital will play a significant role in the progress of VC Firms. It is suggested that digitalization should shift their focus on deep tech.
- Hybrid model have already been implemented and have been paced well across industries. Companies across globe have witnessed savings on rentals, transportation.
- It is suggested that if productivity is not hampered in the hybrid model, then the companies can place this model with tailor-made twists for each employee or sets of employees doing similar work
- Research reports depicts that India India-focused VCs raised $3 billion in 2020 which was more than in 2019.By Government initiatives and funding Venture capital firm can grow multiple folds and in turn can contribute to the growth of nation at large .

CONCLUSION

In the hour of crisis Covid-19, has been referred as the black swan by many Economists and consultants. This has impacted the world economy to a significant level and have hit the entire business worldwide. Despite of challenges, VC firms along with fund managers are optimistic and look forward for the promising growth in year 2021. VC firms have successfully paved their way in adopting new age technology and implementing algorithms to process voluminous data. Not only this, the hybrid model approach has helped them to overcome the current dynamics of the business.

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A Study of Back Propagation Neural Network Technique in Face Recognition

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ABSTRACT
A Face recognition technology is a mainly significant approach in our day to day life. Face recognition system must be capable to automatically identify a face in images. It is mainly used to recognize a human being and make available a protection in various aspects of life. It becomes tremendously difficult task for researcher to obtain a most excellent face recognition rate in a variety of circumstances and criteria. Face recognition is a field of computer visualization that uses faces to recognize or authenticate a person. In this paper, we present a neural network system for face identification. Back Propagation Neural Network (BPNN) and Radial Basis Function (RBF) are used for categorization of process. RBF is measured the result of BPNN output layer as input. The system is verified and accomplishes high acknowledgement rates. Information approximately individuals was stored in a database.

Keywords: Face Detection, Face Recognition, Neural Network, BPNN, RBF

INTRODUCTION
The face of the human is an extremely difficult structure and very useful in a lots of public aspect in purpose of security. Face recognition scheme is a computer application for automatically recognize or verifying a human being from a digital image or video frame from a video source. Facial acknowledgement method normally used in security system. It needs a hard work to recognize a face correctly. Now a day Face Recognition becomes extremely popular research area for the researcher. Human have a actual powerful organ brain that can identify lots of faces in a whole life. The researchers are trying to create a system that can identify the face in all the conditions. A human faces can modify because of many conditions like growing age, wearing a glass, have a beard, and modification in hair smartness that produce difficulty in recognition process of face. Face acknowledgement is used for robotically identifying and verifying a person from an image. Identification of several human being from an image can only possible by using face description. Face article values are additional stored in the database for biometric applications. Face acknowledgment is actual challenging assignment in real applications because "face images are highly variable so developing an automatic system to mimic the ability of person being has confirmed to be a very difficult job. Artificial neural networks were excellently applied for solving signal processing difficulties in 20 years. Researchers proposed tons of different models of artificial neural networks. A challenge is to distinguish the most suitable neural network model which can work reliably for solving realistic difficulty.

Face recognition is extremely significant for our day to day life. It can be used for remote recognition services for protection in areas such as finance, transport, law implementation, and electrical manufacturing, etc. For this protection access project is designed at demonstrating facial recognition techniques that could antiquate, substitute, or otherwise, conservative key, and can be used as another to existing fingerprint biometrics method. Face recognition is a visual pattern identification problem. In detail, a face recognition method with the input of an arbitrary image will search in database to output people's identification in the input image. A face identification method normally consists of four modules as depicted in above Figure: detection, alignment, feature extraction, matching, localization and normalization (face detection and alignment) are processing steps earlier than face identification (facial feature extraction and matching) is accomplished.

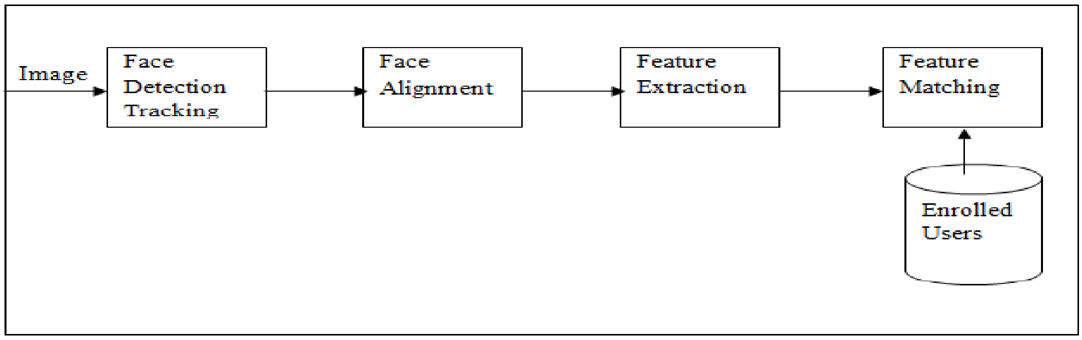

Figure 1: Structure of a face recognition system

Face recognition segments the face areas from the background. In case of video, the detected faces may need to be tracked using a face tracking element. Face alignment aims at achieving more perfect localization and at normalizing faces in this manner, whereas face detection provides coarse estimates of the position and range of each detected face. Facemask mechanism, such as eyes, nose, and mouth and facemask framework, are positioned; based on the position points, the input face image is normalized with respect to geometrical properties, such as range and pose, using geometrical transforms. The face is regularly additional standardized with respect to photometrical belongings such clarification and gray scale. After a face is regularized geometrically and photo metrically, feature extraction is accomplished to deliver effective information that is useful for distinguishing between faces of dissimilar persons and stable with respect to the geometrical and picture metrical modifications. For face matching, the extracted feature vector of the input face is matched adjacent to those of enrolled faces in the record; it outputs the uniqueness of the face when a match is found with enough assurance or indicates an unidentified face otherwise.

LITERATURE SURVEY

Anissa Bouzalmat et al [1] introduced the face recognition system by using the neural network, in which it can identify or categorize the feature or as we can say that feature vector based using Fourier Gabor Filters, which is recycled as a response of BPNN. It will extracting the structures by using feature vectors of complete face on that image, and also it will using a recognition of skin human faces in pictures by using an procedure by introducing the Gabor filters with the 8 different orientations and 5 different resolutions to get maximum information, so it will require the material in the form of features vector of whole face in image and detecting the color of skin. So it is normally a fast procedure and easy to implement.

N.Revathy et al [2] used face recognition; it is discover the best appropriate match of unknown image against database, by using the BPNN for execution. It will train the input pattern and regulate the weight with related fault, by which input pattern obtains input signal and propagates into each hidden neuron, which is calculating the activation to net output. It can executed in the MATLAB by using the essential toolbox i.e., Neural Network Toolbox. So by this, we can normally transform dissimilar inputs and compared with unknown face with that given is in database or not. This scheme accomplishes an invariant to changes in background and illumination conditions also. So this will also specifies the outcomes in the form of Eigen faces. So this recommended scheme performs well in the lighting variations.

Ravi Prakash [3] represented fast evolving technology which can detect unauthorized access on system and it is implemented based on the strong face acknowledgment efficient method is proposed for the image decomposition by using Haar Wavelet Transform and for the comprehensive feature abstraction using the eigen values by PCA and also it can classify by using the BPNN (Back Propagation Neural Network), so in this way it will simplify the result of comparison of face to show the effectiveness of this algorithm. It decreases time and identifies the image from the database.

Back Propagation Neural Network Algorithm

INTRODUCTION

Back Propagation Neural Network (BPNN) algorithm is a comprehensively utilize along with healthy recognized knowledge algorithm in supervision multilayer perceptron (MLP). The MLP set-up is collected through a group of sensory arithmetical element which forms the input layer, hidden layer(s) and a particular output layer. The input indicators go behind a unidirectional flow, starting left to right, throughout the multiple layers of the set-up. Currently the Back Propagation Neural Network (BPNN) algorithm is Multi-Layer Network using weight modification based sigmoid function, similar to through the delta guideline. It is normally a completely feed forward set-up connection. Establishment schedule in a direction from input layer to the output layer and its element in single layer are all associated to each element in the subsequently layer. It is normally contain two sweeps of the set-up which are forward sweep and backward sweeps. Forward sweeps describe the set-up from the input layer to the output layer, in which it circulates the inputs vectors throughout the network to give outputs at the output layer in the end. Throughout the forward sweep, the weights of the networks are all set. The backward sweep therefore describe network from the output layer to the input layer, apart from that the mistake values are propagate back throughout the network. It is completed in regulate to conclude how the weights are to be modify throughout the preparation, in which the weights are each and every one adjusted in unity of an error modification regulation where the real respond of the set-up is subtracted from the target respond to create an error indicator. Back Propagation Neural Network (BPNN) algorithm utilize as control learning approach that include the gradient descent learning guideline (Δ or δ).

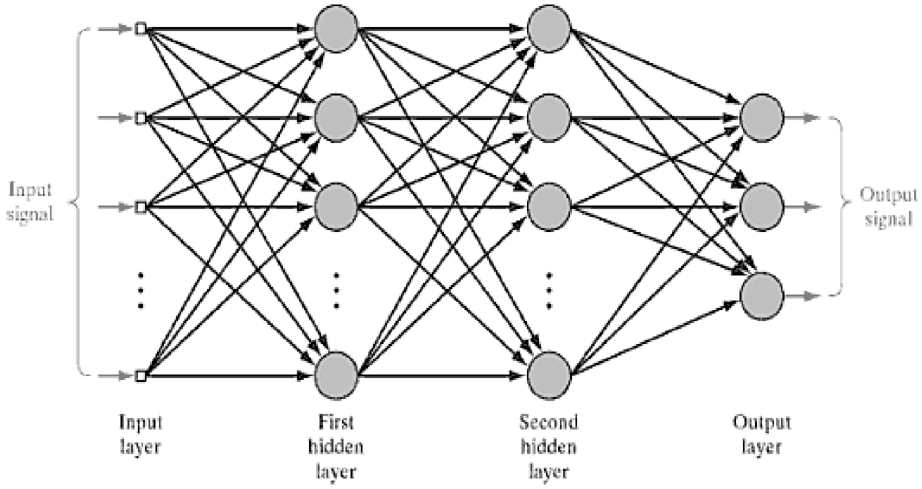

Figure 2: Representation of Multi-Layer Perceptron (MLP)

ALGORITHM:

BPNN algorithm will be explained like:

Step 1: Input to the hidden layer, netp:

netp = Σz=1n xzwmz

Step 2: Output for hidden layer specified as, s:

s = 1÷ 1 + exp(-netp)

Step 3: Input for output layer is, netq:

netq = Σz=1m szwkz

Step 4: Updating weights based on error. Error "E" is generally calculated by,

E = ½ Σa=1k (oa - ot)2

If fault E falls under a predefined threshold, the teaching process will end, awaiting which the weights will carry on to be restructured. The modify in weights among the input layer and hidden layer is given by,

Δwab = αδasb

Where "α" is the training rate coefficient and "δ" is given by,

δa = (ta - oa)oa(l - oa)

The change in weights between the hidden layer and the output layer is given by,

Δwab = βδHaxb

And the equation value of δHa is,

δHa = xa (l - xa) Σb=1k δbwab

Now, after computing the weight change in all the layers, the new weights are simply given by,

wab (new) = wab (old) + Δwab

Now the process is iterated until the mistake touches its minima.

CONCLUSION

Here, we have presented a method for designing quick, secure and vigorous face acknowledgment system. We have completed through the Face acknowledgment with PCA technique for extracting Eigen values. It remains a tough and vital technique. Estimate to further biometric system, face acknowledgment is extra capable, quick and perfect. It is client kindliness. In this document, we have using BPNN is used for image classification and acknowledgement. So, this collective technique improves a more perfect approach compared to the existing techniques. It is benefit is to give real time protection. In various devices face recognition application is implemented for safety reasons. In future safety of data is main concern as well as it is extremely useful for that. As this is extremely huge technology we covered little issues.

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A Study on Impact of Demonetization on Small Scale Industries V/S Small Businesses

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ABSTRACT
This paper aims to understand the impact of demonetization on the small scale industries/ businesses. A descriptive study was done by conducting a survey and collecting the responses from 20 respondents consisting of both male and female. Demonetization means removing or stopping the currency from the circulation with the legal framework of the country. On November 8, 2016, Honourable Prime Minister Narendra Modi in a surprise announcement said the existing higher denomination currency (Rs 500 and Rs 1000) would cease to be legal tenders. The decision to demonetize Rs 500 and Rs 1000 currency notes had a huge impact on the small industries / small businesses in Mumbai. No doubt that Demonetization is a great move for a better future on India and its economy. It definitely is influencing many shoppers to start using plastic money in the long term. The impact of Demonetization was also on consumers, facing sudden cash shortage, long queues accumulating in front of Banks and ATMs. This paper also shows how much problems has been faced by shopkeepers, how their business got effected.

Keywords: Demonetization, small industries, small businesses, plastic money, economic system

1. INTRODUCTION

The currency was demonetized first time in 1946 and second time in 1978. On November 2016, the currency is demonetized third time by the present Modi government. This is the big step taken by the government of India for the betterment of the economy and country. Demonetization is done when a country wants to change its currency so that, the country become cashless economy, curb terrorism, push people to pay taxes for the unaccounted pile of cash. The Reserve Bank of India on August 30, 2017 released its report on demonetization. In the report, it is said 99% of the banned notes came back into the banking system, which trashes all claims of Narendra Modi that the move will flush out the black money and counterfeit currency. To demonetize Rs 500 and Rs 1000 currency notes was the decision that had a huge impact on the small industries/small businesses in Mumbai. Most small business placed a notice at their entrances, declaring their compliance with the government's order and requesting customers to tender notes of Rs 100 denomination or use E-wallets, credit and debit cards for any purchase. This led to fall in sales. In the short to medium-term, large denomination purchases will likely be made via electronic purchases rather than through brick and mortar outlets due to this there were adverse affects in small businesses. Around 75% of purchases are not planned, so retailers view impulse buying as an important component of their business. Impulse buying behaviour is a sudden, compelling, hedonically complex buying behaviour in which the rapidity of an impulse decision process precludes thoughtful and deliberate consideration of alternative information and choices. Several researchers have reported that consumers do not view impulse purchasing as wrong; rather, consumers retrospectively convey a favourable evaluation of their behaviour. Other researchers have treated impulse buying as an individual difference variable with the expectation that it is likely to influence decision making across situations. Impulse buying behaviour is a reasonable unplanned behaviour when it is related to objective evaluation and emotional preferences in shopping. Impulse buying is a concept which has evolved from the simple definition of Unplanned buying' to more complex definitions. If each impulse buying is unplanned, each unplanned buying is not an impulse buying. Impulse buying is related to positive (hedonism, reward, etc.) and negative (bad mood, stress) emotions. Impulse buying is also linked to a deficit of self-control, and low self-esteem, can contradict long-term goals (e.g., saving money) and engender satisfaction, but also involves regrets or guilt.

The main focus of this paper is on small scale businessmen and how they have been affected because of this decision. Many reports stated that the small scale businessmen have immensely affected after demonetization because of the cash crunch and lack of infrastructure like digital payment system etc. Small traders in retail sector (grocery shops etc), service sector (restaurants, nursing homes etc.), gems and jewellery, small traders in agricultural products, SMEs, small dealers, professionals like doctors, lawyers etc, have highly affected because of demonetization during last one year.

2. REVIEW OF LITERATURE:

i. **Surjit Victor and Mohammad Imtiaz** in their paper titled THE IMPACT OF DEMONETIZATION ON INDIAN RETAIL SECTOR concluded that: Indian Retail sector reported downfall of averaging up to 42% profits in the sector in their early weeks. Demonetization is the big challenge in retail sector in India. After a chaotic fortnight for the whole country ever since the government announce the fractional demonetization of the higher value rupee notes. The retail industry has definitely confronted a short-term effect of this, as spend are adjourn towards immediate needs. So, the knock has mostly been confined to the unorganised retail sector. They said that Demonetization changes the working environment of the market. Organizations would also modify in their usage and utilization of the innovative tools and applications for the cashless payment.

ii. **C.V. Ranjani and Manikya Veena** in their research paper titled IMPACT OF DEMONETIZATION ON RETAIL SECTOR concluded that: Demonetization is a historical step to curb black money but it has to be taken into consideration that most of the black money is kept in the form of land, building or gold or kept abroad. The objective of their paper was to study the impact of demonetization on retail sector as well as on consumers. The paper was based on secondary data.

iii. **M. Angel Jasmine Shirley** has studied about the IMPACT OF DEMONETIZATION IN INDIA in her research paper. In the first part of the paper, the impact over Indian economy had been explained. As per the research, the BSE SENSEX and NIFTY 50 stock had been fall near about 6% on the very next day. Moreover on the later on days, the country felt severe shortage of the cash. Moreover due to lack of cash overall production had decreased. Banks had not enough new currency for the exchange of the old notes, which breakdown the overall economic system. Moreover there was a major impact over the domestic sectors, reduction in the government liability, farming and fishing industry, business, drop in industrial output, black money, impact over counterfeit currency, hawala, bank deposits, jewellery and real estate, IT sectors etc. "Not all black money is in cash, not all cash is black money". People face too much inconveniency due to improper planning about post demonetization.

iv. **Geeta Rani** had presented the research paper to show the effect of demonetization over the retail outlets. She had done her research work by taking the primary data. She had used the questionnaire method. This was filled by the 50 shopkeepers of the area. As a result she had been ready with some out comes likewise 80% shopkeeper presented their view that from 9th Nov, 2016 to 10th Dec, 2016 there was 20% increase in sales due to accepting the old notes. But after that sales had declined. Shopkeeper started Paytm and cheque system. Shopkeepers had extended credit period. Top brands like HUL, P&G had affected with only decrease of 20% sales due to brand name. She concluded the paper by giving the views that though demonetization is painful for short term, but it will surely beneficial for the long run moreover most customers are now adopting cashless means like Paytm, debit card, cheque etc.

3. AIMS AND OBJECTIVES:

i. To study the impact of demonetization on small scale industries / businesses.

ii. To study the impact of demonetization on businessmen.

iii. To study whether daily transactions of small businessmen have any effect on digitization of their transaction method or not.

iv. To analyse the problems that have taken place due to demonetization.

v. To study the remedial measures taken by the government to solve the problems or Chaos caused due to demonetization.

4. HYPOTHESIS:

H0: There is no significant impact of demonetization on small scale industries/small business. H1: There is a significant impact of demonetization on small scale industries/small business.

H2: There is significant impact of demonetization on small scale industries and small business.

5. RESEARCH AND METHODOLOGY:

Research Design: Descriptive.

Sources: This paper contains both primary as well as secondary data.

Primary Data: Primary Data has been collected through conducting online survey.

Secondary Data: Secondary Data has been collected through various websites.

6. DATA INTERPRETATION (QUESTIONS FOR THE STUDY):

i. Do you think demonetization was a good step for the country? **H0**

ii. Have you faced any problem in your daily transaction after demonetization? **H0**

iii. Has your business been reduced /down after demonetization? **H1**

iv. Is there is a positive effect of demonetization on small businesses? **H1**

v. Are the customers paying through digital payment systems now? **H2**

vi. Is there any step taken by government to reduce chaos due to demonetization? **H2**

7. FINDINGS OF THE STUDY:

i. 80% of the respondents think that was **a good step** for the country.

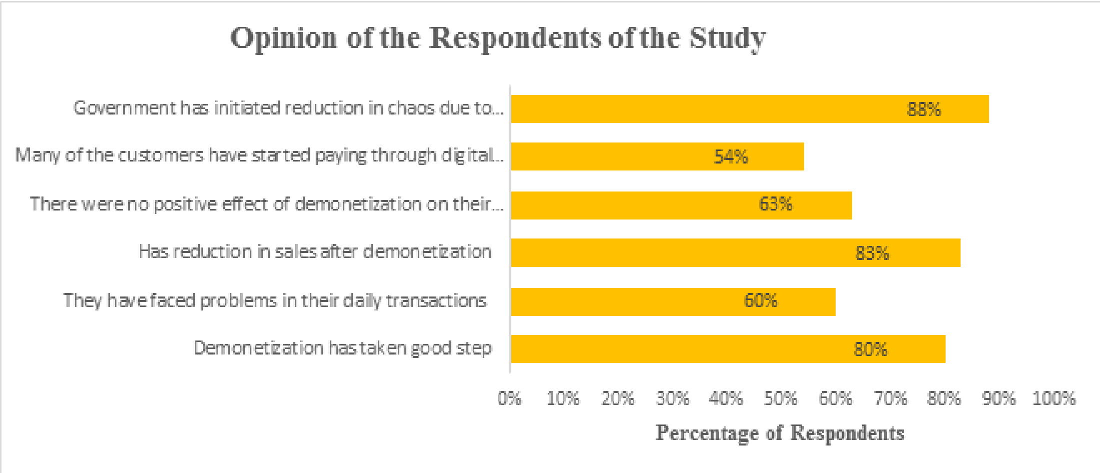
ii. 60% of the respondents said that **they have faced problems** in their daily transactions after demonetization whereas 40% of the **respondents didn't faced** any problems.

iii. 83% of the respondents said that the business **has reduction in sales** after demonetization, whereas 27% of the respondents said that their business are running **more efficiently and smoothly** after demonetization.

iv. 63% of the respondents said **no** they disagreed, as there were no positive effect of demonetization on their businesses, where as 37% of the respondents **strongly agreed** with the positive effect of demonetization on their small business.

v. 54% of the respondents said **yes** that many of the customers have started paying through digital payment systems.46% said **no** that they are not paying through any digital.

vi. 88% of the respondents said **yes** that government has initiated reduction in chaos due to demonetization and 12% said **no** that it has not taken any step to reduce demonetization.



8. IMPACT OF DEMONETIZATION ON SMALL SCALE INDUSTRIES/BUSINESSES: Small and marginal business owners narrated tales of cashlessness that has drastically reduced their business. The nature and, frequency and amounts of the commercial transactions involved within these sections of the economy necessitate cash transactions on a more frequent basis. Thus, these segments are expected to have the most significant impact. Traditional grocery retailers still account for more than 90% of packaged food value sales in India. Since a big part of these retailers are not well equipped with card payment Machines, it is likely that sales during this period will have gone to modern/ internet retailers, which offer consumers that convenience of paying by card or through net banking.

9. TESTING OF HYPOTHESIS:

As we have applied T- test in this paper and since the P value was more than 0.05, thus, our null hypothesis were rejected.

10. CONCLUSION

Demonetization may have had considerable negative effect in the first few days but in the end, it will have a positive impact on the economy. The government is taking all the necessary steps and actions to meet the currency demand and soon the trial and tribulations of the people will be over with the smooth flow of the new currency. The decision of demonetization affected the Indian economy to a larger extent but demonetization was the only way to curb block money and fake currency notes is not the only and ultimate solution to solve the economy problems.

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Impact of Consumer Behavior on Organizational Sales and Growth: Case Study of Tata Motors

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ABSTRACT
The following study mainly puts its focus on the consumer behavior as well as its impact on the organizational growth. In this regard, researchers in this study have constructed proper research by setting objectives as well as research questions in order to gather knowledge on this particular topic. Based on the findings it can be said that there are several factors along with consumer behavior such as market position, economical condition of the country that can have an impact on the organizational growth.

However, consumer behaviour and its impact have been taken into consideration and factors that influence consumer behavior have also been discussed in this following study. On the other hand, a discussion on the impact of consumer behavior on organizational growth has also been provided in this study. It can be said from the findings of Tata motors that making consumers satisfied can add some extra growth to the organization. From the data, it has been found that even in the pandemic situation Tata motors is experiencing huge growth leading to a sense of how satisfied their customers are important for the organizational growth. From this knowledge, it can be said that there is a positive impact of consumer behavior on organizational growth.

Keyterms: Consumer Behavior, Market Position, Organizational Growth, Social Influence, Psychoanalytic Theory

1: INTRODUCTION

1.1. BACKGROUND

Consumer behavior mainly refers to the study of individuals with all the activities associated with the purchase as well as disposal of goods. As stated by Dhanabalan*et al.* (2018), in the case of the automotive industry consumer behavior mainly depends on the price, quality as well as the utility of the cars. In that case Tata motors have focus on providing superior comfort as well as productivity that is helpful in attracting major number of customers towards their organization. In this regard, they have expanded their R&D centers not only in India but also in Korea, the UK, and Italy.

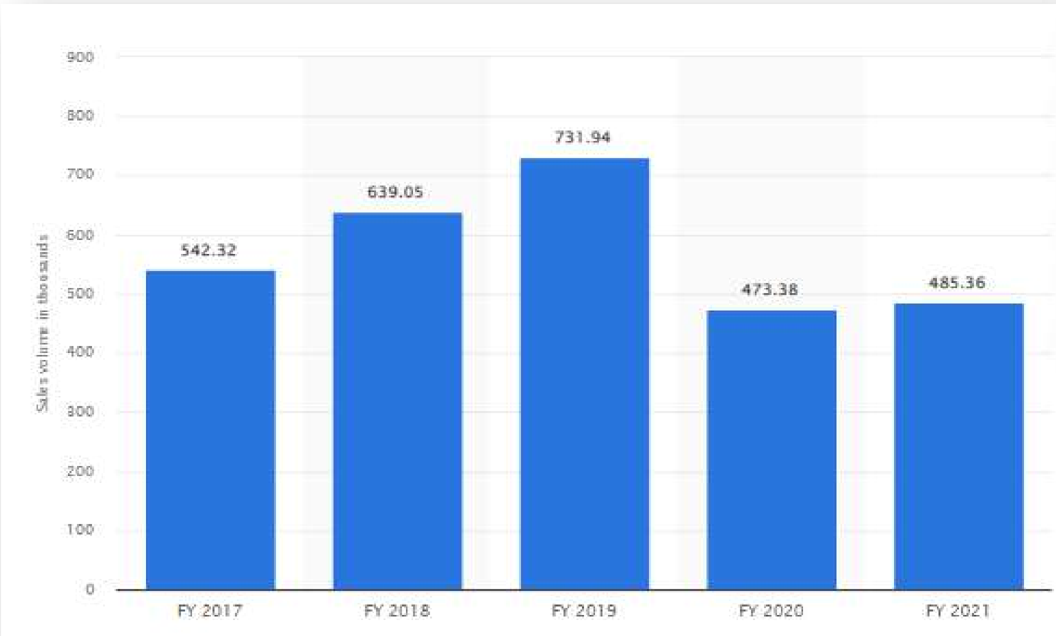

Figure 1.1: Total sales volume of Tata motors

(**Source:** Sun, 2021)

It is evident from the above graph that total sales of Tata motors increased up to 2019, but due to the pandemic situation, the automotive industry faces a major decrease in tier sales. However, in 2021 they have been noticed to increase their sales that can indicate the positive consumer behavior towards this company (Sun, 2021). The following study mainly focuses on the factors affecting consumer behavior that helps in influencing organizational growth.

1.2. PROBLEM STATEMENT

Consumer behavior might depend on the satisfaction about brand quality as well as price. It has been noticed that Tata motors have a major focus on serving society from the beginning of their business. In this regard, they have a concern about innovating their car services and product quality. In the article written by Ioanas (2020), consumer behavior is sometimes influenced by some factors such as social media reviews and many more. Another article by Islam *et al.* (2018), says about the influence of brand image and quality on consumer behavior. However, there is a lack of information on how consumer behavior contributes to organizational growth in previous research. The following research paper thus provides an insight into the impact of consumer behavior on organizational growth.

1.3. AIMS AND OBJECTIVES

AIM

The aim of this study is to recognize the impact of consumer behavior on organizational growth.

OBJECTIVES

- To make an idea on the consumer behavior and organizational growth
- To recognize factors influencing consumer behavior
- To determine the impact of consumer behavior on organizational growth
- To recommend ways to influence consumer behavior for organizational growth

1.4. RESEARCH QUESTIONS

1. What are consumer behavior and organizational growth?
2. What are the factors that influence consumer behavior?
3. What are the impacts of consumer behavior on organizational growth?
4. What can be the ways of influencing consumer behavior to enhance organizational growth?

1.5. SIGNIFICANCE

The following study mainly signifies the knowledge about consumer behavior and organizational growth. Moreover, knowledge has also been delivered on the factors that are mainly responsible for influencing consumer behavior. However, with the example of Tata motors, the following study also signifies the way to improve consumer behavior in order to enhance the organizational growth.

2: LITERATURE REVIEW

2.1. CONSUMER BEHAVIOR

Consumer behavior can be considered as the way to assess an individual with their appreciation about any particular product. However, several factors have an impact on the consumer behavior such as having any recommendations about any brand, having benefits from the product quality or pricing, and many more (Trudel, 2019). Considering an instance of innovation in Tata Motors, their products are now being tailored to keep up with the customer preferences as per the information published in Fortune India’s article. However, from these data, it can be considered that consumer preferences about Tata motors are good and influencing their organizational growth.

2.2. Factors influencing organizations sales and growth

Organizational sales, and growth, majorly depend on factors such as the nation’s economic stability, average income of customers and customer preferences. Moreover, it must be said that customers are a driving force that allows enhancing the organizational growth (Fortuneindia.com, 2021). Nevertheless, the above-mentioned factors need to be taken into consideration as in the pandemic situation market share of Tata Motors has been noticed to be decreased.

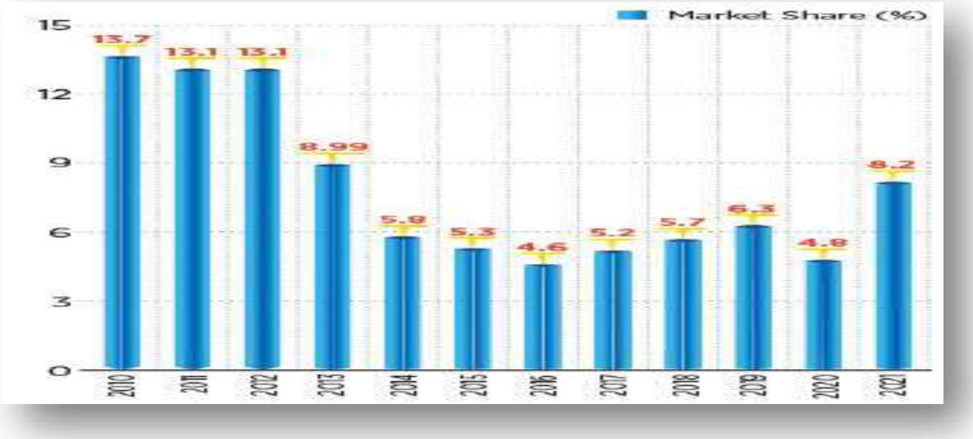

Figure 2.1: Market share of Tata motors

(**Source:** Forbesindia.com, 2021)

Based on the above graph it can be said that after growth of 6.3% in 2019 the market share of this company decreased to 4.8% due to the pandemic situation (Forbesindia.com, 2021). It is evident from the article in Forbes India that the year 2020 is the lackluster year as the purchase of vehicles decreased in an effective manner. However, Tata Motors is also has a concern about increasing their market share such as launching their new products to please their customers. For example, they have been noticed to launch new products and modify their existing products in order to attract more customers. As a result, their market share has been noticed to increase to 9.16% in April 2021 (Forbesindia.com, 2021).

2.3. CONCEPTUAL FRAMEWORK

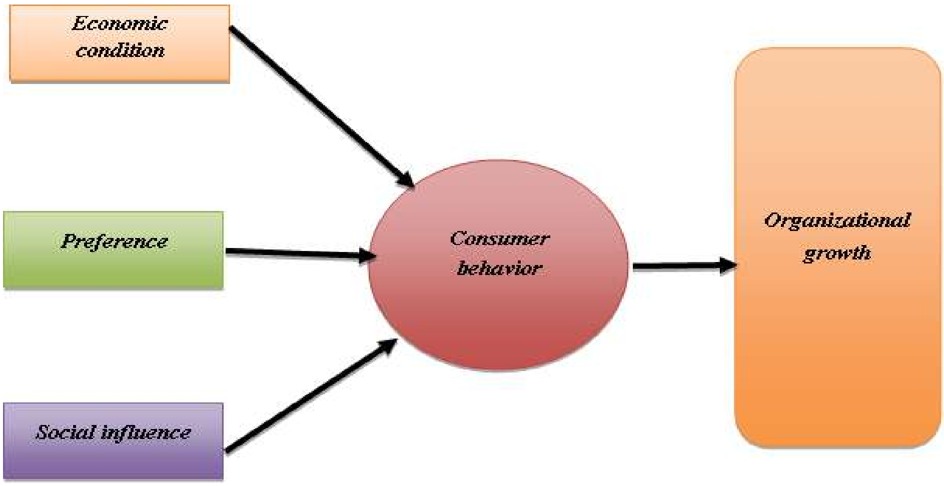

Figure 2.2: Conceptual framework

(**Source:** Created by learner)

2.4. Theoretical framework

2.4.1. Psychoanalytic theory

The theory states that consumers make their purchasing decisions especially on the basis of their feelings, hopes as well as fears. For instance, it can be said that if any consumer prefers to get a car then they can feel attraction to a car product. As stated by Trudel (2019), consumer psychology mainly depends on the needs as well as their preferences. In that case, Tata motors have been noticed to design different types of vehicles from personal cars to passenger vehicles. On the other hand, they are also having a concern to give back to society by providing innovative and quality products to their customers.

2.4.2. Reasoned action theory

This theory defines the fact that consumers often purchase things by expecting some specific result such as some benefits or need from a vehicle. As stated by Trudel (2019), marketersneed to communicate the positive result if they need to make a mark about their products in customers' minds. In that case, Tata motors have been noticed to be concerned about providing different types of cars so that they can serve many customers in an efficient way.

2.5. Impact of consumer behavior on organization's growth

Consumer behavior can play a role in enhancing an organization's growth by increasing their sales in an efficient manner. As per the views of Yang *et al.* (2019), consumers often have preferences for different types of vehicles. Tata motors have been known to launch different vehicles in order to make customers from all fields satisfied. It can be said that although there is a bad time of vehicle sales in a pandemic situation, sales of Tata motors have recovered in an effective manner in the year 2021.

However, consumer behavior toward a particular product can play a role in enhancing demand for the product leading to an enhancement in production level as well. As per the views of Yang *et al.* (2019), consumers mainly prefer smaller as well as efficient vehicles. In the case of Tata Motors, they have been known to provide their customers with efficient vehicles at a reasonable price. It is helpful in appreciating their products in a more effective way leading to ensure their sustainability in the market. On the other hand, preferring a vehicle by a mass number of customers can encourage the way of giving positive feedback about this product. It can have a major impact into the minds of other customers. This type of positive behavior from customers can enhance the sales of the organization leading to ensuring organizational growth.

5.2. RESEARCH GAP

- It has been noticed that a limited number of literature, as well as articles, have been taken for conducting this research. Future researchers need to be more focused on accessing more literature for this particular study.
- Moreover, researchers have been noticed to be failing to access some relevant articles as it requires an access amount. Thus, future researchers need to be focused on arranging sufficient finance to proceed with the research.

3: METHODOLOGY

3.1. RESEARCH DESIGN

A proper research design needs to be implemented in order to conduct any research on any particular topic. There are mainly two types of research design such as primary and secondary research design. Researchers have selected a secondary research design in order to conduct this research. Moreover, ***Descriptive*** research approaches have been taken in order to complete this research. As per the views of Trudel (2019), descriptive research can play a role in defining a variable in a more effective manner leading to make this research more reliable for the future.

3.2. DATA COLLECTION

The data collection method generally helps in making research able to deliver information on a particular topic. Primary as well as secondary are the two types of data collection methods that can be conducted to complete the research. Researchers have been noticed to follow secondary data collection methods to complete this research in an effective manner. In the view of Trudel (2019), having practiced in using secondary data can play a role in saving time as well as money needed for the research. However, as secondary data mainly collected from the existing literature reliability is formed about the provided information.

3.3. DATA ANALYSIS

Data analysis is another important part of conducting as well as completing research so that it can deliver appropriate information for the future. There are generally two types of data analysis methods: primary and secondary data analysis. Researchers in this research have been noticed to adopt secondary thematic data analysis method. In the views of Trudel (2019), having secondary thematic data analysis can make a sense of the topic by gathering knowledge from the existing literature. Moreover, it also costs and time saving data analysis leading to make it easier to proceed.

3.4. Ethical consideration

Another important part of the research is maintaining ethics in the research. As it is based on secondary thematic data analysis and data collection, ethics about the collection of data from reliable sources have been maintained. On the other hand ethics regarding article selection such as the use of relevant databases such as Google Scholar, ProQuest needs to be used.

4: RESULT AND DISCUSSION

4.1. THEMATIC ANALYSIS

Theme 1: There are several factors influencing consumer behavior

Consumer behaviors can be influenced by different factors such as quality, price as well as the brand image of a car. It is evident consumers can also be influenced by the recommendation about some products from other customers either through physical communication or through the social media post. As stated by Ioanas (2020), in recent days social media plays a pivotal role in enhancing consumers' purchasing behavior.

Theme 2: There is a positive impact of consumer behavior on organizational growth
Consumer behavior towards a product can play a role in making positive growth of an organization. It is evident from the official website of Tata motors that they have increased their sales revenue even in the pandemic situation due to the immense support of their consumers. However, Tata motors also play a role in satisfying their customers in an effective manner so that they can feel attraction to brand (Tatamotors.com, 2021). It can be said that having major preferences from the customers can make an organization grow as well as can be helpful in gaining competitive advantages in the market.

5: CONCLUSION

LINKING WITH OBJECTIVES

Researchers have set some objectives at the beginning of the study leading to make it more reliable. It can be said that researchers provide sufficient data or knowledge on consumer behavior and its impact on the organizational growth in the literature review part. On the other hand, providing knowledge about the several influencing factors of consumer behavior can play a role in meeting objectives also. It can be said that researchers also provide sufficient knowledge on the factors that are important in enhancing organizational growth. Additionally, recommendations about the improvement of consumer behavior have been provided in this study leading to meeting all the set of objectives as well as the aim of this research.

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A Study on Consumer Perception towards Green Marketing and Eco Friendly Fast Moving Consumer Goods in Mumbai

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ABSTRACT
Green products or Eco friendly products both academic and business sense is crucial to developing countries. This phenomenon has to develop its economic and social agenda. In the past two decades, the concept of green marketing has achieved an exponential growth, making imperative impact both on the market and environment across the globe. In the field of ethics and social responsibility, environmental and green marketing themes are the core areas related to environmental safety and human wellbeing. This research paper aims to gain in depth understanding of consumer's perception towards eco friendly FMCG goods.

INTRODUCTION
In the modern era of globalization, it has become a challenge to keep the customers as well as consumers in fold and even keep our natural environment safe and that is the biggest need of the time. Environmental pollution is a buzz word in today's business environment. Consumers are also aware of the environmental issues like; global warming and the impact of environmental pollution. Green marketing is a phenomenon which has developed particular important in the modern market and has emerged as an important concept in India as in other parts of the developing and developed world, and is seen as an important strategy of facilitating sustainable development.

Preference for green consumerism and environment friendly goods will encourage marketers to add a green tint to their marketing strategies reflecting real environmental considerations. Marketers will have to give top priority to environmental protection in India within a few years. In fact, to promote eco-friendly products will become a social responsibility.

Preference for environment friendly goods will itself create immense marketing opportunities for manufacturers. Eco mark labels on the products can be effective promotion or marketing tool.

LITERATURE REVIEW
1. **Philip Kotler & Kevin Lane keller (2011)**: Companies that mound "green programs" can face two main problems: consumers may believe that product is of inferior quality of being green and consumers feel the product is not really that green to begin with.
2. **S.R. (Oct. 2013, University of Kerala, Trivandrum)) in her thesis on "Green Marketing with special reference to Fast Moving Consumers Goods "** The Main purpose of the study is to discover how the ecological balance and innate environment features can be presented through sustainable development. The study proposes to identify and examine the strategies employed by the FMCG's to achieve their goal and how the consumer switches over their interest from conventional products to green products. The study is conducted to understand the concept of green marketing and its implication in the Indian context. Through this study researcher tried to analyze the factors affecting green purchasing behavior of the customers. The aim of the study is to examine the impact of green marketing practices of FMCG companies on Green Brand image, Green satisfaction, Green loyalty and green brand equity of the customers of FMCG sector. According to research result product quality is the most important motivational factor for purchase of green products. Environmental knowledge, environmental concern, environmental attitude and level of perception about the seriousness of environmental problems are also affecting consumer behavior towards green products.
3. **Sudhir Sachdev (2013, Manav Rachna International University) in his thesis on "Green Marketing : Consumer attitude towards eco friendly Fast Moving Household care and Personal Care Products "** studied awareness of eco friendly products among Indian Customers. This study found significance differences between consumes who have high income and those who have not. Eco friendly goods are overpriced in short run. Consumers felt that eco friendly products are not easily available and when available they lack variety. Indian literate and urban consumes is waking up to the merits of green products. But it is still a new concept for the majority.

4. Shailesh Shukla has conducted a study to focused segments which are higher qualified or higher income group. In India two types of consumer are more aware towards green products one is higher qualified and other higher income group people. Higher income group people always use the products which reflect their image in the society with better performance, high quality and durability (Shailesh Shukla et al, 1998).

5. W.M.C.B. Wanninayake et al in their research they have identified that the demographical variables are the main influencing factors to decide level of awareness for green products. Demographical variables are the major influencing factor for consumer level of awareness, these variables like age, gender, education (W.M.C.B.Wanninayake et al, 2008).

OBJECTIVE OF THE STUDY

1. To identify the consumer's awareness level differences on the basis of their age.
2. To understand consumer's perception towards Green Marketing on the basis of their age.

METHODOLOGY

To investigate the research objectives primary and secondary data have been collected and analyzed. The first part of the research of the extensive review of the researches already had been done in the field of consumer's awareness level, and consumer's perceptions for the green products and service. Primary data has been collected through the structured questionnaire.

HYPOTHESIS

The hypothesis was formed that is:

H1- There is significant difference in age and consumer awareness towards Green Marketing.

RESEARCH DESIGN

The design of present research is diagnostic in nature. The main purpose of the study is to make an evaluation regarding age and perception of consumers towards eco friendly products.

For the purpose of research place selected was Kandivali, Mumbai. Chi square test tried to find whether significant difference exists within the group. Results were presented in tabulated form.

SAMPLING PROCEDURE

The study incorporates the consumers of the age group of above 20 years located mainly in Mumbai city.

STATISTICAL TOOLS USED

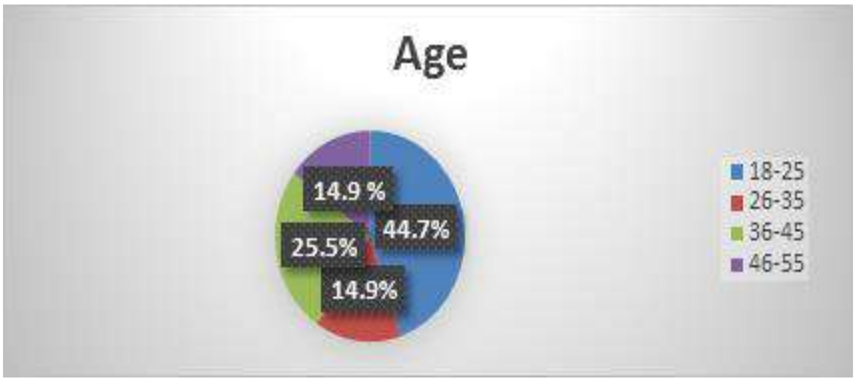
Chi Square Test have been used for the analyzing the data.

ANALYSIS AND FINDINGS

- **GRAPHICAL REPRESENTATION:**

1. AGE:

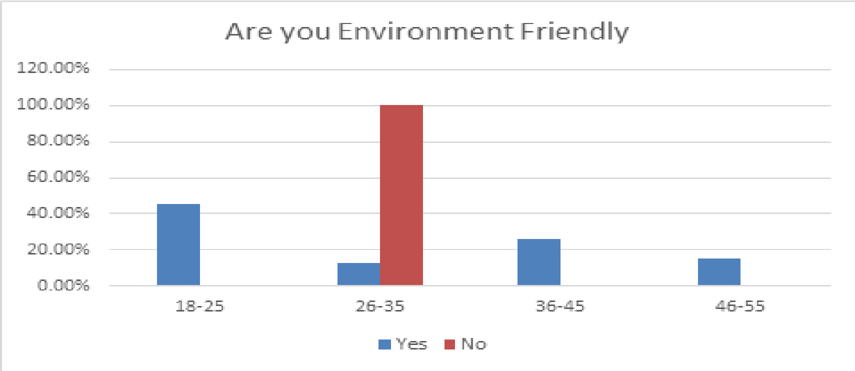
Age				
	Frequency	Percent	Valid Percent	Cumulative Percent
18-25	21	44.7	44.7	44.7
26-35	7	14.9	14.9	59.6
36-45	12	25.5	25.5	85.1
46-55	7	14.9	14.9	100.0
Total	47	100.0	100.0	



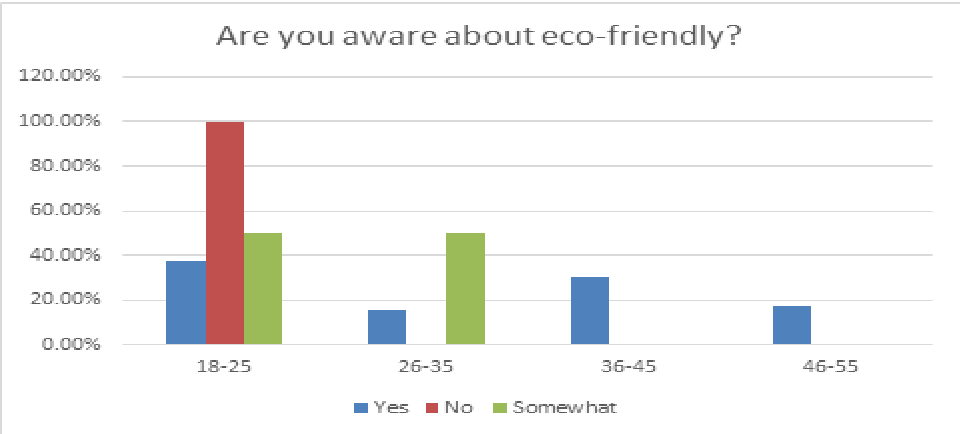
- **INTERPRETATION**

Above table gives the age-group wise distribution.

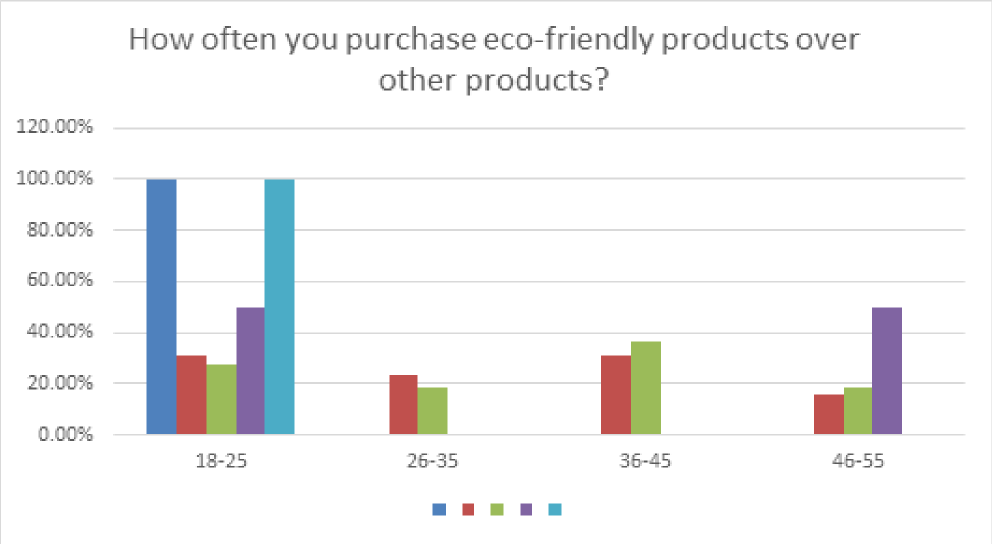
Age	Are you environment friendly?			
	Yes	%	No	%
18-25	21	45.65%	0	0.00%
26-35	6	13.04%	1	100.00%
36-45	12	26.09%	0	0.00%
46-55	7	15.22%	0	0.00%
Total	46	100.00%	1	100.00%



Age	Are you aware about eco-friendly products?					
	Yes	%	No	%	Somewhat	%
18-25	15	37.50%	5	100.00%	1	50.00%
26-35	6	15.00%	0	0.00%	1	50.00%
36-45	12	30.00%	0	0.00%	0	0.00%
46-55	7	17.50%	0	0.00%	0	0.00%
Total	40	100.00%	5	100.00%	2	100.00%



Age	how often you purchase eco-friendly products over other products?									
	Always	%	Mostly	%	Sometimes	%	Rarely	%	NA	%
18-25	4	100.00%	4	30.77%	6	27.27%	1	50.00%	6	100.00%
26-35	0	0.00%	3	23.08%	4	18.18%	0	0.00%	0	0.00%
36-45	0	0.00%	4	30.77%	8	36.36%	0	0.00%	0	0.00%
46-55	0	0.00%	2	15.38%	4	18.18%	1	50.00%	0	0.00%
Total	4	100.00%	13	100.00%	22	100.00%	2	100.00%	6	100.00%



1HYPOTHESIS TESTING

H_0 : There is no significant difference (strong association) among age with awareness level of the consumers towards Green Marketing.

vs.

H_1: There is a significant difference (no association) among age with awareness level of the consumers towards Green Marketing.

- **Kruskal-Wallis Test (k independent samples)**

Consumers Awareness towards Green Marketing										
Test Statistics	Green Marketing concept is existed long time back but it is not implemented by Companies in India	Green Marketing means marketing of eco friendly products and services.	Green Marketing delivers environmentally sound goods that satisfy customers and society.	I know about the advantages of Green products to society.	It is difficult for all companies to implement green marketing.	I am aware of the companies going green and they attract customers.	Green marketing encourages consumers to use eco friendly products.	Green marketing will not create harmful impact on the environment.	Everyone is responsible for successful green marketing.	I choose to buy products that are environmental friendly.
Chi-Square	5.611	11.224	3.949	.563	1.376	2.485	2.203	5.192	6.610	2.271
Df	3	3	3	3	3	3	3	3	3	3
p-value	.132	.011	.267	.905	.711	.478	.531	.158	.085	.518
Grouping Variable: Age										

- Highlighted part shows p-value < 0.05, hence we reject H_0 for those particular cases (Highlighted). And conclude that there is a significant difference (no association) among various demographic factors with awareness level of the consumers towards Green Marketing.
- The other parameters shows p-value >0.05, hence we do not reject H_0 in such cases.And conclude that there is no significant difference (strong association) among various demographic factors with awareness level of the consumers towards Green Marketing.

Overall Conclusion for Hypothesis 1

Demographic Factors	Strong Association	No Association
Age		(1)Green Marketing means marketing of eco friendly products and services.

CONCLUSION

There is strong relationship between age and consumer perception towards green marketing.

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Assessing the Impact of Social Media Marketing on Academic Choices and Decision-Making in Students

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ABSTRACT
The Internet is the universal commercial platform and many businesses have adopted online marketing channels to communicate their business offerings. Social Media is one of the most powerful and effective forms of communication across the globe. Its extensive usage has changed peoples communication pattern thus leading to perceptive changes in their attitude building.

Higher Educational Institutions face various challenges of competition, unique product offerings, placements, technical academics amongst many others. University and colleges know the role of social media on students and how it will influence the future student in making a choice of studies and Universities. The aim of this research paper is to study how social media marketing/ digital marketing is supporting the choice of students in making academic decisions in Mumbai Metropolitan Region. For the present study, 200 undergraduate and postgraduate students have been chosen as a sample. It is concluded from the study that a student's academic decision is severely influenced by digital media in terms of choice of courses, options available, fee structure, placement opportunities, etc. It serves them as a source of information under one roof, which enables them to go in for easy decisions.

Keywords: Digital marketing, academic decisions, traditional sources, career choices

1. INTRODUCTION

Interactive communication has been established in all the sectors of our life. Business Organisations use Digital Marketing as a key mantra for success in reaching out to attract attention of its target audience. This modern tool although accessible is indeed very challenging, as it redefines itself each day. Digital marketing has transformed the entire Marketing arena, overtaking and re-inventing the traditional marketing strategies. Global reach to a larger section of the target audience, creating a desire and stimulating the need is the new key-words of marketing. All Organisations want to capitalize this trending opportunity, they are obsessed with the innovative techniques of the digital era. Businesses want Digital marketing as their channel of interactive communications to endorse and showcase their goods and the services to the large and ever growing global marketplace. The butter to the bread has been added by the growing use of social media. This media has enabled several commercial, non-commercial, governmental, educational and health care services to advertise their products in a very easy and cheap manner. This type of advertisement has influenced a wide range of population. The young generation people are getting the maximum advantage through the advertisement of the products, wherein the marketers are using digital platforms. Now the people are getting choice at door steps. With this the quality and the advantages, the products offered have also improved. Usually it is said that if one can control the technological world, he has the eternal power to rule the world.

Considering the usage of social media by the undergraduate students and post graduate students in Mumbai to make a choice about the courses in the colleges, it can be truly pointed out that; social media has become a part and parcel of life. Three decades earlier, students were unaware of many social media channels and their usage. They were not using many of the platforms. Infact, it can be said that the traditional means of advertisement of the courses were only the source they were getting to know about the courses functioning in various colleges of Mumbai. Most of the time, it was only by word of mouth, that the students were getting to know which college is offering which course. At the most, the students were checking on the sites of colleges about the courses they were offering. Pamphlets and leaflets were used by the newly started and remote colleges in the locality. All these were the sources of advertisement used earlier.

The social media platform use has become one of the major mediums to retain various activities by interacting with their friends, families, companies and individuals. The students of various universities have been influenced by the uses of cheap internet phone calls and by watching and monitoring events all over the globe on network sites. The result of this study will be useful for measuring the effectiveness of various information available on social media. It will be relevant for researchers and academia that may carry further research on the subject.

2. REVIEW OF LITERATURE

2.1 **Choudaha & Chang (2012)** mentions that as like any institute, the Universities and colleges focus on cost cutting and become strategic to attract international students for different courses. Thus, there is a need that the universities and colleges advertise their courses through social media platforms and attract more number of students.

2.2 **Pingping Han (2014),** Higher educational institutions are recruiting qualified and talented people all over the place to increase competition in the global market. At the same time, the students are also using social media marketing to choose various colleges and Universities. The main purpose of this study is to present current Research and literature on the factors that are influencing the choice of courses in the colleges and institutions and marketing practices, which are used by the institutions in recruiting the students. The authors have conducted a systematic review of literature on various topics like the students characteristics, institutional characteristics, marketing strategies in recruitment images of colleges and Universities and market segmentation. For individual Institutions, it is necessary to develop a more comprehensive set of factors to predict the attributes affecting the student's decision to select their institutions.

2.3 **Nadezda Rika, Jana Roze, Irina Sennikova (2016),** the study is about different factors, which are affecting the choice of Higher Education Institutions by perspective of the students in Latvia. For the purpose of the study, the researchers have conducted a primary survey by circulating questionnaires to around 644 respondents among the final year students of Latvian Secondary Schools. For the purpose of analysis, authors have used spearman correlation and stepwise regression analysis. According to the authors, the knowledge of consumer behaviour allows Institutions to become more effective at marking Strategies and marketing decisions and to better respond to customers' needs. Analyzed four major groups of factors, which are influencing the choice of Higher Education Institutions by the students, which particularly include cultural, social , psychological and organizational. The main findings of the results indicate that higher education Institutions can use these factors for designing major student attraction Strategies and thus increase their market share and competitiveness.

2.4 **Efthymios Constantinides (2016), the** author highlights the importance of social media marketing in choosing the university courses. They also suggest the ideas of adopting online marketing for the cal purposes, which may include the use of applications to communicate different things to the students. The author highlights the use of marketing strategy can be drawn as a marketing tool in improving engagement in choosing the online courses. This article presents the results of a study aiming to identify the role and importance of social media on the choice of future students for a study and University in comparison with the traditional University marketing channels in the Netherlands. A detailed literature review has been conducted on various topics such as social media and marketing, higher education and marketing, higher education marketing and social media, market segmentation and social media, etc. The main aim of the study is to identify market segments based on its use in social media. The present study is conducted analyzing empirical data collected from a survey among future University students in the Netherlands. The study provides some interesting insights into the online behaviour of potential students and provides the basis for developing future research proposals. The main finding of the study indicates that the students are heavy users but the large majority uses social media applications for two of the three types of activities investigated, these being social interaction and information seeking.

3. OBJECTIVES OF THE STUDY

With the aim of studying the role of social media advertisement used by the higher education institutes in Mumbai on influencing the decision of the students in choosing the courses in various colleges of Mumbai, the main objectives of the present study are –

i. To explore the social media influence on the choice of courses and university in relation to traditional educational tools among the students in Mumbai Metropolitan region

ii. To explore the relation between various factors that influence the choice of university and social media use among the students in Mumbai Metropolitan Region

iii. To investigate the attitude of students of online social media towards advertisements of courses through higher education institutes in Mumbai Metropolitan Region

4. RESEARCH METHODOLOGY

To gain the information from the total population the survey was implemented using a quantitative, descriptive research design and non-experimental. The survey was done by online format, so that the researcher can reach the maximum participants. For this the online link was given to students for survey by the professors in the classes which were targeted. The survey had a total 19 questions, which include two open-ended questions having comments sections. The data was collected from 200 students who were undergraduate and post graduate from University of Mumbai.

5. SIGNIFICANT USE OF TECHNOLOGY BY COLLEGE STUDENTS

It has been seen that mostly all the college students are using technology continuously. Students come to college or university campuses with multiple technology devices like mobile phones, tabs, laptops, etc. They use these devices for academic as well as personal reasons. Until 2012, students were having clear preference for smart devices: 86% of student's have their own laptops, 62% students have their own smartphones, 33% students have their own desktop/computers, and 15% students have their own tablets. So by having access to these devices, especially mobile phones provide the chance to continuously get connected with various social media.

By using various social media, students can get many unofficial information of a college or university, which they could not find on official websites of university. According to the National Centre for Universities and Business, for searching for information the most common and popular social media channel is facebook for students followed by Twitter. Universities sometimes give information to their students using hashtags. For example, at Oxford University uses #oxtweets. Swansea University has created the hashtag #SwanseaGrad which can help prospective students get an inside look at the graduation spirit.

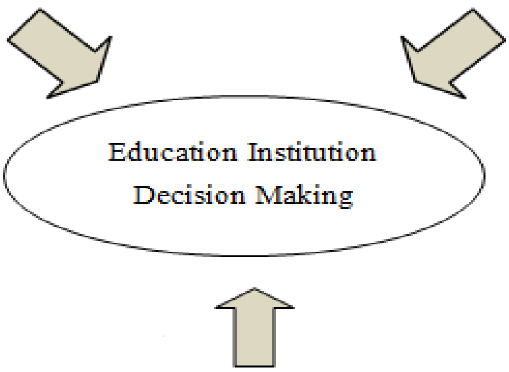
The following chart shows the variables influencing the choice of student's academic decisions

Students Characteristics

- Gender
- Domicile
- Marital status of parent
- Parental education level
- Parental income

Other Environmental Factor

- Influence of reference group
- Influence of media
- Institutional Motivation
- Expectation of accomplishment



Marketing Mix factor

- Product - Price - Place - Promotion
- Personal - Process - Product Evidence

6. RESEARCH FINDINGS

For the purpose of the study few questions were asked with the help of digital survey methods to the students studying at graduation and post-graduation courses in the University of Mumbai. On the basis of the responses recorded from 200 students during January 2021, following observations were noted.

Table 1: Social Media activities followed by the college and university students

Social engagement	Information seeking	Content contribution
Stay in touch with contacts	Search information about University/ College - Programmes	Share Pictures and videos
View pictures and videos of	Read product reviews before	Review purchase products

contacts	purchase / enrolment	
Make appointments with contacts	Search information about University placements / hostel / activities	Share opinions through Forums / Feedback
Search for new contacts	Search information about Study material	Share experiences through weblogs / testimonials
Entertaining contacts queries	Subscribe tp RSS Feeds / Hobby	Vote in Polls

1) Measured using a 5-point Likert scale: never – rarely – sometimes – often - always

Table 2: Ranking of Medium of Information about the college/university courses by the graduate and undergraduate students from University of Mumbai

Knew about the college through	**Education Level**	**Rank**	**Knew about the college through**	**Education level**	**Rank**
	Undergraduate			**Post-graduate**	
Friends and Reference Groups	45.60%	1	Friends and Reference Groups	69.10%	1
Family and Relatives of Peer Groups	44.70%	2	Newspapers and Newsletters	41.20%	2
Educational Websites	23.80%	3	Family, Relatives and Peer Groups	30.90%	3
Newspapers, Newsletters and Magazines	16.50%	4	Alumni	29.40%	4
Facebook	15.00%	5	Educational websites	25.70%	5
Alumni	14.10%	6	Educational events and Job Fairs	17.60%	6
Educational events and Job Fairs	10.20%	7	Social Media Sites like Facebook	16.90%	7
OOH Hoarding Boards	8.70%	8	OOH Hoarding Boards	16.20%	8
Television channels	4.90%	9	Magazines & Library Resource material	10.30%	9
Magazines & Library Resource Material	4.40%	10	Television channels	7.40%	10

Table 3: Ranking of Factors affecting the students according to their information available on the social media sites

Factors	**Educational Level - (Both Undergraduate & Post Graduate)**					
	Very Important	**Important**	**Less Important**	**Not Important**	**Total**	**Rank**
Lecturers - Professionals	78.50%	21.50%	0.00%	0.00%	100.00%	1
Teaching Methodology	78.30%	24.00%	0.70%	0.00%	99.30%	2
Employment Opportunities on completion of the course	66.00%	33.20%	0.70%	0.00%	99.20%	3
Management of the Institute and their reputation	65.90%	30.70%	3.50%	0.00%	98.60%	4
Placement opportunities offered by the college	65.00%	30.60%	4.40%	0.00%	95.60%	5
Library and IT facilities at the campus	59.10%	37.70%	3.10%	0.00%	94.80%	6
Program fee structure and mode of payment	52.20%	40.40%	6.60%	0.70%	92.60%	7
Previous academic results of the college and students performance	52.90%	39.00%	8.10%	0.00%	91.90%	8
University affiliation and ranking	51.50%	39.70%	8.10%	0.70%	91.20%	9

Extra- curricular activities and sports facilities	41.20%	44.10%	14.00%	0.70%	85.30%	10
Discounts, Freeships and scholarships	45.60%	39.00%	12.50%	2.90%	84.60%	11
College location and Accessibility	31.40%	54.10%	14.40%	0.00%	84.50%	12
Building Infrastructure and classroom layout attractiveness	17.60%	66.20%	15.40%	0.70%	83.80%	13
Cafeteria facilities	23.50%	52.90%	22.10%	1.50%	76.40%	14
Gym area and free area	15.40%	44.10%	34.60%	5.90%	59.50%	15

After observing the table, it can be concluded that factors such as lectures, employment opportunities of the courses, placement offered by the college, teaching practices were highly valued by the student at the graduation and post-graduation level of University of Mumbai. While using digital media to check for the University courses. While using digital media to check for the University courses, this factor plays an important role. It is also found that some factors can significantly influence enrolment of the student.

Factors such as lecture method (which is also available in demo form on the social sites and website) and program for were given more importance by the student. Similarly, further discount and scholarship programs for extracurricular activities and significant playing arena work are even more important to the students. Students consider this factor as a fundamental requirement in a college.

Table 4 - Impact of Digital Marketing for selecting educational institutions

Impact of Digital Marketing for selecting educational institutions	
Scale	**Percentage**
Strongly Agree	5%
Agree	8%
Neutral	25%
Disagree	52%
Strongly Disagree	11%
Total	100%

Impact of Digital Marketing for selecting educational institution

From the above table it can inferred that majority (62%) of the respondents strongly agree & agree that digital marketing had an impact on selecting the education institution, 25% of responded are neutral and 13% disagree & strongly disagree that digital marketing never had impact on selecting the institution.

It can be suggested that private colleges can develop effective short term and long term marketing plans to increase attraction and enrolment of the student. For this the college should have a recruitment team which can provide prevalent information about the college effectively to the prospective students through social media marketing. This will help in communicating the key factors such as lectures, discounts and scholarship, library and IT facilities which the student volume most in selecting colleges and courses

7. CONCLUSION

Digital marketing is influencing and attracting many of the researchers and the stakeholders in the contemporary period. Competition has increased in all the walk-of-life and so on in the higher education market also. Thus, there is a need felt by the higher educational institutes to market their products to meet the global competition. This enables them to get good enrolments for different courses. The students are also finding it comfortable to make their academic decisions based on the advertisement available on social media. They save on time and money by physically visiting the institutes and studying them, particularly during the peak admission period. The digital advertisements have enabled the students to take their decisions in terms of various courses, the structure, programme, fees, relevance, placements, etc easily.

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Awareness and Opinions about Health Care Insurance among Youngsters in Mumbai City

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ABSTRACT
India is the fifth largest country in terms of nominal GDP. Despite this impressive rank, she spends only 3.54 per cent of its GDP on health. Contrast this to the United States of America, which spends an estimated 16.89 per cent of its GDP on healthcare

With consecutive waves of the COVID-19 epidemic, health insurance has gained popularity in recent years. While health insurance plans are becoming more popular, many individuals and families still regard medical insurance as an expense and fail to recognise its significance.

The purpose of this study is to investigate the factors that influence young people's awareness of health insurance, as well as the relationship between socioeconomic and demographic factors as major determinants of health insurance.

The data for the study has been provided by a primary survey from Mumbai city. The results indicate that gender and family income levels affect the health insurance purchase decision.

This paper also discusses the health insurance situation in India. The paper finally discusses the results of the study and describes the key elements of insurance awareness.

The paper concludes with a discussion about the results and its implications to researchers, and other stakeholders.

Keywords: Pandemic, Health Insurance, Socio-economic, Demographic, consumption

1.1 INTRODUCTION

India is the world's fifth largest country and she is projected to be the world's fastest-growing trillion-dollar GDP. This statistics is derived using purchasing power parity is used as the base. India's population is expected to reach 138 million by 2020, making it the world's second most populated country.

Despite tremendous GDP growth, the health of India’s population remains a worry. Many concerns, such as long-term viability, infrastructure, and insufficient penetration of high-quality healthcare, remain.

India's child mortality rate is 85 per 1000 for males and 90 per 1000 for females when compared to other countries. In China, male children have 32 per 1000 while female children have 43 per 1000. Brazil has a male infant death rate of 39 per 1000 and a female infant mortality rate of 32 per 1000.

India's overall health spending per capita in 2002 was 96 dollars, compared to 611 dollars in Brazil and 261 dollars in China.

Public health spending accounted for around 1.3 per cent of the country's GDP in fiscal year 2018. In comparison, health spending in the United States accounts for around 17.7% of GDP.

In 2018, India's total health expenditure as a percentage of GDP was a pitiful 3.544, compared to 9.51 for Brazil and 5.35 for China. The United States of America is one of the top in this category, with a current health expenditure of 16.89 percent of GDP in 2018.

According to the National Family Health Survey (NFHS-4) conducted by the Ministry of Health and Family Welfare, more than 55 per cent of Indian households do not seek government-provided health care. "Less than one-third (29%) of households had at least one regular member covered by health insurance or a health programme," according to the study report. According to the Insurance Awareness Survey conducted by the National Council of Applied Economic Research (NCAER) on behalf of the IRDA in 2010, only around 6% of insured families have health insurance. As a result, it's easy to conclude that India's health insurance coverage is woefully inadequate.

High healthcare and hospitalisation costs have put many middle and lower middle class families in financial difficulties. The majority of medical crises in a person's life occur as emergencies, necessitating immediate payment of hospitalisation and other medical expenses. Medical expenses can put a serious burden on a person's or family's finances, forcing many into debt or near-poverty.

With the rise of various lifestyle diseases and occurrence of these and other diseases among youngsters, the need for healthcare insurance cannot be over-emphasised.

Health insurance plans are increasingly being viewed as preferable means of financing healthcare costs. A family's health insurance protects them against unexpected and costly medical expenditures. Medical insurance acts as a safety net against unexpected medical and hospital costs.

1.2 Health Insurance Status in India:
According to the NITI Aayog, over 30% of India's population, or 42 crore people, lack health insurance, with actual numbers higher due to gaps in existing systems and overlap between them. At least 30 percent of the population, or 40 crore people, are without health insurance, referred to as the "missing middle" in this report. According to the report, if India wants to achieve universal health coverage, it would need a low-cost health insurance policy for this segment of the population.

Table 1: Number of individuals and families eligible or covered, by health insurance scheme type

Insurance Scheme	Individuals Eligible or Covered (cr.)	Percentage of Population Eligible	Families Eligible or Covered (cr.)
Government Subsidized Schemes	69	51%	15.3
AB-PMJAY (w/o State Extension Schemes)	49	36%	10.9
AB-PMJAY State Extension Schemes	20	15%	4.4
Social Health Insurance Schemes	14	10%	3.6
Employees' State Insurance Scheme (ESIS)	13.6	10%	3.5
Central Government Health Scheme	0.4	0.3%	0.13
Private Voluntary Health Insurance (PVHI)	11.5	9%	2.6
Total Eligible or Covered (assuming no overlap)	**94.5**	70%	**21.5**
Total Population / Families	**135**		**30**
Uncovered Population / Families	**40.5**	**30%**	**8.5**

Source: NITI Aayog's report titled "Health Insurance for India's missing middle"

"Low government expenditure on health has constrained the capacity and quality of healthcare services in the public sector. It diverts the majority of individuals – about two-thirds – to seek treatment in the costlier private sector," the NITI Aayog has said in its report on Health Insurance for India's Missing Middle.

The 'missing middle' refers to a large group of people who do not have health insurance and are sandwiched between the poorer and more organised sectors of society. The government subsidises health insurance for the poor and underprivileged, while those in the organised sector of the economy who are comparatively well-off are covered by social health insurance or private voluntary insurance. These are therefore those sections of the society who are not poor but they are vulnerable to high medical costs. This section of the society possesses the financial means to pay for their medical insurance, but lack the will and awareness to apply for and take medical insurance. The result of this is that when medical emergencies arise, a large part of their savings may get depleted, resulting in lower standard of living post the hospitalisation of their family members.

India's high out-of-pocket spending is attributed to a lack of health insurance coverage and a more expensive private-sector provision of health services.

A major component of the urban missing middle works in formal or semi-formal administrative, professional, or technical jobs. Their positions are more likely to be stable, and their pay are less volatile, than those in the agricultural sector in rural areas. They are, nonetheless, as vulnerable to catastrophic health costs due to a lack of health insurance, but to a lesser extent than the rural and urban informal missing middle.

Most health insurance policies and products in India are not designed for the missing middle. Individuals with a high salary are eligible for private voluntary health insurance. It is out of reach for large swathes of the missing middle. Affordable contributory products, like as ESIC, are not offered to the general public, including the missing middle, due to the risk of adverse selection.

For this segment of the market, a health insurance contribution scheme must be appealing, accessible, and affordable. Furthermore, to reach out to this large group of uninsured people, such a product must be standardised and straightforward.

1.3 BRIEF LITERATURE REVIEW:

The recent years have revealed increased research interest in the awareness, and understanding of the health insurance sector. Many researchers and scholars have looked into the relationship between consumer socioeconomic and demographic characteristics and health insurance consumption.

Only 17% of families in India covered any form of health insurance according to Mr. Shijith and Dr. T.V.Srkhar (2015)

Reddy V. K. (2016) in his study found Lack of awareness, Lack of cooperation and coordination with providers, uncertainty in product development are some of the factors which frustrate growth in private sector health insurance in India.

Joshi, Manish (2016) in their study have identified various factors influencing consumer behavior when taking health insurance. Number of young professionals with higher spending capacity is increasing nowadays resulting in buying health insurance on the basis of financial affordability. This gives tax benefit as an added advantage. These professionals prefer to buy individual health insurance than group health insurance because they keep changing their jobs for professional growth. Senior consumers are more concerned about their health and prefer to have annuity benefit on each and every type of investment, policy or saving tool. Online health insurance business can be increased by providing easiness in virtual environment. Availability of online claim lodgment facility is a must in online health insurance contract execution.

The insurance sector's entry into the Indian market was discussed by M. Akila (2013). Indian health insurance has the greatest potential and penetration compared to western countries is the lowest. She suggests that marketing techniques such as the advancement of Group Insurance, BPL family micro insurance will help to boost the sector's growth. Insurance agents must also be well prepared to inscribe additional policies and to better service clients as required. The other players such as health care providers and TPAs should also collaborate to increase the penetration of the health insurance industry in India.

Insurance companies can address the problem of financial illiteracy of consumers by educating them. This point was corroborated by the Max New York–NCAER survey (NCAER, 2008) which showed that even though a majority of Indian households are good savers, they do not undertake financial planning and are financially at risk. Households need to understand the risk of both ‘living too long’ and ‘dying too young’. Further, in urban India and amongst the salaried class, insurance is largely used as a tax saving tool, rather than for protection against risk.

Makoka et al. (2007) in their study have found income and education of the consumers as significant determinants of private health care in an environment of free public health care by governmental and public institutions.

Temple (2002) in his quest for factors influencing insurance decision of the elderly found income and age as significant predictors of demand for private insurance health care.

Propper (2000) for instance, observed that the demand for private health insurance is a function of income, previous experience and the perceived duty of the government in providing health car to the masses.

Although the level of penetration of health insurance has increased after the entry of many private players with global tie-ups, it is still low compared to other countries. According to consumer feedback, the problem has been exacerbated due to:

- Agents’ inability to clearly explain the features of the products;
- Lengthy documents that are not user friendly and
- The perception that agents are only concerned with their commissions.

In India, awareness levels, knowledge and perceptions about medical insurance schemes – both public and private are important factors in taking decision about health insurance. Few empirical studies have been done in this area in the Indian context, especially in the area of healthcare insurance awareness among youngsters. This research paper tries to cover this gap.

1.4. OBJECTIVES OF THE STUDY

1. To study the health insurance status in India
2. To study the association between demographic variables like age, gender, income levels and the consumption of healthcare insurance.
3. To study awareness and perceptions of health insurance among the sample selected.

1.5 RESEARCH METHODOLOGY

1.5.1 SOURCES OF DATA:

The current paper is based on primary data as well as a review of relevant journals, articles, reports, international research papers, and other sources. An attempt was made to conduct a poll of mostly young respondents from Mumbai. A questionnaire was created to collect information from youngsters in the age group of 15 to 26 in the Mumbai Metro Region. Purposive and snowball sampling were used to collect data. About 163 people responded, and 152 of the questionnaires were deemed to be complete and eligible for study. The data was analysed and presented in tables and graphs after a thorough examination.

1.5.2 RESEARCH DESIGN:

A research design is the set of methods and procedures used in collecting and analyzing measures of the variables specified in the research problem.

The current research is descriptive and exploratory in nature.
The current study is descriptive as it is trying to describe the characteristics of the sample being studied.

An exploratory research looks at a data collection and looks for potential relationships between variables in order to generate a hypothesis. Medical Insurance Coverage is the Study's Independent Variable. The demographic dependent variables are age, gender, education level and monthly family income. The current study's hypothesis was created to look into the possible relationships between these two groups of variables.

HYPOTHESIS:
The Independent Variables of the Study is Coverage of Medical Insurance

The Dependent Variables are age, gender, education levels and monthly income.

The Null Hypotheses:
H_{01} : There is no significant association between consumption of medical insurance and gender of persons

H_{02} : There is no significant association between consumption of medical insurance and age of persons

H_{03} : There is no significant association between consumption of medical insurance and the monthly income level of a person's family.

The Alternate Hypotheses:
H_{11} : There is a significant association between consumption of medical insurance and age of persons

H_{12} : There is a significant association between consumption of medical insurance and gender of persons.

H_{13} There is a significant association between consumption of medical insurance and the monthly income level of a person's family

The above hypotheses have been tested based on data analysis. On the basis of the results either the null or alternate hypothesis will be accepted or the other will be rejected.

1.6 DATA AND RESULTS

1.6.1 Descriptive Statistics:

The frequency distribution of the demographics of the sample data is as given below:

Table 2 : Brief Profile of the Respondents
GENDER

		Frequency	Percent	Cumulative Percent
Valid	Female	83	54.6	54.6
	Male	69	45.4	100.0
	Total	152	100.0	

Occupation					
		Frequency	Percent		Cumulative Percent
Valid	Full-Time Job	10	6.6		6.6
	Student	115	75.7		82.2
	Student and doing own business	6	3.9		86.2
	Student and doing part-time job	21	13.8		100.0
	Total	152	100.0		

Education_Level					
		Frequency	Percent		Cumulative Percent
Valid	Under-graduation (B.Com/ BA Etc)	133	87.5		87.5
	Post - Graduation (M.Com, MA)	12	7.9		95.4
	Professional Courses (CA, MBA)	2	1.3		96.7
	Others	5	3.3		100
	Total	152	100.0		

Monthly_Family_Income					
		Frequency	Percent	Valid Percent	Cumulative Percent
	Below 10,000	38	25.0	25.0	100.0
Valid	10,001 to 30,000	68	44.7	44.7	44.7
	30,001 to 50,000	20	13.2	13.2	57.9
	50,001 and above	26	17.1	17.1	75.0
	Total	152	100.0	100.0	

Source: Primary Data Collection 2022

1.6.2 Testing of Hypothesis

The Null Hypotheses developed for this study are as follows:

H_{01} : There is no significant association between consumption of medical insurance and gender of a person

H_{02} : There is no significant association between consumption of medical insurance and age of a person

H_{03} : There is no significant association between consumption of medical insurance and family monthly income of a person

The **Chi Square** statistic has been **used for testing** relationships between the independent variables and the dependent variable categorical variables

The Cross-Tabulations generated from SPSS Software are reproduced below:

Table 3

Having_Health_Insurance * Gender Crosstabulation				
		Gender		Total
		Female	Male	
Having_Health_Insurance	No	57	16	73
	Yes	26	53	79
Total		83	69	152

Table 4

Having_Health_Insurance * Age_Group Crosstabulation					
		Age_Group			Total
		15 to 18	19 to 22	23 to 26	
Having_Health_Insurance	No	7	62	4	73
	Yes	7	64	8	79
Total		14	126	12	152

Table 5 Having Health Insurance and Family Monthly Income Cross Tabulation

		Monthly Family Income Levels				
		Below 10,000	10,001 to 30,000	30,001 to 50,000	50,001 and above	Total
Having_Health Insurance		28	40	4	1	73
		10	28	16	25	79
Total		38	68	20	26	152

The table values for chi-square test are summarised as below:

Table 6 Testing of Hypothesis

Sr. No.	Variable	Pearson Chi-Square value	Sig value	df	I (A/R)
1	Gender	31.231	<0.001	1	R
2	Age	1.130	0.568	2	Fail to Reject
3	Monthly Family Income Level	39.823	<0.001	3	R

At 5 per cent level of significance, the level of significance calculated for all the demographic variables such as gender and Income level is < 0.001 which is less than 0.05. Hence at 5 per cent level of significance, the null hypothesis is rejected when compared with gender and Income level. However, we fail to reject the null hypothesis that there is an association between health insurance usage and age of the persons. Therefore, it is understood that there is a significant association between opting for medical insurance and the gender and monthly family income levels of youngsters.

1.7 AWARENESS LEVELS ABOUT HEALTH INSURANCE AND PREFERENCES

Table 7

Awareness _About_Health_Insurance				
		Frequency	Percent	Cumulative Percent
	No	19	12.5	12.5
	Yes	133	87.5	100.00
	Total	152	100.0	

Out of the sample surveyed 87.5 % were aware of health insurance and only 12.5 % said they were unaware about health insurance.

Table 8

Main_Source_Of_Information					
		Frequency	Percent	Valid Percent	Cumulative Percent
Valid	Movies	2	1.3	1.3	1.3
	Tax Consultant / Doctor	3	2.0	2.0	3.3
	Employees of Insurance Co.	4	2.6	2.6	5.9
	Newspapers	6	3.9	3.9	9.9
	Friends	7	4.6	4.6	14.5
	Insurance Agents	13	8.6	8.6	23.0
	Family	19	12.5	12.5	35.5
	Social Media	23	15.1	15.1	50.7
	T.V.	75	49.3	49.3	100.0
	Total	152	100.0	100.0	

So, Television seems to be the most important source of information, with 49.3 % of the respondents citing this as the main source of information about health insurance. This indicates that advertisements have made inroads into raising awareness levels.

Table 9

Preference_Type_Of_Insurer			
	Frequency	Percent	Cumulative

				Percent
	Private Sector	31	20.4	20.4
	Public Sector	121	79.6	100.0
	Total	152	100.0	

From the table above it can be seen that perception of youngsters towards type of insurer is more favourable towards public sector health insurance companies

Table 10

Preference_Type_Of_Policy				
		Frequency	Percent	Cumulative Percent
	Family Floater Health Insurance	4	2.6	2.6
	Individual Health Insurance	19	12.5	15.1
	Family Health Insurance	69	45.4	60.5
	Not aware	60	39.5	100.0
	Total	152	100.0	

Table 11

Has COVID19made you prefer health nsurance					
		Frequency	Percent	Valid Percent	Cumulative Percent
	Yes	98	64.5	64.5	64.5
	No	54	35.5	35.5	100.0
	Total	152	100.0	100.0	

1.9 CONCLUSION

Despite the fact that India's insurance industry has grown at a rate of more than 40% per year since liberalisation, only approximately 2% of the population is covered by private health insurance.

The extensive literature and analysis of government reports on insurance awareness indicates to the researcher that the Government has a major role to play in increasing consumer awareness and building consumer confidence in health insurance through information, education and communication.

Second, a product as complex as health insurance requires some standardisation and simplification in order to improve coverage across India's enormous population.

Primary data survey indicates that there is a positive effect of gender, monthly income level on insurance coverage. Television seems to be the main source of information. Family Health Insurance seems to be well preferred but many youngsters also reported lack of awareness about types of policies. Low awareness levels also are indicative of the reasons inhibiting such individuals.

There is a need to find more innovative and effective ways for improving knowledge and awareness levels among young prospective consumers. Today’s youth are tomorrow’s game-changers and decision makes. Their health will affects productivity and growth of the economy and well-being and happiness levels of their families. There is a pressing and urgent need to have more development in this area of medical insurance

2.0 LIMITATIONS AND FUTURE RESEARCH

This study was limited to young people, primarily college students, who were drawn from a few Mumbai colleges. As a result, representation for the entire population and country cannot be claimed. Second, the method's conditions and the sample's size are both limiting variables. For greater representation and generalisation of the results, another study with a larger sample size and different groups of people should be conducted utilising the same data set. The findings of this study could help researchers in this field get closer to the same conclusion. This research can be expanded to a greater scale in the future with a larger sample size and appropriate sampling approach to gather accurate data that will help policymakers understand which policies are most effective.

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Educational Inequality and Income Inequality (Gini Coefficient): A Quantitative Approach Dilip Mehta

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Thakur College of Science and Commerce

ABSTRACT

This paper explores the educational inequality and its relation with income inequality i.e., effect of access to education on the Gini Coefficient (income inequality is measured by the Gini Coefficient). Data of Indian States Educational Index and Access to Education Index and Education Statistics of India regarding National Gross Enrollment Ratio (GER) at different educational level are used. We successfully reassure the negative correlation between Educational Index and Gini Coefficient and we hypothesize that there is a Negative correlation between Access to Education Index and Gini Coefficient, the result bolster our hypothesis that there is a negative correlation. We even hypothesize that the GER declines with the increase in educational level, the result confirms it as well. Statistical Methods are used to find Educational Inequality Index and to prove our hypothesis. The research also compares the educational inequality between 2015-16 and 2019-20. Through this research, we concluded that the education is the best medicine available with us to eradicate the scourge of income inequality. The easier the access to education less the educational inequality. The way education reduces income inequality is by increasing share of people other than rich which indirectly reduces the share of the latter.

Keywords: Education, Income Inequality, Gross Enrollment Ratio

Educational Inequality and Income Inequality (Gini Coefficient): A Quantitative Approach Income Inequality is one of the critical socio-economic problems concerning the economic growth and development. In this globalized, industrialized, privatized and liberalized world, wealth retainment has become lot easier however this has led to income inequality. Moreover, with the time passing rich get richer but the poor stay poor or gets poorer. There are many factors which widens the gap between rich and poor like tax policy, technological changes, globalization, etc. In the contemporary world, education has become a very important aspect as it is very evident that higher the education attainment level, higher the individual's chance to get better job and salary. Umpteen previous researches have emphasized on the role of education in reducing the income inequality and have proved negative relationship between Educational Index and Gini Coefficient.

Therefore, the objectives of this research are

(i) To reassure the relation between Educational Index and Gini Coefficient

(ii) To study the effect of Access to Education on income inequality

(iii) To study and measure the educational inequality at different level of education

METHODOLOGY

This research paper has a quantitative approach to draw insight from the numerical data collected from various sources mentioned in bibliology section of the research which were further analyzed to prove the hypothesis. The research design of this research paper is correlational research design, the Pearson's Coefficient of Correlation Method is used in this research to reassure this correlation, the Educational Index and Gini Coefficient of Indian States for year 2015-16 and to also tests the hypothesis made by the author i.e., the negative correlation between Access to Education Index and Gini Coefficient along with p-value method to test the null hypothesis of both correlation with significant value 0.05 (Statistical Calculator used for pvalue)

The research tries to find the numerical value of Educational Inequality in India for year 2015-16 and 2019-20 which is compared further to analyze the current scenario of Educational Inequality in India, the inequality value is calculated using the very same method which is used to find Gini Coefficient.

DATA ANALYSIS

Note: The Gini Coefficient for Andhra Pradesh (Including Telangana was available, however, the Educational Index and Access to Educational Index Coefficient for Andhra Pradesh (Including Telangana) wasn't. Educational Index Coefficient for Andhra Pradesh and Telangana are 48.42 and 34.7 respectively. Therefore, the Educational Coefficient of Andhra Pradesh (Including Telangana) is derived by mean, i.e., (48.42+34.7)/2 = 41.56.

Access to Educational Index Coefficient for Andhra Pradesh and Telangana are 0.29 and 0.36 respectively. Therefore, the Access to Educational Coefficient of Andhra Pradesh (Including Telangana) is derived by mean, i.e., (0.29+0.36)/2 = 0.325 = 0.33

1. The correlation between Indian States Educational Index and their Gini Coefficient. Various previous research has already established the relationship between these two variables; therefore, this part of the research is to reassure the finding of previous researches and to set firm background for further findings. Lower Gini Coefficient, lower the income inequality and viceversa; Higher the Educational index, better the Education and vice-versa. **Hypothesis**

- **Alternative Hypothesis:** There is evidently Negative Correlation between Gini Coefficient and Educational Index.
- **Null Hypothesis:** There is no Negative Correlation between Gini Coefficient and Educational Index.

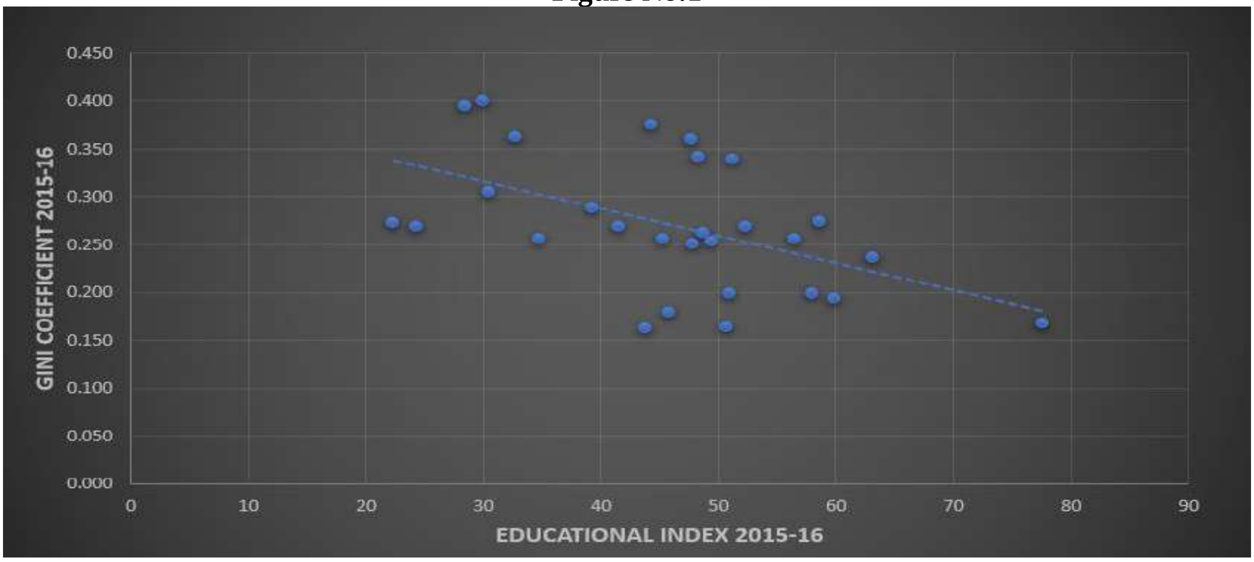
Table No: 1

States	Educational Index 2015-16	Gini Coefficient 2015-16
Andhra Pradesh (Including Telangana)	41.56	0.270
Arunachal Pradesh	30.52	0.306
Assam	39.28	0.289
Bihar	30.00	0.401
Chhattisgarh	48.40	0.342
Delhi	59.96	0.194
Goa	45.84	0.180
Gujrat	52.35	0.269
Haryana	51.04	0.200
Himachal Pradesh	58.12	0.200
Jammu & Kashmir	34.79	0.256
Jharkhand	28.48	0.396
Karnataka	56.56	0.257
Kerala	77.64	0.169
Madhya Pradesh	44.42	0.376
Maharashtra	58.64	0.275
Manipur	45.41	0.256
Meghalaya	24.41	0.270
Mizoram	47.83	0.252
Nagaland	22.42	0.274
Odisha	47.78	0.360
Punjab	50.74	0.164
Rajasthan	51.25	0.340
Sikkim	43.89	0.163
Tamil Nadu	63.16	0.237
Tripura	48.70	0.263
Uttar Pradesh	32.81	0.363
Uttarakhand	49.48	0.254

*Author's Data Analysis and Calculation is based on MPRA Paper No. 101980 and THE SUCCESS OF OUR SCHOOLS: SCHOOL

***Full Calculation in Appendix Result:**

Figure No:1



*Author's Data Analysis and Calculation is based on MPRA Paper No. 101980 and THE

SUCCESS OF OUR SCHOOLS: SCHOOL EDUCATION QUALITY INDEX (SEQI) 2019

INTERPRETATION

Since, **the Value of r is -0.5108 or -0.511**,hence, it is evident that there is a **moderate negative correlation between Gini Coefficient and Educational Index of Indian States**, i.e., Higher the Educational Index, Lower the Gini Coefficient or income inequality.

Moreover, the **p-value for null hypothesis testing is 0.005455 with significance value set as 0.05, which is quite significant**. Hence, there is strong evidence against Null Hypothesis and in support of Alternative Hypothesis.

2. Access to Education and Gini Coefficient Relation

The Access to Education in different Indian states was published in a report 'Access (In)Equality Index (AEI) 2021. In this report, the access to education index of the Indian states & UT is measured. Lower Gini Coefficient, lower the income inequality and vice-versa; the higher the Access to Education Index value, easier the access to the Education and vice-versa. **Hypothesis**

- **Alternative Hypothesis:** There is a negative correlation between Access to Education Index and Gini Coefficient of Indian States.
- **Null Hypothesis:** There is a no negative correlation between Access to Education Index and Gini Coefficient of Indian States.

Table No: 2

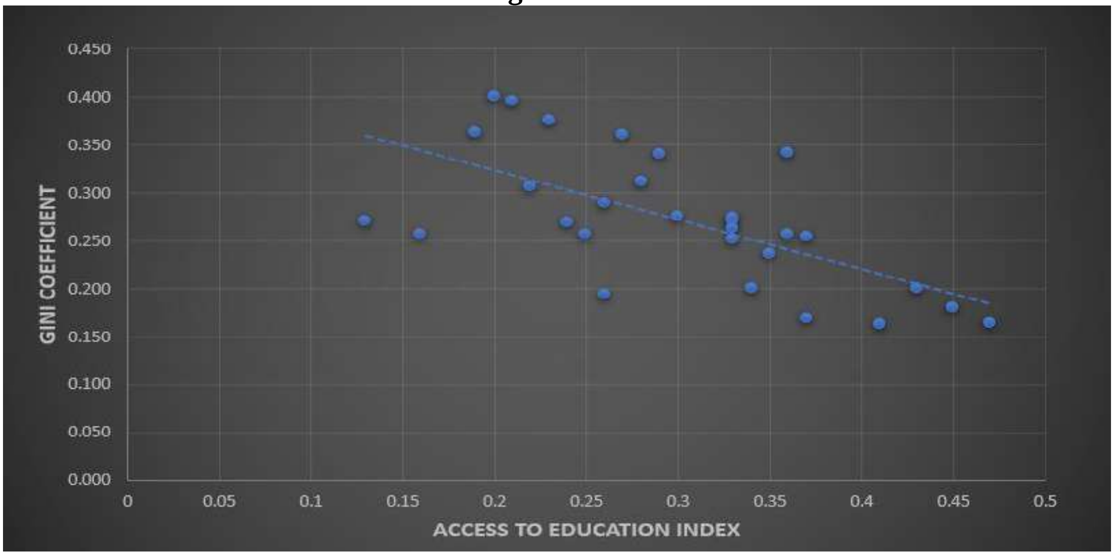
States & UT	Access to Education Index	Gini Coefficient 2015-16
Andhra Pradesh (Including Telangana)	0.33	0.270
Arunachal Pradesh	0.22	0.306
Assam	0.26	0.289
Bihar	0.2	0.401
Chhattisgarh	0.36	0.342
Delhi	0.26	0.194
Goa	0.45	0.180
Gujrat	0.24	0.269
Haryana	0.34	0.200
Himachal Pradesh	0.43	0.200
Jammu Kashmir	0.16	0.256
Jharkhand	0.21	0.396
Karnataka	0.36	0.257
Kerala	0.37	0.169
Madhya Pradesh	0.23	0.376
Maharashtra	0.3	0.275
Manipur	0.25	0.256
Meghalaya	0.13	0.270
Mizoram	0.33	0.252
Nagaland	0.33	0.274
Odisha	0.27	0.360
Punjab	0.47	0.164
Rajasthan	0.29	0.340
Sikkim	0.41	0.163
Tamil Nadu	0.35	0.237
Tripura	0.33	0.263
Uttar Pradesh	0.19	0.363
Uttarakhand	0.37	0.254
West Bengal	0.28	0.312

*Author's Data Analysis and Calculation is based on MPRA Paper No. 101980 and Access

(In)Equality Index (AEI) 2021 ***Full Calculation in Appendix**

RESULT:

Figure No:2



*Author's Data Analysis and Calculation is based on MPRA Paper No. 101980 and Access

(In)Equality Index (AEI) 2021

INTERPRETATION

Since, **the Value of r is -0.6423 or -0.642**, therefore, we can conclude **that there is a moderate negative correlation between Gini Coefficient and Access to Educational Index of Indian States**, i.e., higher the Access to Educational Index, lower the Gini Coefficient or income inequality.

Moreover, **the p-value for null hypothesis testing is 0.000172 with significance value set as**

0.05, which is highly significant. Hence, there is utterly strong evidence against Null Hypothesis and in support of Alternative Hypothesis.

3. The Educational Inequality at different Educational Levels

Education do play an important role in reducing the income gap; however, it is important to understand at what educational level, there is inequal opportunity to the students.

Table No:3

Age Group	Educational Level	Estimated Population ('000')*	Enrollment in the Particular Educational Level ('000')
18 TO 23	HIGHER EDUCATION	141291	34585
16 TO 17	SENIOR SECONDARY (XI-XII)	44386	24735
14 TO 15	SECONDARY (IX -X)	49363	39145
11 TO 13	UPPER PRIMARY (VI-VIII)	73614	67594
6 TO 10	PRIMARY (I-V)	130401	129123
Total		**439055**	**295182**

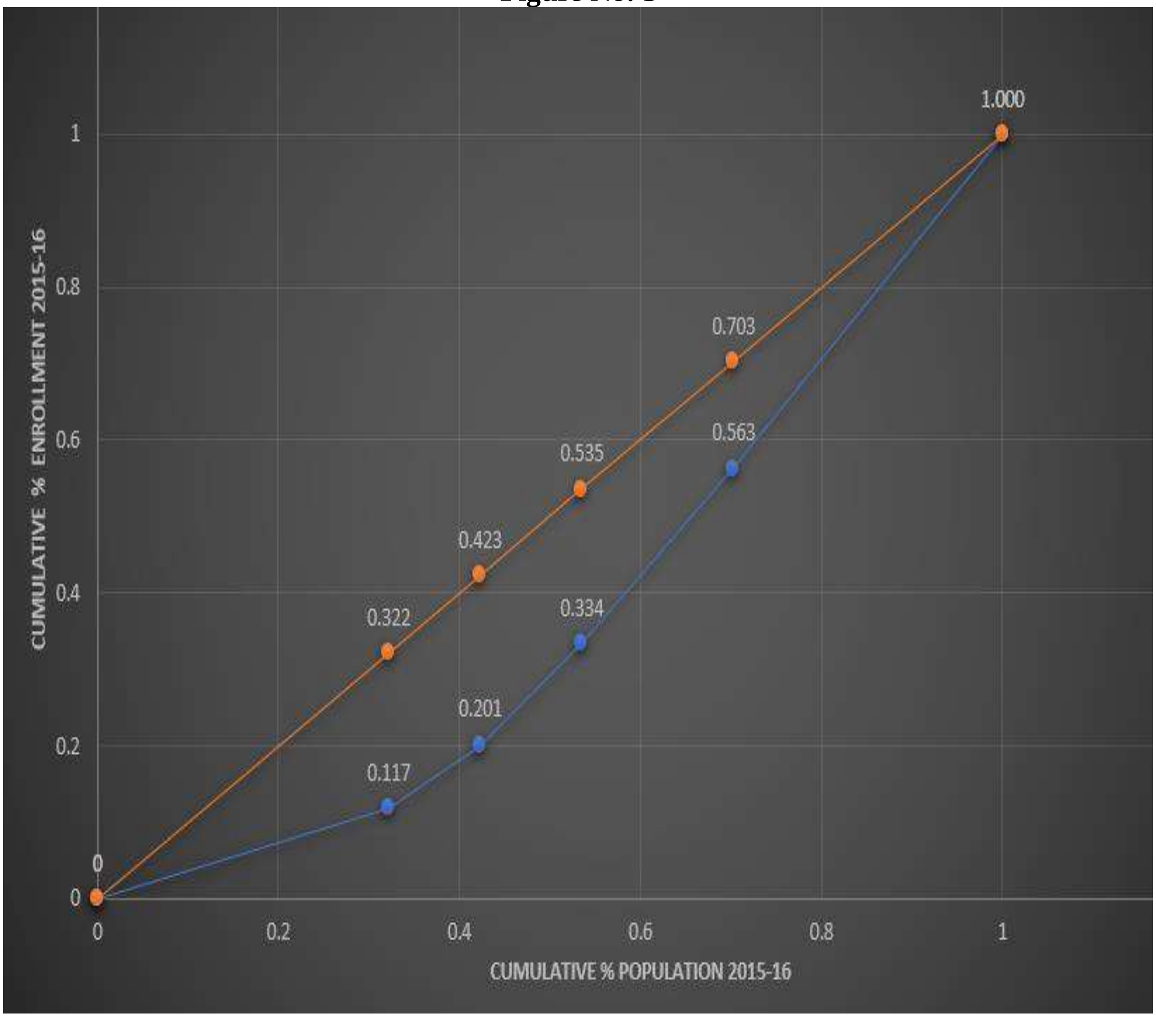
***: Estimated Population ('000') eligible for the particular educational attainment in 2015-16**

Table No:4

Age Group	Educational Level	Cumulative % Population	Cumulative % Enrollment	Gross Enrollment Ratio (GER)
		0	0	
18 TO 23	HIGHER EDUCATION	0.322	0.117	24.5%
16 TO 17	SENIOR SECONDARY	0.423	0.201	55.7%
14 TO 15	SECONDARY	0.535	0.334	79.3%
11 TO 13	UPPER PRIMARY	0.703	0.563	91.8%
6 TO 10	PRIMARY	1.000	1.000	99.0%

***The full calculation is in the appendix**

Figure No: 3



* ABOVE FIGURE AND TABLES IS AUTHOR'S DATA ANALYSIS AND CALCULATION IS BASED ON EDUCATIONAL STATISTICS AT A GLANCE BY GOVERNMENT OF INDIA

Note: Data has been arranged in format of descending educational level.

The Educational Inequality is 0.314 (See Appendix)

Table No:5

Age Group	Educational Level	Estimated Population*	Enrollment in the Particular Educational Level
18 TO 23	HIGHER EDUCATION	142328704	38536359
16 TO 17	SENIOR SECONDARY (XI-XII)	50465800	22293255
14 TO 15	SECONDARY (IX -X)	49375400	35751166
11 TO 13	UPPER PRIMARY (VI-VIII)	72346800	64855165
6 TO 10	PRIMARY (I-V)	118446400	115264960
Total		**432963104**	**276700905**

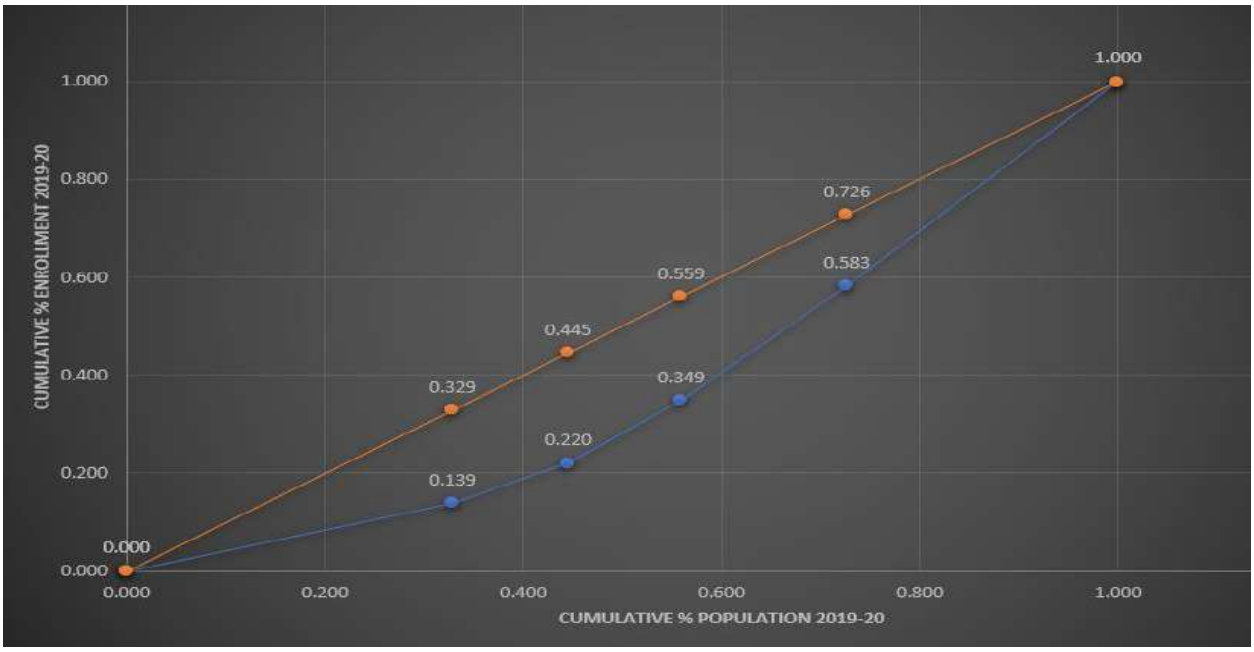
***: Estimated Population eligible for the particular educational attainment in 2019-20**

Table No:6

Age Group	Educational Level	Cumulative % Population	Cumulative % Enrollment	Gross Enrollment Ratio (GER)
		0	0	
18 TO 23	HIGHER EDUCATION	0.329	0.139	27.1%
16 TO 17	SENIOR SECONDARY	0.445	0.220	44.2%
14 TO 15	SECONDARY	0.559	0.349	72.4%
11 TO 13	UPPER PRIMARY	0.726	0.583	89.6%
6 TO 10	PRIMARY	1.000	1.000	97.3%

***The full calculation is in the appendix**

Figure No:4



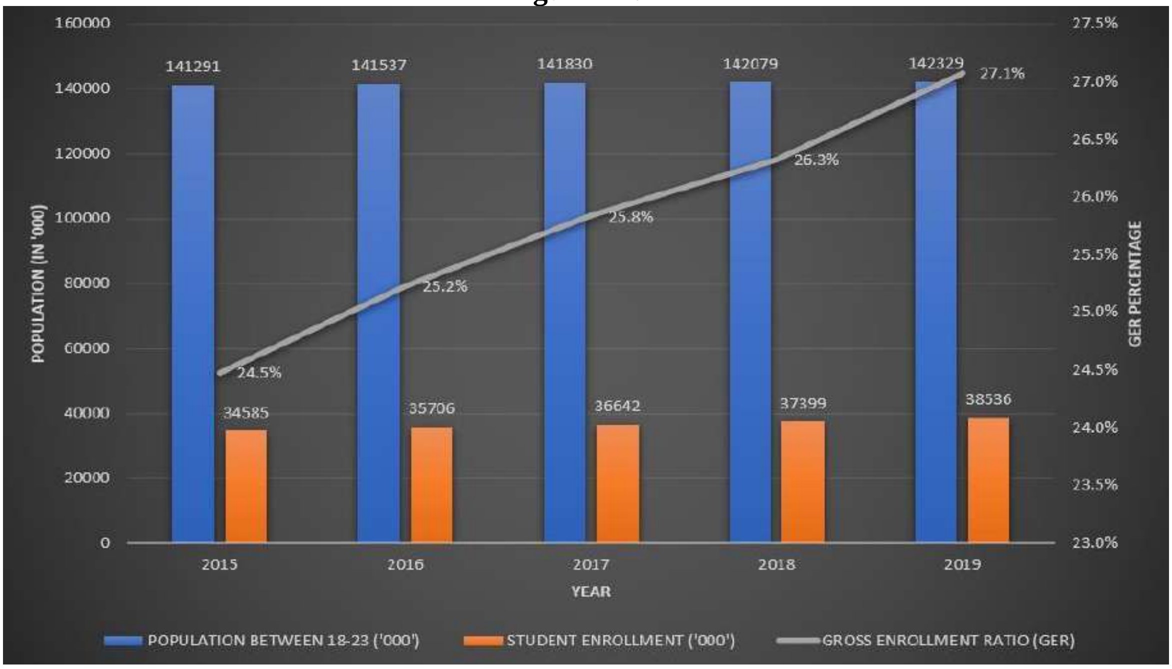
• ABOVE FIGURE AND TABLES IS AUTHOR'S DATA ANALYSIS AND

CALCULATION IS BASED ON GOVERNMENT OF INDIA, Unified District Information System for Education Plus (UDISE+) 2019-2020 and Government of India, All India Survey on Higher Education 2019-20 (AISHE).

Note: Data has been arranged in format of descending educational level.

The Educational Inequality is 0.283 (See Appendix)

Figure No: 5



Author's interpretation of data from AISHE 2019-2020. See, Appendix for data table** ***The above Graphical presentation (Figure no:5) exhibits the trend of GER of higher education from 2015 to 2019

INTERPRETATION

The Educational Inequality Index lies between 0 and 1, here, 0 means absolute educational equality and 1 absolute educational inequality.

The Orange line in Figure 3 and 4 represents the 100 % Gross Enrollment Ratio (GER) at every educational level i.e., Perfect Educational Equality. Whereas, the blue line represents the actual GER. Therefore in 2015-16 the Educational Inequality Index was 0.314 but it decreased to 0.283 in 2019-20.

In Figure No: 3 and 4 we can clearly see the gap between the orange and blue line is broader at the higher education level, which points towards the falling of GER with the rise in education level being highest as 99% at Primary Education Level and lowest as 24.5% at Higher Education

Level and highest as 97.3% at Primary Education Level and lowest as 27.1% at Higher Education Level for the year 2015-16 and 2019-20 respectively.

However, the intriguing result is that the GER in the school education level (which includes primary to senior secondary level of education) has fallen in 2019-20 compare to 2015-16 but there is a rise in GER of Higher Education (Figure No: 5). The decline in GER of School level is alarming and it needs to scrutinized to find the reason behind such decline since it might have a terribly regretful result in future.

Whereas the increase in GER of higher education indicated increase in number of skilled and professional human resource. The increase in Higher Education GER can be because of the fact that, this is the education level which develops and prepares an individual for better job and career, and for the highly competitive globalized world. This fact might have encouraged the adults to pursue higher education.

CONCLUSION

It is quite clear that the education does have a heavy impact on the income inequality that is prevalent in the modern society. Therefore, to build a society of equality and equity in the terms of income, education has the most important role to play. However, there are various socioeconomic factors that creates an educational inequality in the society which indirectly creates a hurdle in the process of realizing the dream of nigh-income equality society. Therefore, to reduce the income inequality, the very first step that needs to be taken, is shifting our focus from achieving higher literacy rate to higher educational index. The education is the best medicine available with us to eradicate the scourge of income inequality. The easier the access to education less the educational inequality. The way education reduces income inequality is by increasing share of people other than rich which indirectly reduces the share of latter. Therefore, educational inequality needs to be taken care of and various measures should be taken to encourage people to pursue higher education as well as measure to uplift the GER of the school level education.

APPENDIX
RELATED TO

Figure No: 3 and Table No: 3 & 4

AGE GROUP	EDUCATIONAL LEVEL	STUDENT ENROLLMENT	% STUDENT ENROLLMENT	CUMULATIVE % STUDENT ENROLLMENT	POPULATION	% POPULATION	CUMULATIVE % POPULATION	GROSS ENROLLMENT RATIO (GER)		AREA BELOW THE CURVE
		0	0	0	0	0	0	0		0
18 TO 23	HIGHER EDUCATION	34585	0.117	0.117	141291	0.322	0.322	24.5%		0.012
16 TO 17	SENIOR SECONDARY (XI-XII)	24735	0.084	0.201	44386	0.101	0.423	55.7%		0.032
14 TO 15	SECONDARY (IX-X)	39145	0.133	0.334	49363	0.112	0.535	79.3%		0.053
11 TO 13	UPPER PRIMARY (VI-VIII)	67594	0.229	0.563	73614	0.168	0.703	91.8%		0.090
6 TO 10	PRIMARY (I-V)	129123	0.437	1.000	130401	0.297	1.000	99.0%		0.156
	TOTAL	295182	1		439055					0.343
									AREA ABOVE THE CURVE	0.157
									EDUCATIONAL INEQUALITY	0.314

Figure No: 4 and Table No: 5 & 6

AGE GROUP	EDUCATIONAL LEVEL	STUDENT ENROLLMENT	% STUDENT ENROLLMENT	CUMULATIVE % STUDENT ENROLLMENT	POPULATION	% POPULATION	CUMULATIVE % POPULATION	GROSS ENROLLMENT RATIO (GER)		AREA BELOW THE CURVE
		0	0.000	0.000	0	0.000	0.000	0.000		0
18 TO 23	HIGHER EDUCATION	38536359	0.139	0.139	142328704	0.329	0.329	0.271		0.01393
16 TO 17	SENIOR SECONDARY (XI-XII)	22293255	0.081	0.220	50465800	0.117	0.445	0.442		0.03591
14 TO 15	SECONDARY (IX-X)	35751166	0.129	0.349	49375400	0.114	0.559	0.724		0.05689
11 TO 13	UPPER PRIMARY (VI-VIII)	64855165	0.234	0.583	72346800	0.167	0.726	0.896		0.09325
6 TO 10	PRIMARY (I-V)	115264960	0.417	1.000	118446400	0.274	1.000	0.973		0.15834
	TOTAL	276700905			432963104					0.35832
									AREA ABOVE THE CURVE	0.14168
									EDUCATIONAL INEQUALITY	0.283

Pearson correlation between Educational Index and Gini Coefficient Where, Educational Index is 'X' and Gini Coefficient is 'Y'

Figure No: 1 and Table No: 1

	X Values	Y Values	$(X - M_x)^2$	$(Y - My)^2$	(X - Mx)	(Y - My)	$(X - M_x)(Y - M_y)$
	41.560	0.270	18.923	0.000	-4.350	-0.001	0.002
	30.520	0.306	236.852	0.001	-15.390	0.035	-0.545
	39.280	0.289	43.957	0.000	-6.630	0.018	-0.122
	30.000	0.401	253.128	0.017	-15.910	0.130	-2.075
	48.400	0.342	6.200	0.005	2.490	0.071	0.178
	59.960	0.194	197.403	0.006	14.050	-0.077	-1.076
	45.840	0.180	0.005	0.008	-0.070	-0.091	0.006
	52.350	0.269	41.474	0.000	6.440	-0.002	-0.010
	51.040	0.200	26.317	0.005	5.130	-0.071	-0.362
	58.120	0.200	149.084	0.005	12.210	-0.071	-0.862
	34.790	0.256	123.654	0.000	-11.120	-0.015	0.162
	28.480	0.396	303.805	0.016	-17.430	0.125	-2.186
	56.560	0.257	113.423	0.000	10.650	-0.014	-0.145
	77.640	0.169	1006.793	0.010	31.730	-0.102	-3.223
	44.420	0.376	2.220	0.011	-1.490	0.105	-0.157
	58.640	0.275	162.053	0.000	12.730	0.004	0.056
	45.410	0.256	0.250	0.000	-0.500	-0.015	0.007
	24.410	0.270	462.250	0.000	-21.500	-0.001	0.012
	47.830	0.252	3.686	0.000	1.920	-0.019	-0.036
	22.420	0.274	551.780	0.000	-23.490	0.003	-0.081
	47.780	0.360	3.497	0.008	1.870	0.089	0.167
	50.740	0.164	23.329	0.011	4.830	-0.107	-0.515
	51.250	0.340	28.516	0.005	5.340	0.069	0.371
	43.890	0.163	4.080	0.012	-2.020	-0.108	0.217
	63.160	0.237	297.562	0.001	17.250	-0.034	-0.579
	48.700	0.263	7.784	0.000	2.790	-0.008	-0.021
	32.810	0.363	171.610	0.009	-13.100	0.092	-1.211
	49.480	0.254	12.745	0.000	3.570	-0.017	-0.059
Total	**1285.480**	**7.576**	**4252.379**	**0.132**	**0.000**	**0.000**	**-12.084**

X Values

$\sum =$ 1285.480

Mean = 45.910

$\sum(X - M_x)^2 = SS_x =$ 4252.379

Y Values

$\sum =$ 7.576

Mean = 0.271

$\sum(Y - M_y)^2 = Ssy =$ 0.132

X and Y Combined

N = 28

$\sum(X - M_x)(Y - M_y) =$ -12.084

R Calculation

$r = \sum((X - My)(Y - Mx)) / \sqrt{((SSx)(SSy))}$

$r = -12.084 / \sqrt{((4252.379)(0.132))}$

-0.5108

Key

X: X Values
Y: Y Values
M_x: Mean of X Values
M_y: Mean of Y Values
$X - M_x$ & $Y - M_y$: Deviation scores
$(X - M_x)^2$ & $(Y - M_y)^2$: Deviation Squared
$(X - M_x)(Y - M_y)$: Product of Deviation Scores

Pearson correlation between Access to Education Index and Gini Coefficient Where, Access to Education Index is 'X' and Gini Coefficient is 'Y'

Figure No: 2 and Table No: 2

	X Values	Y Values	$(X - M_x)^2$	$(Y - My)^2$	(X - Mx)	(Y - My)	$(X - M_x)(Y - M_y)$
	0.330	0.270	0.001	0.000	0.029	-0.002	0.000
	0.220	0.306	0.007	0.001	-0.081	0.034	-0.003
	0.260	0.289	0.002	0.000	-0.041	0.017	-0.001
	0.200	0.401	0.010	0.017	-0.101	0.129	-0.013
	0.360	0.342	0.004	0.005	0.059	0.070	0.004
	0.260	0.194	0.002	0.006	-0.041	-0.078	0.003
	0.450	0.180	0.022	0.008	0.149	-0.092	-0.014
	0.240	0.269	0.004	0.000	-0.061	-0.003	0.000
	0.340	0.200	0.002	0.005	0.039	-0.072	-0.003
	0.430	0.200	0.017	0.005	0.129	-0.072	-0.009
	0.160	0.256	0.020	0.000	-0.141	-0.016	0.002
	0.210	0.396	0.008	0.015	-0.091	0.124	-0.011
	0.360	0.257	0.004	0.000	0.059	-0.015	-0.001
	0.370	0.169	0.005	0.011	0.069	-0.103	-0.007
	0.230	0.376	0.005	0.011	-0.071	0.104	-0.007
	0.300	0.275	0.000	0.000	-0.001	0.003	0.000
	0.250	0.256	0.003	0.000	-0.051	-0.016	0.001
	0.130	0.270	0.029	0.000	-0.171	-0.002	0.000
	0.330	0.252	0.001	0.000	0.029	-0.020	-0.001
	0.330	0.274	0.001	0.000	0.029	0.002	0.000
	0.270	0.360	0.001	0.008	-0.031	0.088	-0.003
	0.470	0.164	0.029	0.012	0.169	-0.108	-0.018
	0.290	0.340	0.000	0.005	-0.011	0.068	-0.001
	0.410	0.163	0.012	0.012	0.109	-0.109	-0.012
	0.350	0.237	0.002	0.001	0.049	-0.035	-0.002
	0.330	0.263	0.001	0.000	0.029	-0.009	0.000
	0.190	0.363	0.012	0.008	-0.111	0.091	-0.010
	0.370	0.254	0.005	0.000	0.069	-0.018	-0.001
	0.280	0.312	0.000	0.002	-0.021	0.040	-0.001
Total	8.720	7.888	0.206	0.133	0.000	0.000	-0.106

X Values

$\sum = 8.720$
Mean = 0.301
$\sum(X - M_x)^2 = SS_x = 0.206$

Y Values
$\sum = 7.888$
Mean = 0.272
$\sum(Y - M_y)^2 = Ssy = 0.133$

X and Y Combined
N = 29
$\sum(X - M_x)(Y - M_y) = -0.106$

R Calculation
$r = \sum((X - My)(Y - Mx)) / \sqrt{((SSx)(SSy))}$

$r = -0.106 / \sqrt{((0.206)(0.133))}$
-0.6423

Key

X: X Values
Y: Y Values
M_x: Mean of X Values
M_y: Mean of Y Values
$X - M_x$ & $Y - M_y$: Deviation scores
$(X - M_x)^2$ & $(Y - M_y)^2$: Deviation Squared
$(X - M_x)(Y - M_y)$: Product of Deviation Scores

For Figure No: 5

YEAR	POPULATION BETWEEN 18-23 ('000')	STUDENT ENROLLMENT ('000')	GROSS ENROLLMENT RATIO (GER)
2015	141291	34585	24.5%
2016	141537	35706	25.2%
2017	141830	36642	25.8%
2018	142079	37399	26.3%
2019	142329	38536	27.1%

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A Study on Impact of Social Media Advertising on Choice of Courses in Colleges Offering Undergraduate Courses with Reference to Mumbai (Western Zone)

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ABSTRACT
The main purpose of this study is to generate firm trademark patent and product awareness through advertising firms. The study has an aim to provide evidence that social media is helping the consumers with mental estimates of what to choose and what not to choose. The social media is useful as it has become main platform for interacting with various people such as family, individual, friends, colleagues, etc. The decline in the cost of uses of Internet and phone call has increased the uses of Internet phone by the students of the universities and they are constantly monitoring various event which are taking place in various part of the world with the help of internet. The paper reviews the impact of user's collective value creation through consumptive practices and to clarify if social media advertising as a stool has potential to influence the undergraduate students of University of Mumbai. The results of this study is useful for measuring the effectiveness of information received from social media and will be relevant for researchers and academia which can carry out for the further investigation on the subject. The finds of study will be helpful for educating the investors, companies and individuals those who are contending in social media advertising. The study will be carried on in the city of Mumbai (eastern suburbs, western suburbs and island city), covering the undergraduate students from various colleges offering wide range of academic courses.

Keywords: Advertising, Social Media Advertising, Technology

1. INTRODUCTION

Technology has brought the world under one roof. It has made the society into 'global village'. Interactive communication has been established in all the sectors of life. The butter to the bread has been added by the growing use of social media. This media has enabled several commercial, non-commercial, governmental, educational and health care services to advertise their products in a very easy and cheap manner. This type of advertisement has influenced wide range of population. The young generation people are getting the maximum advantage through the advertisement of the products by using social media. Now the people are getting choice at door steps. With this the quality and the advantages the products offer has also improved. Usually it is said that if one can control the technological world, he has the eternal power to rule the world.

Many firms do use social media for rooting its base in the global competitive world. Usually it is the trend that the customers make the enquiry on internet about the various institutions or companies and the products they offer. Social media is responsible to influence the opinion of the audience through communication and advertising. However, not all the platforms of using social media are safe. Some of them try to influence the customers in a negative way.

Considering the usage of social media by the undergraduate students in Mumbai to make a choice about the courses in the colleges, it can be truly pointed out that; social media has become a part and parcel of life. Three decade earlier students were unaware of many of social media channels and their usage. They were not using many of the platforms. Infact, it can be said that, the traditional means of advertisement of the courses were only the source they were getting to know about the courses functioning in various colleges of Mumbai. Most of the times, it was only by word of mouth, that the students were getting to know, which college is offering which course. At the most, the students were checking on the sites of colleges about the courses they were offering. Pamphlets and leaflets were used by the newly started college or a very small and remote college. All these were the sources of advertisement used earlier.

Gradually there was evolution of means of advertisement. People started using search engines to check with the courses and associated college, instead of directly jumping on to the college websites. Students search for the reviews of the colleges and universities from the social media. With such evolution, many students were also able to move out of the city to fetch their dreams and they get all the information as per their wish. With print advertisements this was not that possible. The social media has covered lots of disadvantages of the traditional way of advertising that was not possible in previous

2. LITERATURE REVIEW

2.1Choudaha & Chang (2012) mentions that as like any institute, the Universities and colleges focus on cost cutting and become more strategic to attract on international students for different courses. Thus, there is a need that the universities and colleges advertise their courses through socio media platforms and attract more number of students.

2.2Kingsbury (2012) also signifies the important fact that financial aspects are very much important factor to impact students' decision making process in not only the cost of education, but also cost of living and studying.

2.3According to Mazzarol and Soutar (2002), the elements which impacts the students' determination of a host nation are private proposals or idea and individual information or consciousness of the host country.

2.4According to Dalfonso, Pratt, and Rogers (2014) when respondents were asked how regularly they saw web-based media locales for the schools/colleges they were thinking about, Facebook stayed the most used followed by YouTube and afterward Twitter. Of the respondents, 33% showed they visited the Facebook site of a specific school one time per week or more, 20% of the respondents visited the schools' YouTube site one time each week or more and 17% of respondents collaborated with the schools' Twitter channel one time per week or more.

3 OBJECTIVES OF THE STUDY

With the aim of studying the role of social media advertisement used by the higher education institutes in Mumbai on influencing the decision of the students in choosing the courses in various colleges of Mumbai, the main objectives of the present study is -

To investigate the attitude of students of online social media towards advertisements of courses through higher education institutes in Western region of Mumbai.

4 RESEARCH QUESTIONS

4.1 What are effect of media exposure on choice of academic courses in the colleges of Western Mumbai?

4.2 What are impact of Internet and IT on choice of academic courses in the colleges of Western Mumbai?

5. DATA & METHOD0LOGY

For the present research the data was collected online from the undergraduate student of Mumbai University in January 2020. The data was collected to address the research questions and fulfill the objective of the study. Statistical techniques were used to denote the results of the study and further conclusion were derived. At the same time secondary data was obtained from the journals and books related to the relevant topics of the study.

6. RESEARCH FINDING

The typology of the three portions of the respondents can be surmised from the degrees of exercises did routinely and showed in Figure 1.

(1) Basic consumers: This portion is made out of cases that are not relegated to any of the elements and addresses 29.5% of the market. It is portrayed by the low degrees of online media use, restricted to low degrees of engaging and social exercises.

(2) Social consumers: This portion incorporates cases having a place with factor 1 however not to factor 2 and addresses 40.7% of the all out populace. Engaging and social exercises are the fundamental reasons of this portion to utilize web-based media; social consumers can be portrayed as aloof consumers. Strangely, most of the fragment is effectively occupied with just two data trading exercises to be specific the sharing of pictures and recordings.

(3) Informational consumers: This section incorporates consumers that are occupied with the sort of exercises portrayed by factor 2 and addresses 29.8% of the market. Enlightening consumers look like the social consumers as far as their engaging and social exercises, yet dissimilar to the social consumers they are considerably more occupied with data looking for exercises.

A fascinating finding is that future college understudies utilize the online media with regards to more dynamic types of purpose like sharing substance of various structures or effectively contributing substance like item audits and recording remark on websites and different forums.

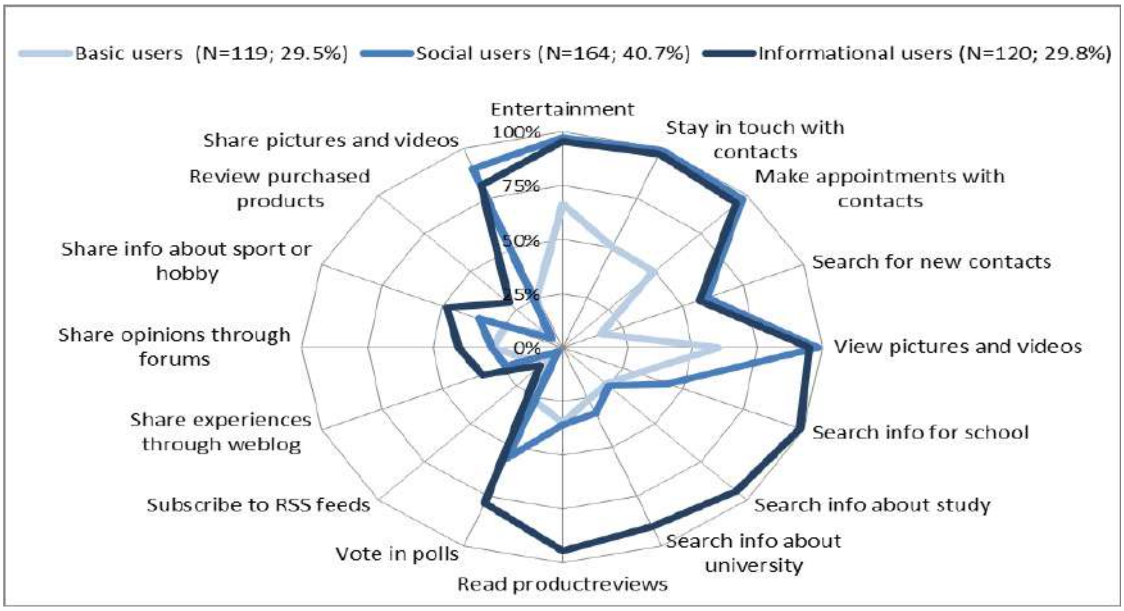

Figure 1 - Percentage of segment that are performing a some activities regularly on Social Media (N=403)

The orientation and educational program profiles continued in the optional training vary essentially between the fragments as displayed in Figure 2. Most male students are essential consumers, while the vast majority of the females are social consumers. Moreover, a bigger extent of females are enlightening consumers, portraying the females as additional "socially locked in" consumers than the guys. In addition, understudies following the science and innovation educational plan profile are for the most part essential consumers, while understudies following the way of life and society educational program profile are maximum the users of the internet.

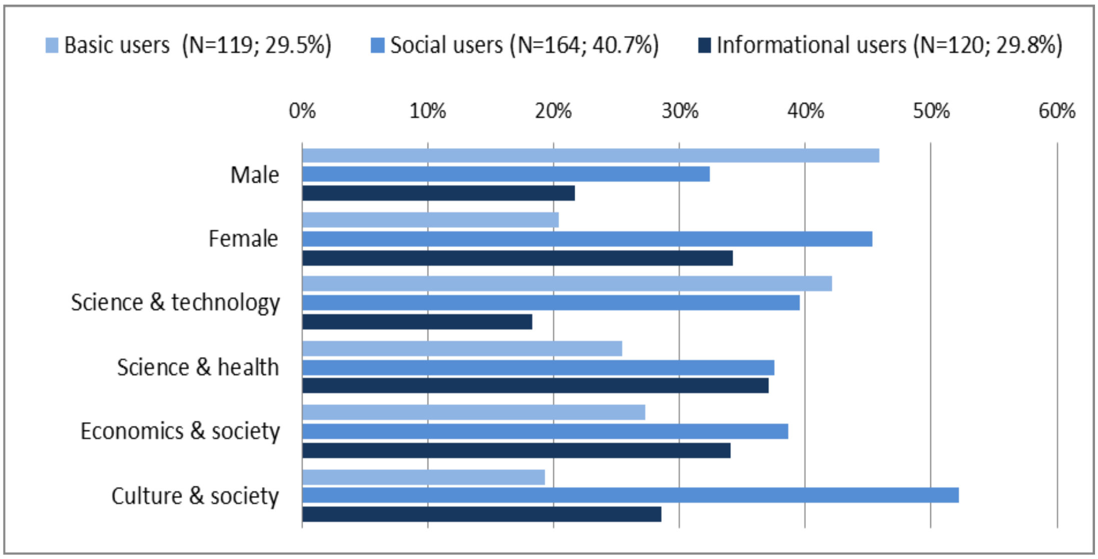

Figure 2. Gender and curriculum profile composition (N=403)

Figure 3 shows the web-based media applications where respondents keep up with no less than one profile. Considering the full example the Mumbai Social Networking Site is the most well known among future understudies in the Mumbai (88.4%), trailed by the video content local area YouTube (60.1%) and the SNS Facebook (40.3%). Critical contrasts were found between the fundamental consumers and the other two fragments. True to form, bigger bits of the social consumers and instructive consumers keep up with different online media site profiles. Additionally, these two fragments sign in more often into their profile than the fundamental consumers. Practically the social consumers in general (95.2%) and a greater part of the educational consumers (89.2%) sign in no less than one time each day, contrasted with about portion of the fundamental consumers (49.5%). The enlightening consumers have the largest number of long range informal communication profiles in all famous web-based media applications with the exception of one (Hyves). Curiously, a fairly little level of consumers from every one of the three sections have a Twitter profile.

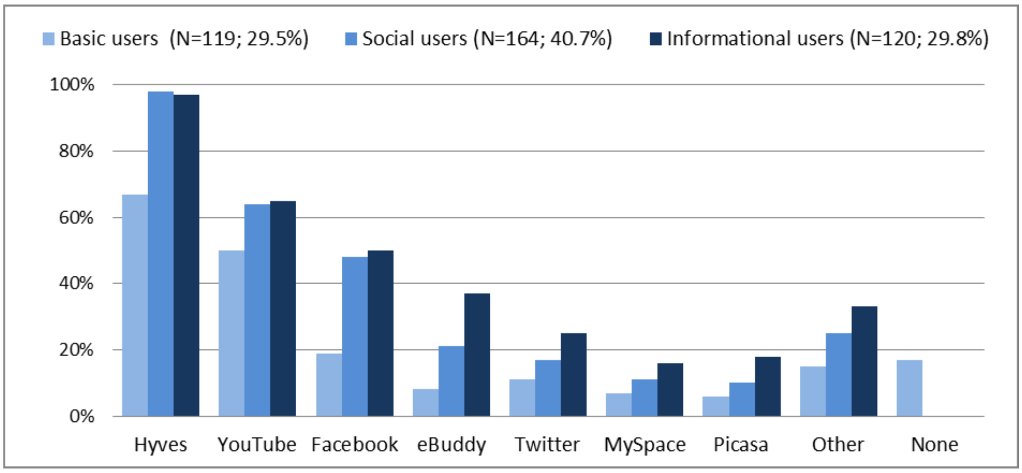

Figure 3. Percentage of segments that are maintaining a profile on Social Media (N=403)

7. CONCLUSION

It can be concluded that social media serves as a unique platform for influencing the decision of any individual. If this platform is used effectively by the advertising firms, not only the institutions will get the customer base but also the consumers will get choice in the open market. At the same time, by analysing the responses of the study, it can be brought to the notice that, there are various courses, which are very limited in the city of Mumbai. These courses are offered by only a few colleges, with a very high fee. At the same time, there are some vocational and skill development courses which are not available in Mumbai, but the colleges in coastal Sindhudurg and remote areas of Thane, mostly pertaining to tourism. With the help of social media, other way around data can also be collected from these students as to which is the most influential and essential course in the present day. The usage of social media advertising can give a rough idea about the future students who will be enrolling themselves towards these courses. The role of Artificial Intelligence/ Machine Learning (ML) will work out better in this direction. The idea of student base would be clearer, which will help the institutions to design the course in a needful way. This information will also enable the institutions to mark the required amount of infrastructure for the desired course. If all these arrangements can be made, then definitely, 'brain drain' will stop and our students can get quality education in their own town.

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Risk Assessment and Multielemental Screening of Elemental Impurities in Montelukast Sodium by Inductively Coupled Plasma Mass Spectrometry (ICP-MS)

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ABSTRACT
A highly selective, specific, precise, sensitive, and reliable ICPMS method has been developed for risk assessment and multielemental screening of elemental impurities present in Montelukast Sodium by using ICP-MS for the determination of Ag, As, Au, Ba, Cd, Co, Cr, Cu, Hg, Ir, Li, Mo, Ni,Pb, Pd, Pt, Rh, Ru, Sb, Se, Sn, Tl,and V . The described ICP-MS method provides specific detection and quantification of minor and trace elements from 0.3J(30%) to 2J(200%) of its individual specification of each element i.e. Ag, As, Au, Ba, Cd, Co, Cr, Cu, Hg, Ir, Li, Mo, Ni,Pb, Pd, Pt, Rh, Ru, Sb, Se, Sn, Tl,and V. The developed analytical method found to be Linear for each individual element with working concentration range from 30%, 50%, 100%, 150% and 200% i.e 0.3J, 0.5J, 1J, 1.5J and 2J with correlation coefficient not less than 0.990.The % recoveries of elemental impurities of each individual elements at three different concentrations with spiking in samples were found to be an acceptable range as 70% to 150%.method was seen be accurate, exact precise and robust and its (RSD) relative standard deviation was below 20%.The actual observed relative standard deviation in Accuracy/Recovery was found to be in an acceptable range. Therefore developed method can be recommended for routine quantitative analysis of elemental impurities like Ag, As, Au, Ba, Cd, Co, Cr, Cu, Hg, Ir, Li, Mo, Ni, Pb, Pd, Pt, Rh, Ru, Sb, Se, Sn, Tl, and V to ensure the quality of Montelukast Sodium drug product.

Keywords: Inductively coupled plasma mass spectrometry (ICP-MS),Relative Standard Deviation (RSD).

1. INTRODUCTION

The control of elemental impurities has long existed within the pharmacopoeias. Mainly by use of a Colour Development Method (USP <231>) .Wet science chemistry test utilizing the technique of a colour change of the product compared to a reference standard. This technique has several problems, it is vague, nonspecific, prone to low recuperations recoveries, workup is not optimized and upgraded for volatile elements and is very subjective, the colour change is relatively unpretentious and is very contingent on the operator and is also irksome if a coloured test solution is obtained.

Therefore, great effort is require for the development of new advanced methods for the proper risk assessments and multielement screening to control metals in pharmaceuticals drug product and (API) Active Pharmaceutical Ingredients that rely on modern advance analytical methodologies like ICP-MS.Color comparison of test will be replaced by ICP-MS) Inductively coupled plasma mass spectrometry which is a latest advance highly sensitive technology that achieves low detection limits for almost all elemental impurities.

The classical methods of wet chemistry analysis include colorimetry, gravimetry and titrimetry. The process of colorimetry relies on changes in color to show qualitative chemical measurements and identify elements. Gravimetric analysis entails the measurement of solids precipitated and weighed from a sample after dissolution. Titration can be used to determine the concentration of a known reactant. Titrations often use visual indicators, such as a color change in the reactant mixture, to indicate the endpoint of a reaction (1)

This technique has several problems, it is vague, nonspecific, prone to low recuperations recoveries, workup is not optimized and upgraded for volatile elements and is very subjective, the colour change is relatively unpretentious and is very contingent on the operator and is also irksome if a coloured test solution is obtained. Therefore, great effort is required for the development of new advanced methods for the proper risk assessments and multi-element screening to control metals in pharmaceuticals drug product and (API) Active Pharmaceutical Ingredients that rely on modern advance analytical methodologies like ICP-MS.

1.1 AIM

The purpose of this enhanced research study is Preliminary risk assessment and multielemental screening of elemental impurity in Montelukast Sodium for determination of Ag, As, Au, B, Ba, Cd, Co, Cr, Cu, Hg, Ir, Li, Mo, Ni, Pb, Pd, Pt, Rh, Ru, Sb, Se, Sn, Tl and V present in Montelukast Sodium substance as per ICH guideline, in terms of specificity, linearity, accuracy and quantitation limits.

The method is based on analysis performed with (ICPMS) inductively coupled plasma mass spectrometer Agilent, Model 7700x and Mass hunter workstation software A.01.02.

It is important and essential that impurities generated in pharmaceuticals at various stages of development, transportation and storage must be detected and quantified. ICP-MS plays an important function in the recognition and revealing of elemental impurities (2).

Montelukast sodium is a leukotriene receptor antagonist (LTRA) used in maintenance treatment of asthma and to relieve symptoms of seasonal allergies (4).

Chemically Montelukast sodium is [R-(E)]-1-[[[1-[3-[2-(7-chloro-2quinolinyl)ethenyl]phenyl]-3-[2-(1-hydroxy-1methylethyl)phenyl]propyl]thio]methyl]cyclopropaneacetic acid, monosodium salt. Molecular formula is $C_{35}H_{35}ClNNaO_3S$ and molecular weight is 608.18 g/mol. It is freely soluble in ethanol, methanol, and water and practically insoluble in acetonitrile (3).

[9].

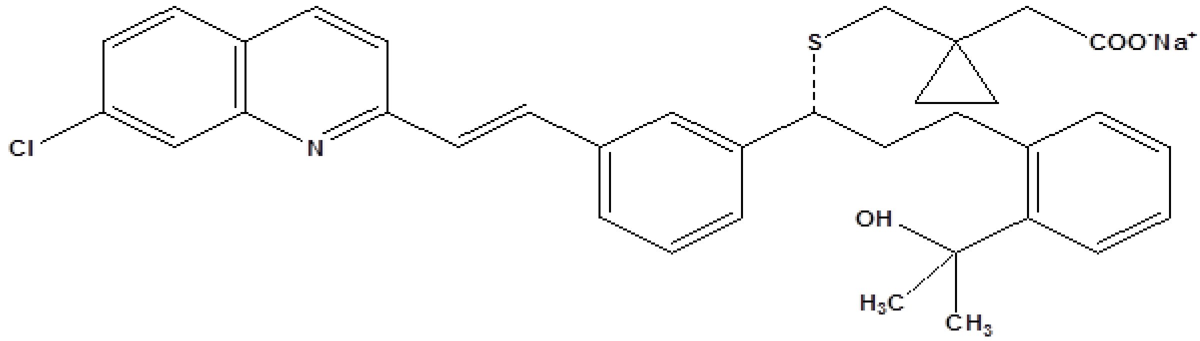

Figure 1: Chemical structure of Montelukast Sodium[2]

2. MATERIALS AND METHODS:

2.1 Reagents and Chemicals:

The samples and standard for the method is prepared by using reagents of trace metal grade ultrapure concentrated nitric acid, hydrochloric acid (J.T.Baker), multielement standard of Ag, As, Au, Ba, Cd, Co, Cr, Cu, Hg, Ir, Li, Mo, Ni,Pb, Pd, Pt, Rh, Ru, Sb, Se, Sn, Tl, and V from inorganic venture. Ultrapure de-ionized water from a Milli-Q analytical reagent grade water purification system was used.All volumetric flasks used in preperations were made up of polypropylene (PP) and polymethyl pentane (PMP).

2.2 ICP-MS Instrument and Equipment:

The elemental impurity (heavy metal) analysis was carried out by using Agilent technologies 7700 Series (ICPMS MODEL 7700X) with Mass Hunter Workstation Software for ICP-MS with Milestone Microwave Reactor Milestone, model Ultra WAVE.

The Agilent 7700x ICP-MS provides unmatched consistency in high matrix samples redefining cell performance in helium mode with revolutionary 3rd generation cell design-ORS (Octapole Reaction System), it includes a standard helium (He) mode cell gas line which provides elimination of polyatomic interference. The advanced high energy helium mode (He) was used in this method.

The instrument equipped with standard nickel sampling and skimmer cones and concentric nebulizer of glass, quartz spray chamber and quartz torch with 2.5 mm id injector. An agilent ASX-500 ICP-MS auto- sampler was used to deliver the samples. It can measure trace metals as low as one part per trillion (ppt) and have capability to quick scan more than 120 elements to determine the composition of unknown samples with MassHunter Workstation Software that automates the analysis and accurately interprets the analysed data.

For exact and accurate quantitative determination of trace elements in sample matrix, an internal standard method was used using an internal standard and a multi-standard calibration method. The operating conditions of ICPMS method are as follows: carrier gas (argon)flow rate 15L\min,collision gas Helium flow rate 4mL/min,Spray chamber temperature 2ºC , Nebulizer pump 0.10 rps, Nebulizer pump / rps 0.10, RF forward power 1500 W, Sampling depth 10mm,Quartz Torch.

Acquisition Mode is Spectrum, Peak Pattern1PointReplicates, 3Sweep/Replicates 100, Stabilization time 50sec, He mode, Stabilization time 50sec, No gas mode.

Table 1: Instrument analytical condition of ICPMS

Element	Mass	Label	No Gas mode	He Gas	Type	Internal Std.
			Integration Time / second			
Li	7	^{7}Li	1.00	N/A	Analyte	^{72}Ge
B	11	^{11}B	0.10	N/A	Analyte	^{72}Ge
V	51	^{51}V	N/A	0.09	Analyte	^{72}Ge
Cr	52	^{52}Cr	N/A	0.30	Analyte	^{72}Ge
Co	59	^{59}Co	N/A	0.30	Analyte	^{72}Ge
Ni	60	^{60}Ni	N/A	0.30	Analyte	^{72}Ge
Cu	63	^{63}Cu	N/A	0.30	Analyte	^{72}Ge
As	75	^{75}As	N/A	1.50	Analyte	^{72}Ge
Se	78	^{78}Se	N/A	1.50	Analyte	^{72}Ge
Mo	95	^{95}Mo	0.30	N/A	Analyte	^{72}Ge
Ru	101	^{101}Ru	0.30	N/A	Analyte	^{72}Ge
Rh	103	^{103}Rh	0.30	N/A	Analyte	^{72}Ge
Pd	105	^{105}Pd	0.30	N/A	Analyte	^{72}Ge
Ag	107	^{107}Ag	0.12	N/A	Analyte	^{72}Ge
Cd	111	^{111}Cd	0.99	N/A	Analyte	^{72}Ge
Sn	120	^{120}Sn	0.10	N/A	Analyte	^{163}Dy
Sb	121	^{121}Sb	0.30	N/A	Analyte	^{163}Dy
Ba	138	^{138}Ba	0.10	N/A	Analyte	^{163}Dy
Ir	193	^{193}Ir	0.30	N/A	Analyte	^{163}Dy
Pt	195	^{195}Pt	0.30	N/A	Analyte	^{163}Dy
Au	197	^{197}Au	0.12	N/A	Analyte	^{163}Dy
Hg	202	^{202}Hg	1.50	N/A	Analyte	^{163}Dy
Tl	205	^{205}Tl	1.50	N/A	Analyte	^{163}Dy
Pb	208	^{208}Pb	0.30	N/A	Analyte	^{163}Dy
Ge	72	^{72}Ge	0.10	0.30	Internal Std	N/A
In	115	^{115}In	0.09	0.30	Internal Std	N/A
Dy	163	^{163}Dy	0.12	N/A	Internal Std	N/A

Table 2: Microwave Reactor Temperature Program for Sample matrix digestion.

Microwave Reactor Temperature Program					
Sr.No.	time (min)	Energy (W)	Temperature 1 (^{0}C)	Temperature 2 (^{0}C)	Pressure (bar)
1	00:20:00	1500	200	70	100
2	00:25:00	1500	230	70	100

Table 3: Specification Information for Montelukast Sodium

<table>
<tr><th rowspan="2">Analyte</th><th colspan="4">Class 1</th><th colspan="3">Class 2A</th><th colspan="9">Class 2B</th><th colspan="7">Class 3</th></tr>
<tr><td>Cd</td><td>Pb</td><td>As</td><td>Hg</td><td>Co</td><td>V</td><td>Ni</td><td>Tl</td><td>Ag</td><td>Se</td><td>Au</td><td>Ru</td><td>Rh</td><td>Pd</td><td>Ir</td><td>Pt</td><td>Li</td><td>Sb</td><td>Ba</td><td>Cu</td><td>Mo</td><td>Sn</td><td>Cr</td></tr>
<tr><td colspan="24">Proposed specification limit in PPM according to ICH Q3D guideline (μg g^{-1})</td></tr>
<tr><td>Conc. in PPM</td><td>0.5</td><td>0.5</td><td>1.5</td><td>3</td><td>5</td><td>10</td><td>20</td><td>0.8</td><td colspan="2">15</td><td colspan="6">10</td><td>55</td><td>120</td><td>140</td><td colspan="2">300</td><td>600</td><td>1100</td></tr>
</table>

*PPM =Parts per million

For multi-metal screening of 23 elements in pharmaceutical API .There is no single standard solution having all elements of interest, becausesome specific elements require specific conditions for producing stable solution.

Therefore the desired standard solution have been made by using comercially available single element standard by reference standard material.Working standard solutions were prepared by diluting individul stock standard solutions.The tuning solution used for the ICP-MS instruements having composition of 1µg/L Ce,Co,Li,Mg,Tl and Y.The nonspectral matrix effects wereresolved by the addition of internal standards.

2.3 Preparation of Standard Stock solution 1(SS-1)

Transferred into 50 mL volumetric flask 1.0 mL of concentrated nitric acid and 250 µL of certified reference solution of each Cadmium, Lead and Cobalt, 750 µL of certified reference solution of Arsenic, 1500 µL of certified reference solution of Mercury, 1000 µL of certified reference solution of Nickel and 400 µL of certified reference solution of Thallium. Dilute to volume with de-ionised water.

2.4 Preparation of Standard Stock solution 2 (SS-2)

Transfer into 50 mL volumetric flask 1 mL of concentrated Nitric acid and 1000 µL of Stock solution 1 solution, 550 µL of certified reference solution of Lithium, 1100 µL of certified reference solution of Chromium , 300 µL of copper , 3000 µL of certified reference solution of molybdenum, 6000 µL certified reference solution of Tin, 1200 µL certified reference solution of Antimony, 1400 µL certified reference solution of Barium, 150 µL certified reference solution of each selenium, Silver, 100 µL certified reference solution of each Vanadium, Palladium, Iridium, Platinum, Rhodium, Ruthenium, and Gold. Dilute to volume with de-ionised water.

2.5 Stock solution of internal standard (ISTD)

Transfer into 10 mL volumetric flask made of polypropylene or polymethylpentene 100 µL of concentrated nitric acid, 250 µL certified reference solution each of Germanium and Dysprosium. Dilute to volume with de-ionised water.

2.6 On-line internal standard solution (OISTD)

Transfer into 100 mL volumetric flask made of polypropylene or polymethylpentene8 mL of concentrated nitric acid and 0.5 mL of Perchloric acid, 2.0 mL of Hydrochloric acid and 100 µL of certified reference solution of Indium. Dilute to volume with de-ionised water.

2.7 Preparation of Calibration working standard solutions

The calibration working standards were prepared at 30% (0.3J), 150% (1.5J) and 200% (2J) the target limit for each elemental impurities in the final analysis solution.

Transfer into three separate 50 mL volumetric flasks made of polypropylene or polymethylpentene, 4 mL of concentrated nitric acid, 0.25 mL of Perchloric acid and 1.0 mL of concentrated Hydrochloric acid,

Table 4: Preparation of working standard solutions:

Label	Working Standard-1	Working Standard-2	Working Standard-3
SS -2	150 µL	500 µL	1000 µL
ISTD	100 µL	100 µL	100 µL
De-ionized water	Dilute to the Volume		

Where:SS-2 = Standard Stock solution 2 preparation

ISTD = Internal standard solution

WS=Working Standard

2.8 Calibration Blank Solution

Transfer into 50 mL volumetric flask made of polypropylene or polymethylpentene 4 mL of concentrated nitric acid, 0.25 mL of Perchloric acid, 1.0 mL of concentrated Hydrochloric acid, and 100 µL of ISTD solution as internal standard and make up the volume with de-ionised water upto mark.

2.9 BLANK SOLUTION

Transfer into quartz digestion vessel 4 mL of concentrated nitric acid, 0.25 mL of Perchloric acid, and 100 µL of ISTD solution. Wait at least 30 min before the vessel is closed. Heat in the microwave reactor together with samples. When the microwave reactor temperature program finishes, transfer blank solution into a 50 mL volumetric flask made of polypropylene or polymethylpentene and add 1.0 mL of concentrated Hydrochloric acid. Dilute to volume with de-ionised water.

2.10 Sample preparation

Weigh about 100 mg of the substance in duplicate in two quartz digestion vessels and add to each vessel 4 mL of concentrated nitric acid, 0.25 mL of Perchloric acid and 100 µL of ISTD solution as internal standard. Shake each mixture carefully. Wait at least 30 min before the vessels are closed. Heat in the microwave reactor. When the microwave reactor temperature program finishes, allow the digestion vessels to cool down and then transfer solutions into a 50 mL volumetric flasks made of polypropylene or polymethylpentene and add 1.0 mL of concentrated Hydrochloric acid and dilute to volume with de-ionised water upto mark.

2.11 Calculation formula for Metal Content (ppm) in Sample

Elemental impurity metal content in ppm is calculated using the following formula:

Metal content (ppm) in Sample = $$\frac{c\left(\frac{ng}{mL}\right)\times V(mL)}{m(mg)}$$

c (ng/mL) = instrument read-out concentration

V (mL) = final volume of dissolved sample (50 mL)

m (mg) = sample weight (100 mg)

2.12 Spiked Sample preparation

Spiked samples were prepared by spiking reference standard materials of the target limit concentration at 50 %(0.5J), 100 %(1J)and 150 %(1.5J) with 250µL, 500µL and 750µL of the standard stock solution 2 (SS-2) alongwith 100µL of internal stock standard solution.

Three preperations at each spiking level were prepared and each solution was analysed in triplicate measurement.

2.13 MEASUREMENT

Determine Ag, As, Au, B, Ba, Cd, Co, Cr, Cu, Hg, Ir, Li, Mo, Ni, Pb, Pd, Pt, Rh, Ru, Sb, Se, Sn, Tl and V in sample solutions by Inductively Coupled Plasma Mass Spectrometry using the method of direct calibration. Introduce the OISTD solution via a t-piece incorporated into the sample introduction tube before the nebulizer.

3. RESULT AND DISCUSSION

3.1 Risk Assessment and Multielemental elemental impurity screening

The purpose of this work to demonstrate Risk Assessment and Multielemental elemental impurity screening for determination of elemental impurity in Montelukast Sodium. Content of Ag, As, Au, Ba, Cd, Co, Cr, Cu, Hg, Ir, Li, Mo, Ni, Pb, Pd, Pt, Rh, Ru, Sb, Se, Sn, Tl and V in with Sc and Dy as internal standard will be determined by Inductively Coupled Plasma Mass Spectrometry.

The following parameters have been tested during this Risk Assessment and Multi elemental impurity screening study:

I. Linearity& Range

II. Accuracy and Recovery

III. Specificity

IV. Quantitation

The Risk Assessment and Multi elemental impurity screening study was performed according to ICH Q3D guidelines[6,7&8.]

3.2 LINEARITY & RANGE

Linearity is the ability of the analytical method to obtain test results that are directly, or by a well defined mathematical transformation, proportional to the concentration (or amount) of Analyte in samples within a given range.

3.2.1 Working standard solutions for linearity

To demonstrate Linearity, five (5) solutions at different concentrations were prepared, Calibration blank solution ,WS-1 Solution, WS-2 Solution, WS-3 Solution, WS-4 Solution and WS-5 Solutions. Transfere into five separate 50 mL volumetric flasks made of polypropylene or polymethylpentene added 4 mL of concentrated nitric acid, 0.25 mL of Perchloric acid, 1.0 mL of concentrated Hydrochloric acid andand added as per below table.Each solution was analyzed in triplicate measurements.

Table 5: Preparing working standard solutions for linearity test.

Label	WS-1	WS-2	WS-3	WS-4	WS-5
SS	150 µL	250 µL	500 µL	750 µL	1000 µL
ISTD	100 µL	100 µL	100 µL	100 µL	100 µL
De-ionized water	Dilute to the volume with diluent upto 50mL				

3.2.2 Calibration Blank Solution

Transfer into 50 mL volumetric flask made of polypropylene or polymethylpentene 4 mL of conc. nitric acid, 0.25 mL of Perchloric acid($HClO_4$), 1 mL of concentrated Hydrochloric acid(HCl), and 100 µL of ISTD solution as internal standard.

Each solution was analyzed in triplicate measurements.

Table 6: Linearity Summary Results of Multielemental Screening of Montelukast Sodium

Sr.No.	Elemental metal Impurity	Correlation Coefficient	Sr.No.	Elemental metal Impurity	Correlation Coefficient
1	Lithium	0.9997	13	Silver	1.0000
2	Vanadium	0.9999	14	Cadmium	1.0000
3	Chromium	1.0000	15	Tin	1.0000
4	Cobalt	1.0000	16	Antimony	0.9998
5	Nickel	1.0000	17	Barium	1.0000
6	Copper	1.0000	18	Iridium	1.0000
7	Arsenic	0.9999	19	Platinum	1.0000
8	Selenium	0.9997	20	Gold	1.0000
9	Molybdenum	1.0000	21	Mercury	1.0000
10	Ruthenium	1.0000	22	Thallium	0.9993
11	Rhodium	1.0000	23	Lead	1.0000
12	Palladium	1.0000			
Acceptance Criteria			**Correlation Coefficient(r^2>0.99)**		

Hence Linearity result meets the Acceptance Criteria.Therfore Risk assessment and multielemental screening of elemental impurity in Montelukast Sodium for determination of Ag, As, Au, Ba, Cd, Co, Cr, Cu, Hg, Ir, Li, Mo, Ni, Pb, Pd, Pt, Rh, Ru, Sb, Se, Sn, Tl and V[10] in Montelukast Sodium substance is linear by using ICP-MS.

3.3 ACCURACY/RECOVERY

Accuracy is the closeness of test results obtained by the method to the true value. It may often be expressed as percent recovery by the assay of known, added amount of analyte. To demonstrate accuracy, a single unspiked sample and samples spiked with reference material, prepared in triplicate (3x), at concentrations of 0.5J, 1J, and 1.5J were prepared. Each solution was analyzed in triplicate measurements.

Table 8: Concentration levels for Accuracy test in ppm:

	c / ng mL^{-1}			
Metal Element	Level 1 (0J)	Level 2 (0.5J)	Level 3 (1J)	Level 4 (1.5J)
Li	-	55	110	165
B	-	100	200	300
V	-	10	20	30
Cr	-	1100	2200	3300
Co	-	5	10	15
Ni	-	20	40	60
Cu	-	300	600	900
As	-	1.5	3.0	4.5
Se	-	15	30	45
Mo	-	300	600	900
Ru	-	10	20	30
Rh	-	10	20	30
Ag	-	15	30	45

Cd	-	0.5	1.0	1.5
Sn	-	600	1200	1800
Sb	-	120	240	360
Ba	-	140	280	420
Pd	-	10	20	30
Ir	-	10	20	30
Pt	-	10	20	30
Au	-	10	20	30
Hg	-	3.0	6.0	9.0
Tl	-	0.80	1.60	2.40
Pb	-	0.5	1.0	1.5

Stock solutions of Ag, As, Au, Ba, Cd, Co, Cr, Cu, Hg, Ir, Li, Mo, Ni, Pb, Pd, Pt, Rh, Ru, Sb, Se, Sn, Tl and V was added to nine sample solutions before microwave digestion as shown in the table below.

Table 9 Preparation of solutions for Accuracy/Recovery Parameter

Flask No.	1-3	4-6	7-9	10-12
Added Volume of SS-2*	_	250 µL	500 µL	750 µL
Added Volume of ISTD	_	100 µL	100 µL	100 µL
Diluent	Dilute to the volume with diluents			

*SS-2=Standard Stock solution-2

PROCEDURE:

1. Analyzed the Unspiked Sample Preparation, 0.5J Spiked Sample Preparations, 1J Spiked Sample Preparations, and 1.5J Spiked Sample Preparations.
2. Determined the amount/concentration of Analyte in each solution.
3. Calculated the Percent Recovery for the average results of triplicate preparations at each concentration level for the Analyte.
4. Calculated the Relative Standard Deviation (RSD) of the triplicate results for each concentration.

ACCEPTANCE CRITERIA:

1. Percent Recovery is 70% - 150% for the average results of triplicate preparations at each concentration of the Analyte.
2. The calculated Relative Standard Deviation (RSD) from the triplicate results of each concentration is NMT 20%.

Sample preparation was described in the paragraph 2.10. Sample preparation. The calculated contents of Ag, As, Au, Ba, Cd, Co, Cr, Cu, Hg, Ir, Li, Mo, Ni, Pb, Pd, Pt, Rh, Ru, Sb, Se, Sn, Tl and V[10] are given in the table below and statistically evaluated.

Table 10: Percentage Recovery for all USP restricted elements analysed in this research study at three different concentration levels are:

Element	% Recovery at 0.5 J		% Recovery at 1.0 J		% Recovery at 1.5 J	
	Mean %	RSD %	Mean %	RSD %	Mean %	RSD %
Li	100	1.0	100	0.9	99	1.0
V	101	2.0	101	1.0	101	1.0
Cr	99	2.0	99	1.0	98	2.0
Co	98	2.0	99	1.0	97	2.0
Ni	98	2.0	98	1.0	96	2.0
Cu	100	1.0	99	0.9	98	2.0
As	101	1.0	99	1.0	98	2.0
Se	99	2.0	104	3.0	100	1.0
Mo	100	1.0	100	0.8	99	1.0
Ru	98	1.0	98	0.9	97	1.0

Rh	99	2.0	98	1.0	96	1.0
Pd	95	2.0	95	0.9	95	1.0
Ag	92	1.0	97	0.9	96	2.0
Cd	97	2.0	97	1.0	96	1.0
Sn	101	2.0	100	1.0	99	2.0
Sb	103	2.0	101	1.0	101	1.0
Ba	100	2.0	99	2.0	99	1.0
Ir	92	2.0	99	0.8	97	1.0
Pt	99	2.0	97	1.0	96	1.0
Au	90	2.0	91	0.9	99	1.0
Hg	99	2.0	99	1.0	99	1.0
Tl	93	2.0	93	1.0	93	2.0
Pb	96	1.0	95	1.0	95	2.0

Hence method for determination of Ag, As, Au, Ba, Cd, Co, Cr, Cu, Hg, Ir, Li, Mo, Ni, Pb, Pd, Pt, Rh, Ru, Sb, Se, Sn, Tl and V[10] in Montelukast Sodium substance is accurate.

3.4 SPECIFICITY

Specificity is the ability of the analytical method to measure accurately and specifically the analyte in the presence of components that may be expected to be presented in the sample matrix, e.g. other metal impurities. Specificity is a measure of the degree of interference (or absence thereof) in the analysis of complex sample mixtures.

To evaluate specificity of the method the contents of Ag, As, Au, Ba, Cd, Co, Cr, Cu, Hg, Ir, Li, Mo, Ni, Pb, Pd, Pt, Rh, Ru, Sb, Se, Sn, Tl and V[10] in Montelukast Sodium sample were compared with contents of Ag, As, Au, Ba, Cd, Co, Cr, Cu, Hg, Ir, Li, Mo, Ni, Pb, Pd, Pt, Rh, Ru, Sb, Se, Sn, Tl and V[10] in Montelukast Sodium sample in Accuracy test (Level 2),Hence it was found that there is no interference observed in the analysis of complex sample mixtures.

3.5 QUANTITATION LIMIT

Quantitation Limit (QL) is a parameter for low levels of compounds in sample matrices, such as metal impurities. It is the lowest concentration of analytes in a sample that can be determined with acceptable precision and accuracy under the stated experimental conditions.

To detemine QL, the samples spiked with reference material at concentrations of 0.3J were prepared.

Table 11: Specification Information of Quantitation Limit (QL) for Montelukast Sodium

Analyte	Class 1				Class 2A			Class 2B									Class 3						
	Cd	Pb	As	Hg	Co	V	Ni	Tl	Ag	Se	Au	Ru	Rh	Pd	Ir	Pt	Li	Sb	Ba	Cu	Mo	Sn	Cr
Proposed specification limit in PPM according to ICH Q3D guideline (µg g-1) for Quantitation Limit (QL)																							
Conc. in PPM	0.3	0.3	0.9	1.8	3	6	12	0.48	9		6						33	72	84	180		360	660

Stock solutions of Ag, As, Au, Ba, Cd, Co, Cr, Cu, Hg, Ir, Li, Mo, Ni, Pb, Pd, Pt, Rh, Ru, Sb, Se, Sn, Tl and V[10] were added to six sample solutions at concentration of 0.3J before microwave digestion as shown in the table below.

Table 12: Specification Information of Quantitation Limit (QL) for Montelukast Sodium

Label	QL Sample Solutions (0.3J)
SS	150 µL
ISTD	100 µL

PROCEDURE:

1. Analyzed the 0.3J QL Sample Solution six (6) times each, while appropriately bracketed by the 0.3J Quality Check Solution.
2. Determined the amount/concentration of Analyte in the solutions.

ACCEPTANCE CRITERIA:

1. Percent Recovery is 70% - 150% for the average results of triplicate preparations at each concentration of the Analyte.
2. The Relative Standard Deviation (RSD) of the analyte from the six (6) preparations is NMT 20%.

Analyte contents in Montelukast Sodium sample that has not been spiked are shown by comparing the accuracy test results. The calculated contents in each sample are given in the table below and statistically evaluated.

Table 13: Summarized results of Quantitation Level:

Percent Recovery at Quantitation Level 0.5 J			
Element	**% Average recovery**		**% RSD**
Li	96		2.0
V	99		1.0
Cr	98		1.0
Co	97		1.0
Ni	96		1.0
Cu	100		1.0
As	99		1.0
Se	102		3.0
Mo	100		0.9
Ru	97		1.0
Rh	93		1.0
Pd	94		0.8
Ag	92		0.9
Cd	95		1.0
Sn	98		1.0
Sb	100		2.0
Ba	98		1.0
Ir	92		1.0
Pt	97		1.0
Au	89		1.0
Hg	97		1.0
Tl	91		2.0
Pb	92		1.0
Acceptance Criteria	For Recovery	70-150%	Hence Result meets the Acceptance Criteria.
	For RSD	$\leq$20%	Hence Result meets the Acceptance Criteria.

4. DISCUSSION

This method is very advance and sophisticated reliable to be very much accurately precise and technically advance and less hazardous method which is consider for risk assessment and multielemental screening assessment, so it is therefore essential to develop such kind of ICPMS methods which will characterize and determine identified as well as unidentified impurities present in active pharmaceutical ingredients. This method is used to analyze and determine the probability of possible elemental metal degradational impurities.

The described ICP-MS method provides specific detection and quantification of minor and trace elements from 0.3J(30%) to 2J(200%) of its individual specification of each element i.e Ag, As, Au, Ba, Cd, Co, Cr, Cu, Hg, Ir, Li, Mo, Ni, Pb, Pd, Pt, Rh, Ru, Sb, Se, Sn, Tl, and V.The analytical method found to be Linear for each individual element with working concentration range from 30%, 50%, 100%, 150% and 200% i.e 0.3J, 0.5J, 1J, 1.5J and 2J with correlation coefficient not less than 0.990.

5. CONCLUSION:

The proposed ICPMS method gives accurate and precise results for determination of for Montelukast Sodium and is easily applied for routine analysis. The most striking feature of the developed ICPMS method is its simplicity and rapidity. Method adequately demonstrated Specificity,Linearity Quantitation and Accuracy/recovery for risk assessment and multielemental screening of Ag, As, Au, Ba, Cd, Co, Cr, Cu, Hg, Ir, Li, Mo, Ni, Pb, Pd, Pt, Rh, Ru, Sb, Se, Sn, Tl, and V [10] in Montelukast sodium by using Inductively Coupled Plasma Mass Spectrometry (ICP-MS).All results met Acceptance Criteria for Specificity. Method adequately demonstrated Specificity for elemental Ca contents in Montelukast sodium. All system suitability parameters are with in range and satisfactory as per ICH guidelines[8].

The % recoveries of elemental impurities of each individual elements at three different concentrations with spiking in samples were found to be an acceptable range as 70% to 150%.All acceptance criteria described for accuracy were met as the spike recoveries for the mean of all six preperations at each spiking concentration for each element was within specification criteria i.e 70% -150% and the % RSD for each six replicates at each of the spiking concentrations for each element was ≤ 20%.

Specificity was assessed to show the absence of isobaric and polyatomic interference via quantifying the spiked samples against the calibration standard solution and meeting the the requirements of accuracy. No interference observed by the measured mass of any target element from the elements from the elements present in specificity solutions.

The use of ICPMS technique significantly reduces the time required for the analyses

As a consequence, this technique holds great potential for future use.

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Biochemical and Pharmacological Analysis of Siddha Herbal Formulation- Lavanga Chooranam

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ABSTRACT
The traditional Siddha system of medicine has several herbal formulations that are increasingly utilized to treat a wide variety of diseases. Lavanga Chooranam (LC) is a Siddhasingle herbal formulation indicated in literature for the management of hepatic disorders. The present study was focused to scientifically evaluate the chemical and pharmacological analysis of Lavanga Chooranam (LC). The preliminary preclinical analysis performed in this present study were performed in experimental animal models of Wistar albino rats consisting of 3 groups (n=3). The pharmacological actions included were antipyretic activity by yeast induced method, anti-inflammatory activity by hind paw method and hepatoprotective action in Carbon tetrachloride (CCl_4-) induced liver injury. The chemical analysis reveals the presence of calcium, chloride, starch, Ferrous Iron, phosphate, unsaturated compound and Amino acid. The results of pharmacological study conclude that the study drug possess noteworthy antipyretic, anti-inflammatory and hepatoprotective action.

Keywords: Lavanga Chooranam (LC), Traditional medicine, Herbal medicine, Antipyretic, Anti-inflammatory, Hepatoprotective, Chemical analysis.

1. INTRODUCTION

Siddha is one among the well-known global system of medicine which is constantly playing an important role in providing health care to large section of population, especially in developing countries. WHO estimates that nearly 4.3 billion people or 80% of the global population rely on traditional medicine for their primary health care needs.[1]

Lavanga Chooranam (LC) is one such formulation that has been indicated in Siddha literature Agasthiar Attavanai Vagadam for the treatment of ManjalKamalai (Liver disorders, hepatitis).[2] but the pharmacological knowledge about their target action is relatively deficient. The emerging interest regarding the scientific evaluation of various herbal drugs has provoked the author to assess the preliminary preclinical analysis of Lavanga Chooranam(LC) for its antipyretic, anti-inflammatory and hepatoprotective action.

2. MATERIALS AND METHODS

Table-1. Preparation of study drug – LAVANGA CHOORANAM

S.No	Study Drug (Tamil Name)	Botanical Name	Quantity (Grams)
1.	Lavangam	Syzygiumaromaticum	100
2.	Elam	Elettaria cardamomum	100
3.	Thalisapathiri	Abieswebbiana	800
4.	Athimathuram	Glycyrrhiza glabra	1600

These above-mentioneddrugs were taken and dried well. The dried pieces were finely powdered and then sieved by fine cotton cloth and preserved in an air tight container.

Dose **:** 1-2 gms thrice a day before food.

Adjuvant **:** Sugar

Indications **:** Manjal Kamalai (Liver disorders, hepatitis) [2]

2.1. Bio-chemical analysisPreparation of extract

5gms of Lavangachooranam was weighed accurately and placed in a 250ml clean beaker. Then 50ml distilled water was added to it and dissolved well. Then it was boiled well for about 10 minutes. It is cooled and filtered in a 100ml volumetric flask and then it is made up to 100ml with distilled water. This fluid was taken for analysis.[3]

Table-2. Preliminary chemical evaluation of the study drug LC

S.NO.	EXPERIMENT	OBSERVATION	INFERENCE
1.	**Test for Calcium** 2ml of the above prepared extract is taken in a clean test tube. 2 ml of 4% Ammonium oxalate solution is added to it	A white precipitate is formed	Indicates the presence of calcium
2.	**Test for sulphate** 2ml of the extract is added to 5% barium chloride solution.	No white precipitate is formed	Absence of sulphate
3.	**Test for chloride** The extract is treated with silver nitrate solution.	formed	chloride is present.
4.	**Test for carbonate** The substance is treated with concentrated HCL.	No brisk effervescence is Formed.	Absence of carbonate
5.	**Test for starch** The extract is added with weak iodine solution.	Blue color is formed	Indicates the presence of Starch
6.	**Test for iron-ferric** The extract is treated with Glacial acetic acid and potassium Ferro cyanide.	No blue color is formed	Absence of ferric Iron.
7.	**Test of iron Ferrous:** The extract is treated with concentrated Nitric acid and ammonium thiocyanate.	Blood red color is formed	Indicates the presence of Ferrous Iron
8.	**Test for phosphate** The extract is treated with ammonium Molybdate and concentrated nitric acid.	yellow precipitate is formed	Indicates the presence of phosphate
9.	**Test for Albumin** The extract is treated with Esbach's reagent.	No Yellow precipitate is formed	Absence of Albumin
10.	**Test for tannic acid:** The extract is treated with ferric chloride.	No blue black precipitate is formed	Absence of Tannic acid
11.	**Test for Unsaturation:** Potassium permanganate solution is added to the extract.	It gets decolorized	Indicates the presence of unsaturated compound
12.	**Test for the reducing sugar** 5 Ml of Benedict's qualitative solution is taken in a test tube and allowed to boil for 2 mts and added 8-10 drops of the extract and again boil it for 2 mts.	No color change Occurs	Absence of Reducing Sugar
13.	**Test for Amino acid** One or two drips of the extract is placed on a filter paper and dried it well. After drying, 1% Ninhydrin is sprayed over the same and dried it well.	Violet color is formed	Indicates the presence of Amino acid
14.	**Test for Zinc** The extract is added with PotassuimFerrocyanide	No white precipitate is formed	Absence of Zinc

2.2. Pharmacological analysis

a. Antipyretic activity by yeast induced method

The male Wistar albino rats (100-170 gm) were used in the study. The experiment was conducted in 3 groups of rats consisting of 3 rats in each group. Normal rectal temperature was recorded by using thermostat probe with normal temperature ranging between 36.00 - 36.50 degree were taken for the experiment.

The pyrexia was induced according to the standard protocol. A suspension of 15% yeast suspended in 0.5% w/v methyl cellulose solution was made. 10 ml/kg body wt. of suspension was injected subcutaneously. They were fasted during the experiment. After 19 hrs the rectal temperature was recorded to be more than 38^0 C.[4]

Treatment

Group I served as control and received 1ml/100 gram of body weight of water body wt. Group II and III received standard drug paracetamol and Lavangathychooranam 100mg respectively. After 19 hours, the rectal temperature was recorded at hourly interval for a period of 1 ½ , 3 and 4 ½ hours after administration of the drug. The data obtained are expressed as Mean ± SE in tables.

b. Acute anti-inflammatory by hind paw methodAnimals

Male Wistar rats (200 gm each) were used for the present study. They were fed with standard pellet diet and water ad libitum. All animals were acclimatized for at least one week before the experimental session. All the experimental procedures were done following the guidelines of the Institutional Animals Ethics Committee (IEAC).

Evaluation of Anti-Inflammatory Activity

For the anti-inflammatory activity against the acute inflammation, animals were divided into three groups.Group I (carrageenan control) did not receive any oral treatment; Group II (Standard control-) received 20mg of ibuprofen and Group III received 100 mg of Lavangathy Chooranam

Carrageenan-Induced Acute Inflammatory Model

Anti-inflammatory activity was measured using carrageenan-induced rat paw edema assay. Edema was induced by subplantar injection of 100 μL of 1% freshly prepared solution of carrageenan in distilled water into the right-hind paws of each rat of all the groups except the group I. Animals of group II and III were treated with the single dose of vehicle, cultures, and drug, respectively; 30 minutes prior to carrageenan injection. The percentage of inflammation and percentage of inhibition of inflammation were measured and Tabulated as shown in Table-2.

Inflammation was calculated as the increase in volume (ml) of the paw after treatment subtracted of the basal volume. Results were expressed as percentage of inhibition of oedema, calculated according to the formula.[5]

Percent inhibition = $[(V_t - V_0)_{control} - (V_t - V_0)_{treated}]/(V_t - V_0)_{control} \times 100$ The Data were expressed as mean ± SE in tables.

c. Chronic anti-inflammatory effect by cotton pellet method

Wistar rats were divided into 3 groups of 3 rats each. Cotton pellets were made from adsorbent cotton wool that was cut into pieces weighing 20±1 mg and made into pellets. The pellets were then sterilized in a hot air oven at 120º for 2 h. The abdomen was shaved cleanly,swabbed with 70% ethanol and two sterilized cotton pellets were implanted subcutaneously, one on each side of the abdomen of the animal under light ether anaesthesia. The test drug Lavangathy Chooranam was administered once daily throughout the experimental period of 7days. On the 8^{th} day after implantation, rats were anaesthetized with pentobarbital sodium. The pellets were dissected and dried at 60º for 18 h, weighed after cooling. The mean weight of the cotton pellets of the control group as well as of the test groups was calculated. The transudative weight, granuloma formation and percent granuloma inhibition of the test compound were calculated.[6]

Hepato – protective Activity

Two groups of albino rats each consisting of 3 rats were used in this study. One group (A) of Albino rats received CCL4 0.2 ml/100mg body weight subcutaneously. The second group(B) received CCL4 0.2 ml /100 gm body weight with trial drug Lavangachooranam for 8 days continuously.On the ninth day the animals were sacrificed and liver lobes excised for histopathological studies.

3. RESULTS AND DISCUSSION

The biochemical analysis showcased that the given sample of Lavanga Chooranam contains calcium, chloride, starch, Ferrous Iron, phosphate, unsaturated compound and Amino acid(Table-2). The results of antipyretic activity of LC showed that yeast induced pyrexia ratsadministered with the test drug had a mean temperature of 35^0C.0 in comparison withstandard drug Paracetamol (20mg/100gm body weight) (34.5^0C) as shown in Table-3.Carrageenan-induced paw edema model is the distinctive model of the acute inflammation and most widely used model to assess the anti-inflammatory activity of several natural and synthetic compounds. Sulphated sugars present in carrageenan are liable for the activation of phospholipase A2 and other inflammatory mediators which initiates the early phase of inflammation. Carrageenan is a cytotoxic molecule that dilates postcapillary venules resulting in exudation of inflammatory fluid and cells. [7][8]

The acute anti-inflammatory effect of LC showed that the percentage of inhibition of inflammation was 60% when compared to the standard drug Ibubrufen (20mg/100gm body weight) that was 78% as shown in Table-4. The results of chronic anti-inflammatory action show that the test drug LC and the standard drug Ibubrufen showed equal anti-inflammatory activity with 68% inhibition of inflammation as shown in Table-4. S. aromaticum is rich in many phytochemicals as follows: sesquiterpenes, monoterpenes, hydrocarbon, and phenolic compounds. Eugenyl acetate, eugenol, and β-caryophyllene are the most significant phytochemicals in clove oil.[9].Another previous research work on methanol extract of leaves of Abieswebbiana an ingredient of LC has been shown to have anti-inflammatory activity as compared to that of diclofenac sodium (150 mg/kg, p.o.) in carrageenan-induced paw edema model of rats.[10]

The hepatoprotective action of the test drug was assessed from the histopathological report of Carbon tetrachloride (CCl_4-) treated rats showing liver injury and CCL_4 + LC treated liver as shown in figure-1. In Carbon tetrachloride- (CCl_4-) induced liver injury, CCl_4 is converted into two free radicals,that are capable of initiating lipid peroxidation and liver damage. Hence Carbon tetrachloride (CCl_4-) induced liver injury is the best-characterized animal model of xenobiotic-induced free-radical-mediated hepatotoxicity. [11] [12] The study results show that the CCL_4 given group showed marked liver damage. Minimal fibrosis was seen extending form portal tract.In group that received CCL_4 and the test drug Lavangathy Chooranam,marked protection from CCL_4 damage was observed. The liver section shows normal hepatocytes arranged around central vein with mild dilatation. Sinuses appear dilated with prominent kupffer cells. Portal tracts appear expanded.These two groups of liver section when compared to the normal histological appearance of the rat liver, the test drug shows to have hepato-protective action against CCL_4 induced liver damage.

Since several research studies indicate that antioxidants protect the liver from oxidative damage, and prevent the risk of liver diseases, [13] Many studies have shown that medicinal plants are very rich in antioxidant compounds that exhibited powerful hepatoprotective activity by improving antioxidant status [14] Hence, there is worldwide recognition onnatural antioxidants.

Natural products are biocompatible,safe, efficacious, and cost-effective alternatives to treat inflammatory diseases [15] Many scientific studies on plant species portray the fact that the rational productive strategy towards the cure of inflammatory drugs can be derived from natural sources[16] he hepatoprotective action of LC may be due to its chief ingredient Eugenol that was found to protect against CCl_4–induced hepatotoxicity.[9] Another study showed that the compound Glycyrrhizic acid (GA), a triterpene isolated from the roots and rhizomes of licorice, named Glycyrrhizaglabra, has anti-viral, anti-inflammatory and hepatoprotective effects.[17]

Figure-1. Effect of LC on histopathology of CCL_4 treated liver

Normal Histology of Liver	CCL_4 Treated liver	CCL_4 + LC treated liver

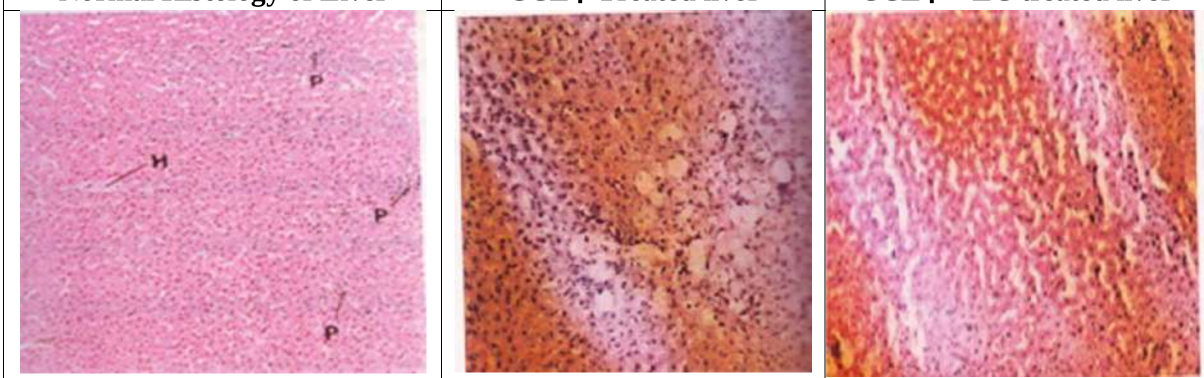

Table 2. Antipyretic effect of Lavanga Chooranam

S.No	Grouping	Dose / 100 gram body weight	Initial Temperature (centigrade)	After Drug Administration			
	Control			1 ½ hour	3.0 hours	4 ½ hours	Mean
1	(Water)	1 ml	36.0	36.0	36.0	37.0	38.0
			37.0	37.0	38.0	39.0	
2	(Paracetamol) Standard	20 mg	37.0	37.0	36.5	35.0	34.5
			38.0	37.0	36.5	34.0	
	Lavanga						
3	chooranam	100 mg	36.0	36.0	35.5	35.0	35.0
			36.0	36.0	35.5	35.0	

Table 3. Acute Anti-inflammatory effect of Lavanga Chooranam

S.No	Name ofDrugs/ Group	Dose/100 gm body weight	Pellet Weight	Weight of the Granuloma	Percentage of inflammation	Percentage of inhibition
1.	Control(water)	1ml	10mg	250mg	100	-
2.	Standard (IbuBrufen)	20mg	10mg	55 mg	22	78
3.	Lavanga Chooranam	100mg	10mg	100 mg	40	60

Table-4. Chronic anti-inflammatory action of Lavanga Chooranam

S.No	Name of Drug / groups	Dose/100 Gram body weight	Initial Reading average	Final Reading Average	Mean Difference	Percentage Inflammation	Percentage Inhibition
1.	Control(water)	2ml	0.55	1.4	0.85	100	-
2.	Standard (IbuBrufen)	20mg	0.55	0.85	0.3	35.2	64.8
3.	Lavanga Chooranam	100Mg	0.7	1.0	0.3	35.2	64.8

CONCLUSION

Traditional systems of medicine continue to be the interest of scientists and commonly practised in several parts of the globe. The rise in population, inadequate drug supply in remote areas, increase in treatment costs, side effects of several synthetic drugs and development of resistance to currently used synthetic drugs have led to increased emphasis on the use of plant materials as a source of medicines for a wide variety of human ailments. The present preclinical study on the Siddha drug Lavanga chooranam is a preliminary analysis shows that the study drug has noteworthy antipyretic, anti-inflammatory and hepatoprotective action. The results encourage the researchersfor further clinical trials on the test drug LC.

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An Optimize Approach to Minimize Cost and Emission for High Efficiency Microgrid Systems Using Hybrid Technique

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ABSTRACT
Electricity demand is the primary constraint to the development of distant areas. Grid expansion in rural locations required high cost. Therefore, microgrid sytem using renewable technologies offers remarkable outcomes in terms of Economic emission dispatch(EED). ThisA combined EED includes minimum value for cost and emission function. This paper proposes a multi-objective load dispatch problem for high efficiency microgrid network to solve the real-time combined EED issue in PV-Thermal-Wind based microgrid power generation. It is also noted that significant efforts are made in the evaluation of EED issue using different methodologies. In this work, constructive efforts are taken to reduce the overall energy transfer loss which address the cost issue for high performance microgrid systems using hybrid Nature-inspired algorithms. Hybrid optimization (Whale and cat optimization) also introduced to reduce rate of harmful emissions by considering pollution and cost minimization. Experimental results using two fitness functions(Microgrid cost and emission) demonstrate that hybrid Whale Cat Optimization(WCO) has much better performance than other four optimization techniques such as PSO, GWO and WOA.

Keywords- Renewable energy sources, Hybrid technique**,** Cat optimization, Economic emission dispatch, Microgrid, Whale cat optimization

1. INTRODUCTION

The recent technological advancement preferred “Renewable energy sources”(RES), due to its environmental and cost benefits over traditional energy sources in a microgrid network [1]. Typically, an effective strategy is required to resolve the combined EED problem in a microgrid network to minimize operational and emission cost during the microgrid energy scheduling by considering the stochastic nature of RES [2]. The operational planning of the power system requires optimum loading which includes precise economic dispatch. It is mainly based on the correct representation and management in the optimization phase of the input-output curves [3]. The issue of the “Economic Load Dispatch” (ELD) is the supreme issue of optimization at the time of measuring the output between thermal generation units in the power system. The ELD problem's main objective is to reduce the operating costs of the electricity generation network meantime providing the needed power. In contrast to the ELD goal, environmental issues resulting from electric fossil fuels are becoming a significant issue. Two third of the electricity in India is generated from coal-fired energy plants. Fossil fuel energy generation introduces many pollutants into the atmosphere, such as sulphur oxides (SOxs), nitrogen oxides (NOxes), carbon monoxide (CO) and carbon dioxide (CO2). This impacts negatively on the environment conditions, people's health, natural vegetation, atmosphere visibility. Further, it leads to various natural hazards prominently acid raining and global warming [4]. Hence, in modern times microgrid based power generation primarily focused on RES, it can also incorporate a component of thermal energy, such as merged heat and power with smart grid system using optimal placement of RES[5].

2. PROBLEM FORMULATION

a. Objective function

2.1 Economic Load Dispatch:

The ELD issue discuss the effective load distribution among the multiple generators without violating the limits. The fuel expenses of typical generators may be stated numerically as [6]:

$$F(P) = \sum_{t=1}^{24} \sum_{i=1}^{g} \{u_i P_i^2(t) + v_i P_i(t) + w_i\} \tag{1}$$

where ‘g’ represents total conventional generators, Pi generator output power and i and u_i,$v_i$and w_i are the cost functions of the i[th] generator. F(P) is in $/hr.

2.1 Emission Dispatch(ED): The burning of fossil fuels emits poisonous gases such as CO2, SOx, etc. into the environment. Emission dispatch reduces hazardous gas emissions into the atmosphere is written in numerical form as

$$F(P) = \sum_{t=1}^{24} \sum_{i=1}^{g} \{x_i P_i^2(t) + y_i P_i(t) + z_i\} \tag{2}$$

where $x_i, y_i and\ z_i$ are the emission functions of the ith generation unit. The E(P) is calculated in kg/hr.

2.3 Combined EED: As stated before, ELD and ED are two distinct goals which helps to minimise the fuel and emission cost .Thus, a compromise approach is required that reduces both fuel costs and pollution emissions[7-9]. Developing a multi-objective issue from (1) and (2) using the "Penalty factor"(PF).

2.4 Penalty factor: It is used to calculate the emission requirements into an equal fuel cost. The price PF is a "multiplication factor" connected with each emission coefficient that turns two separate single objective functions into a CEED issue. The different penalty factors are calculated for generators, G1, G2 and G3.in eqn (3), (4), (5), (6) , (7) and (8)

$$Max - Min\left(h_{i,max-min}\right) = \frac{u_i P_{i\ max}^2 + v_i P_{i\ max}^2 + w_i}{x_i P_{i\ min}^2 + y_i P_{i\ min}^2 + z_i} \quad (3)$$

$$Max - Max\left(h_{i,max-max}\right) = \frac{u_i P_{i\ max}^2 + v_i P_{i\ max}^2 + w_i}{x_i P_{i\ max}^2 + y_i P_{i\ max}^2 + z_i} \quad (4)$$

$$Min - Min\left(h_{i,min-min}\right) = \frac{u_i P_{i\ min}^2 + v_i P_{i\ min}^2 + w_i}{x_i P_{i\ min}^2 + y_i P_{i\ min}^2 + z_i} \quad (5)$$

$$Min - Max\left(h_{i,min-max}\right) = \frac{u_i P_{i\ min}^2 + v_i P_{i\ min}^2 + w_i}{x_i P_{i\ max}^2 + y_i P_{i\ max}^2 + z_i} \quad (6)$$

$$Average\ \left(h_{i,avg}\right) = \frac{h_{i,max-min} + h_{i,max-max} + h_{i,min-min} + h_{i,min-max}}{4} \quad (7)$$

$$Common\left(h_{i,com}\right) = \frac{h_{i,avg}}{Total\ no.\ of\ generators} \quad (8)$$

The multi-objective EED problem numerically stated as:

$$C(P) = \sum_{t=1}^{24} \sum_{i=1}^{g} \left\{ \left(u_i P_i^2 + v_i P_i(t) + w_i\right) + h_i \times \left(x_i P_i^2 + y_i P_i + z_i\right) \right\} \quad (9)$$

where h_i is the PF of the ith generating unit. The C(P) is calculated in \$/hr and h_i is \$/kg.

3. LITERATURE WORK

Reference	Objective	Technique	Outcome
[10]	Study proposed two objective functions: reducing generating costs and limiting generator pollution. The suggested approach uses multi-objective criteria to find all Pareto limits to minimize CEED issue.	Evolutionary-based algorithm	Proposed techniques provides better results as compared with other studies, while addressing CEED constrained
[11]	An optimization strategy using meta-heuristics to solve the CEED issue for an electrical network wind and thermal energy sources.	Enhanced GA	Enhanced GA performs better than PSO and traditional GA approach.

[12]	Study works on "single and multi-objective functions". The proposed algorithm reduces the ELD and the three harmful gas emissions: SO2, NO2, and CO2 .	Chaotic Artificial Ecosystem Optimization	The findings show that the CAEO algorithm outperforms the others in terms of efficiency, strength, and computing capabilities.
[13]	Study examined the realistic combined environmental economic dispatch (CEED) problem, considering the running fuel cost along with emission as objectives taking power balance and operating limits of the generators as constraints.	Modified multi-objective cat swarm optimization	The statistical analysis shows better results using proposed technique on IEEE bus 14 and 30
[14]	The suggested technique tested on the IEEE 30-bus with numerous target functions such as reducing fuel costs, improving voltage profiles, reducing overall power losses, and reducing emissions.	Whale Optimization Algorithm	Simulation results show the suggested algorithm's efficacy and speed while addressing the OPF issue.

4. Proposed hybrid WCO optimization

In this work, we are using a hybrid approach(WHALE+ CAT) which provides high efficiency solution in CEED problems. Whale[15] and Cat optimization approach both are inspired through the behaviors of Whale and Cat. The Cat swarm optimisation (CSO) [16] is an advance feature of meta-heuristic algorithm based on swarm intelligence for evolutionary optimization CSO imitates cat's behaviour by two sub modes: searching and tracing[17]. Whereas in Whale optimization encircling the prey and bubble net system has been used for attacking purpose [18].

In this paper a unique collaboration of renewable and non-renewable energy resources taken into consideration in which thermal-PV-wind based micro grid system will be established and to obtain high efficiency outcomes a modified new meta-heuristic approach will be proposed which consist of hybrid optimization by using whale-cat optimization algorithm. In this modified hybrid optimization approach the excellent prey and search traits of whales and cats are come up together to make the whole power network more reliable and cost effective as well as more responsive to the futuristic load demands. The figure 1 displays the basic idea of proposed approach.

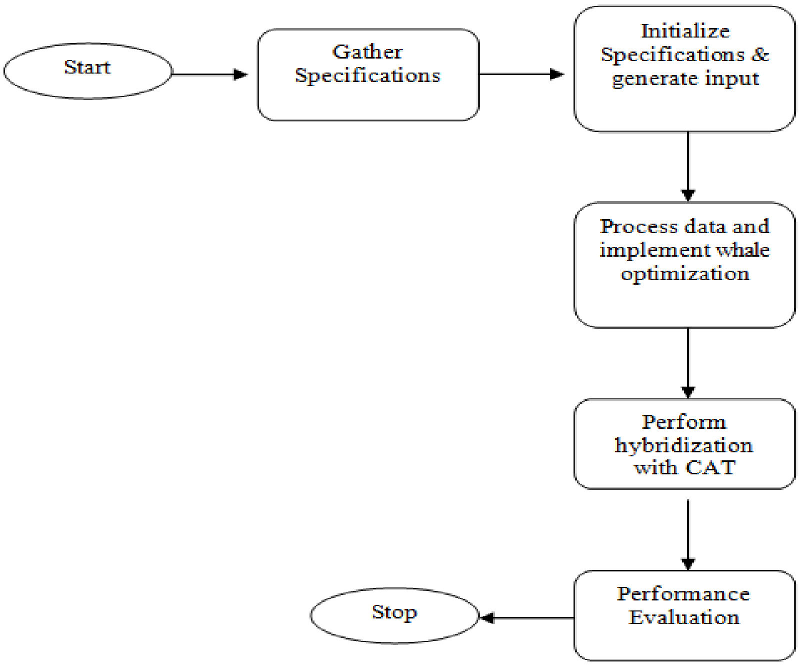

Figure 1: Proposed Hybrid Optimization flowchart

The proposed hybrid Whale Cat optimization(WCO) technique is primarily inspired by the natural behaviors of the Whale and cat. This research paper mainly focuses on the two fitness functions i.e microgrid cost and emission which has been minimized using the proposed approach in a RES based high performance microgrid system

5. DISCUSSION ON PROPOSED APPROACH

The work performance of the Hybrid whale-cat swarm technique is better among the other algorithms on the basis of cost and emission. This hybrid approach brings out the best compromising results with an effective use of the traits of whale as well as cat and improves the velocity and position parameters upto the desired value. This modified hybrid approach overcomes the individual shortcomings of a single system and enhance the overall performance of the system with meet the future load demands by making the whole system more cost-friendly and nature-friendly. The obtained results show the proposed hybrid WCO approach works better than other metaherustic techniques such as PSO, GWO and WOA. For overall ELD and CEED, WCO technique shown superior results than PSO, GWO WOA. in terms of microgrid costing and emission.

6. CONCLUSION

In contrast to the goal of Economic Load Dispatch, environmental problems resulting from the hazardous emission through coal based power plants are the big concern. PV generation is the key solution for such harmful emissions which deteriorate the environment. It makes the power generation more economical with minimum operating cost. Power generation through solar radiations in collaboration with thermal generators which allows to choose little low rating generators that reduce the overall generation cost. Wind power generation helps in reducing harmful pollutants the also act as a substitute to solar power which helps to maintains the constant power generation in the absence of solar energy. The a combination of PV-Thermal-wind is used for power generation it provides better and efficient results and minimize the fuel cost with proper environmental concern taken in account. Cat swarm optimization provides highly remarkable results with the collaboration of whale optimization technique.

For future work, a combination of PV-Thermal-biomass with whale-cat swarm hybrid optimization approach can be used for more better results. Biomass energy overcomes the problem of unsteadiness in the power supply which is faced during the use of wind power. The designed system has great potential to address the issue of high efficiency output in micro grid systems by minimizing the transmission losses and surplus waste present in the environment.

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A Comparative Study on Modes of Digital Payment Used in India

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ABSTRACT
Digital payment systems gave a new shape to the way of paying and borrowing money and have become a multi dollar industry over the years. And in these years not only we have seen some really innovative startups but some of the biggest companies in the world like Apple and Google are also investing. According to Ey fintech adoption index 2017, India is in 2nd place when it comes to using digital payment systems. As people and businesses are using digital payment progressively, therefore, secure and fair electronic payment systems are one of the most important issues nowadays. The aim of this research paper is to study the frequency, trend and preference of consumers and focuses on the comparisons of E- WALLET payment systems with PLASTIC MONEY payment systems.

Keywords: E- Wallet, Plastic Money, Digital Payment System, Fintech

INTRODUCTION

Digital payment system today-Operating in cash cost countries about 0.5% of their GDP per year, but it's not the only reason why we are shifting towards a cashless economy. The other reason is demand, the young and new generation is demanding convenience, fast, easy and more secure way of payment. After 2011 introduced NFC(Near-field communication) system payment has become more than easier. Well digital payment systems help the government to track and monitor each and every transaction but the downside is it concerns privacy and cyber-attacks. Beside this in remote areas there is always a problem of connection and illiteracy, hence they have no choice but to rely on cash.Digital payment system after the spread of Covid-19-Since, in India after 23 March, 2020 lockdown was implemented. People are trying to go for digital payment as often as possible avoiding the physical contact with each other. And this has helped many people. Because the key is it can take place from anywhere and anytime. And if we take a step back and take a look at the whole picture it has made a global impact because since less cash traction is happening the economy is still moving though at a slower speed but it hasn't just stopped.

REVIEW OF LITERATURE

- ELECTRONIC MODE OF PAYMENT – A STUDY OF INDIAN BANKING SYSTEM, by Aastha Gupta and Munish Gupta. ISSN (Online) : 2230-8849

This study informed about Customer Awareness and Preference towards E-Banking Services of Banks . He has studied customer behavior & has tried to find out their most preferred e-banking services. Inputs have been put to identify better services providing commercial banks with regards to e-banking services to customers. The researcher has identified the level of customer satisfaction for internet banking. The paper shows that age, educational qualification, occupation, income level of customers are major factors that decide usage of e-banking services.

- Mishra & Mishra, 2008, Bank Marketing, ISBN- 978-81-8356-347-5, Discovery publishing House pvt. Ltd. New Delhi. focused on advisory service and compliances. Their paper was published in the International Journal of Innovation, Management and Technology

RATIONALE AND GAP ANALYSIS

Digital payment system today-Operating in cash cost countries about 0.5% of their GDP per year, but it's not the only reason why we are shifting towards a cashless economy. The other reason is demand, the young and new generation is demanding convenience, fast, easy and more secure way of payment. After 2011 introduced NFC(Near-field communication) system payment has become more than easier. Well digital payment systems help the government to track and monitor each and every transaction but the downside is it concerns privacy and cyber-attacks. Beside this in remote areas there is always a problem of connection and illiteracy, hence they have no choice but to rely on cash.

OBJECTIVE

- To study the user base of internet banking.
- To study the use of plastic money.

- To study the preference of consumers for e wallet or plastic money i.e. credit & debit cards.
- To study the frequency of usage.
- To analyse relationship between profession and preference of mode of payment.

HYPOTHESIS:
H0: There is no relation between Profession and preference of mode of payment.
H1: There is relation between Profession and preference of mode of payment.

H0: There is no relation between Age and presumption of security and reliability of payment.
H1: There is a relation between Age and presumption of security and reliability of payment.

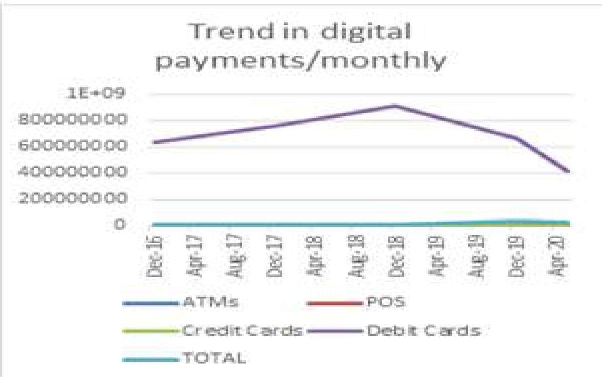
RESEARCH METHODOLOGY:
Research design is descriptive. The data for the study is collected from both primary and secondary sources. Primary data is generated through an online survey. The population targeted for the study are Mumbai based individuals ranging from the age group of 18 to 50 years. A sample of 186 respondents is collected by randomly sending the survey forms through communication means like email and Whatsapp, etc. And secondary data is collected via reliable website mainly RBI database.

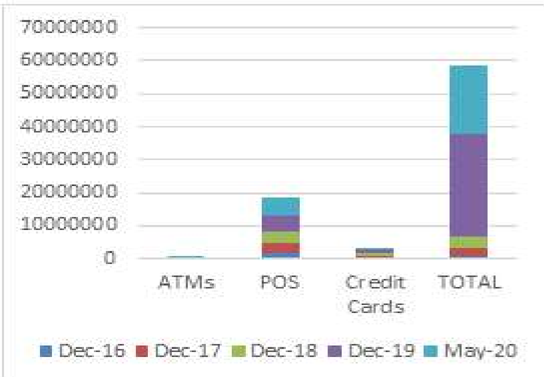
Different statistical tools Such as frequency distribution, graphical data analysis, T test and analysis of variance are used to find conclusion of this study.

DATA ANALYSIS
Secondary data collected from RBI site reflecting an increasing trend of cashless transaction in all variations.

Table No.: 1/Graph No.: 1: Trend in digital payment

ATM & Card Statistics		Dec-16	Dec-17	Dec-18	Dec-19	May-20
ATMs	On-site	107758	109908	106412	112458	113210
	Off-site	98102	97128	96854	97181	97205
POS	On-site	1766481	3027382	3595912	4987953	5022488
	Off-site	1252	0	0	0	0
Credit Cards						
No .of outstanding cards as at the end of the month		28321039	35496202	44213752	55332847	57179899
No. of Transactions (Actuals)	On-site	375943	713363	875230	892582	276473
	Off-site	116082819	123769158	158341891	204968027	103129469
Amount of transactions (Rs. Millions)	On-site	880.9	3340.6	4032	42264	14155
	Off-site	311491.2	418636.7	542399	6618640	3227086
Debit Cards						
No .of outstanding cards as at the end of the month		764431356	842471191	958150285	805324206	835349120
No. of Transactions (Actuals)	On-site	630466234	761931584	914307302	662056857	415003110
	Off-site	415461956	292388409	386688194	451159082	268563775
Amount of transactions (Rs. Millions)	On-site	849340.9	2640389.2	3139013	31350963	20717105
	Off-site	580312.5	407603	530214	6199781	3762155





Source: RBI data

PRIMARY DATA ANALYSIS

Table No.: 2/Graph No.: 2: Gender-wise distribution of respondents

Gender	No. Of respondents
Male	32
Female	68
Total	100

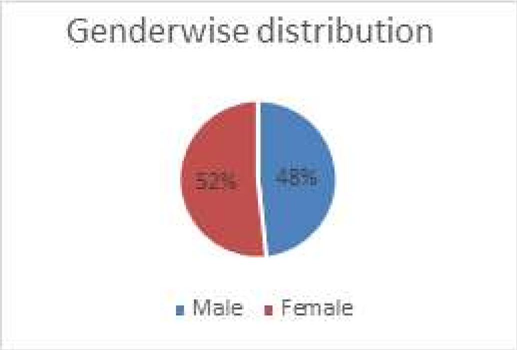


Table No.: 3/Graph No.: 3: Age-wise distribution of respondents

AGE GROUP	No of Respondant
18-25	95
25 to 50	83
50 above	08

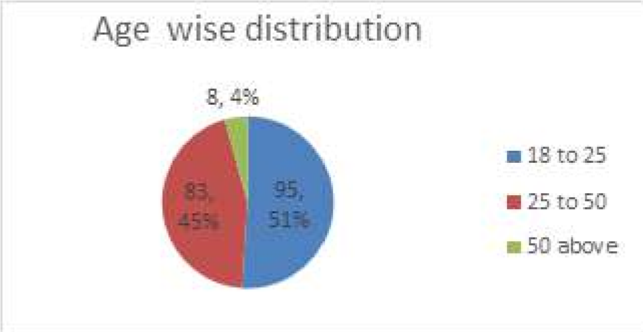


Table No.: 4/Graph No.: 4:Profession wise distribution of respondents

PROFESSION	No of Respondant
Student	59
Service	87
Home maker	0
Business owner	40

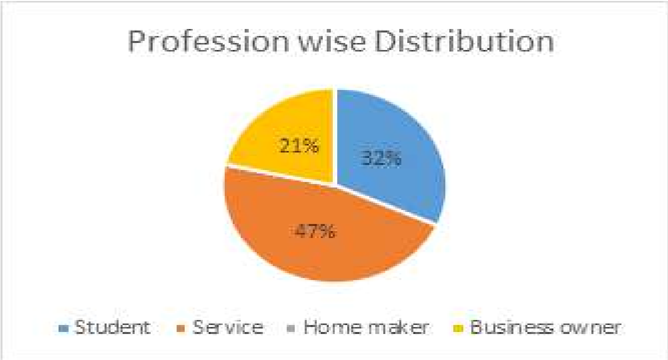
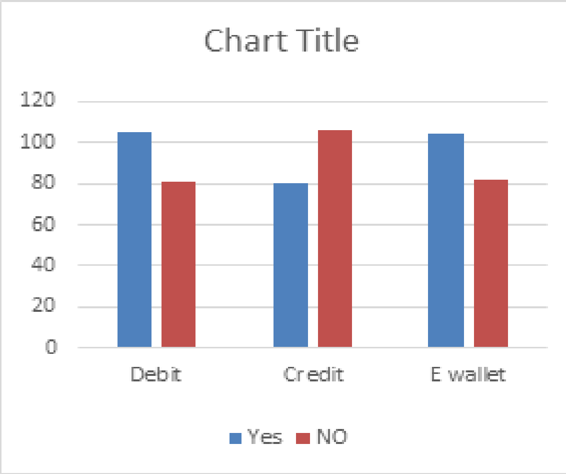
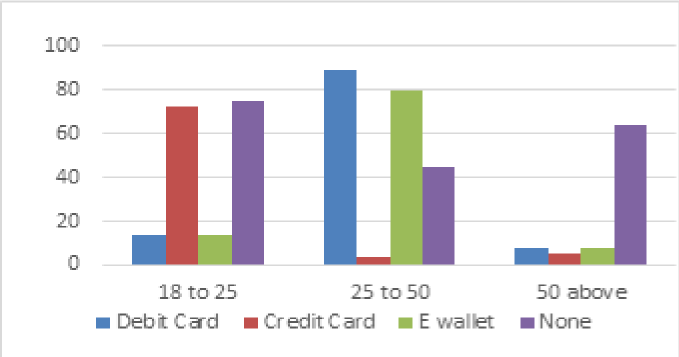


Table No.: 5/Graph No.: 5: The choice between cash transaction and cashless transaction with variation



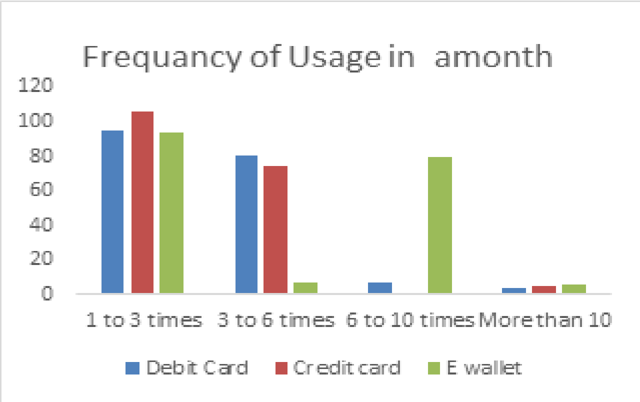
	Debit	Credit	E- wallet
Yes	**105**	**80**	**104**
NO	**81**	**106**	**82**

Table No.: 6/Graph No.: 6: Age wise preference for different modes of payment



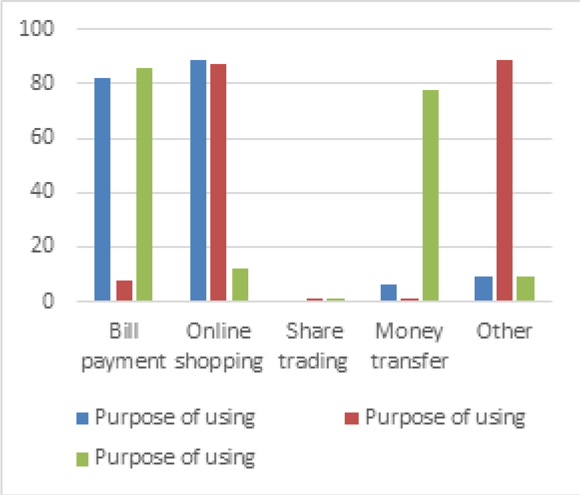
Age	Debit Card	Credit Card	E wallet	NOne
18 to 25	14	72	14	75
25 to 50	89	4	80	45
50 above	8	5	8	64

Table No.: 7/Graph No.: 7:Frequency of Use in a month



Frequency in a month	Debit Card	Credit card	E wallet
1 to 3 times	95	106	94
3 to 6 times	80	74	7
6 to 10 times	7	0	79
More than 10	4	5	6

Table No.: 8/Graph No.: 8: Purpose of Using in Various payment method

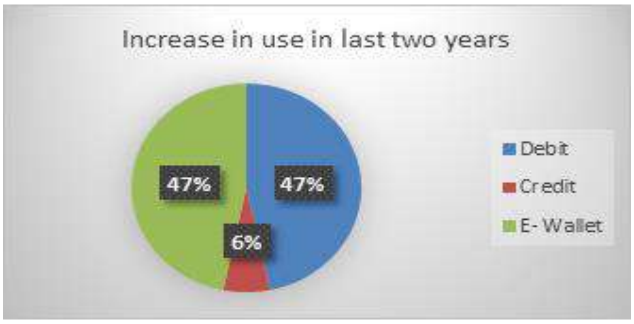


	debit	Credit	E wallet
Bill payment	82	8	86
Online shopping	89	87	12
Share trading	0	1	1
Money transfer	6	1	78
Other	9	89	9

Table No.: 9/Graph No 9: Safer mode of payment according to Respondents

Debit Card	**93**
Credit Card	**5**
E - Wallet	**88**

Table No.: 10/Graph No 10: Increase in use of cards and wallets in comparison to 2018



Debit Card	**101**
Credit Card	**14**
E- Wallet	**101**

Expected Outcome:

The expected Outcome of this study are as follows:

Movement Towards a cashless society

Multi-dimensional payment method

Preference of customers in selection of cashless payment method.

Future Scope

As Money of Debit card/Credit card & E-wallet are not physical money rather it's in digital form hence the cost related to manufacturing & maintenance notes and coin is reduced. This helps government to utilize this money some were else in a productive way.

TESTING OF HYPOTHESIS:

t-Test: Paired Two Sample for Means		
Qestions	Age	Which one more safe and secure?
Mean	1.532258065	2.02688172
Variance	0.33679163	0.977651845
Observations	186	186
Pearson Correlation	0.813319281	
Hypothesized Mean Difference	0	
df	185	
t Stat	-10.92796313	
P(T<=t) one-tail	4.554845	
t Critical one-tail	1.653131869	
P(T<=t) two-tail	9.10969	
t Critical two-tail	1.972869946	

By using T-test paired of Two sample mean series as p>0.05 i.e. 9.10969 P (T>=t), hence hypothesis H1(There is a relation between Age and presumption of security and reliability of payment.)is accepted.

Anova: Single Factor						
SUMMARY						
Groups	*Count*	*Sum*	*Average*	*Variance*		
Profession	186	393	2.112903226	1.170967742		
Usage Preference	186	469	2.521505376	2.164399884		
ANOVA						
Source of Variation	*SS*	*df*	*MS*	*F*	*P-value*	*F crit*
Between Groups	15.52688172	1	15.52688172	9.310446981	0.002442943	3.866714
Within Groups	617.0430108	370	1.667683813			
Total	632.5698925	371				

By using Anova: Single Factor test as p<0.05 i.e. 0.00244 P (T<=t), hence hypothesis H0(i.e.There is no relation between Profession and preference of mode of payment.) is accepted.

CONCLUSIONS

Cash alternatives like Debit cards and E-wallets are being used amid us more frequently than ever, there are many things we have learned and many things which need to be explored. We found in research, 53% of our respondents have increased the use of debit cards and 57% of our respondents have increased the use of E-wallets which states this is one of the fastest growing industry in the 21st century. Since the usage of smartphones has increased and more and more people are connecting via. Internet there is a tremendous increase in use of E-wallets. In this paper we found out there is an upward trend in usage of Debit cards and E-wallets. Also, during COVID-19, Digital payment systems are helping local vendors and helping many consumers in a very great and innovative way, not only has it kept our economy alive but also reduced human to human contact.

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Align Business with CSR: Strategic CSR for Growing your Business

Kiran Swaroop Dalani

ABSTRACT

Companies are at a crossroads with a law on CSR shelling out 2 % profits under stipulated mandates on one side and challenges that the regular course of business offers on the other. When one combines both these challenges, it yields strategic CSR. The paper aims to cover examples that have helped in tapping potential business opportunities that have bought social change and also work on abiding by the rigid Corporate Social Responsibility law of the Companies Act. Discovering purpose in business by serving people, reserving the planet and making a profit is the fine art of balance that this paper covers. Hindustan Lever examples of Shakti Amma, Lifebuoy and Annapurna Salt have been used.

Key words: CSR (Corporate Social Responsibility), Strategic CSR, Hindustan lever, Growth strategies, interventions.

STRATEGIC CSR IS THE WAY FORWARD

India is the only country in the world to have mandated CSR as a company's law framework. The unfortunate truth for Indian companies is that they are mandated to spend CSR money as per section 7 of the companies Act

CSR: Corporate Social Responsibility is parting with 2% of your profit if during the preceding financial year your

1. The net worth of INR 500 Crores or more 2. Turnover of INR 1,000 Crores or more 3. The tax before Net profit of INR 5 Crores or more. This is for social causes defined under the act ranging from health, education, rural projects, etc. The government law on CSR in 2013 worked as an opportunity and helped them solve a lot of social issues at the grass-root with the help of NGOs, foundations and trusts. They become partners and help implement various projects that the company has decided to work on. (KPMG, 2020)

When one combines the concept of growth through CSR funding it yields strategic CSR. This is a golden goose opportunity for brands to realign their purpose of CSR alongside that of their portfolios. Exploring markets, creating new products, and augmenting one's portfolio to make it more diversified are some of the growth and risk mitigation strategies. Hence investment in growth strategies when tweaked with a social benefit work like the idiom '*killing two birds with one stone* (Idioms, n.d.)

Marketing isn't just a few individual events. It's the sum total of everything you do. (gate, n.d.) (Fried, 2011) It is undeniable that companies are looking at solutions and ideas that can incorporate both but very few companies have been successful in their attempt to do so.

CSR on the other hand is parting of your profit for social causes that help fulfill the agenda of the government along with that of the corporate obligation to give 2% profit. This money can also be done in the form of chequebook philanthropy or strategic philanthropy contributing to the core portfolio.

Given the rigid framework of Section 7 of the companies Act, under the CSR, (KPMG, 2020) companies are allowed to invest in areas prescribed by the government, these restrict companies to allocate CSR funds to the areas prescribed. The paper focuses on examples that have helped in focussing on areas that are aligned to the brand purpose and have helped the brand in the long term be it as a distribution channel, as a service or as a product idea in itself.

OBJECTIVES:

Based on the identified research gap following were the research objectives:

- To study cases that create social change alongside CSR interventions.
- To suggest methods of enhancing social change through CSR mandates.
- To recommend to companies growth strategies through CSR mandates.

METHODOLOGY AND ANALYSIS:

Research design: Exploratory research design is adopted to study the top FMCG (Fast Moving Consumer Goods) company in India. Secondary sources are used for the purpose of this study.

Sampling: Purposive nonprobability sampling method is used and from the list of the companies they were further shortlisted based on the following parameters:

- The top company under the FMCG category
- Company that has used growth strategies with CSR as a facilitator

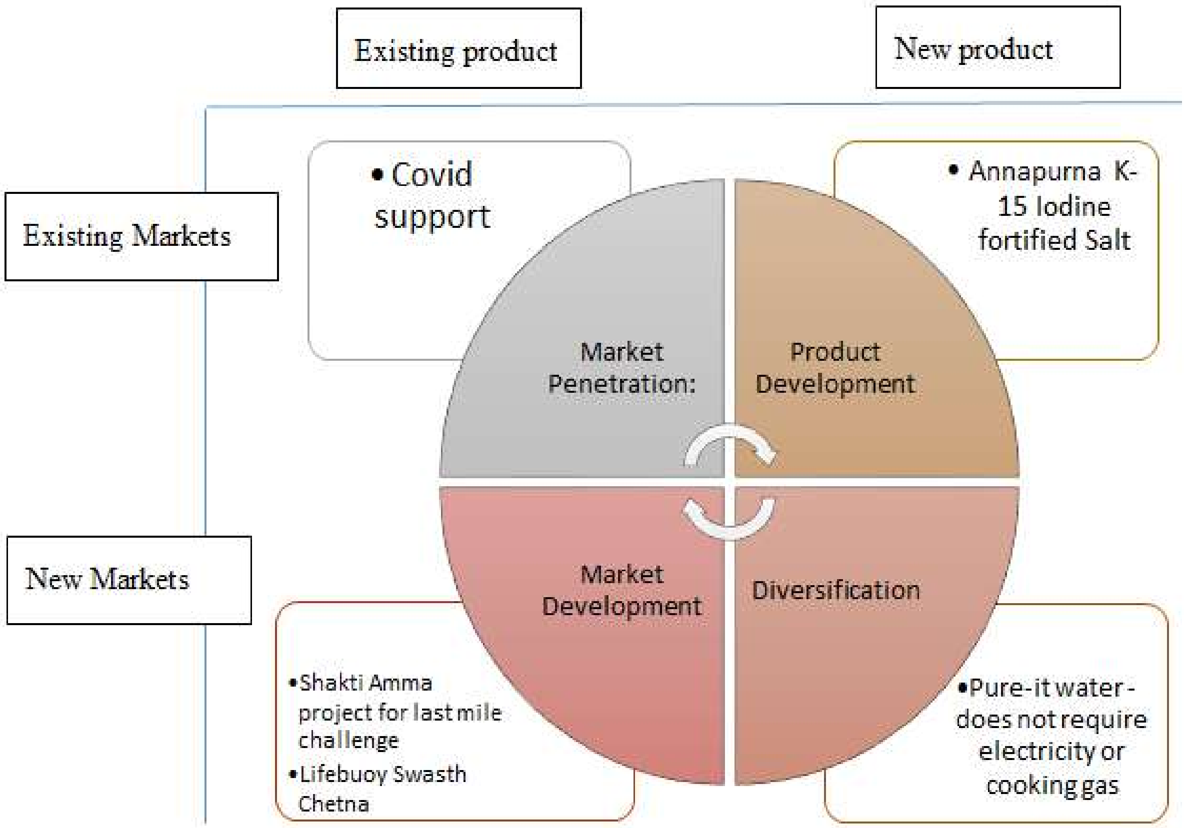
Analysis: The data shall be analyzed based on the Interventions by the identified company that have created social value through growth strategies

Hindustan Unilever Limited (HUL) is India's largest fast-moving consumer goods (FMCG) company with a historical presence in India of over 80 years. Nine Out of ten Indian households use one or more of HUL Brands. Divisions – Home Care, Beauty & Personal Care, and Foods and Refreshment – include a portfolio of brands that serve consumers across the length and breadth of India. (companies, 2021)

Under the **Ansoff matrix strategy**, there are 4 identified growth strategies:

- **Market Penetration**: is using strategies to increase sales in existing markets through sales promotion, communicating benefits to increase use.
- **Product Development**: developing new product under existing market under the portfolio to improve category width.
- **Market Development**: taking existing product range to a new market. Here the products in the portfolio are not changed.
- **Diversification**: a completely new product in a new market, this is a high-risk area as the possibilities of product failure are high.

Hindustan Unilever growth strategies with social change in the forefront have been highlighted:



Hindustan Unilever is one the few companies that have used brand purpose to align its business goals, working for the welfare of the people, conservation of natural resources of the planet and bottom-line profit. Thus covering the 3P's of the bottom-line approach by John Elkington.

Market Development: Market saturation and constancy in sales are a common occurrence amongst marketers, compelling them to look at new avenues and markets to sell their existing portfolio of products.

Shakti Amma: Project Shakti utilizes women's self-help groups (SHGs) for entrepreneur development training to operate as a "rural direct-to-home" sales force, educating consumers on the health and hygiene benefits of HUL brands and nurturing relationships to reinforce the HUL message. (C.K Prahalad, 2015) They work as customer executives cum opinion leaders cum dealers all in one. Helping with one of the biggest challenges of rural marketing: Last mile strategy.

Shakti Amma is an opportunity for women to create micro-enterprises offering low risks and higher returns. The company invests resources in training them, not only financially but also in areas like soft skills thus working on their confidence, self-esteem and presentation skills. This is done under the stipulated CSR framework. Hindustan Unilever has also under CSR training contributed to the livelihood projects and created *Shakti Pracharani* and *Shakti Maans* (training unemployed rural youth) for tackling their last-mile distribution challenge in rural India adding to the Shakti network.

Outcome: At the end of 2020, we have nearly 1, 36,000 Shakti entrepreneurs spread across 18 states.

Lifebuoy Swasth Chetna (LBSC) is a rural health initiative started in 2002 under the brand Lifebuoy. The purpose of the handwashing campaign was to educate mothers and children alike for behaviour change towards hand washing. Children carry habits in them and mothers inculcate those habits. The simple act of washing your hands with soap can reduce diarrhoea diseases by over 40% and respiratory infections by 30%. (Coalition, 2015)

A health development officer and an assistant initiate contact and interact with the key opinion leaders like School teachers, panchayat members, medical practitioners, *Aanganwadi* workers. (C.K Prahalad, 2015) (Coalition, 2015)

1. Tools such as Glow germ detector – a demonstration of unseen germs visible and re-emphasize handwashing as a habit. This establishes that though your hands are visibly clean they might not be clean.
2. Quiz with attractive prizes to ensure active participation by the community, involving mothers and children

Communication that bought about awareness and the benefits of handwashing has worked for the brand. The Lifebuoy Help a Child Reach 5 campaign has given the consumers the opportunity to engage with the social mission, and continue to advocate for handwashing with Lifebuoy soap. '*Bunty,Lifebuoy se Hath dhoya kya?'*. Ads like *haath,muh bum*; *Chamki* and *Gondoppa* have made the company realize the potential of bringing awareness and behaviour change using the strategic CSR route. (agency faqs, 2020) (tube, n.d.)

Outcome:

- Revenue growth at a double-digit percentage rate becoming the company's 13 brands that bring in more than a billion euros annually. (HBR September -October 2021) (HBR, 2021)
- Awareness of germs among population covered rose from 52% to 83% (C.K Prahalad, 2015)
- 65 million people reached with this program since 2013 (Coalition, 2015)

Market penetration: reminders, promotion and Top of mind for continuous sales is the object of Market penetration

(agency faqs, 2020)

Lifebuoy

Over 100 years ago, William Lever launched Lifebuoy soap to help combat cholera in Victorian England. Continuing the legacy Lifebuoy's has been working to improve health and hygiene for people around the world. The brand has a simple mission: to help parents ensure their children fall ill less often.

Keeping the Covid protocols of washing hands, Lifebuoy has in first of its kind advertising mentioned competitors as well. Thus bringing out a net positive outcome of a social cause affiliation and an impression of a collaborative effort from the end of the company.

Bringing awareness about product categories to drive consumer behaviour change has worked as a net positive for the brand. (agency faqs, 2020) The ad campaign has explicitly requested consumers during the Covid outbreak to wash hands and also mentioned explicit competitor brands. A social problem that has been tackled alongside the brand reaping benefits of positive associations that have added to the bottom line (HUL, 2020)

In this case, Lifebuoy has taken the brand's cause of preserving health and preventing disease to the next level by also mentioning competitors in their ad copy. It is a clear way of emphasizing keeping consumers safe from the disease, rather than making sure that a product/item is sold. (agency faqs, 2020)

Product Development: Under this category, a new product is developed considering the changing environment, needs, and lifestyle of the audience.

Annapurna Salt.

When iodine deficiency was identified as a serious health issue in India and iodized salt became a government dictate, Annapurna played a critical role by launching Annapurna Iodized salt. The essence of the product is targeting 75% of the unrefined market which is the base of the pyramid and affordability with quality is a concern. (C.K Prahalad, 2015)

They conceived a salt fortified with K-15 iodine content that is released only in acidic environments such as the stomach thus preventing loss that happens during Indian cooking. The introduction of Annapurna K15 salt packaging with 200 g and 500 g, helped Unilever achieve the price affordability concerns with the target audience. It used the Shakti distribution network to penetrate into interiors of villages.

Outcome: According to ORG-MARG estimates, the domestic branded salt market, by volume, is estimated at 15 lakh tonnes with a market share of 16 percent. Generic and loosely sold salt dominates the market. (media, 2019) (companies, 2021)

And Unilever is aiming at this unbranded, generic fragmented market by bringing about awareness of iodine and its importance.

Diversification: A high-risk zone for a marketer to venture, considering one is looking at launching a new product in a new market. With high risk one might have to work on behaviour change as an underlining objective.

Pureit: With MDG's (Millennium Development Goals) emphasis on clean drinking water as a priority, it was not a prerogative for companies to look towards the direction. The problem was clear, unlike the solution. It is then Unilever developed Pure-it a technology of purifying water without dependence on electricity, cooking gas and pressurized tap water. It has developed many versions from 2004. It has made safe drinking water accessible and affordable to far-flung rural families. It has also got an endorsement from the EPA (Environmental protection Agency) one of the toughest regulatory agencies in the USA. (C.K Prahalad, 2015)

The marketing outreach (through mass media and customer contact), Direct-to-Home Sales Channels and Doctor Partnerships. Using the Shakti network to educate them about the harm of drinking unsafe water was all about bringing awareness through CSR interventions.

Outcome: it sold more than 1.3 million units by end of 2009. (Harvard Business school, 2011) In a year-long study conducted by the National Institute of Epidemiology, a study on the impact of Pureit in the slums of Tsunami affected was conducted. It established that homes using Pureit had a 50% lower incidence of Diarrhoea. (Coalition, 2015)

CONCLUSION

HUL is constantly demonstrating that for multinational corporations, the Bottom of the Pyramid can serve as a profitable impetus of innovative technology and marketing savvy and that corporations, governmental organizations can address social problems at affordable costs. (C.K Prahalad, 2015) (Fried, 2011)

There are a plethora of areas to park the CSR investment, but it becomes imperative for every marketer to weigh the returns on the same. The tangible and intangible benefits must be integrated within the framework of the business. The underlying intention for CSR is tackling social problems. When these social problems become the impetus of growth strategies they cannot be condemned. These strategic investments are intended to serve the larger purpose of social change.

All businesses are defined through processes and people, this value chain from raw material procurement to finished product, marketing, distribution and consumption of the same can all be part of the growth of the brand. CSR law and its liberal interpretations are in its nascence, innovation, experimentation and prioritizing are crucial for companies. From investment in areas that are part of the value chain and non-controversial by generating growth to working on behavior change and awareness for the better of mankind should be envisioned by companies.

Having a core purpose that drives growth and social change is the way forward. You reap profits through purpose. (HBR, 2021)

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Digital Market an Opportunity in the New World

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ABSTRACT
Looking back on 2020, A year that made a large difference, no place else has remarkable and unforeseen development happening as inside the digital business sectors, which have exploded during the Covid emergency.

While situation have improved, Covid has prompted a storm of internet business and sped up advanced change. With the change and evolution of up to date technologies, small and medium businesses do everything to remain up, which can be said to be true for the rest of human society. Businesses are either changing their business model to a web one, or briefing up existing marketing efforts with digital marketing strategies. within the computerized time where organizations are visiting, advanced promoting devices and methods give entrepreneurs the only opportunities for contest, endurance and even business development

Keywords: E-commerce, Digital Marketing , Search Engine Optimization (SEO) Social Media Marketing , Search Engine Marketing (SEM), Competitor Research,.

INTRODUCTION

the globe has been digitalised. the requirement for people to stay digitalization is that the need of the day. Publicizing and limited time exercises are done through the computerized method of distributing the first copies, hoardings, and presentations with the help of electronic gadgets. Web-based media is advancing the patterns of computerized showcasing. Especially, the those that are going into web based business; they're using advanced showcasing extremely high contrasted with different forms of organizations. The pattern and conditions of advanced advertising are shifted every once in a very while, changing innovation and its updates, augmentations of business exercises, hierarchical turn of events, and market stabilities.

The E commerce business moving is top-finished to a different period of digitized showcasing framework which having computerized show-room, advanced labels of cost with offering limits, advanced exchange of deals with deals return while clients' disappointed on acquisition of labour and products, computerized client relationship the board with legitimate data set, computerized publicizing through the web-based media, and advanced correspondence by quick reactions to both the vender and buyer. Digital Marketing Promoting, Goods or Services using any variety of Digital or Electronic Medium is understood as Digital Marketing. Digital Marketing is that the term used for the targeted, measurable, and interactive marketing of products or services using digital technologies to reach the viewers, turn them into customers, and retain them. Online marketing & internet marketing could be a a part of digital marketing, not whole of digital marketing. Digital marketing includes many aspects of communication and isn't limited to mobile phones or the web.
Digital marketers leverage digital channels like search engines, social media, emails and websites to help their clients connect with existing and potential customers. They then proceed to collect data gathered from these digital channels (such as checking the quantity of impressions or likes on Instagram and Google Analytics to plan their marketing strategy.

Marketing research may well be a process to identify "what your consumer needs? " within the real market. research also helps in identifying new markets or opportunities for any form of products or services. Marketing research also helps to identify the correct platform to decide on to push your product, service or business to the correct targeted audience. research is that the foremost significant process, which may facilitate your to make a successful digital marketing strategy. Competitor Research Competitor research is also a process to identify "what your competitors are doing? " Competitor research also helps to spot the issues within the current market that customers face while addressing your competitors. Ensure our product solves it. Digital marketing has such plenty of options and methods associated with it, business people can get creative and experiment with a variety of promoting tactics on a budget. With digital marketing, they'll also use tools, variety of analytics dashboards to watch the success and ROI of their campaigns quite as they may with traditional promotional content sort of a billboard or print ad.

CONTENT DEVELOPMENT ON DIGITAL MARKETING

Within the start of 2000 millenniums. Advanced and online business have changed the way during which brands and organizations use innovation for advertising. As computerized stages clothed to be progressively fused into showcasing plans and regular day to day existence (Nielsen, 2016). furthermore, as individuals progressively utilize advanced gadgets as critical visiting actual shops (Nielsen, 2016), computerized showcasing efforts became predominant, utilizing blends of programme Optimization (SEO) , computer programme Marketing (SEM), content mechanization, crusade showcasing, information driven advertising, internet business advertising, , content Marketing , powerhouse promoting, web-based media showcasing, web-based media improvement, email direct showcasing, show publicizing, digital books, and optical circles and games became typical. Advanced showcasing stretches bent non-Internet stations that give computerized media, like TV, cell phones (SMS and MMS), callback, and onhold versatile ringtones. The expansion to non Internet channels separates advanced advertising from web based promoting.

Types of Digital Marketing Platforms

01) computer program programme may be a program that appears for and recognizes things in an information base that relate to correspond to keywords or characters specified by the user.

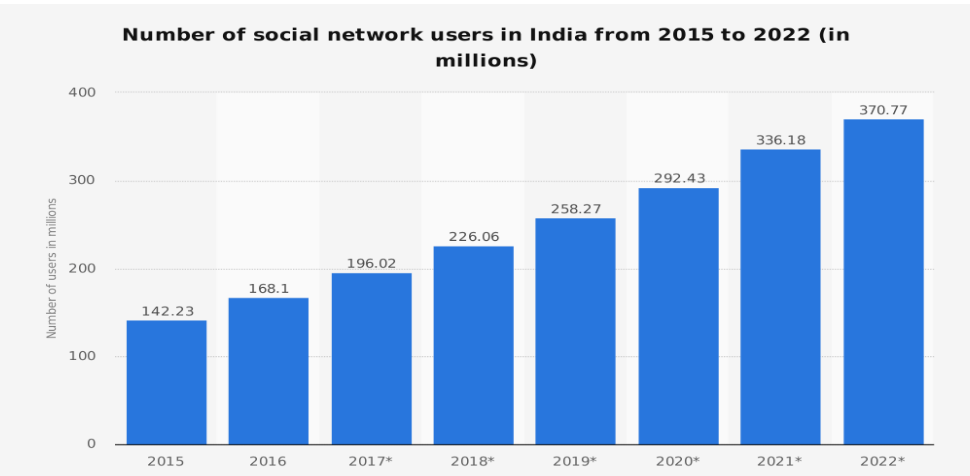
02) Social media could be a collective term for websites and applications which target communication, community-based input, inter influencer marketing influencer marketing involves a brand collaborating with an internet influencer to plug one in all its products or services.

03) Affiliate Marketing Affiliate marketing is that the commonest way of earning a commission by promoting other people's (or company's) products.

04) Influencer Marketing Influencer advertising entails a manufacturer working collectively with an on-line influencer to plug one amongst its merchandise or services.

RESEARCH METHODOLOGY

Auxiliary statistics is gathered from environmentally friendly contemporary springs in numerous recommendation brochures and annals. Secondary data was once accumulated from the periodicals, web sites. To fulfill goals, the investigation utilized subjective research. The clear investigation stood whole by way of audit of existing writing that aided in approval and withdrawal of the tremendous elements and issues. Information accustomed be gathered from auxiliary bases. ""Auxiliary sources stood periodicals, sites, records, administrative middle officials, barring friends' information. within the examination i've got gathered records from auxiliary sources.



RESULTS AND DISCUSSION:

The Growth of Digital Marketing The scope of digital selling in 2020 and 2021 has seen forceful growth. after we consider the key indicators of success in marketing, the first thing we expect of is that the number of people reached through marketing practices. The internet's stabbing has reached outstanding numbers. observing India, it is the 2nd largest number of internet users within the globe. By 2023, the quantity of active Indian internet users will grow to almost 666 million.

Thus, this suggests that a much bigger share of people are shifting online and hence it makes complete sense to begin out marketing online. Scope of Digital Marketing within the Future As mentioned above, the expansion of digital marketing has been very impressive and so the numbers show that the expansion goes to determine an upward trend within the long run. Simply put, the long run of digital marketing looks secure and bright. More and more opportunities will keep coming in and thus, being creative, innovative, and updated with the latest trends is that the fundamentals of every digital marketer. the expansion that we've witnessed on the net over the years, especially since covid, is here to stay . People are adapting to the new normal and truly are now very comfortable with completing matters online, be it for shopping, ordering meals or medicines, or perhaps winding up banking transactions online. Hence, to cater to those new-formed needs of the consumers, digital advertising is awfully essential, additionally to the present, a very important aspect to think about is that the long run generation are going to be a piece of the already digital world and can be at home with the entire lot being online. So to be able to deliver to those future consumers, companies must make digital marketing efforts starting today.

OBJECTIVES OF THE RESEARCH:

1) the most purpose of this paper is to acknowledge the usefulness of digital marketing within the competitive market.

2) Collect and implement the feedback provided by the client within the correct way.

3) Provide a transparent and good service to the customer before and after purchase.

4) To review the impact of digital marketing on consumers' purchase.

5) The entire description has to be provided about the merchandise to the web shoppers.

REVIEW OF LITERATURE:

As indicated by Dasgupta, and Ghatge (2015), due to the straightforward consolidation and similarity of the web with some types of advanced gadgets like tablets, cell phones, watches, etc, its remainders are at the focal piece of computerized advertising. More likely than not, the most advancement of the 20th century is that the Internet, which has changed the scope of advertising. additionally, the web has shown up through a tool supporting the varied reason for promoting, flow, and association building deals. nowadays items are put, promoted, coursed and purchased with the help of the online. The blended system of customary promotion is modified by the web. Furthermore, it permits the sales rep to push added assortment of mass adjusted products. to seem at the value among existing products, work with the net is prominent. Moreover, a singular method of dissemination which is convenient, quick and straightforward, is added by the net. Promoting has drilled the model change whereby conversations have involved the spot of lucrative messages, even as customers have ended up being narrators. These days, Salesperson and advertisers are rehearsing different strategies for showcasing for finishing up the technique of computerized promoting like "Website design enhancement" (Search Engine Optimization), "SEM" (Search Engine Marketing), then, at that time "PPC" (Pay-per-snap) et al.

CONCLUSION

It is concluded that to form it fruitful to say that nearly most are continuously linked with everybody moreover because the whole. people are nowadays enabled to access the net in their day to day life with the assistance of the innovations of mobile along with low-cost data. With reference to this time, Businesses must have the presence of the digital medium, instead they're going to be digital. What works and what doesn't is verbalized by the precise intermingling of frame and appropriateness, almost like the Experience of the patron. Appropriately, no plug is there as far as computerized advertising in India. because it is an advancement of the business in virtual situations that the best methodology utilized by organizations includes is to target the clients once they are online before their PCs or smartphones and urge them to try their items. that's the cause within the continuing occasions organizations center has consistently been round the procedures of digital marketing. Various organizations have utilized over three methodologies that are email marketing, social marketing, and mobile marketing to its greatest use and that is the reason marketing has technologically advanced and organizations actualizing viable business plans are so operative. Subsequently, it can be said by one that the strategies of Digital Marketing along with the achievement of business both go as being one. If business needs to get benefits then they should fill in according to the systems of Digital Marketing in India as everybody and the entire thing is intermittently related via approaches for digitalization.

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A Study on the Impact of Covid-19 Pandemic on the E-Banking in India

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ABSTRACT
The Banking sector of India has been succeeding in implementing IT-enabled techniques for its operation for the last few years. By offering better quality services and products, the banks were able to retain a major customer base and the customers are experiencing feasible banking operations with the help of information technology. The COVID 19 pandemic outbreak has adversely challenged the banking sector in India. Earlier the banking customers used to visit the bank branches to avail banking services. But during the pandemic period, banks have experienced a more shift towards digital or internet banking. The banking sector has been facing a difficult task in understanding the new behaviours to meet the requirements of consumers with relevant products and convenient services and to adapt their business services to social changes related to the pandemic situation. The article throws light towards the banking services during pandemic times and the growth of electronic banking. The general objective of the study is to provide a practical perspective on the impact of the pandemic on consumer behaviour of banking products and services and thereby analyse the growth of mobile/internet banking. For this purpose, we have analyzed the overall inward and outward mobile banking transactions of banks in India and mainly the mobile/ internet banking transactions of two new generation banks i.e., AXIS bank and ICICI bank, for a period of 4 years from 2018 to 2021. The article result highlights that the COVID-19 pandemic effect on consumers' lifestyles has a direct and positive influence on the growth of the internet and mobile banking services.

Keywords: The COVID- 19 Pandemic, Internet and Mobile Banking, Growth of Banking services, Banking strategies, Consumer Behaviour, Digitalization of the banking industry

INTRODUCTION

The pandemic has changed the entire world economy and it adversely impacted most businesses. It caused a transformation in the way people live, interact and make purchase decisions. Even under these conditions, banks are responsible for maintaining liquidity flows and should continue their duty to finance the economy, to continue to lend to individuals and businesses and to maintain their customer base. So banks are trying to transform their strategies that define their future and to rethink their entire flow of activities. The current crisis is an opportunity to change the banking business as well as a rethinking of the development of the bank-customer relationship. This involves not only the digitalization and modernization of the financial activity of banks but also the development of skills and the promotion of a sustainable bank-customer relationship.

The pandemic has imposed a different approach to banking activity to facilitate its consumers' access to the banking operations. It accelerated digitalization in the banking system. Banks noticed a shift in customer approach towards digital or electronic banking. So that banks have provided customers with online banking tools thereby they can perform their simple and convenient operations at anytime and anywhere. Mobile banking allows the users to access their accounts, check the status of the services online timely update and handle transactions and communication with banks, anytime, anywhere around the world. Mobile banking wallets has boosted the banking sector and enhanced daily transactions in an efficient and safe mode.

LITERATURE REVIEW

Covid-19 threats have imposed many changes in the banking sector of India. To ensure speedy and effective customer services in the banking sector, Major Banks in India developed a shift in customer approach towards digital or electronic banking. So banks have developed digital platforms for speedy & diversified services. Simple online banking tools enable even illiterate and technologically backward people to perform simple and convenient operations at anytime anywhere banking. Mobile banking and digital platforms allow the users to access their accounts, check the status of the services and help to update banking and non-banking transactions and communications with the help of the Internet of Things and Artificial intelligence. Mobile banking wallets has boosted the banking sector and enhanced daily transactions in an efficient and safe mode.

Related studies highlighted the situations and provide the backup of this study; Covid-19 Pandemic adversely hampered the Indian banking operations and severely affected all the industries across the world economy, Nilam Panchal, (2021). He argued that Governmental intervention is required to make decisions and actions to lessen uncertainty and financial stress in the economy and continuous measures should be taken to enable the smooth functioning of both money and capital markets, Banking system in India has implemented various measures due to COVID-19 Pandemic to make banking operation more smooth and effective, Patil., Anu Alex, (2020). Based on the study they found that most of the Indian Banks were facing the problem of NPA, Non-recovery of loans, customer issues, Bad Loans during Covid- 19 situations and resultant shut down.

The degree of mobile/internet banking services usage of the respondents has increased during the pandemic in comparison with the period before the pandemic, Daniel, Gardan, Claudia, (2020), survey indicate the need to increase the efforts of banks to offer financial education courses to all categories of bank customers. Tammana Muzawar,(2020), points out that due to the covid-19 pandemic and nationwide closure people believe that visiting branches and availing banking services is not safe and secure. As the banks have modernized they have encouraged their bank customers to avail benefit of online, internet and mobile banking services. The study resulted that most of the people are using mobile banking services as it is clear that since Time saving, cost-effective, reliable and easy to use than Conventional Banking.

Suhas. D, H N. Ramesh, (October 2018), in their review all the banking transactions can able to be processed quickly and easily with the help of Electronic banking. It clearly states the numerous assistance and services provided by e-banking to their customers and also the challenges which the customers are facing in the adoption of e-banking. The review of literature has shown that many studies have been conducted in the field of Technologically Improved Banking Services to identify the impact of Covid-19 on Mobile Banking Services, Internet banking, Real-Time banking and Customer behaviour and satisfaction. We highlight the Impact of Covid-19 on Technologically Improved Banking Services in India; this study focuses on the technologically improved banking services of new generation private sector banks of AXIS bank and HDFC bank during the Covid-19 pandemic period.

Statement of the problem

The banking sector which is responsible for all financial activities in the country and working as a supporting hand to all of the industries have witnessed a great challenging force during the pandemic times. Banks were directly affected by the COVID-19 crisis, being forced to rethink their business operation and strategy, to revise and analyse the directions of their existing activities. As personal banking is not appropriate during this Covid-19 pandemic, it has forced people to use contactless payments and avoid handling paper money as much as possible.

Most of the bank branches encouraged their customers not to visit their branches and make use of online banking tools to carry out their day to day banking operations. Thereby the Covid-19 has pushed consumers towards the use of online and mobile banking. Banks have come up with a technology called mobile banking services that encouraged customers to avail benefits of online, phone and mobile banking services as all these services are available at the fingertips of customers instead of branch visits. Thus technology has altered the banking landscape by increasing non-branch banking which in turn helps create customer value. Banks must adopt technology in the age of transformation to survive in the ever-changing market. The banking industry changed some of its old methods and is now finding new ways to retain its customer base. This period is of importance for banks, as it creates a modern credible digital interface to digitalize their processes.

So in the Indian banking sector, digital means are getting popular as most of the customers are already much learned toward online banking. This study envisages how the Covid 19 impacts the banking sector in India and the growth of technologically improved banking services of mobile/internet banking transactions in overall aspects. And analyse the growth of mobile banking transactions in new generation banks.

Significance of the study

During these pandemic times, banks are concentrating more on value-based services through the means of electronic banking. The evolving way of Internet banking, Mobile banking and Information Technology-enabled services are replacing the traditional way of banking operations. As a necessity, some bank customers were forced to adopt digital options as a means of transactions, while others moved to digital options for the first time. By adopting the digitalized way of operations, the banking sector provides quality and value-added services to its customers. Banks will need to respond to lasting social change conditions to understand how consumers select products and services, to meet individuals' financial needs.

As decisions on how the banking sector responding to the pandemic challenges and relevance of the services and products that they are providing to the customers in a safe and convenient mode, will be the key to successful banking, this study mainly focuses on the emerging phase of banking operations on Improved and Customised Banking Services through Technologically Improved Banking and analyzing the growth of the new banking trends during the Covid-19 pandemic times.

SCOPE OF THE STUDY

The present study investigates the ever-changing banking during the COVID-19 pandemic. The scope of the study is to understand the coping mechanisms of banks during the pandemic crises, by comparing them with pre and post-pandemic periods. This analysis allows us to outline how banks use their strategies to adapt to their digital transformation. The findings of the study will be useful for the Indian banking sector to strengthen the digital banking services by formulating suitable strategies to build the customers trust and loyalty which thereby help the banks to retain their customer base and will assist the bank to reduce their cost of operation, generate substantial revenue from the online banking and e-payment transaction and encourage them to provide more financial product and services that will meet the costumer's needs in the future. An analytical study on banking strategies is important to properly support future research in the area of Emerging Technology in Improved Banking Services of the Indian banking sector.

OBJECTIVES OF THE STUDY

The present study titled "Banking sector in India: Pandemic Analysis", has been initiated to attain the following objectives;

1. To analyse the emergence of technologically improved banking products during the Covid-19 pandemic period in terms of value and volume.
2. To present the overall development of online banking in India by comparing pre and post Covid-19 period.

RESEARCH METHODOLOGY

The present study is an empirical study. The population for the study is all the Private Banks in India. The sampling units consist of two new generation banks (AXIS Bank and ICICI bank). The study is carried out with the help of secondary data which is collected from the Bank's annual reports, magazines, newspapers, articles, and journal reviews.

ANALYSIS

Financial inclusivity and accessibility are the cornerstones of global economic development, especially in a world that is traversing one of its toughest uncertainties of all times. The global banking and financial services industry has undergone seismic shifts in the post-Covid -19 pandemic periods. The larger economic objectives enable accessible and inclusive global banking using fintech and application programming interfaces (APIs). For global banks that are spread across multiple countries and markets, it presents an opportunity to use advanced technology solutions to make improved infrastructure in terms of higher rates of internet and mobile penetration across the world has been a key enabler of this revolution, which is slated to make global banking industry a $43.15 billion business worldwide by 2026 (Ahamed Abdelaal, 2022).

Nearly a quarter of a million people in the United Kingdom switched current account providers in three months from 2021 October in the late surge that was driven by consumers seeking advanced digital banking services (Karl Flinders, 2022). Digital banks are beginning to eat into the market dominance of traditional banks. In the final quarter of last year (2021) Current Account Switching Services (Cass) recorded almost 2,50,000 account switches, which was more than in the same period of the previous year.

In the UK Performance and usage of Current Account Switching Services (Cass) remained strong in the final months of 2021, with thousands counting to benefit even in the face of growing challenges presented by the emergence of the Covid-19 Omicron variant (David Piper, 2022); and digital-first current account providers continue to attract new customers as " many seek current account providers with high-quality online tools, such as mobile apps". Digital challengers have won millions of customers, people are changing for non-financial reasons, with the top reasons cited including better online banking facilities (51%), sophisticated mobile or app-based banking systems (41%) and improved customer service (38%).

1. Overall mobile/internet banking transaction of the banking sector in India (2018 -2021)

Year	Volume (in lakhs)	Value (in crore)
2021	44750	1344959.00
2020	22713	796402.00
2019	12525	532731.00

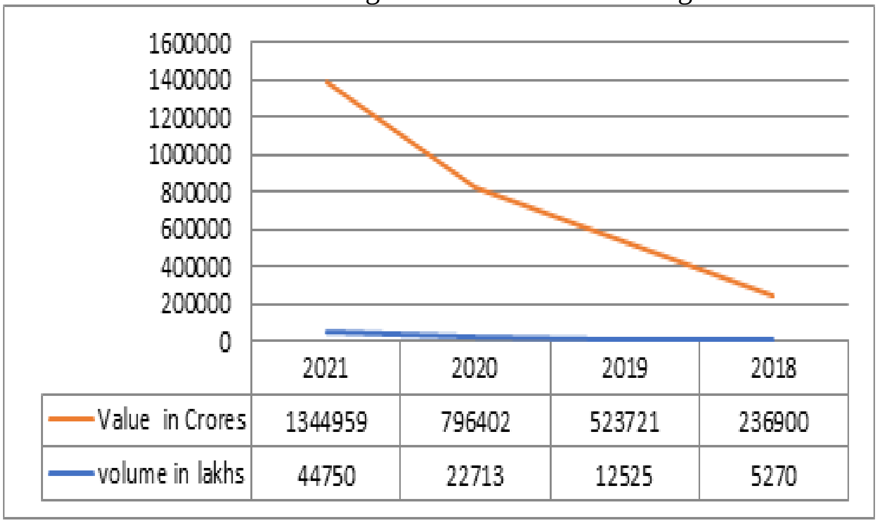
2018	5270	236900.00

Source: Reserve Bank of India Bulletin – 2021

The overall/internet transaction of banking volume in the year 2018 is 5270 lakhs and in the year 2019, it is increased to 12525 lakhs. In 2020 its shows an increase of 22713 lakhs and in 2021 the overall mobile transaction has increased to 44750. This proves the steady growth of the overall mobile /internet transaction volume of the banking sector in India. In the case of the value (crores) of mobile/internet banking transactions, the overall value is Rs. 236900 crores in the year 2018 and year 2019 it is increased to Rs. 532731 crores and the value increased to Rs. 796402 crores and Rs. 1344959 crores in the year 2020 and 2021 respectively. From the table, it is clear that like the volume, the value of overall internet /mobile banking transactions is also increasing year by year.

In Pre- corona period (2018 & 2019) the Overall mobile /internet banking transaction volume has increased by 7255 lakhs from the year 2018 to 2019. Similarly, in the case of value, it increases by Rs. 295831 crores. And in the post corona period (2020 & 2021) the volume and value have increased by 22037 and 548557 respectively. From this, it is clear that the growth of overall mobile internet transactions rapidly developed during or after the corona period.

Figure -1: Overall mobile / internet banking transaction of the banking sector in India (2018-2021)



The Indian banking industry was confronted with an ever-increasing demand from customers to provide innovative digital products and services in a highly competitive market during Covid -19 pandemic periods. Information Technology transformation by using Application Programming Interfaces (APIs) to simultaneously accelerate technical modernisation and enable new business ideas over time. Competitive markets and increasing demand for digital solutions during pandemic period facilitates end-to-end digital customer journeys such as innovative banking technology, advanced-analytics-based products and a core-banking -system push cloud adoption. Introducing new digital capabilities such as robotics, smart automation, and advanced analytics help to generate the full business value of the banking system in India. APIs are the core of IT architecture and play a significant role in the digital strategy of banking.

2. The Mobile/Internet Banking Transactions of Axis Bank

Table.2 - The Inward and Outward transactions of Mobile/internet banking in AXIS bank

Year	Inward transaction (in millions)	Outward transaction (in millions)
2021	321	314
2020	132	250
2019	116	221
2018	101	191

In Pre- corona period (During 2018, 2019) the Inward transactions of Mobile/internet banking in AXIS bank has increased by 15 million from 2018 to 2019. Similarly, in the case of an outward transaction, it increases by 30 million and in the post corona period (During 2020, 2021) the inward and outward transactions of AXIS bank have increased by 64 million and 189 million respectively. So it is evident that the Inward and Outward transactions of Mobile/internet banking in AXIS bank have shown progress in growth after the corona pandemic

Figure: 2 - The Inward and Outward transactions of Mobile /internet banking in AXIS bank (in millions)

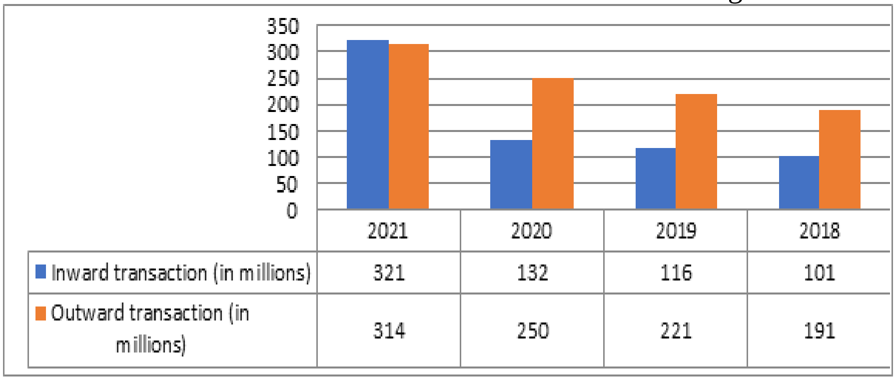


Table: 3 - The Inward and Outward transactions of Mobile/internet banking in ICICI bank (in millions)

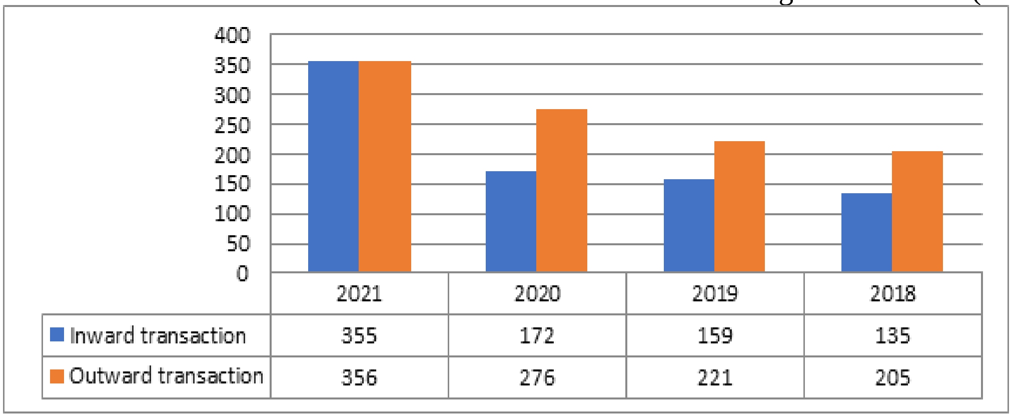
Year	Inward transaction(in millions)	Outward transaction (in millions)
2021	355	356
2020	172	276
2019	159	221
2018	135	205

Source: Reserve Bank of India Report -2021.

In Pre- corona period (2018& 2019) the Inward transactions of Mobile/internet banking in ICICI bank has increased by 24 million from 2018 to 2019. Similarly, in the case of an outward transaction, it increases by 16 million and in the post corona period (2020 & 2021) the inward and outward transactions of AXIS bank have increased by 183 and 80 million respectively.

It proves an increasing trend of growth in the Inward and Outward transactions of Mobile/internet banking in ICICI bank after the post corona period

Figure: 3- The Inward and Outward transactions of Mobile/internet banking in ICICI bank (in millions)



FINDINGS OF THE STUDY

1. The Covid 19 pandemic has a direct and positive impact on the development and introduction of technologically advanced banking products to their customers' banking sector in India.
2. There is a steady growth in the overall mobile /internet transaction volume of the banking sector in India.
3. Like the volume, the value of overall internet /mobile banking transactions is also increasing year by year.
4. The growth of overall mobile internet transactions rapidly developed during or after the corona period.
5. The Inward and Outward transactions of Mobile/internet banking in AXIS bank have shown progress in growth after the corona pandemic.
6. It shows an increasing trend of growth in the Inward and Outward transactions of Mobile/internet banking in ICICI bank after the post corona period

7. The increasing trend of growth which is seen in the overall mobile/internet transaction in the banking sector in India is also be seen in the Inward and Outward transactions of Mobile/internet banking of New generation banks like Axis and ICICI bank

SUGGESTIONS

- The banking system needs to become more digital and more involved in understanding customer needs which is constantly changing.
- Banks need to have more focus on digital transformation and to migrate their traditional banking services to digital technologies as per the desire of customers. It also needs to focus on accessibility, transparency, ease of use and have transparent and lower costs.
- As access to mobile banking is a priority challenge for banks it is necessary to ensure a secure IT system and to avoid failed transactions or system errors that would affect the consumers' trust.
- Banks need to better promote internet banking among their customers and to create awareness that it is easy to use.
- Banks should need to provide more active guidance and education on internet banking, especially to those unfamiliar with digital technologies.
- To increase confidence in online banking among users, banks should also improve communication with customers, highlighting the benefits they offer and the measures they take to increase the security of online transactions.

CONCLUSIONS

Banks are an important pillar of the economy and the strategies they adopt will influence the recovery of the economy after the pandemic times. Digitization remains a priority option for the banks, to offer customers the quality and safest solutions in their current business with the bank. The increasing use of digital transactions during COVID-19 is expected to continue in the coming years, requiring banks to re-evaluate their banking activities. The migration of banks to digital banking has much more importance to the banking sector and it is important to take steps for the development of emerging banking technologies. The new-digital banks need to work harder to increase the level of consumer confidence, digital security, and the value of services. As the customer experience is more essential to banks, only those banks which modernize their IT infrastructure and provide online access to banking products and services will have benefits in future. The future of banking products and services is a combination of online and offline, to respond to a consumer whose preferences are constantly changing. So the banking sector in India needs to develop a well-developed strategy for digital technologies, to have a long term benefit.

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Empirical Study of Financial Literacy of School Going Children with Special Reference to Financial Transactions through Smart Mobile Phones

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ABSTRACT
Technological development brought the age level of humans exposed to the mobile has drastically down. Even infants are introduced to mobile now a days. The habit of watching cartoon or rhymes on mobile during food time or at any random time keeps increasing and kids are habituated to use mobile for longer period. Natural instinct of curiousness is very high among kids, they are curious to use various functions of mobile and press any button on the keypad/screen. (Smart phones with touch screen are even easier for kids to operate.) There are many financial service or product apps are available on the smart phone which kids can use accidently. Not only that (as these financial apps do come with password locks) many kids apps (cartoons, games, rhymes etc.) do come with in app purchase where money is involved. This study is an attempt to understand the level of financial literacy of these children to handle monetary part on the smart phone wisely. Stud is based on secondary data published online or offline and primary data collected through questionnaire circulated among kids.

Keywords: Financial Literacy, Smart Phones, Kids financial literacy, Children Financial Literacy

INTRODUCTION

- **Financial Literacy**

o **Meaning –**

Financial literacy is the knowledge of set of skills which allow people to take balanced decisions about their finances. It is the skill to understand and effectively apply various financial systems for personal finance. Such ability to understand situation and applying financial set of skill helps an individual to become financially self-sufficient.

O **COMPONENTS** –

- **Financial Awareness** – Understand money matters and possessing interest is the first step of financial literacy. One should basically aware about sources and application of money. Understanding some basic concepts of finance is the key of financial literacy
- **Money Matters** – In personal finance what are the various avenues of earning of money and how can be the priorities of spending be fixed is the most important concept to know about. Awareness about existence of money in various forms may be in liquid form, in banks, in investment (whether long term or short term) etc. is very crucial. Other investment decisions are based on it.
- **Budgeting** – Budgeting is planning in advance. It basically includes estimating the money inflow and accordingly plan money outflow. One shall exactly know how much is he going to receive before making/booking any expenses against. Wrong budgeting may lead to financial havoc and consequences of which can be very dangerous both financially as well as mentally.
- **Understanding Interest Rates** – It starts with simple interest rate. However, it is said that no better magic in the world than compounding. Compound interest is the essence of every investment. One shall also understand that interest rates work differently for an investor and for a borrower. You may call it as coupon rate or discounting rate, but one shall understand it thoroughly before any investment.
- **Prioritizing Saving** – It is proven in the study of economics that whenever the income of any person increases his/her expenses increase more that savings. And unfortunately, this mentality is obstructing wealth creation. One shall focus on saving and investing to create wealth. Also, prioritizing is essential. While investing priorities shall be set depending on financial goals, its importance and available duration to achieve that goal. Also, in spending prioritizing is essential to avoid futile guilt spending.
- **Debt-EMI Traps –** Nothing comes in free. While one is opting for EMI option while purchasing, he/she is shall also realize that eventually he will be ending up spending more amount than the original cost of that item. Author here is not opposing EMI system, but is actually cautioning a purchaser to make budget for the

additional amount. Also, one shall understand that purchasing non productive assets (any asset purchased for self-use) adds additional interest obligation without increasing correspondent income. Credit scores are important to get new/additional loans. Such credit scores are also associated with Credit Card. Therefore, choosing of right card with right amenities for right needs is highly important.

- **Digital Security** – In modern world digitalization sets the pace. Many financial transactions are carried online. One needs to follow utmost care while completing these transactions. Various Apps (banking/non-banking/pay wallets) are providing best of the service to customer enabling security features. Customer however, shall take utmost care of all different layers of security features (passwords/fingerprints/OTPs etc.)

O **IMPORTANCE** –

- **Better Decision Making** – One cannot take any decisions without proper information and decision without proper information are only guess works not firm decisions. Financially literate person is always in better position to decide about his/her financial matters as he can understand pros and cons of the decision in better manner.
- **Increased Income** – Financial stability & wealth accumulation will create better opportunities to earn income. Knowledge about Stock Market will allow person to take calculated risk and multiply money instead of mere gamble in speculation. Productive assets can also help to begin secondary and tertiary income besides prime source of earnings.
- **Safeguards from Frauds** – Modus operandi of many financial frauds to take advantage of ignorance or unawareness of a person. Financial literacy also includes digital literacy wherein one can learn and understand safe way to do digital transactions and not to share any vital information online. Financial literate person will also realize that Ponzi schemes are something to stay away from there is no investment in the world which will make you billionaire in one day.
- **Self-Reliant** – Financial Literacy can make you self-reliant in different ways. It will help you to accumulate your wealth which will give you financial independency, it will make you to save for you retirement or even for your contingencies which will allow you to be independent and it will also put you in a better position to take your own financial decisions smartly and wisely.
- **Omni Present** – Financial literacy will touch every field of your life in positive way. Most importantly it is something which will help anyone to be stress free.
- **Improved Standard of Living** – Additional earnings, wealth creation & accumulation, building contingency & Retirement Funds will actually make one a better citizen. It will put him/her in better position to spend money the way he/she feels like, giving happiness

- **School going children –**

Government of Maharashtra (A State of India where the study is taken place at.) issued GR (Government Resolution) on 18th September 2020, stating that the children of minimum age of THREE YEARS can take admission in Nursery and children of minimum age of SIX YEARS can take admission in First Standard. If the calculation is taken ahead then a child may complete his schooling (10th Standard – Secondary School Certification) at the age of 15 years.

- **Smart Mobile Phones –**

According to Collins Dictionary, "a smart phone is a sort of mobile phone that can perform many of the activities that a computer performs, such as accessing the internet."[1]

([1] - https://www.collinsdictionary.com/dictionary/english/smart-phone#:~:text=also%20smartphone,such%20as%20accessing%20the%20internet.)

In other words, smartphone is portable electronic gadget which can be linked to an internet network. Smartphones were introduced to the world by in the year 1994 by IBM. However, since then many companies have manufactured smartphone and participated in the development of smart mobile phones. Today, smartphone is used to send email, to surf the internet, play games, and send messages through test or multimedia format using various apps along with its basic use of making phone calls.

LITERATURE REVIEW

- **Zait & Bertea (2014)** synthesized the definitions and instruments previously used and suggested a comprehensive approach for obtaining a measurement instrument for financial literacy.

- **Te'eni-Harari (2016)** concluded that the attitude of children toward saving money is dependent on parental & peer attitude towards saving and child's access to the money.
- **Yakoboski, Lusardi, Hasler (2018)** emphasized that financial literacy benefits fin-tech users because people with greater levels of financial literacy are less likely to overdraw their checking account. Fintech appears to be best seen as a supplement to, rather than a replacement for, financial knowledge.
- **Morgan, Huang & Trinh (2019)** proposed that consumers will need to become more financially sophisticated in order to use financial technology (fintech) products effectively and prevent fraud and costly blunders.

NEED FOR THE STUDY –

Learning about the knowledge of handling financial products and services through smartphones is need of an hour as majority of the transactions are executed through smartphones itself. The study says that over 300 million Indian smartphone users make digital financial transactions (The Pulse Report, August, 2021). Due to COVID-19 pandemic us of smartphones by children is highly increased as the schooling was through online mode. Therefore, they are highly exposed to various kinds of mobile apps which even associated with financial transactions. As the saying goes catch them young, the study is required to know whether school going children understand financial literacy concepts while performing financial transactions through smartphones.

OBJECTIVES OF STUDY –

i. To understand Financial Literacy.

ii. To know about various the level of financial literacy of school going children.

iii. To draw conclusions.

iv. To provide suggestions and recommendations.

SCOPE OF STUDY –

i. Study is confined to school going children.

ii. Study is restricted only to the children of the age group of 6 years (1^{st} Standard) to 15 years (10^{th} standard).

iii. Study has covered only within the boundaries of Mumbai City & Suburbs.

iv. Study has conducted only to understand financial literacy of school going children.

HYPOTHESES –

i. Hypothesis 1

H_0 – Financial literacy is not associated to the gender of the respondents.

H_1 - Financial literacy is associated to the gender of the respondents.

ii. Hypothesis 2

H_0 – Financial literacy is not associated to the class of education of the respondents.

H_2 - Financial literacy is associated to the class of education of the respondents.

	Null Hypotheses	P Value	Decision	Meaning
Hypothesis 1	H_0: Financial literacy is not associated to the gender of the respondents.	0.095	Null Hypothesis Accepted	Financial literacy is not associated to the gender of the respondents.
Hypothesis 2	H_0: Financial literacy is not associated to the class of education of the respondents.	0.038	Null Hypothesis Rejected	Financial literacy is associated to the class of education of the respondents.

Hypotheses Testing –

FINDINGS

1. It is found that 100% of the respondents have used smartphones and all of them do operate it even without the assistance of parents.
2. Approximately 56% of the students have done financial transaction through smartphones at least once.

3. Use of smartphones for financial transactions is majorly done under the supervision of parents. (82.%)
4. Most of the financial transactions through smartphones are done through food delivery apps (93%) followed by e-commerce apps (87%) and gaming apps(61%).
5. A satisfactory finding from the study is all the students (100%) are aware that there can be fraud calls/messages/notifications to steal the money and not to share their password/OTP with anyone.
6. It is observed that though very few students pre plan for their spendings through smart phones (13%) but satisfactory number of students (71%) do compare prices of the products/services/merchandise before executing a financial transaction.

CONCLUSIONS & RECOMMENDATIONS –

i. Young generation has scored good points in financial literacy when it comes to the security and privacy of the financial transactions as all are aware that there can be malicious links to dupe person for money. And they need to stay away from them.

ii. Students along with their parents need to work on the planning part of the finance as students do ignore this part. However, with the increase in age and maturity it can be expected to change positively.

iii. Study says that, as the age of the student increases, they are more independent about making financial transactions which is quite natural. However, a point to be observed here that many them are not using banking apps may be because of password protection by the parents which is wise act by the parents.

iv. E-commerce and food delivery apps are more common for children to execute transactions, it can be due to one of the characteristics of nuclear families in India that kids play major role in decision making about such items.

v. It is necessary to further learn about this generation as the basic financial literacy at this age is good but when they will expose to more complex products and services and will be facing decision making situations more often their response to the circumstances will be vital. Nevertheless, it can be expected that they will be financially literate at matured age.

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Robo Advisors- A Revolution in Retirement Planning Advisory Services

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ABSTRACT
Today technology has made its foray in almost every sector. The financial services sector is also growing at a rapid pace. The new generation of investors i.e., the Gen Z and Millennials are now looking for advice for their financial planning not just through the traditional advice by human advisors. They need information on the go and also through digital forms. Hence today a host of digital advisory services like Robo Advisors are available. These Robo Advisors are available round the clock and provide un-biased advisory services. However, they are yet to be used on a wider scale and lack the personalised touch provided by human advisor. Nevertheless, the future of financial planning for retirement may greatly be influenced by the Robo Advisors.

Keywords: Robo Advisors, Retirement, Financial Planning

1.1 INTRODUCTION
Financial Planning is one of the most crucial activities for an individual as well as household. Throughout the working life an individual saves to meet his/her current and future needs during retirement. Retirement is a phase in life where one stops earning and needs to depend upon his savings of working years for his expenses.

The financial services industry is one of the fastest growing industries and has majorly been dominated by human intervention. Humans form the crux of financial service by providing advisory services to customers. However today technology has made its way in every sector. Fintech and Artificial Intelligence is the way ahead in the financial services sector. The pandemic and the lockdown saw its necessity and relevance.

The Financial Service Sector is constantly innovating. New products and services are being rolled out to meet the demands to the people. This innovation is largely led by technology. Technology has also played the role of democratizing financial services, which the new generation of investors would prefer. Likewise, the new generation of investors are more tech savvy and would prefer to manage their own wealth. A host of Digital Tools are now available to meet their needs.

Robo Advisors are Digital Tools that give financial advice on the basis of inputs with little or no human intervention. They are software based services that make use of algorithms to predict outcomes based on inputs.

Not just the new generation but Technology has also proved beneficial to the older generation who previously could not access financial services or could not seek the advice of a financial advisor.

1.2 REVIEW OF LITERATURE:
Dubey, Sonar, Mohanty (2020) in their paper titled “FinTech, RegTech and Contactless Payments Through the Lens of COVID 19 Times” have studied the importance of contactless payment systems and technology during COVID-19 pandemic. Contactless payments are now facilitating most of the day-to-day transactions. This much required in these pandemic times to carry out our activities and also maintain social distancing.

Sahay, Allmen, Lahreche, Khera, Ogawa, Bazarbash, Beaton (2020) in a paper published by the International Monetary Fund mentioned that due to technology, new opportunities have been created in the financial services sector. Digital Finance will also be useful for increasing financial inclusion. This is particularly useful in times of the pandemic and help in economic growth in such times.

Rasiwala, Kohli (2019) in their paper have studied the awareness and perception of Robo Advisory Service among Investors in Pune city. Their study shows that investors are aware of the services. However, further study and research is required to make this service more accessible to retail investors for their financial planning.

1.3 OBJECTIVES OF THE STUDY:
1) To understand the Role of Robo-Advisors for Retirement Financial Planning

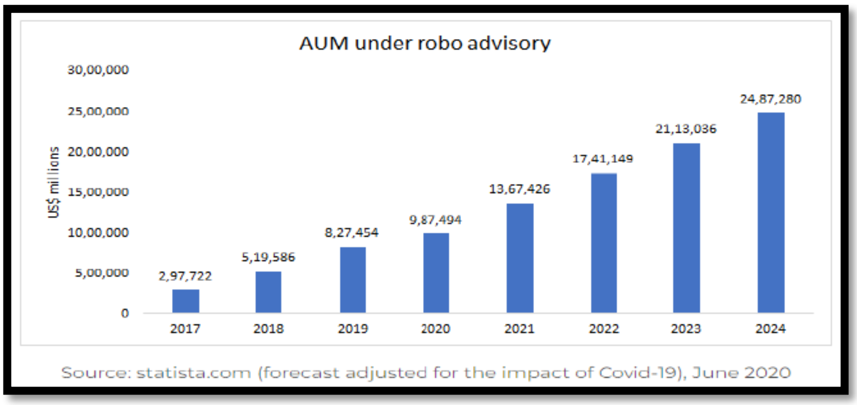
2) To study the advantages and limitations with regards to Robo Advisors for Retirement Financial Planning

1.4 RESEARCH METHODOLOGY:
Data is collected from Secondary sources such as journals, newspapers, reports and websites.

1.5 Growth of Robo Advisory Services

Robo-advisors were first launched in the year 2008. Since then, they have garnered success and are now being offered on a larger scale. According to a Report published by The Robo-advisory Services Market is growing at a CAGR of 40.3% over the next 5 years. Asia Pacific is growing at the highest CAGR over 2021- 2026.

According to a study by Financial Pandora in July 2020 around 39 companies in India are providing Robo Advisory service.



Source: statista.com (forecast adjusted for the impact of Covid-19), June 2020

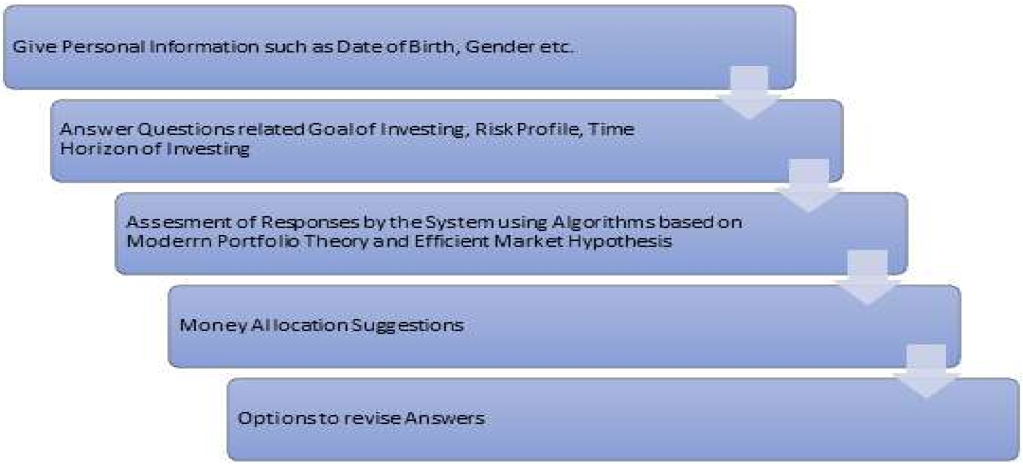
Top 10 Robo Advisory Service Providers in India are as follows:

Ranking	Advisory Service Provider
1	Angel Broking ARQ
2	5 Paisa Auto Investor
3	Scripbox
4	FundsIndia
5	Sharekhan NEO
6	ET Money
7	OroWealth
8	Goalwise
9	Robonam
10	Invezta

Source: Top10Stockbroker.com

1.6 Role of Robo-Advisors for Retirement Financial Planning:

Retirement Planning includes estimating your future goals and expenses and preparing a savings and investment plan to achieve those goals. Robo Advisors are a contactless tool that use algorithms to create and manage investment portfolios for retirement as per your requirements. The process is quite simple and easy.



1.7 Benefits of Robo Advisory Services in Retirement Planning:

1) Eliminates human error: Humans formed an integral part of advisory services. However not many advisors are well qualified to do this job. Financial planning for Retirement requires complex calculations for future

predictions. Financial advice is also given on the basis of commissions received and lead to mis-selling of products. In case of technology driven service this aspect can be eliminated for an un-biased and fair advice.

2) Low-Cost Expense: Availing services of Robo advisors is much easier on the pocket than those of a Professional Financial Planner. Since it does not require a brick-and-mortar outlet and fewer human advisors, it makes it possible for service providers to offer the benefits in a low-cost way to the clients.

3) Ease of Accessibility: Digital Services are not dependent of humans and all accessible round the clock for use. In today's times when people have hectic work schedules and are pressed for time, these services make it possible for seeking advice at the convenience of the client. A client may be able to concentrate better in his or her free time and gain better advice.

4) Multiple time input: In case of digital services, one can enter inputs multiple times and analyse different outputs and scenarios. It may not be possible to do that in case of advice by human financial planners.

5) Bias Free Advice: Financial Advisors are hired by Wealth Management Companies. They get commissions based on the products they sell. Hence many times their advice is directed towards certain products. Robo advisors are programmed to give outputs based on the data fed by the clients. The advice is purely based on inputs and not related to any specific product.

6) Simple Approach and Easy Access: Online Platforms are easily accessible and simple to use. From comparing data to making payments everything can be done seamlessly. They can be accessed at all times using a computer or smart phone.

7) Portfolio Creation: Creating a diverse portfolio is much easier for Robo Advisors. Within few minutes of feeding the information, they are able to create a portfolio for their clients. It will help those who are sure about their investing objectives to know the further course of action and start investing on the go. Auto investing options can help investors create and sustain their portfolios.

8) Instant Diversification: Investing need not be restricted to one class or category of assets. They offer advisory on major asset classes like stocks, bonds, mutual funds etc to create a diversified portfolio.

9) Auto-Monitoring and Rebalancing: One has to rebalance and monitor their portfolio from time to time to get the best returns. This task requires personal attention of the client or financial advisor. A Robo Advisor is automatically programmed to do this. This could be vital for keeping investments on track.

1.8 Limitations of Robo Advisory Services:

1) No personalised touch: You don't get any personal attention. The platform may not provide access to any human Financial Advisor.

2) Faulty input: Digital advice is based on algorithms that are inbuilt. They are only meant to process the input received. The final advice may not be proper if wrong information is fed.

3) Generic Advice: Digital Advisors are not programmed for any unique situation. They take make basic assumptions and deliver outputs. Hence it may not be suitable for any unique situations like crisis.

4) Resistance to change: Financial Services sector is transforming but people have to still embrace this change. People may find it difficult to trust a faceless advisor.

5) Security Issues: The digital world is plagued by issues related to cyber security and data theft. For obtaining retirement advice, a client may have to feed in confidential data which may be vulnerable to such issues.

6) Creating a Comprehensive Plan: Robo Advisors depend on the data that is fed in. They are not programmed to design a comprehensive plan taking into consideration the other non-financial parameters that may affect an investor's portfolio.

1.9 CONCLUSION

While we can say that today technology has indeed had an impact on every aspect of our life. The future of the financial services sector lies in the effective use of technology. People today are more tech savvy and are looking for easy and convenient ways to get things done and that also includes investing. By creating awareness about Retirement Financial Planning using Robo Advisors, more and more people can be encouraged to plan and save for their Retirement. The effectiveness of Robo Advisors is yet to be determined. Financial service provider should also try offering these services in hybrid mode for better customer engagement and satisfaction.

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Diuretic Response of Novel Structural Analogues of Ethacrynic Acid

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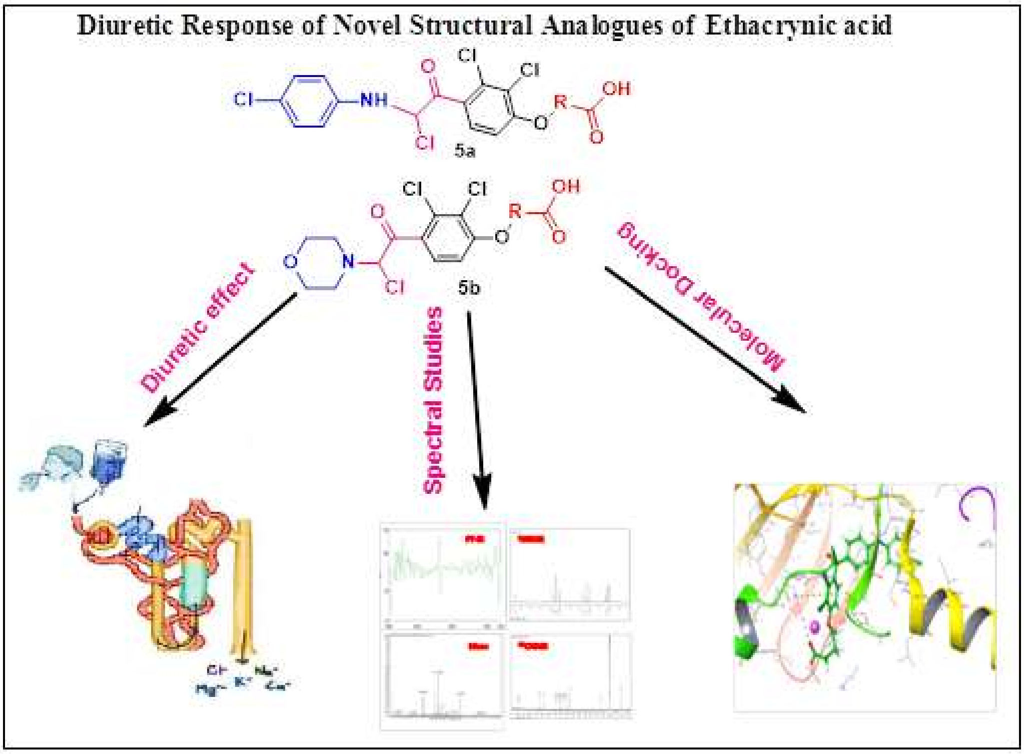
ABSTRACT
Ethacrynic acid is a strongly effective loop diuretic agent. The present study aims to develop novel structural analogues of ethacrynic acid having greater diuretic response. Designed and synthesized compounds were screened for diuretic effect in albino wistar rats using ethacrynic acid as standard drug. Molecular docking was done to determine favorable accommodation of novel molecules in binding pocket of the receptor. Structures of novel synthesized molecules were confirmed by spectral characterization such as IR, 1HNMR, 13CNMR. Toxicological and pharmacokinetic studies were done to ensure safety of the compound. Results of biological evaluation studies showed that all compounds having diuretic activity. Compound B1,B2 possesses good diuretic activity where as compound B6 was found with the excellent diuretic activity. The research studies were found to be adventitious for further development of new agents with high eficasy of diuretic effect.

Keywords: Synthesis, Ethacrynic acid, Diuretic activity, Molecular docking, Spectroscopy

Graphical Abstract



INTRODUCTION:

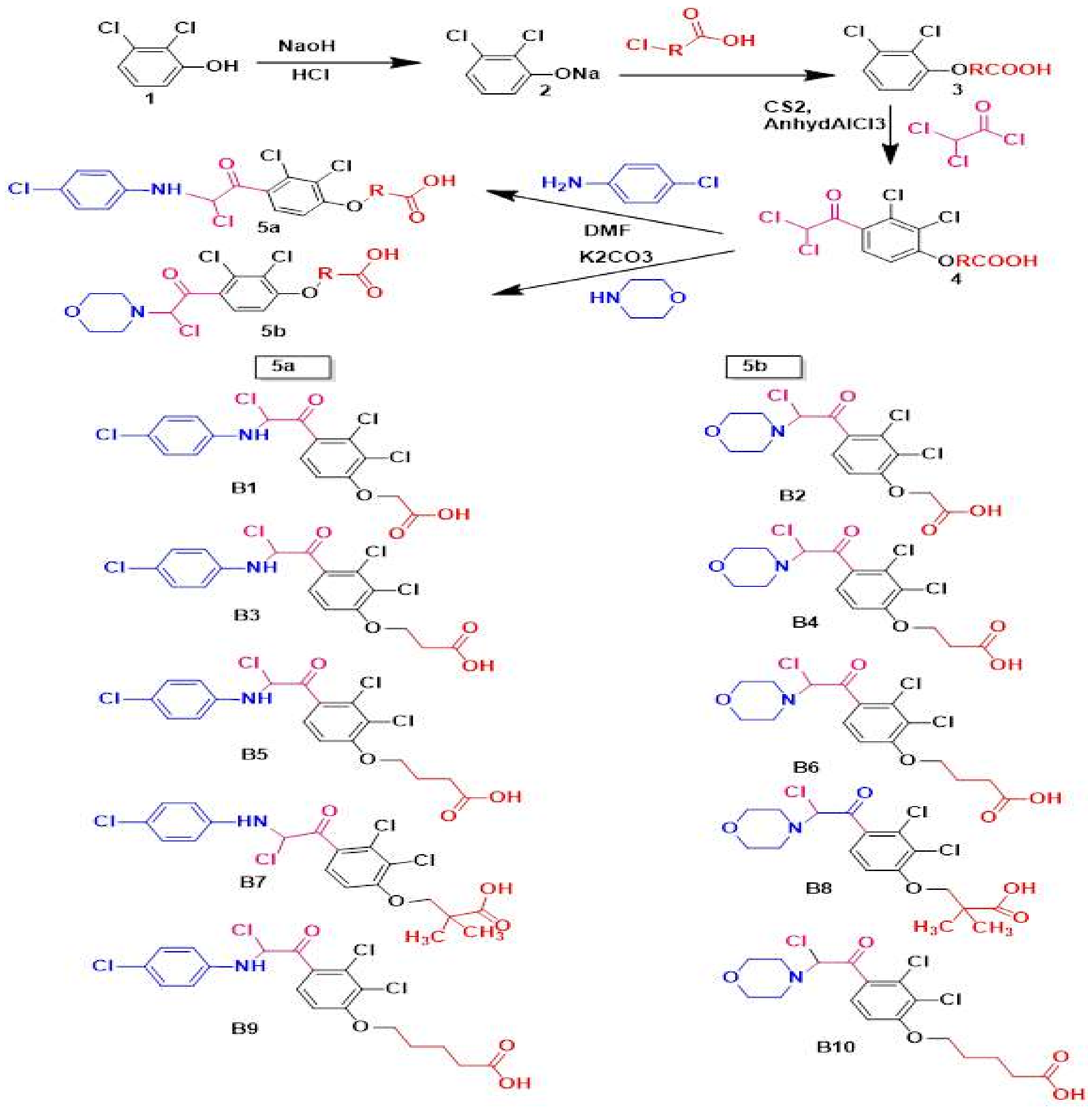
Ethacrynic acid is strongly effective diuretic agent[1]. It induces diuresis by inhibiting Na+, K+, Cl- symporter or co-transporter (NKCC2). Symporter or co-transporter (NKCC2) In the thick ascending loop is responsible for reabsorption of sodium and chloride in blood. Due to inhibition of symporter in thick ascending limb reabsorption of electrolytes in blood decreases and loss in urine increases with large volume of urine contributes to diuretic effect of ethacrynic acid[2,3].

The thick ascending limb has a high reabsorptive capacity and is responsible for reabsorbing 25% of the filterd load of sodium. As ethacrynic acid blocks Na+K-Cl- co-transporter (symporter). Ethacrynic acid-induced diuresis is characterized by increased sodium (up to 25% of the filtered load), potassium, chloride, calcium, magnesium, and water excretion resulting in higher diuretic effect of ethacrynic acid[4]. The active form of the drug is not ethacrynic acid it is converted to the complex ethacrynic-cystein complex in tubular lumen which is responsible for exerting diuretic effect.[5] It is useful when an agent with high diuretic effect is required, patients with resistant oedema and patients with renal insufficiency [6,7]. Ten novel structural analogues were designed and synthesized and diuretic effect was determined by measuring different parameters such as urine volume, urine pH, urine conductivity, urine electrolyte concentration (sodium, potassium and chloride ions).

RESULT AND DISCUSSION

CHEMISTRY

In the research project the synthesis of novel structural analogues of ethacrynic acid. 2,3-dichloro-4-(2-chloro-2-((4-chlorophenyl)amino)acetyl)phenoxy)carboxylic acid was achieved through a convenient approach. The structure of synthesized compounds was confirmed by their spectral characterization I.R, NMR and mass spectrometry. The finished target compounds obtained in the yield of (67-88%) . Purification of all the synthesized compounds was done by column chromatography using n-hexane /ethylacetate as solvent system. The target compounds were obtained by synthetic route given in figure. Compound (2) is obtained by reaction of 2,3-dichlorophenol with chloro substituted carboxylic acids in presence of sodium hydroxide. Compound (2) on acidification with concentrated hydrochloric acid yielded compound (3). Compound (3) on friedel-craft acylation reaction with dichloroacetyl chloride in presence of anhyhdrous aluminum chloride in carbon disulphide solvent resulted formation of compound (4). Compound (4) on amination in dimethyl formamide solvent in presence of potassium carbonate resulted in the formation of target compound (5). Total 10 derivatives of fifth compound were synthesized. In the fiftth compound R belongs to five different type of carboxylic acids. Each fourth Intermediate compound containing five different carboxylic acids on reaction with Para-chloro aniline and Morpholine generated ten novel structural analogues of ethacrynic acid.



SCHEME-1:

Reagents and conditions : Synthesis of (2,3-dichloro-4-(3-(hydroxyphenyl)acryloyl)phenoxy) carboxylic acid. Reagents and conditions :step-(1) synthesis of Comp **(3),** 2- (2,3-dichlorophenoxy) carboxylic acid, 2,3-dichlorophenol, chlorocarboxylic acid, NaOH, , reflux with stirring,85^{0}C, 2h, step2**)** synthesis of compound **(4)** 2-(2,3-dichloro-4-(2,2-dichloroacetyl)phenoxy) carboxylic acid. comp(3), dichloroacetyl chloride, CS_2, anh AlCl3 reflux, 70^{0}C, 4h step3) synthesis of comp **(5),** (2,3-dichloro-4-(2-chloro-2-((4-chlorophenyl)amino)acetyl)phenoxy)carboxylic acid, comp (4), amines (Parachloroaniline, Morpholine) DMF, KOH, stirring, refluxing 95^{0}C, 24 hrs.

ADME Studies:[8] The parameters illustrated in (Table-2) Qikprop analysis show significant results. CNS parameter is related with absorption of entity through Blood brain barrier, standard limit for CNS is -2 to +2, where -2 shows inactive CNS penetration indicate compound with no CNS toxicity and +2 shows active CNS penetration indicate designed compound having CNS toxicity. All the designed entities show satisfactory results within the range. Here all entities shows more than 80% oral absorption, it is considered to be highly absorbed. number of hydrogen bond donner, number of hydrogen bond acceptor and number of rotatable bond count as well as partition coefficient of all designed NCEs are in range. Therefore, ADME result indicate that designed derivatives possess drug like pharmacokinetic properties. Based on result of docking and ADME prediction the compounds follow all screening criteria were selected for synthesis and biological evaluation to verify the results of In Silico Study.

Table 1: ADME Studies

CompoundName	MW	LogP	PSA	%ABS	CNS	HBD	HBA	Toxicity
B1	450.705	5.193	94.533	79.079	-2	2	5.25	Non toxic
B2	410.253	3.46	96.744	81.843	-2	1	7.45	Non toxic
B3	464.732	5.653	93.289	81.502	-2	2	5.25	Non toxic
B4	424.28	3.912	94.976	85.751	-2	1	7.45	Non toxic
B5	478.758	5.984	92.849	83.388	-2	2	5.25	Non toxic
B6	438.307	4.262	94.563	88.035	-2	1	7.45	Non toxic
B7	492.785	6.423	86.869	90.549	-1	2	5.25	Non toxic
B8	452.333	4.708	88.925	95.361	-1	1	7.45	Non toxic
B9	492.785	6.408	93.582	85.951	-2	2	5.25	Non toxic
B10	452.333	4.674	93.091	91.835	-2	1	7.45	Non toxic

MW, molecular weight; LogP, logarithm of partition coefficient of compound between n-octanol and water; PSA, polar surface area; %ABS, percent of human oral absorption; CNS, absorption through blood brain barrier; HBA, hydrogen bond donor; and HBD, hydrogen bond acceptors;

2.5 Molecular Docking:[9] In order to explore the binding mode of the synthesized compound all the compound were docked against NKCC2 (PDB: 5DBX) using Ethacrynic acid as standard**.** The docking results indicates that all the designed compounds have maximum score as compare to standard drug (Table 1). Ligand interaction as shown in Figure-9 which gives an idea of H-bond interactions with the residues LYS104, ALA85, LEU153, MG402, GLY205 and ARG13.

Table 2: Docking interaction of compound with NKCC2

Compound	Hydrophobic interactions	Dock score
B1	41.02878	-9.378
B2	38.00796	-9.006
B3	34.90875	-6.924
B4	33.34137	-4.866
B5	38.10929	-8.872
B6	35.32036	-10.35
B7	42.90039	-7.898
B8	40.72331	-3.746
B9	39.05691	-8.898
B10	32.78916	-2.457

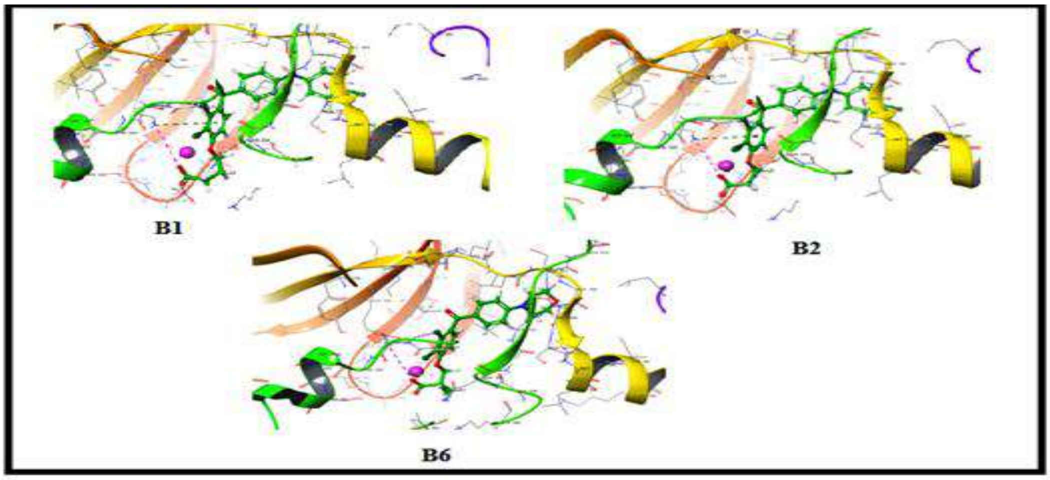


Fig-1: Binding mode and Molecular Interaction of compounds

Diuretic activity:

Statistical analysis: Data are expressed as mean ± SEM (Standard error of mean) statistical analysis of the data were performed with one-way analysis of variance (ANOVA) followed by Dunnets comparison test with standard EtA (Ethacrynic acid).Urine output and urinary electrolyte excretion was found to be higher and comparable with standard drug EtA(Ethacrynic acid). Urine Ph was found acidic to alkaline and urine conductivity was found to be increased

Table 3: Effect of on Urine volume and Diuretic action/Index

Compound name	Urine volume in ml	Diuretic action/ Diuretic Index
Control	4.18± 0.50	-
Standard	14.34± 0.27**	3.43
B1	11.02± 0.70*	2.63
B2	10.92± 0.80*	2.61
B3	9.40± 0.77**	2.24
B4	10.20± 0.93**	2.44
B5	10.14± 1.11**	2.42
B6	12.00± 0.83*	2.8
B7	7.04± 0.72**	1.68
B8	5.20± 0.65**	1.24
B9	7.52± 1.17**	1.79
B10	7.04± 0.70**	1.68

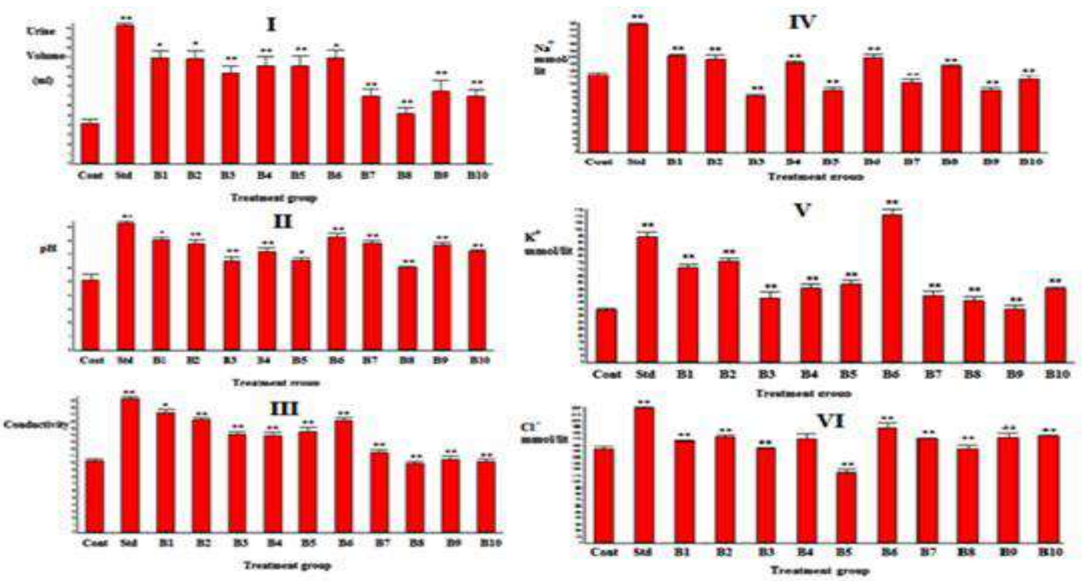


Fig-2 Urinary output and Electrolyte excretion

Table 4: Effect of ethacrynic analogues on urinary electrolyte excretion

Compound name	Na^+mmol/lit	K^+mmol/lit	Cl^-mmol/lit
Control	114.80 ± 2.70	39.60± 1.20	154.20± 5.23
Standard	189.60 ± 2.06**	94.80± 3.55**	220.80±2.51**
B1	142.16 ± 2.62**	71.60± 2.37**	167.20±1.15**
B2	137.20± 6.35**	76.60± 2.18**	174.60±2.90**
B3	82..80 ± 3.91**	48.80± 4.35**	155.00±2.38**
B4	132.60 ± 1.69**	56.00± 3.31**	170.00±9.14**
B5	92.20 ± 4.24**	59.00± 3.43**	115.80±4.81**
B6	140.00 ± 4.88**	111.80±3.92 **	189.80±6.82**
B7	103.20 ± 4.54**	50.40± 3.29**	170.00±1.22**
B8	127.60 ± 1.50**	46.60± 2.99**	154.60±6.87**
B9	92.40± 4.27**	40.40± 2.80**	172.80±8.47**
B10	108.20± 6.26**	55.80± 1.42**	175.40±1.53**

All the data are expressed mean ± SEM (standard error of mean), **p<0.01 when compared with standard.

Table 5: Effect on urinary pH and Conductivity

Compound name	pH	Conductivity
Control	5.174± 0.39	10.36± 0.37
Standard	9.28±0.18**	19.39±0.25**
B1	8.10±0.20*	17.34±0.52*
B2	7.79±0.27**	16.26±0.34**
B3	6.53±0.28**	14.13±0.46**
B4	7.23±0.25**	14.03±0.44**
B5	6.60±0.17**	14.57±0.58**
B6	8.27±0.30*	16.22±0.40**
B7	7.84±0.21**	11.54±0.42**
B8	6.06±0.11**	9.94±0.35**
B9	7.70±0.20**	10.55±0.54**
B10	7..25±0.12**	10.30±0.33**

All the data are expressed mean ± SEM (standard error of mean), *p<0.05 **p<0.01 when compared with standard.

CONCLUSION

Novel structural analogues of ethacrynic acid were synthesized. Spectral techniques were used to confirm the structure of synthesized compound. Binding mode and affinity of the novel compounds were determined by molecular docking studies. ADME prediction was done by Qikprop analysis. The diuretic activity was meseaured by using experimental animal model (Albino Wistar rats). The compound B1, B2 were found to have good diuretic activity. Compound B6 was found with the highest diuretic activity in the series.

These research studies may be useful in further modification and development of compounds with increased diuretic effect.

EXPERIMENTAL DETAILS

Chemistry method

General information. All the chemicals (reagents and solvents) used in the research study of high purity were purchased from sigma Aldrich. To assure purity and completion of reaction thin layer chromatography (TLC) was performed Using pre-coated silicagel 60 F254 plates with layer thickness 0.25nm purchased from Merck ltd. Iodine vapours / U.V light were used to locate the spot on TLC chromatogram. One end open capillary tubes were used to measure the melting point on a liquid paraffin bath and are uncorrected**.** The I.R spectra were recorded in KBr by using (JASCO FT-IR 4000) spectrophotometer.^{1}HNMR and ^{13}CNMR were recorded on the Bruker Advanced (600MHz) in DMSO-d6 solution, with TMS as an internal Standard. Standard abbreviation indicating multiplicity was used as: s=singlet, d=doublet, t=triplet, q=quintet, m=multiplate. Mass spectra were recorded on high resolution liquid chromatography Mass spectrometer orbitrap (LC –MSQTOF). Purification of all the synthesized compounds were done by recrystallization followed by column chromatography using n-hexane/ethylacetate as solvent system.

General method for preparation of (2,3-dichlorophenoxy) carboxylic acid, compound (3) [10]

Substituted phenol (1) (100 mmol) was added to a solution of sodium hydroxide (15 g, 375 mmol) in 30 ml of water, then 2-chlorocarboxylic acid (170 mmol) was added slowly at 40 ^{0}C. The mixture was heated to85 ^{0}C to reflux with stirring for 2 h. Two hundred milliliters of water was added after the mixture was cooled down. The solution was filtered and acidified to pH 1–2 with concentrated hydrochloric acid. The brown oil fraction was extracted twice with ether (100 mL). The ether fraction was further extracted twice with 5%sodium bicarbonate solution (75 mL). The sodium bicarbonate solution was acidified to pH 1–2 with concentrated hydrochloric acid and yielded a solid product. The solid product was collected with filtering and dried to obtain compound (3)

General methods for synthesis of 2-(2,3-dichloro-4-(2,2-dichloroacetyl)phenoxy) carboxylic acid. compound (4) [10]

The compound (3) (24 mmol) was added to carbon disulfide (70 mL) with stirring at room temperature. Powdered aluminum chloride (10 g, 75 mmol) was added into batches and then acyl chloride (30 mmol) was added slowly. The mixture was heated up to 70^{0}C to reflux for 4 h and then the carbon disulfide was decanted after cooling to the room temperature. The residue was added to a mixture of ice (100 g) and concentrated hydrochloric acid (3 ml) and yielded oil fraction. The oil fraction was extracted twice with ether (100 ml), and then the ether fraction was extracted twice with 5% sodium bicarbonate solution (50 ml). The sodium bicarbonate extract was acidified with concentrated hydrochloric acid to pH 1– 2. The solid particles were collected by filtering and dried to obtained compounds IV.

Procedure for synthesis of (2,3-dichloro-4-(2-chloro-2-((4-chlorophenyl)amino)acetyl)phenoxy) carboxylic acid (5) 5a and 5b [11]

Prepare a solution of the amine and the alkyl halide in DMF. Using an excess of either starting material is beneficial (1.5-2 equivalents). Add 1.5 equivalents of the base and, in the case the halide is a bromide or a chloride, 1.5 equivalents of sodium iodide. Stir at room temperature for 12-24h. For lower reactivity building blocks, increasing the temperature up to reflux conditions is necessary. At the end of the reaction, quench with water, extract with a suitable organic solvent (e.g. ethyl acetate) and proceed to the product purification.

2-(2,3-dichloro-4-(2-chloro-2-((4-chlorophenyl)amino)acetyl)phenoxy)acetic acid (B1)

Yield 75% (brown solid). m.p=130-131. 1HNMR (600MHz, DMSO-d6) δ 11.3 (s,1H), 7.66-7.24 (m, 8H), 7.0 (d, J=2.00Hz, 1H). 6.88 (d, J=2.04Hz, 1H), 4.66 (s, 2H), 4.0 (s, 1H); 13CNMR (600MHz, DMSO-d6) δ, 197.7, 169.4, 158.1, 147.1, 140.7, 137.7, 137.3, 132.0, 131.6, 130.6, 129.7, 121.2, 113.1, 104.4 ,69.6; LCMS (MW=423.07) m/z 423.09 (M+H)+. Calcd for M.F. =$C_{16}H_{11}C_{14}NO_4$

2-(2,3-dichloro-4-(2-chloro-2-morpholinoacetyl)phenoxy)acetic acid (B2)

Yield 80% (dark brown solid). m.p=151-152. 1HNMR (600MHz, DMSO-d6) δ 10.99 (s, 1H), 7.8-7.4 (m, 4H), 7.2 (d, J=2.73Hz, 1H), 6.86 (d, J=2.31Hz, 1H), 4.66 (s, 2H), 3.65 (t, J=4.46 4H)), 3.2 (t, J=4.53 4H); ; 13CNMR (600MHz, DMSO-d6) δ, 204.4, 172.4, 162.7,159.3, 147.9, 138.7, 131.9, 125.0, 122.3, 111.0, 107.3, 72.1, 66.1, 55.1; LCMS (MW=382.62) m/z 382.63 (M+H)+. Calcd for M.F. = $C_{14}H_{14}Cl_3NO_5$

3-(2,3-dichloro-4-(2-chloro-2-((4-chlorophenyl)amino)acetyl)phenoxy)propanoic acid(B3)

Yield 85% (black solid). m.p=90-91. 1HNMR (600MHz, DMSO-d6) δ 11.0 (s,1H), 7.66-7.24 (m, 8H), 7.0 (d, J=2.7Hz, 1H). 6.88 (d, J=8.1Hz, 1H), 4.66 (s, 2H), 4.0 (s, 1H), 2.65(t, 1.7Hz, 2H); 13CNMR (600MHz, DMSO-d6) δ, 196.3, 172.2, 156.5, 146.1, 140.5, 132.5, 131.2, 131.2, 130.4, 129.7, 129.7, 129.4, 127.9, 127.2, 124.9, 124.9, 121.1, 113.8, 113.8, 110.0, 63.1, 34.4; LCMS (MW=437.10) m/z 437.11 (M+H)+. Calcd for M.F. = $C_{17}H_{13}Cl_4NO_4$

3-(2,3-dichloro-4-(2-chloro-2-morpholinoacetyl)phenoxy) propanoic acid (B4)

Yield 67% (brown solid). m.p=116-117. 1HNMR (600MHz, DMSO-d6) δ 11.5 (s, 1H), 7.60-7.20 (m, 4H), 7.1 (d, J=2.74Hz, 1H), 6.86 (d, J=2.46Hz, 1H), 4.8(s, 2H), 3.65(t, J=4.70Hz, 4H), 3.18(t, J=4.73Hz, 4H), 2.70(t, J=2.12Hz, 2H); 13CNMR (600MHz, DMSO-d6) δ, 197.4, 163.3, 159.3, 140.3, 137.9, 130.8, 128.2, 128.1, 127.5, 127.4, 115.5, 111.0, 69.7, 63.7, 52.8, 52.1, 38.4; LCMS (MW=396.65) m/z 396.67 (M+H)+. Calcd for M.F. = $C_{15}H_{16}Cl_3NO_5$

4-(2,3-dichloro-4-(2-chloro-2-((4-chlorophenyl)amino)acetyl)phenoxy)butanoic acid(B5)

Yield 77% (black solid). m.p=145-146. 1HNMR (600MHz, DMSO-d6) δ 11.6 (s,1H), 7.66-7.24 (m, 8H), 7.1 (d, J=2.53Hz, 1H). 6.88 (d, J=2.73Hz, 1H), 4.3 (t, J=1.90Hz, 2H), 4.0 (s, 1H), 2.39(t, J=1.26Hz, 2H), 2.09(q, J=1.58Hz, 2H); 13CNMR (600MHz, DMSO-d6) δ, 197.2, 172.8, 158.1, 147.9, 140.3, 137.9, 130.8, 129.7, 128.3, 128.1, 127.5, 127.2, 120.7, 115.5, 111.9, 69.3, 30.4, 23.0; LCMS (MW=437.14) m/z 437.16 (M+H)+. Calcd for M.F. = $C_{18}H_{17}Cl_4NO_3$

4-(2,3-dichloro-4-(2-chloro-2-morpholinoacetyl) butanoic acid(B6)

Yield 85% (red solid). m.p=126-127.1HNMR (600MHz, DMSO-d6) δ 11.0 (s, 1H), 7.70-7.40 (m, 4H), 7.30 (d, J=2.66Hz, 1H), 6.86 (d, J=2.33Hz, 1H), 4.06 (t, J=2.73Hz, 2H), 3.60 (t, J=4.12Hz 4H), 3.18 (t, J=4.20Hz 4H), 2.30(t, J=2.06Hz, 2H), 2.08(q, J=2.90Hz, 2H); ^{13}CNMR (600MHz, DMSO-d6) δ, 197.3, 172.8, 158.1, 147.9, 137.9, 130.8, 128.3, 128.1, 127.5, 127.5, 120.7, 115.0, 110.2, 69.3, 66.1, 52.8, 52.8, 30.47, 23.0 ; LCMS (MW=410.68) m/z 410.69 (M+H)+. Calcd for M.F. = $C_{16}H_{18}Cl_3NO_5$

3-(2,3-dichloro-4-(2-chloro-2-((4-chlorophenyl)amino)acetyl)phenoxy)-2,2-dimethylpropanoic acid (B7)

Yield 74% (black solid). m.p=102-103. 1HNMR (600MHz, DMSO-d6) δ 11.0 (s,1H), 7.66-7.24 (m, 8H), 7.0 (d, J=2.7Hz, 1H). 6.88 (d, J=8.1Hz, 1H), 4.13 (s, 2H), 4.0 (s, 1H), 1.28(s, 6H); 13CNMR (600MHz, DMSO-d6) δ, 196.3, 179.0, 156.5, 146.1, 140.5, 132.5, 131.2, 131.2, 129.7, 129.7, 129.4, 127.9, 127.2, 124.9, 124.9, 121.1, 113.8, 113.8, 110.0, 79.4, 43.3, 30.4, 21.2, 21.2 ; LCMS (MW=465.15) m/z 465.20 (M+H)+. Calcd for M.F. = $C_{19}H_{17}Cl_4NO_4$

3-(2,3-dichloro-4-(2-chloro-2-morpholinoacetyl)phenoxy)-2,2-dimethylpropanoic acid(B8)

Yield 76% (black solid). m.p=136-137. 1HNMR (600MHz, DMSO-d6) δ 11.0 (s, 1H), 7.60-7.20 (m, 4H), 7.00 (d, J=2.7Hz, 1H), 6.86 (d, J=7.5Hz, 1H), 4.13(s, 2H), 3.65-3.18 (m, 8H), 1.28(s, 6H); 13CNMR (600MHz, DMSO-d6) δ, 196.3, 179.0, 156.5, 153.3, 132.5, 131.2, 131.2, 130.4, 129.4, 127.9, 121.1, 111.5, 111.5, 110.0,79.4, 66.3, 66.3, 53.3, 53.3,43.3, 21.2, 21.2; LCMS (MW=424.70) m/z 424.79 (M+H)+. Calcd for M.F. = $C_{17}H_{20}Cl_3NO_5$

5-(2,3-dichloro-4-(2-chloro-2-((4-chlorophenyl)amino)acetyl)phenoxy) pentanoic acid (B9)

Yield 78% (black solid). m.p=152-153. 1HNMR (600MHz, DMSO-d6) δ 11.0 (s,1H), 7.66-7.24 (m, 8H), 7.0 (d, J=2.7Hz, 1H). 6.88 (d, J=8.1Hz, 1H), 4.3 (t, J=1.7Hz, 2H), 4.0 (s, 1H), 2.30(t, J=1.34Hz,2H), 1.76(q, J=1.4Hz, 2H), 1.52(q, J=1.49Hz, 2H); 13CNMR (600MHz, DMSO-d6) δ, 196.3, 178.4, 156.5, 146.1, 140.5, 132.5, 131.2, 131.2, 130.4, 129.7, 129.7, 129.4, 127.9, 127.2, 124.9, 124.9, 121.1, 113.8, 113.8, 110.0, 67.9, 34.0, 28.0, 21.0 ; LCMS (MW=465.15) m/z 465.16 (M+H)+. Calcd for M.F. = $C_{19}H_{17}Cl_4NO_4$

5-(2,3-dichloro-4-(2-chloro-2-morpholinoacetyl)phenoxy) pentanoic acetic(B10)

Yield 55% (cream solid). m.p=146-147. 1HNMR (600MHz, DMSO-d6) δ 11.0 (s, 1H), 7.60-7.20 (m, 4H), 7.00 (d, J=2.7Hz, 1H), 6.86 (d, J=7.5Hz, 1H), 4.06 (t, J=1.40Hz, 2H), 3.65-3.18 (m, 8H), 2.30(t, J=1.6Hz, 2H), 1.76(q, J=1.3Hz, 2H), 1.52(q, J=1.5Hz, 2H); 13CNMR (600MHz, DMSO-d6) δ, 196.3, 178.4, 156.5, 153.3, 132.5, 131.2, 131.2, 130.4, 129.4, 127.9, 121.1, 111.5, 111.5, 110.0, 67.9, 66.3, 66.3, 53.3, 53.3, 34.0, 28.0, 21; LCMS (MW=424.70) m/z 424.72 (M+H)+. Calcd for M.F. = $C_{17}H_{20}Cl_3NO_5$

2. Biological method

A. Diuretic activity: [12]

Diuretic activity was measured in Albino Wistar rats. Thirty healthy Albino Wistar rats of either sex weighing between 100-180g were obtained and acclimatized for one week prior to the experiment, all the rats were deprived of water but not food for 18 hrs. Their urinary bladders were emptied by gentle compression of the pelvic area and by pull of their tails. Each of these rats was then orally administered with 5 ml/100gm body weight of isotonic saline (NaCl, 0.9% w/v) to impose a uniform water load. Forty-five minutes later, these rats were randomly assigned into six groups (N = 6 per group) comprising of five animals in each group. Group-I served as normal control and received normal saline, group II were pretreated with ethacrynic acid 10 mg/kg, (standard drug) group III, group IV, group V and VI treated with synthesized compounds 50mg/kg treated orally. Each of these rats was individually placed in metabolic cages which was fitted with stainless steel sieves to retain and separate feces and allow the urine to pass alone, a cumulative urine output was determined at 2 hrs intervals for 8 hrs. The colour of urine was also noted. Diuretic activity is determined by measuring cumulative urine excretion volume in relation to body weight and expressed as ml/100 gm body weight, pH by pH meter, conductivity by conductometer, Na^+ and K^+ levels by flame photometry, Na^+/K^+ ratio and diuretic action was determined. The diuretic action was calculated using following formula

Diuretic action=Urine volume of test group/ urine volume of control group

Statistical analysis: Data are expressed as mean ± SEM (Standard error of mean) statistical analysis of the data were performed with one-way analysis of variance (ANOVA) followed by Dunnets comparison test with standard.

B. Acute toxicity study: [13]

As toxicological studies deals with the adverse effect of bioactive compound. Acute toxicity studies were carried out prior to the performance of the actual experiment. It is performed with five groups of rats which orally received 50mg/kg of dose of synthesized compounds. animals were observed for the adverse effects for the first five hours during 24 hours period and then followed for 14 days for any lethality. Novel synthesized compounds did not produce any visible signs of adverse effects which was evidenced by no change in behavioral pattern, absence of tremor, loss of body weight, convulsion, salivation, diarrhea, sleep, lethargy , paralysis, coma and mortality ,suggesting the LD_{50} is greater than 50mg/kg.

3 Computational Methods

A. Molecular Docking: The Glide (Schrodinger 11.8)software was used to dock potential inhibitors (Ligand) in the binding pocket of the enzyme structure. Docking studies were carried out against NKCC2 (PDB: 5DBX, https://www.rcsb.org/structure/5DBX). Receptor Grid Generation panel which define receptor structure by excluding any co-crystallized ligand that may be present, determine the position and size of the active site as it will be represented by receptor grids and set up Glide constraints. Ligand preparation was carried out using LigPrep panel in the software. All the structures in .mol format were imported in the project file and subjected to ligand preparation using OPLS 2005 force field using default setting. The ligands were docked with the active site using the 'Extra precision' Glide algorithm.

B. ADME prediction: All the analogues were subjected in Qikprop for ADME prediction. It predicts both physicochemical and pharmacokinetic relevant properties. It also evaluates the acceptability of analogues based on Lipinski's rule of 5 which is essential to ensure drug like pharmacokinetic profile.

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CONFLICT OF INTEREST
The authors declare no conflict of interest.

ETHICAL APPROVAL
Experimental protocol for the biological activity (diuretic activity) was approved by Institutional Animal Ethics committee CPCSEA/IAEC/P'cology-67/2019-20/166 dated13th January 2020.

DATA AVAILABILITY STATEMENT
All the data have been made available in the " Supporting information" section

ABBREVIATIONS: NKCC2, Sodium potassium Chloride Co-transporter; PDB- Protein data bank; EtA, Ethacrynic acid; ANOVA, Analysis of variance; NCEs, New Chemical Entities

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A Comparative Study of the Performance Appraisal Systems of India's Public and Private Sector Banks

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ABSTRACT
Performance Management is a multi-step approach that aligns employees' professional habits with the group's strategy and goals to achieve organisational objectives. India's banking industry is one of the fastest expanding in the world. With the rapid enlargement of the number of divisions and the addition of innovative features to their portfolios, financial institutions are starting to feel a new strain on their organisational capabilities, specifically on the procedures of recruitment, arrangement, training, advancement, as well as assessment, to make sure that the appropriate number of employees with the appropriate capacities are obtainable at the appropriate time and for the appropriate locations. The current research is concerned with employees' perceptions about performance assessment procedures in public and private banks in India. According to the research, there is a variation in perspective between workers of public and private banks when it comes to performance assessment. The current study discusses various methods of performance appraisal, its components, and how it is done in the private and public banking sector of India.

Keywords: Performance Appraisal, the Banking sector in India, Private and Public Sector Banks, Methods of Performance Appraisal.

1. INTRODUCTION

The performance evaluation process measures a human being's efficiency by comparing actual performance to predetermined benchmarks. According to the standards, these requirements have previously been conveyed to the employees, who will now get feedback on their job effectiveness ranking to improve their overall efficiency as needed by the company concern[1]. There are several objectives for performance assessment or uprising, including identifying the concert of each worker in the workplace and determining if the instruction to that work is necessary, as well as providing encouragement in the form of bonus increment. It is possible to state that the performance assessment is the tool used to determine if an employee should be promoted or demoted if their performance is highly pitiable and there is no opportunity for them to improve while at the company's headquarters. Each business sector now employs the performance assessment to identify and evaluate employees, as well as to make judgments regarding their future employment opportunities.

The effectiveness of workers in the workplace is used to evaluate the overall performance of its employees. Productivity indicates a focus on effectiveness and efficiency; the term "effectiveness" refers to achieving an objective. Similarly, it makes no mention of the expenses that would be required to achieve the goal. Furthermore, the term effectiveness describes the relationship between compulsive engagement and actual production. Increased output for a given effort indicates higher levels of expertise. It is not good to have goal-oriented productivity indicators such as real facts on effectiveness, like the number of units created or the percentage of crimes solved, among other things, and facts on efficiency[2]. Performance may also be characterised to improve efficiency and the other ways. Employee data like nonexistence, proceeds, increments, and postpone are included in performance evaluations. An employee is considered outstanding when he not only performs well in aspects of effectiveness but also lessens the difficulties for the company by showing up on time, not missing days, and cutting the number of work-related malfunctions at the workplace.

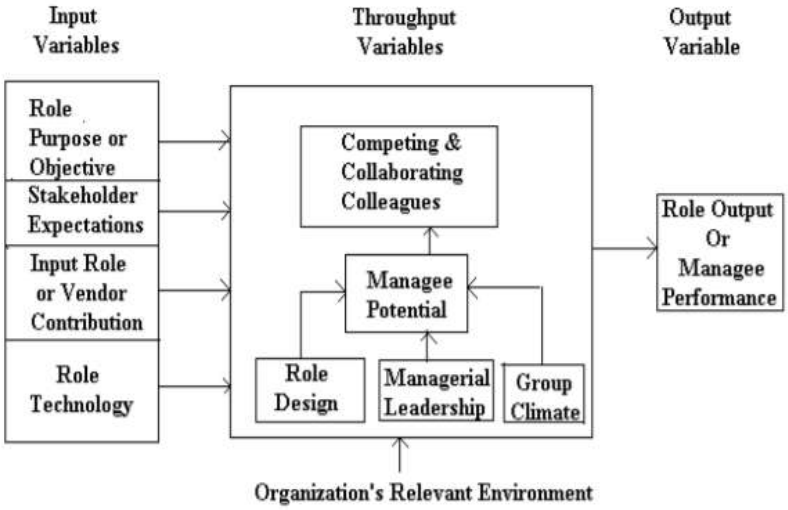

Figure 1: The framework of Performance appraisal

Every firm has some method of evaluating its personnel, and almost all of them are publicly available. Performance appraisal is referred to by a variety of phrases, including employee performance appraisal, merit assessment, and employee evaluation. It is a complete technique for assessing an employee's current and previous performance regarding the individual's performance criteria. An employee's performance should be evaluated in light of both organisational expectations and the person's current results. The notion that performance review may lead to improved employee productivity is not a new one; rather, it can be traced back to the beginnings of human existence[3]. Each individual is driven when they are informed of their real performance and acknowledge that they have made errors in the past. The procedure of effectiveness evaluation may be conducted yearly or regularly, depending on the needs of the organisation. The notion of productivity evaluation is not a new one; it is likely to be as ancient as humanity. The vast majority of workers are completely unaware of what is required of them or how they might enhance their performance. Employees are more likely to express negative feelings after underperformance or discharge from their position. Their output plummets to an alarmingly low level. All of these issues may be resolved via the use of performance evaluation. Performance assessment is widely employed in a variety of contexts, including developmental, operational, legal, and organisational purposes, to name a few.

India's banking sector has always been one of the most favored employment opportunities. A country's economy can develop only when it has a sound and effective banking system. As a result, India's banking system should be hassle-free and capable of meeting new difficulties posed by technology and other external or internal variables. People are the most valuable assets, whether public sector or private sector, and there is only a need to manage them. This can be done only by appraising their performance from time to time. A performance evaluation system evaluates an employee's ability to complete a task systematically and objectively. It is a management tool that aids in motivating and employing bank personnel effectively. No matter how well-planned and assumed the performance planning and evaluation system is, assessing human potential is tough[4]. It assists in identifying people who are performing well and those who are not and the causes for their poor performance. A performance assessment system is a means of evaluating an employee's job performance. It is a continuous process of gathering, studying, analysing, and documenting information regarding an employee's worth. Annual reviews, often known as performance assessments, assess an employee's abilities, accomplishments, and progress, or lack thereof. Organizations utilise performance assessments to provide workers with useful feedback on their work and justify salary raises, incentives, and termination choices. Job satisfaction is sometimes defined as the degree to which people are satisfied or dissatisfied with their jobs. It is a mental or emotional reaction to the exertion and the bank's physical and social environment. Job satisfaction is a person's overall feeling after completing a task. It indicates a happy emotional condition. Hence Job satisfaction and performance evaluation are critical for employees' professional development and a bank's productivity. The below table have lists of the traditional and modern methods of performance appraisal systems:

Traditional Methods	**Modern Methods**
Ranking method	360^0 appraisal
Paired comparison method	Management by objectives
Forced distribution method	Assessment centres

Forced choice method Check list method Critical incident method Graphic scale method Essay method	Cost accounting method Behaviourally anchored rating scales

Figure 2: Traditional and Modern methods of Performance Appraisal

The vast majority of bank workers in public and private sectors said their supervisors evaluated their productivity. As a result, both public and private sector banks should adhere to a productivity review process overseen by a panel of specialists, which should include the superior. Frequently, if the superior lack necessary expertise, is deceptive, or does not take appraisals properly, or if the superior has a particular predisposition toward demonstrating their superiority and power, the subordinates may be negatively impacted. In both public and private sector banks, the performance assessment question satisfaction with the appraisal system' has received the lowest mean score in terms of contentment with the framework. It is necessary to have an efficient feedback mechanism for performance evaluation to be successful[5]. When past-appraisal feedback becomes dangerous, bank workers often experience anxiety and fear. Consequently, bank management should recognise that performance assessment is not a system for identifying and correcting errors but rather a method for improving the performance of employees by alerting them of where they are lacking and how to overcome these deficiencies.

The vast majority of bank personnel in public and private sectors did not obtain any promotions. The most important considerations for promotion are seniority and merit. Despite the fact that the vast majority of public and private sector bank staff members are content with the promotion plan, both public and private sector banks should institute a clear promotion strategy, under which the banks can encourage the executive who is the most senior from all the employees who are above the cut-off point of course of significance, regardless of their job title. The plurality of public and private sector bank workers do not want to be relocated to a new location because of concerns about their families, children's schooling, and their dread of moving. Consequently, both public and private sector banks should have a systematic transfer strategy that ensures fair uniformity of treatment across all of their institutions. According to the research findings, transfers should be performed within their immediate vicinity so that they may get acquainted with and comfortable with their family. As a result of the heavy workload, bank personnel in both the public and private sectors are compelled to work irregular hours. It causes tension and has a negative effect on the health of the personnel. To reward their workers for the additional worked hours, both public and private sector banks should offer health insurance to their employees and give them additional income.

2. Components of Performance Management System

Organizational performance management is seen as a constant cycle that optimizes the flow of information from strategy planning to worker performance in a company. Performance Management is the process of linking an individual's objectives with the objectives of the business. To define mutual objectives and evaluate their accomplishment, the workers and managers work together. In this case, it is a futuristic method built on two-way interaction between the management and their workforce. Managers offer both positive and corrective comments on employees' achievements as well as negative criticism on areas in which development is necessary. A successful performance management system must be aligned with the company's strategic objectives and organisational culture. It is possible to identify a number of elements that make up an efficient performance management process; some of the elements mentioned by the professionals are as follows:

Figure 3: six basic elements of performance Management

2.1 PLANNING
Before starting the productivity period, the management and the worker meet to discuss the employee's project schedule and the level of performance expected of them over the cycle. The manager discusses the full performance management process to the worker for the employee to comprehend the importance of their contribution to the firm's achievement[6]. The performance plan aids in the knowledge of the employee's present position and duties, the expectations of the organisation about the employee's accomplishments, and the behaviours and skills required to satisfy those objectives.

2.2 ANALYZING
Performance management refers to the process of analysing the continuing basis of an employee's performance and assisting in the elimination of performance shortcomings. This indicates that performance management is a method used to achieve the goals of managing performance.

2.3 APPRAISAL
Employers should meet with their staff to understand and review their productivity. Managers should also document the actual outcomes and behaviour obtained compared to each expectation. This is linked to employee career advancement, training and development, strategic planning, and incentives.

2.4 MONITORING
Managers keep track of their employees' performance toward attaining their developmental goals to enhance their overall performance. The objective evaluation of developmental requirements and the solicitation of motivation from workers to enhance performance are two tools accessible to managers to help them enhance the overall performance of their teams. In reality, it is the element of the management method used to improve human assets according to the organization's requirements.

2.5 COUNSELING
When it comes to performance counseling, managers should give 360-degree feedback to their employees as part of their overall plan for enhancing their performance. Performance counselling is simply a talk regarding the employee's attainment of goals, their productivity gaps in comparison to objectives, and the provision of advice to the employee or manager.

2.6 REWARDS
The Performance Management System (PMS) offers a foundation for objective incentive methods and management evaluation. After the performance has taken place, the reward is given out. Incentives are specified as a result of achieving a certain level of performance. Employees must be aware of the kind of performances that the business seeks and appreciates to get rewards.

3. Approved Performance Appraisal Methodologies in the Indian Banking System
Even though the performance appraisal system is at the heart of every company's financial and operational achievement, many businesses are still unsure about the impartiality of the framework and are unable to decrease subjective nature by implementing meaningful improvements in their performance management process. In 2008, Mercer, a global consulting firm, performed a study on performance management strategies in organisations. They studied around 350 prominent US organisations and validated the findings of a Mercer research conducted in 2002, which found that leadership engagement and the capacity to distinguish achievement are still the most important factors in overall performance management effectiveness.

However, although there are no "magic bullets" for developing a performance-based culture, the results imply that there are some essential areas that organisations should prioritize first to make real changes to this vital human resource programme[7]. The following are the most significant results of the survey:

Success drivers:
According to recent research by Mercer, four important elements impact the success of the performance:

System of Administration (Management System)
- The process has the executive team's support (deemed more relevant in for profit organization).
- Standardization session to verify that all managers are using the same "yard stick" when evaluating performance results.
- Strong managerial capacity (particularly, the ability to ensure that assessments are "fair" and "equitable" and to undertake formal performance review discussions with personnel).
- The application of technology (deemed more relevant in the nonprofit organization).

DIFFERENTIATION:
The majority of firms (57 percent) execute a next-level manager evaluation to guarantee that achievement evaluations are differentiated from one another. Calibration meetings, which are one of the most important drivers of overall performance, are held informally (22 percent) or formally (11 percent) by organisations to a lesser degree.

Primary purpose:
While the majority of organisations (48 percent) state that the "primary aim" of having a performance management process in place is to give workers with performance feedback, A total of 56 percent of the organisations that took part in the study said that their feedback procedure "needs improvement." The majority of respondents also believe that managers are only "managerially adept" when it comes to relating performance to "actionable" development planning (51 percent), and when it comes to offering career development counselling (45 percent). Only 19 percent of those who answered the survey said that their major responsibility is to make compensation choices.

Opportunities for improvement:
Even while the vast majority of firms said that one or more sections of their performance management process "require work," the most often mentioned feature in need of improvement is the system's connection to other human resource functions. For example, strengthening the strategic productivity planning is followed closely by enhancing remuneration or succession planning (63 percent to 60 percent of respondents, respectively).

TECHNOLOGY:
For every company without performance management technology, Forty percent of those polled have it in place; 65 percent intend to acquire an external platform, and Fourteen percent aim to construct one over the following two years.

CEO involvement:
Official CEO assessment (written assessment plus conversation) is associated with increased executive engagement, one of the four fundamental enablers of performance management success. In accordance with Mercer's research and experience[8], firms have made significant steps over the last six years in enhancing employee and manager access to the relevant management via technology and tying performance management to other human resources initiatives.

Nevertheless, they continue to suffer from several of the "fundamentals" of performance management, including such performance planning, manager competency, as well as the skill to discern between various performance levels—all of which are detrimental to the overall effectiveness of the systems in question. While many organisations do not have the resources to make significant changes in their performance management programmes, examining and responding to another one of the 4 major achievement drivers is a good place to start, as it can result in significant advancement in this critical human resource programme.

Banks use a variety of performance assessment systems, both classic and new, to evaluate their employees' performance. It is customary for each firm to have its technique of evaluating the performance of its staff. Some of the approaches that are often utilised in the Indian banking industry are as follows:

- Ranking method
- Human resource accounting method
- Critical incident method
- Psychological method
- Behaviorally anchored rating scales5) Graphic rating scale method
- 360-degree appraisal method
- Rating method
- Management by Objective (MBO)
- Confidential report

All assessment systems have their own set of advantages and disadvantages. We should choose a technique or process based on the requirements or judgments that we have.

Performance Appraisal in Indian Banking: A Step-by-Step Guide:
In addition to defining objectives, making performance plans and acting on the observations and comments, detecting performance issues, and generating remedial course or action plans are all important components of the performance appraisal process[9]. It also includes the assessment and rewarding of performance and the making of operational choices. This procedure may be separated into many steps, each of which is discussed below.

- Mid year review
- Normalization
- Goal setting
- Annual assessment
- Feedback (Coaching & Counselling)

The capacity of a business to precisely assess the performance of its people and utilise that information objectively to maximise them as a crucial resource will determine the success of the firm. Upon selection for a position, the person is taught to execute the work successfully and efficiently, and at the conclusion of each year, their performance is reviewed, improvement areas are identified, and the potential for taking on higher-level tasks is assessed. The following are the essential concerns and points to consider when it comes to performance assessment in the modern world:

- The following are the essential concerns and points to consider when it comes to performance assessment in the modern world:
- Performance measurement, rating, and main principles have grown more thorough, organised, and defined than they were in the past, resulting in an increase in subjectivity as a result of this.
- Multi-rater feedback is a kind of feedback that the company often employs.
- Psychological testing is also utilised to evaluate an individual's performance.

4. Public Sector Banks' Currently Accepted Performance Appraisal Techniques:
A performance appraisal system for officers, used by most public sector banks and is predominantly homogeneous in format, is currently in use. Different structures are being used in the case of operational chiefs, including regional heads, branch managers, Zonal heads, and Officers published in branches and office buildings. In all, there are three sections to the appraisal format, which are:

- self-appraisal forms;
- business dimensions, management, and behavioural dimensions forms; and
- Form for evaluation by submitting or evaluating agency.

The review's overall success is assessed in qualitative and quantitative criteria. Level of implementation, quality of achievement, and outstanding projects completed, among other things, are examples of qualitative elements of performance. Performance assessment is linked to specific objectives, duties, and responsibilities of specific roles that must be accomplished, and the final results will indicate how effectively or how poorly the goal was accomplished.

PSBs (Public sector banks) assess the performance of their personnel based on both qualitative and quantitative characteristics. The importance of qualitative and quantitative output is highlighted via the identification of key performance indicators (KPIs) that are most significant to the achievement of corporate objectives.

Annual objectives are established for workers as key performance indicators (KRIs), and employees' performance is evaluated in relation to these KRAs. Personality characteristics and skills are also tested in Public Sector Banks [10], and the results of this evaluation are solely utilised to determine whether or not remedial action should be taken. As a result, in Public Sector Banks, the focus is placed more on monitoring real job performance.

5. Performance Appraisal Procedure in Private Bank
They have their performance management systems at private banks, which they use for performance evaluations. At the beginning of each fiscal year, all employees must fill out an online main objective sheet that

details their targets and achievements. At the end of each financial year, each staff's main objective sheet is evaluated once by the appraisee in the pattern of a Self-Appraisal, then by the immediate commanding position. Eventually, the next person in authority will conduct a review of the system to ensure that it is more transparent and neutral. This is purely for informational purposes (M2 level, lower than M2 level employees). The 360 Degree Performance Appraisal is used for senior personnel (CM1 level or above them). In this assessment approach, the employee is evaluated by their peers, juniors, and seniors. The accomplishment of goals is evaluated by senior management, which then ranks their subordinates based on the evaluation and ranking[11]. The human resources department creates a bell curve for subsequent procedures depending on the specified ranking and rating.

The bell shape graph is used to describe branch personnel, first at the consolidated level, then towards the regional, zonal, and national levels, and so on. Based on a bell-shaped curve, the human resources department determines workers' grading, reward, and advancement. It conducts a talent activity to chart candidates' skills to determine whether or not they are competent in taking on a higher-level position in the firm.

6. CONCLUSION

An organisation's performance management system is a mechanism for assessing and improving the overall productivity of its personnel. Identifying current workers' competence and specialized skills is made possible via job performance measurement. The performance management process is a comprehensive way to create a vision and mission, equipping and leading personnel to meet the goals set forth in the mission and vision. Performance Appraisal Systems (PAS) are receiving significant attention in the banking industry. Several public sector banks (PSBs) have modified or are in prospect of revising their risk management policies. Performance appraisals are conducted relatively often at ICICI Bank, but performance appraisals at State Bank of India are conducted more infrequently. The survey also discovered that the ICICI Bank employs old performance evaluation techniques, while the SBI employs current ways of performance evaluation in the case of its employees' performance.

Furthermore, the survey discovered that banks use a variety of performance measurement methodologies depending on their classification. There is no distinction between the ICICI and State Bank of India financial institutions when it comes to this. Based on the above findings, it can be inferred that there is a discrepancy between the attitudes of ICICI and State Bank of India employees about performance evaluation.

Performance Appraisal Systems (PAS) are receiving a significant deal of consideration in the banking industry. Several public sector banks (PSBs) have modified or are in prospect of revising their risk management policies. SBI has lately adopted an open method of evaluation, which was formerly closed. Following the publication of specific experiences of the State Bank of India, it is expected that its member institutions would follow suit. Several banks also include self-assessment as a component of performance appraisal, albeit most of the time, such self-appraisal serves more as a means of communicating accomplishments. In response to this, Allahabad Bank has implemented a mechanism intended to assist officials in identifying their strengths and limitations and motivating them to enhance their work performance. The Indian Overseas Bank employs a method in which a branch manager provides a detailed self-appraisal on company development, customer service, internal management, and training needs to the bank's headquarters. Currently, the Union Bank of India has a performance assessment process in which the reporting officer is obliged to evaluate each of his appraisee officers based on their technical abilities, human abilities, and conceptual abilities. Each of these characteristics is specified for various positions, and the evaluation is done on a five-point system. " Corporation Bank, UCO Bank, Central Bank of India, Dena Bank, and Bank of Baroda" have all implemented self-appraisal forms that are comparable to one another. Punjab National Bank uses a development-oriented assessment form as its primary appraisal tool. There are 10 distinct forms accessible for 10 different workers, each with its requirements. The bank began the procedure with a self-appraisal by the appraisee, which the bank accepted. According to the findings, a solid operating system, as shown by investigations of the operating systems of successful businesses in general, is the foundation of effectively navigating an organisation in the current globalised world of uncertainty and constant change. As a result, they have devised and implemented such a system, reaping the possible advantages. However, the Public Sector Banks are also falling behind in this field, as they are in many other areas of organisational growth. The majority of Public Sector Banks have a Yearly Evaluation System that is historical and chronicles the previous year's operations. It is a once-a-year event that takes place just once. An examination of the pattern of yearly appraisals for various public sector businesses reveals that they are essentially consistent, placing a strong focus on previous occurrences while placing little or no attention on future development.

Consequently, compared to the evaluation systems of new generation banks and innovative organisations, the evaluation process in public sector banks is essentially non-functional. The Performance Appraisal System, a critical component of the Performance Management System, has yet to be conceptualised and implemented. However, the development and implementation of a Performance Appraisal System seem to be long overdue and critically needed.

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Role of RRBS in Microfinance Delivery for Women Empowerment through Entrepreneurship: A Study in Bangalore Rural District

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ABSTRACT
Banking Business" means the business of receiving money on current or deposit account, paying and collecting cheques drawn by or paid in by customers, the making of advances to customers. There are different types of banks one among bank is Regional Rural Banks (RRBs) are government owned scheduled commercial banks of India that operate at regional level in different states of India. These banks are under the ownership of Ministry of Finance , Government of India.

Microfinance is a banking service provided to unemployed or low-income individuals or groups who otherwise would have no other access to financial services. Microfinance allows people to take on reasonable small business loans safely, and in a manner that is consistent with ethical lending practices. Bank Linkage Facilitating SHGs to access credit from formal banking channels. SHG-Bank Linkage Programme has proved to be the major supplementary credit delivery system with wide acceptance by banks, NGOs and various government departments.

All round development and harmonious growth of a nation would be possible only when women are considered as equal partners in progress with men. However, in most developing countries, women have a low socio and economic status. In such countries effective empowerment of women is essential to harness the women labour in the main stream of economic development.

This study focused on role of RRBs in Microfinance Delivery for Women Empowerment through Entrepreneurship. The data collected from the primary source through interview schedule is analyzed and descriptively presented. The micro finance report from 2016 to 2022 is analyzed and interpreted. Secondary data was assembled from books, reports, publications, bulletins and internet.

Keywords: Banks, RRBs, NABARD, Micro finance, Women Empowerment

INTRODUCTION

Overview Banks

A bank is a financial institution that accepts deposits from the public and creates a demand deposit while simultaneously making loans. Lending activities can be directly performed by the bank or indirectly through capital markets.

Because banks play an important role in financial stability and the economy of a country, most jurisdictions exercise a high degree of regulation over banks. Most countries have institutionalized a system known as fractional reserve banking, under which banks hold liquid assets equal to only a portion of their current liabilities. In addition to other regulations intended to ensure liquidity, banks are generally subject to minimum capital requirements based on an international set of capital standards, the Basel Accords.

Different Types of Bank in India

Banks can be classified into various types. Given below are the bank types in India:-

- Central Bank
- Cooperative Banks
- Commercial Banks
- Regional Rural Banks (RRB)
- Local Area Banks (LAB)
- Specialized Banks
- Small Finance Banks
- Payments Banks

Regional Rural Banks (RRB)

- These are special types of commercial Banks that provide concessional credit to agriculture and rural sector.

- RRBs were established in 1975 and are registered under a Regional Rural Bank Act, 1976.
- RRBs are joint ventures between the Central government (50%), State government (15%), and a Commercial Bank (35%).
- 196 RRBs have been established from 1987 to 2005.
- From 2005 onwards government started merger of RRBs thus reducing the number of RRBs to 82
- One RRB cannot open its branches in more than 3 geographically connected districts.

Banking Sector Reforms

First Narasimham Committee Report – 1991

To promote the healthy development of the financial sector, the Narasimham committee made recommendations.

Recommendations of Narasimham Committee

1. Establishment of 4 tier hierarchy for banking structure with 3 to 4 large banks (including SBI) at the top and at bottom rural banks engaged in agricultural activities.
2. The supervisory functions over banks and financial institutions can be assigned to a quasi-autonomous body sponsored by RBI.
3. A phased reduction in statutory liquidity ratio.
4. Phased achievement of 8% capital adequacy ratio.
5. Abolition of branch licensing policy.
6. Proper classification of assets and full disclosure of accounts of banks and financial institutions.
7. Deregulation of Interest rates.
8. Delegation of direct lending activity of IDBI to a separate corporate body.
9. Competition among financial institutions on participating approach.
10. Setting up Asset Reconstruction fund to take over a portion of the loan portfolio of banks whose recovery has become difficult.

Narasimham Committee Report II – 1998

In 1998 the government appointed yet another committee under the chairmanship of Mr. Narasimham. It is better known as the Banking Sector Committee. It was told to review the banking reform progress and design a programme for further strengthening the financial system of India. The committee focused on various areas such as capital adequacy, bank mergers, bank legislation, etc.

Role of Regional Rural Banking for Rural Development

Regional Rural Banks were established with the following responsibilities in mind:

- Taking the banking services to the doorstep of rural masses, particularly in hitherto unbanked rural areas.
- Identify the financial need especially in rural areas.
- Making available institutional credit to the weaker section of the society who had by far little or no access to cheaper loans and had perforce been depending on the private money lenders.
- To enhance banking & financing facilities in backward or unbanked areas.
- Mobilize rural savings and channelize them for supporting productive activities in rural areas.
- To provide finance to the weaker sections of society like small farmers, rural artisans, small producer, rural labourers' etc.
- To create a supplementary channel for the flow the central money market to the rural areas through refinances.
- To provide finance to co-operative societies, Primary Credit societies, Agricultural marketing societies.
- Generating employment opportunities in rural areas and bringing down the cost of providing credit to rural areas.

- Enhance & improve banking facilities to semi urban, rural & other untapped market. With these objectives in mind, knowledge of the local language by the staff is an important qualification

NABARD

NABARD is a development bank focusing primarily on the rural sector of the country. It is the apex banking institution to provide finance for Agriculture and rural development. Its head quarter is located in Mumbai the country's financial capital.

- It is responsible for the development of the small industries, cottage industries, and any other such village or rural projects.
- It is a **statutory body** established in 1982 under Parliamentary act-**National Bank for Agriculture and Rural DevelopmentAct, 1981**.

NABARD and RBI

- Reserve Bank of India is the central bank of the country with sole right to regulate the banking industry and supervise the various institutions/banks that also include NABARDdefined under Banking Regulation Act of 1949.
- Many developmental and regulatory works are done by RBI and NABARD in co-operation.
- RBI provides 3 directors to NABARD's Board of Directors.
- NABARD provides recommendations to Reserve Bank of India on issue of licenses to Cooperative Banks, opening of new branches by State Cooperative Banks and RegionalRural Banks (RRBs).

MICRO FINANCE

- The idea of Micro finance is the basic 'theory of survival'. The concept of micro financing is self-employment activities in rural areas, which have developed considerably over the last twenty years. Strategically micro finance relies on rotational investment undertaken to motivate entrepreneur to empower themselves and to save for the future and to use those resources during the time of need. Theoretically, micro finance means provision for small working capital loans to the self-employed or self-employment seeking poor.

Self Help Group

The SHG Model Structure of SHG A SHG is a group of about 10 to 20 people, usually women, from a similar class and region, who come together to form savings and credit organization. They pooled financial resources to make small interest bearing loans to their members. This process creates an ethic that focuses on savings first. The setting of terms and conditions and accounting of the loan are done in the group by designated members. SHG Federation As mentioned previously, SHGs have also federated into larger organizations. In Figure 1, a graphic illustration is shown of a SHG Federation.

REVIEW OF LITERATURE

- **"Globalization and Empowerment of Women", [2002],** examines the impact of all – encompassing phenomenon of globalization on the empowerment of women, with particular reference to India. The author has analysed both the positive and negative impact of the globalization on women employment and proposed the alternative options for a better employment opportunities of women with high standard of living and better quality of life.
- **Role of Microfinance for Women Empowerment" [2003]**, opines that availability of timely and adequate credit is essential for women to undertake any income generating activity rather than credit subsidy and there is a positive correlation between credit availability and women empowerment through employment, not just self-employment but also wage employment. A majority of poor people particularly the poorest wants steady wage employment on or off farm and microfinance helps a lot in this regard.
- **"Micro Credit, Poverty & Empowerment" [2005],** has highlighted on SHG based microfinance and their impact on women empowerment in India. They presented analysis of case studies and modules of microfinance in India. They are of the view that there is a requirement of collective strategies beyond micro-credit to increase the endowments of poor women to enhance their exchange outcomes viz-a-viz the family, state, markets and community. There is also a need to expand the socio-cultural and political spaces that are required for poverty reduction and women's empowerment.

- **Efficiency of Rural Bank: The Case of India (2008):** The present paper analyses if the restructuring of the RRBs in the year 1993-94 in has helped to improve the production efficiency of the RRBs or not. Several reform committees have emphasized the need for the improvement of the efficiency of the RRBs, as they are the only source of rural credit in India, as efficiency would mean lower cost of services. With the help a non-parametric technique of DEA, i.e. Data Envelopment Analysis production efficiency has been measured, for this interest and non-interest income were used as outputs and interest and non-interest expenses were used as inputs. Efficiency data were taken and calculated for the years 1990 to 2002; thereafter these data scores were compared for before and after the restructuring year (1993-94). The study concludes, that the efficiency of rural banks has improved after restructuring, and it is seen that the policy of the Government of India to restructure these banks has a positive result.

- **Performance Evaluation of Regional Rural Banks India (2010):** The objective of this paper is to find out whether the amalgamation of the RRBs has helped to improve their performance. As these banks play an important role, several committees have emphasized on the need to improve the performance. The study concludes with a relief that performance of the RRBs has improved after the merger. The analysis was on done on the base of secondary data; the study made was diagnostic and exploratory.

- **Customer Perception on Performance of RRB's in Odisha (2014):** Regional Rural Banks (RRBs), are now playing an important role in the development of rural areas and financial inclusion. And to strengthen the functioning and operation of these RRBs, many committees have given suggestions for amalgamation. The present paper analyses the growth of the Regional Rural Banks in Odisha, and also the service quality and performance of these banks after amalgamation. Both primary and secondary data has been used to study whether there has been any such improvement in operation of the RRBs, in Odisha.

- **Entrepreneurship in Emerging Enonomics (2016) :** Women have been recognized as key contributors toward livelihood and poverty eradication, especially in developing countries. Women empowerment is crucial for the entrepreneurship development in these countries as their involvement in MSEs creates employment and ultimately economic growth.

- **IFC Report (2019)**: Every woman entrepreneur we interviewed complained of loan applications being either rejected or delayed by institutions. This bias has already been established by studies--over 70% of the total finance requirement of women entrepreneurs in the country is unmet. The few government schemes that aim to promote female entrepreneurship are either not visible enough or are tied up in red tape, we were told.

OBJECTIVES OF THE STUDY

- To study the profile of rural women.
- To study the sources of microfinance delivery.
- To study the microfinance schemes of RRBs.
- To study the entrepreneurial activity commenced by rural women with the support of microfinance.
- To analyze the role of RRBs in microfinance delivery for women empowerment.
- To provide suggestions based on the findings of the study.

RESEARCH DESIGN

This study focused on role of RRBs in Microfinance Delivery for Women Empowerment through Entrepreneurship. The data collected from the primary source through interview schedule is analyzed and descriptively presented. The micro finance report from 2016 to 2022 is analyzed and interpreted. Secondary data was assembled from books, reports, publications, bulletins and internet.

DATA ANALYSIS AND INTERPRETATION

1. Profile of Rural Women

- Demographic and Financial profile

The Demographic and Financial Profile of the customers (respondents) of the Gamin Bank is shown in the above table. The customers (respondents) of the Karnataka Gramin Bank have not completed SSLC.

It was observed that the major occupation of banks customer's spouse is self-employment. Customers availing loan fall under the age group of 30-40, the average age will avail loan for income generating activities.

The officer mentioned that every customer, availing loan from the RRB had to mandatorily open an account with a minimum balance of Rs.1000/-. He added stating that the RRB reviewed credit worthiness of the customer before providing loan to customer. He also expressed that the a certain percentage of customers were unaware about the RRB.

2. Micro Finance Program

Purpose of the loan is to provide financial assistance to weaker section of the disabled for starting or augmenting income generation activities.The illustrative nature of income generating activities is given below
i) Small business/trade
ii) Tiny/cottage industry or service activity
iii) Artisan activities
iv) Agricultural and allied activities
v) Transport sector activities

3. Micro Credit Schemes and NRLM Schemes

National Handicapped Finance and Development Corporation NHFDC) has been set up to promote economic and development activities undertaken by Persons with Disabilities. The Corporation assists them by providing loans for self-employment and other economic ventures. The majority of disabled population is constantly in need of small loans for sustaining their existing employment, for generation of further employment as also for meeting varied personal and social needs. The poorest among the poor need loans of very small amount but their requirement is quick delivery of loan at their doorsteps. Traditionally, private money lenders have been playing this role but their intention has been to exploit the poor instead of helping them and this rather worsened plight of the poor. Over a period of time, the significance of provision of credit as an instrument of socio-economic change and development is being realised and many international and national organisations including the nationalised banks have come up to provide soft loans to the poor in order to free them from the clutches of private money lenders. However, the task is gigantic and a wide gap persists in meeting the credit needs of the poor. With this in mind, the NHFDC has decided to implement the **Micro Credit Scheme** as per details given in the following paras.

- **Micro credit schemes through RRB**

The officer mentioned that, majority of the customers were aware about the micro finance facilities. The schemes available for women to commence income generating activities are:

Karnataka Grameena Bank

- Kisan Credit Card
- Self Help Groups Overdraft

The schemes that popularly availed by the customers of the Karnataka Grameena bank are Housing loan, Gold loan and Self Employment.

NRLM: National Rural Livelihood Mission is a poverty alleviation project implemented by Ministry of Rural Development, Government of India. This plan is focused on promoting self-employment and organization of rural poor. NRLM was renamed as DAY-NRLM (Deendayal Antyodaya Yojana – National Rural Livelihood Mission) with effect from March 29, 2016. It is a centrally sponsored scheme and the Central and State Governments jointly fund the projects.

4. Self Help Groups

- Disbursement of micro credit

The number of SHGs groups in urban area is less; hence, the disbursement of micro credit is through individual. In rural area the disbursement of micro credit is done through various SHG's group and around 70% of the customers are happy with the credit facilities provided by the grameena banks around Karnataka.

- **Self-help group**

The customers of Karnataka Regional Rural Bank, Nandini Layout, are members of 3 active and 3 inactive SHG's consisting of 20 members each. The loan benefit of Rs. 1,00,000 is provided for the SHG's groups. One of disadvantage of the SHG's is, if one member of the group, does not repay the loan the remaining people in the group tend not to repay the amount. The life of many customers has changed with the help of self-help groups. The present members of SHG's motivate and recommend others to be part of RRB and to their Self-help groups. The family members of the customers are aware about the loan taken by them through SHG however encourage them to be part of the group if any benefits are received.

5. Entrepreneurial activity

- Purpose of availing credit

The customers of the Karnataka Gramin Bank avail loan mainly for domestic purpose, for improving business and also for income generating activities. The income generating activities were farm based and non- farm based. The farm based loans are kisan credit loan, pragathikisansanjeevini, minor irrigation loans, goat loans, sericulture loans and the non-farm based loans are vidyasagar education loan, pragathichaya housing loan pragathisneha loan scheme.

6. Women Empowerment

Women Empowerment	
Family Head	Husband and Wife
Decision Maker	Woman and Men
Repayment of Loan	50% of customers repay
Women Empowerment projects	No
Is the Salary same for both Men and Women	Yes
Deposits	Yes
Record of Expenses and Income by the Bank	Yes

Economic Empowerment: Economic empowerment is the capacity of women to participate in, contribute to and benefit from growth processes in ways that recognise the value of their contributions, respect their dignity and make it possible to negotiate a fairer distribution of the benefits of growth.

Societal Empowerment: Social empowerment. Social empowerment is understood as the process of developing a sense of autonomy and self-confidence, and acting individually and collectively to change social relationships and the institutions and discourses that exclude poor people and keep them in poverty.

The Women Empowerment details of the customers of the Karnataka Gramin Bank are shown in the above table. The main family of customers of the Karnataka grameena bank is both husband and wife. Majority of the decision makers are both husband and wife of the Karnataka grameena bank. Around 50% of the customers are unable to repay the amount. The customers of Karnataka grameena bank are not part of women empowerment projects. The customer's salary is same for both men and women of the Karnataka grameena bank. The customers deposit their amount on various platforms such as Savings, Recurring Deposit and Fixed Deposit. The bank checks the credit worthiness of customers, subsequently provides loans. The bank also reviews the income and expenses of customers who have availed the loan for income generating activities.

Micro finance of RRB

Year	Regional Rural Bank in Karnataka
2016	Karnataka VikasGrameena Bank KaveriGrameena Bank
2017	Karnataka VikasGrameena Bank
2018	Karnataka VikasGrameena Bank
2019	Karnataka Gramin Bank Karnataka VikasGrameena Bank
2020	Karnataka Gramin Bank Karnataka VikasGrameena Bank

FINDINGS

- The study found that customers of the Karnataka RRB avail loan mainly for domestic purpose, for improving business and also for income generating activities.
- The customers are aware about the different schemes provided by RRBs, however, the schemes that popularly availed by the customers of the Karnataka Grameena bank are Housing loan, gold loan and Self Employment.
- In rural area the disbursement of micro credit is done through various SHG's group and around 70% of the customers are happy with the credit facilities provided by the grameena banks around Karnataka.
- The bank also reviews the income and expenses of customers who have availed the loan for income generating activities.

- The customers of Karnataka grameena bank are not part of women empowerment projects, however, avail loans for income generating activities.
- The main family head of customers of the Karnataka grameena bank is both husband and wife.
- Majority of the decision makers are both husband and wife of the Karnataka grameena bank.
- Around 50% of the customers are unable to repay the amount.
- The customers of Karnataka Regional Rural Bank, Nandini Layout, are members of 3 active and 3 inactive SHG's consisting of 20 members each.
- One of disadvantage of the SHG's is, if one member of the group does not repay the loan the remaining people in the group tend not to repay the amount.
- The life of many customers has changed with the help of self-help groups.
- The present members of SHG's motivate and recommend others to be part of RRB and to their Self-help groups.
- The families members of the customers are aware about the loan taken by them through SHG however encourage them to be part of the group if any benefits are received.

SUGGESTIONS

1. The Banks offer many women empowerment programs, however, many of these are not known by the general public. Hence, they are deprived from receiving benefits. The information of schemes should be spread amongst the general public.
2. Most of the SHG's are situated in the rural areas. Similarly, it is also necessary to have a network of SHGs in the urban areas to help weaker section in these areas as well.
3. There is a need for creating awareness amongst women about the facilities provided by SHG's and encourages vulnerable women to form groups and receive the benefits offered by government and banks for women development.
4. The customers of these RRBs should be allowed to avail loans at banks with a zero balance account as well.
5. The SHGs may be encouraged to start up new ventures in line with national/central government schemes for women empowerment.

CONCLUSION

This project studied on importance of RRBs in Microfinance Delivery for Women empowerment through Entrepreneurship. RRB is well positioned to play a major role in financial criteria particularly in areas with high rates of financial inclusions. The study found that **Women Empowerment** customers of the Karnataka RRB avail loan mainly for domestic purpose, for improving business and also for income generating activities. The customers are aware about the different schemes provided by RRBs, however, the schemes that popularly availed by the customers of the Karnataka Grameena bank are Housing loan, Gold loan and Self Employment. In rural area the disbursement of micro credit is done through various SHG's group and around 70% of the customers are happy with the credit facilities provided by the grameena banks around Karnataka. The customers of Karnataka grameena bank are not part of women empowerment projects, however, avail loans for income generating activities. The bank also reviews the income and expenses of customers who have availed the loan for income generating activities. We would suggest that women should be part of empowerment projects along with availing loans. We would like to suggest that RRBs to widen their branches in the urban areas; encourage formation of SHGs in both rural and urban areas, create awareness about the benefits of SHGs to empower women.

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Advantages and Disadvantages of Multidisciplinary Academic and Research: An Overview

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ABSTRACT

"Every brain has a capability for learning which is practically boundless, which makes each human being an eminent genius." Michael J. Gelb. How has the recent shift toward multidisciplinary research affected intellectual cohesion in academia? We can respond this matter through an assessment of collaborations and knowledge stream among research scholars. In a lot of ways, today's youthful adults are much sentient, decision making and accountable for their self future prospects. Afar education, as students march into the universe of higher education, it turn out to be the responsibility of contemporary universities to boast an enlightening arena that further innovation, development and in particular, keep the blaze of curiosity ad infinitum ignited.

All this, and a lot more can be accomplished through a multidisciplinary approach. But arriving from past, when academic departments don't address to each other, opportunities are unfamiliar, and way in is inadequate, it is primarily significant to comprehend what precisely is this opportunity of a multidisciplinary education.

Keywords: Multidisciplinary, Education, Research, Higher Education, Academics.

INTRODUCTION

Multidisciplinary education is a distinctive educational advancement that permits the students to explore and discover different subjects or core curriculum from a variety of branches. Edification is not restricted to a single discipline. For example, a student belonging to Medicine can take a subject from social science and humanities (1).

Multidisciplinary approach is a process of core curriculum combination that showcases the different perceptions that dissimilar branches can convey to demonstrate a topic, subject or question. In a multidisciplinary curriculum, several disciplines are used to learn the same theme.

When we address of the hierarchical edifying composition, the idea of "learning" will be surrounded with so many scores of facets such as – core curriculum, set of courses, teaching-learning methodologies, time restrictions, and so on. In the bottom line, the visualization of edification gets compromised.

That's the reason why today's hyper-competitive globe, boundless education, a sole edifying structure that upholds a multi-disciplinary approach to assist students pursue their fervor is very important. Even though the National Education Policy 2020 (NEP 2020) has approached education institutes to take notice of it, stakeholders are still in a quandary in relation to its advantages and disadvantages.

In the present article, the authors will be trying to reveal the advantages and disadvantages of a multidisciplinary educational approach. Irrespective you are an educator, faculty, student or staff, one can go through these aspects to impel institute's success.

Edification is a composite word with a lot of approaches, principles, and viewpoints. When it is an obligation to choose what's correct for you, it's essential to take the moment to shape out what sort of arrangement fits your individual learning approach, *especially* if you're someone paying for it. You have the incredible chance to decide your personal route; what path will you select?

Multidisciplinary education is a magnificent means to absolutely assimilate one's edification into a widespread component somewhat than moving quickly to depict associations among apparently unconnected parts. It allows one to observe tangible connections across theme matters rather than sight each in silo (2).

Comparison of Multidisciplinary education and Interdisciplinary education

Multidisciplinary education is not average school knowledge. A multidisciplinary core curriculum is the one where a particular subject is learnt from the perspective of more than a single discipline. Some universities see benefits of multidisciplinary teaching, and have moved over and ahead to put together it into their learning podium.

If anyone needs some more multidisciplinary education examples for better understanding, think about a business administration degree. In place of just learning subjects of Political Science and Economics individually, one would have lecturers from each department selecting from their discipline to afford a well-formed perceptive of the subject material (i.e. professor of Economics and your Political Science professor breed their experiences so one can have a superior appreciative of how Political Science and Economics work together in the impressive format of understading.) The multidisciplinary advancement depends on people's passage across discipline to share their information, in that way augmenting individual's extent and deepness of education.

Interdisciplinary education is comparable to multidisciplinary in the logic that it appears to amalgamate knowledge from several disciplines. Though, it gives emphasis to the significance of the practice moderately than the result of something. Focus of Interdisciplinary education is to merge theories, methodologies, and perceptions from two or more branches; it hooks up a single subject matter or thought across multiple disciplines.

Benefits of a multidisciplinary prospectus

1. Holistic Gain of Knowledge

One of the advantages of a multidisciplinary perspective in education is one can get a supplementary holistic understanding of the universe. Somewhat than giving attention to separate departments and their topic themes individually, a multidisciplinary approach joins together elements of all departments into the learning courses of the other branch.

For example, some School of Management interlaces Business Administration program into the Economics program, and looks at Business Administration subjects and Political Science subjects as component of the Geography, Planning, and Environment related program.

2. Different standpoints

A multidisciplinary approach is kind of advantages that, with different teachers integrating subject details, one can get on lecturer's viewpoint on inorganic chemistry one day and another lecturer's standpoint on the next day. It unlocks the doors to diverse thoughts and routs of learning.

3. Realistic approach

Multidisciplinary education isn't just an instructive way of philosophy—it's a tangible approach of perceptive the globe. When one gets graduated, the person will be working with people from across different departments, so what is the reason for schools to be unlike? Being talented to pile up and work together with people from different the branches will assist one to toil in the professional planet.

Development of Collaborative skillfulness

Optimistically, any learning route the person takes put emphasis on the significance of association. Nevertheless, one of the mainly imperative advantages of multidisciplinary core curriculum is the thought of coming collectively for the creation of a superior whole.

Being able to converse efficiently with people across different departments is fundamental to multidisciplinary culture. The person can learn the same terminology; one can comprehend their principles, and make out what inspires them. This type of skillfulness will help anybody build associations, resolve huge problems, and effort synergistically with the peer ones.

Importance of Multidisciplinary Education

Multidisciplinary learning makes the degree even more precious abroad! The advantages of a multidisciplinary advancement in education field are very clear. By welding together the subjects, the person is connecting to the sharpest intellects. Having people from different disciplines working collectively construct a tuneful incorporated loom to education. Multidisciplinary education courses may not be extremely universal, but that's fraction of what put together them is exceptional (3).

The point in time has arrived for the research institutions and funding bodies to provide multidisciplinary research scholars appropriate credit when application are invited for grants, employments, as well as promotions that helps to endorse the expansion of a stronger, more inclusive, and more open research system. Young scientists inflowing multidisciplinary research requires being conscious of a variety of confrontations that be positioned in front in terms of career development. They have to be acquainted with the significance of a great vision, from very early on in their profession. Regrettably, educational employers, appointment and promotion committees and research funding institutes still make use of these cut down metrics when evaluating the capability of a research scientist to grow to be a prospect leader of a scientific research grouping.

Research in the life sciences, environmental sciences, and geo-sciences has approached to depend on high-capacity technologies and computational practices, and such technological advancements have shepherd in an epoch where data-intensive science acquires center arena and where researcher scholars have to more and more traverse departmental limitations to work on big shared projects. Unfortunately, crucial transformations in the mode research scholars are appraised are lagging faraway. There need of apparent assessment metrics for research scientists operational in multidisciplinary lineup. It is noteworthy that the dearth of such metrics by now has an unconstructive impact on their career pathway, as a lot of research scientists have a second thought to take part in multidisciplinary research activities.

For those persons who do go into multidisciplinary research, existing authorship standards which, in the life sciences for instance, recognize the first author as the research scholar who did the majority work and the very last author as the caretaker of the project, improperly consider the contributions of other group members, which habitually are evenly important. The difficulty is particularly discriminating for those contributors from supporting departments, for instance those who look after data analysis and integration and are not authors of the novel hypothesis and/or grant possessors. Those authors likely to be positioned in the middle of the author roll, with no added details about their particular contribution. To make credit yet more complicated, diverse departments habitually use dissimilar publishing principles (4).

Multidisciplinary Research Scenario in India

As stated by the New Education Policy 2020, the undergraduate degree program will be of either three or four-year period, with multiple entry and exit choices. Learners will be qualified to get a certificate after completion of one year; diploma after two years, and a Bachelor’s degree after finishing three years. The four-year multidisciplinary bachelor's program is going to be the preferential selection. As stated by the NEP 2020, the four-year program possibly will also direct to a degree ‘through research’ if the learner finishes a meticulous research scheme in their main discipline of learning.

The NEP declares that the curriculum of all the Higher Education Institutes shall comprise of credit-based courses and research projects in the region of community commitment and service oriented, environmental learning, and value-based edification for learners.

An Academic Bank of Credit (ABC) is also going to be made available, which will have the facility to store the academic credits collected from different recognized Higher Education Institutes on a digital platform, thus facilitating the learner to gain degree certificates from an Higher Educational Institution taking into consideration the credits collected earlier. It will also alleviate the re-entry of learners who may have taken exit previously and then revisit to effort en route for a complete degree. Some of the key transformation actions to be in practice as per the National Education Policy most likely will be the eradication of single-stream Higher Educational Institutes in a phased mode and reformed into multidisciplinary institutes or by definition in NEP, the “clusters”. It also states regarding eliminating the structure of affiliated institutions in about fifteen year period all the way through a structure of graded autonomy.

To eliminate diverse category of divisions of universities, the National Education Policy look for exclusion of diverse classifications that are existing currently like affiliating university, deemed to be university, affiliating technological university, private university etc. each one with their individual set of laws. These are planned to be substituted by a sole kind of category, governed by a solitary set of norms.

In a supplementary move forward toward multidisciplinary idea, the National Education Policy recommend constructing model public universities for holistic and multidisciplinary edification, on par with Indian Institutes of Technology (IITs) and Indian Institutes of Management (IIMs), going to be called as Multidisciplinary Education and Research Universities, i.e. MERUs. These institutes will be surely aiming to achieve the utmost international standards in global quality education.

Already existing institutes will be focusing on novel research and improved innovation by establishing start-up incubation centers and comparable centers and focusing on interdisciplinary mode of research together with the humanities research and social sciences research. The policy talks about even important engineering institutions, like the IITs, shall budge towards multidisciplinary teaching with additional arts and humanity disciplines.

The National Education Policy also proposes escalation of both private and public institutes, with a sturdy accent on emergence of a great numbers of exceptional public institutes. It affirms, “By 2040, all institutes should aspire to turn out to be multidisciplinary institutes, each one of which would endeavor to have at least or more than 3,000 students" (5).

Advantages of Multidisciplinary Education and Research

1: The freedom to select
I can expect that any one of you've encountered such stuff from your friends and relatives too who have got jobs in overseas nations. Nevertheless, it's not factual any longer! To revolutionize the way of thinking of young people and make them apprehend the supremacy of the Indian educational arrangement, authorities have sincerely taken immense hard work and multidisciplinary education is a subsist exemplar of that.

With multidisciplinary learning in Higher Education Institutes, learners will be having a power to decide their preferred theme, the topic that they want to study. Subject topics which append some worthiness to their acquaintance; Subjects themes that can uplift the standard of education**.** Not the subjects which are enforced against them. In the conclusion, it will assist in ascertaining a more collaborative teacher-learner association.

2: Accomplish inside to discern zeal
At this point, the keyword is "preference of subject", but the rewards broaden to learner's individual development on top. On one side, as a faculty member, one will have the authority to take innovative modifications to the customary teaching-learning practices. And on the other side, the learners will be proficient to reach for enormous e-content that can aid them comprehend their fervor or factual rationale. The additional e-content they guzzle, the more impending about their favorite benefits they'll discover!

Even when the students are indefinite regarding their obsession at the start, they can realize it at some stage in the teaching-learning voyage. Thus, the mixture of online education paraphernalia like learning management system (LMS) incorporated inside the college educational software along with a multi-disciplinary loom can enhance individual improvement in learners.

3: Practicality and Flexibility
Multi-disciplinary learning permits the students to be aware of the supremacy of innovative thoughts. It lends a hand them to build up a down-to-earth approach by permitting them to make a decision what topics they will pick for and what could be their potential benefits. They get instance to make a choice by calculating the threats and returns. Thus, a multi-disciplinary curriculum fetches uncomplicatedness and suppleness to the tables.

It facilitates the students to build their own pathway by making use of their brain-power and education technology devices and not march on the pathway pre-determined by the education structure.

Disadvantages of Multidisciplinary Approach in Education
1: Interruptions and Distractions
Truthfully, getting diverted from the ultimate learning objective may turn out to be ubiquitous with multicultural tutoring. Every so often, the learners possibly will sense a slight bit gone astray as they jump on to a diversity of subjects and programs. The solitary item that can put away them from getting abstracted is planning and keeping a label on their everyday actions.

2: No Master- Only Jack!
There's a legendary turn of phrase – *"Master of all trades, Jack of none."* It can noticeable into realism and boomerang all any one's plans for attaining the best student learning outcomes. With multi-disciplinary higher education, faculty members have to be a little cautious when they appraise performance of the learners. They must make sure that their students accomplish mastery in one discipline at least (6).

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The Discourse of Home and Sister Niveditā: A Unique Search for Home

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The Odyssey had been reversed in Sister Niveditā's act of embracing India as her "home".

Following the Indo-European notion of *kei*, meaning 'something precious' – from which the German word for "home" (*Heim*) is derived – attachment to a home place is seen as a primordial sentiment created by familiar daily routines and regular settings for activities and interactions. From the phenomenological point of view, home is perceived as a safe and familiar space, be it a haven or shelter. Home is a subject for empirical and theoretical exploration. Of course, disagreements are there as to how to define "home" and how to interpret the findings of research on "home". The word "home" seems riddled with a remarkable number of incoherencies and paradoxes. Some see home as an ideological construct; some interpret it as a socio-spatial system; some others may define it from a macrosociological approach in terms of "taxonomic generalizations". Again, it can be seen from women's ambivalence towards home. In fact, home is not just a feeling or 'lived experience' but a matter of cognition and intellectual construction, although it is equally true that home as ideal and home as experienced in reality are themselves socially constructed through ideological structures. Home is a multidimensional concept, identified by the 'key signifiers' of shelter, hearth, heart, privacy, roots, abode and (possibly) paradise. All these signifiers comprise the meaning of home. These significations have their symbolic overtones: materiality (shelter), mode of disposition and action towards neighbours, visitors etc. (hearth), pride of possession (heart), degree of territorial control (privacy), degree of respectability and sense of niche (roots), and quality of domestic life (abode). Finally, home as paradise is an idealization of all the positive features of home fused together, because in each of its key signifiers, home is suffused with ideal meaning, and there is no distinct demarcation between the real and the ideal.

In contemporary social theory, images abound of exile, diaspora, time- space compression, migrancy and nomadology. The conflation of home and self and a sense of belongingness is one of the threads that runs through the examination of "home". Carl Jung developed a thesis that explicitly reads an individual's home as the "universal archetypal symbol of the self". In contradistinction to the growing concern of homelessness in the modern world, in a bid against the alarming impoverishment, mental and spiritual, in the global scenario, we can remember one, with amazement and admiration, who embraced India as her home, though not being an Indian by birth. She was none but Sister Niveditā, born Margaret Elizabeth Noble (28 October 1867 - 13 October 1911), a Scots-Irish social worker, author, teacher and a disciple of Swami Vivekananda. As early as in her school days, Niveditā had begun to revolt against her mother's dogmatic Christianity, and the rigid non-conformist Christianity of her first head-teacher at Crossley Heath School (Reymond 16-18). Niveditā was spiritually unsatisfied when she arrived in London, and had long been a "seeker after truth" (Ātmaprāṇa 6). The fact is that there were "serial" or "multiple" seekers, as characterized by Sutcliffe, who were preparing themselves to imbibe eclectically, rather than exclusively, from diverse teachings and teachers. Niveditā's unhappiness following her doubts about Christianity, placed value on the process of her quest, which had a cumulative quality even before she met Vivekānanda. She met Swami Vivekananda in 1895 in London. Although Aurobindo Ghose referred to Niveditā as "practically an Indian in belief, culture, and aspirations" (quoted in Boehmer 2002, 41), in 1900 Niveditā stated that "It is wholly a mistake to suppose that I have renounced either my nationality or my religion in becoming a sister of the order [Rāmakṛṣṇa movement]. Christianity is the nursery in which my spiritual thought was trained" (Burke 289).

In fact, by the time Niveditā moved to London in her teens, she was liberal in her religious opinions as she continued her "seeking". Niveditā's spirituality was moulded far more by her encounters *en route* from Dugannon to, eventually, Calcutta. During her teens and while a teacher at Keswick, Niveditā was attracted to High Anglicanism and pondered over conversion to Roman Catholicism, which would surely have been quite a major leap from her Irish family's non-conformism. During her days at Wrexham in North Wales, she was introduced to New England Transcendentalism and this might have first introduced her to Hindu thought. At much the same time possibly, she started studying Buddhist teaching. Foxe sees this as foreshadowing her movement away from Christian belief. This may suggest that by the time Niveditā arrived in London, where she associated herself with the Broad Church wing of the Anglican Church, she was, at the least, "not very orthodox", in fact, like others there who felt drawn to Vivekānanda. Her early published works in London for the poor and the rights of women, and her adoption of the educational theories of Pestalozzi and Froebel proved her progressive thoughts and her true religious character which was, to some extent, in tune with the *Vedantic* notations of the Swami. Swami Vivekananda gave her the name Niveditā (meaning "Dedicated to God") when he initiated her into the vow of "Brahmacharya" on 25 March 1898. The day after her initiation when Swamiji asked Niveditā, 'To which nation do you belong?' Niveditā unequivocally and proudly declared her loyalty to the English flag. But, eventually, through making and unmaking, she was completely transformed into a living manifestation of the spirit of Cultural Nationalism, a discourse which took the foreground in the post-colonial India only in the 1960s. She came to know and love India through a rigorous course of self-learning which was, of course, prompted by her abounding love.

In India, Niveditā employed the creative arts in the service of Indian freedom in a manner which was reminiscent of the Irish Literary Revival. Niveditā's knowledge of the rippling impact of the Irish Literary Revival would have preceded her knowledge of the fruits of the Bengal Renaissance under Vivekānanda's patronage. She wrote profusely on many facets of Indian culture, philosophy, art and history in journals like the *Review of Reviews*, the *Prabuddha Bharata*, the *Modern Review*, etc. under the byline "Nivedita of Ramakrishna-Vivekananda"'. She promoted pan-Indian nationalist views both in her writings and in public gatherings. 1902 onwards, she spoke and wrote against the British administrative policy in India. She attacked Lord Curzon for the Universities Act of 1904, for his derogatory remark by calling Indians untruthful in his Convocation Address in 1905, and for the Partition of Bengal in 1905. In India, Sister Niveditā studied and truly understood the deep Indian culture, serving the Indian people and living the Hindu religion. Through the book, *The Web of Indian Life,* Niveditā tried to give a befitting rejoinder to all the slander and vile representations so far made by the Western scholars on Indian culture and civilization. By delving deep into the myths, folklore, literature and arts, she initiated to develop a sense of cultural nationalism among the Indians. Niveditā looked particularly, but not exclusively, to the role of national and civic art in contributing to the development of a new understanding of "Indian nationality" (Basu 1982, 2: 553).

Public debate about the Boer War might well have made a really important bridge between her sympathy for the Irish Home rule movement and her support for and involvement in the Indian independence. During the Second Boer War (1899-1901), she had already been in India for some years. Those in Britain who were averse to the Boer War argued with regards to the risk of making "another Ireland" through the occupation and colonial rule of South Africa. Given her background, Niveditā might be obviously expected to have been sensitive to such a parallel, but, we see that when she referred to the Boer War in a letter in July 1901 (Basu 1982, 1:434), she addressed this issue purely in relation to the governance of India. India's dream was Niveditā's dream; India's thinking found its expression in Niveditā. We see transference from the 3rd person to the 1st person in her mention of India: Not the people of India—"our people". Not the women of India—"our women". She came to serve India; and by degrees, very quickly, she became an Indian to serve India. Sister Niveditā could be seen as an iconic figure that could make India her own home and this home was tradition/culture of India. She showed that India has every reason to be very proud of its great tradition, without any dogmatism. While the colonizer, the British, was programming a systematic intellectual manoeuvre to demoralize the cultural synergies of the Indians, Sister Niveditā was deprogramming the plots of the British, having initiatives to uplift the cultural solidarity of the ethnic groups of Indian cosmologies.

In the paper the perception expressed is that Sister Niveditā was definitely seeking an alternative, an alternative home, in many respects. Here the focus is on the crises—personal or emotional, political, religious and intellectual, etc—in her life and the complex nature of her resolve to come to India and the undecidability of the conventional narrative of her being and becoming an Indian. The real reality of her life was definitely more involved than the popular image of her as an Irish nationalist rebel transplanted to India. The metamorphosis of Margaret Noble, the London-based progressive educationalist, into Niveditā is explained, in popular terms, in terms of the charisma of Vivekānanda's presence and message. Undoubtedly, Margaret Noble's encounter with Vivekānanda was at the heart of her transformation into Niveditā. But what appear to be parallels to Niveditā in the Irish and the Indian movements for independence may be the recognition of the eroding process of traditional culture by the colonial rule, the necessity to revive language and the arts, the need for a fitting style of education to uphold this revival, and the exigency to gain back political independence to ensure these things culminated. It was the cause of India's social uplift and subsequent independence to which Niveditā devoted the greater part of the remainder of her life, and this is where she truly became a seeker to be an Indian rather than remaining a progressive, social thinker. Placing her in the discourse of home we see that in her case, home and homelessness are essentially ideological constructs, involving compounds of cognitive and emotive meaning, and embracing within their meaning the analytical foundation for evolving a unique discourse of home.

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A Review on Government Support Measures for Promoting Rural Women Entrepreneurship in Haryana

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ABSTRACT
Women entrepreneurship is closely intertwined with instrumental societal and economic benefits. Despite the fact that women constitute nearly half of the population in India, their participation in entrepreneurial activities remains severely limited. In the present changing and complex socio-economic environment women entrepreneurs are playing very crucial role which is necessary for the long sustained economic development and social progress of country. Women's are playing major role in the society in India but still their entrepreneurship abilities has not been properly used due to the lower status of women as compared to men. Rural development has gained global attention, especially among the developing nations. It has great significance for a country like India where the majority of the population, about 65 percent of people, lives in rural areas. This study discusses the role and function of the government and its rural development programs in Haryana. The present rural development strategies in Haryana focus primarily on poverty alleviation, better livelihood opportunities, provision of basic amenities and infrastructure facilities through innovative wage and self-employment programs This paper is an exploratory study based on a review of the earlier studies on problems faced by rural women entrepreneurs and providing opportunities for women entrepreneurs in Haryana. This paper focuses on various problems faced by the women when they start their own enterprise and suggested some supportive measures for the development of the women entrepreneurs while running their business. The study is an attempt to decipher the concept, profile and dynamics of rural women entrepreneurship in Haryans, so the study aims at analysing the prevalence of women entrepreneurship in Haryana. The criteria for selecting the existing research on the topic included highly cited research studies on Women entrepreneurship specifically in the Haryana context.

Keywords: Women Entrepreneurship, Women Growth, Development strategies, Women issues, Motivational factor.

INTRODUCTION

Entrepreneurship

Entrepreneurship is the ability and readiness to develop, organize and run a business enterprise, along with any of its uncertainties in order to make a profit. The most prominent example of entrepreneurship is the starting of new businesses.

In economics, entrepreneurship connected with land, labour, natural resources and capital can generate a profit. The entrepreneurial vision is defined by discovery and risk-taking and is an indispensable part of a nation's capacity to succeed in an ever-changing and more competitive global marketplace.

ENTREPRENEURS

The entrepreneur is defined as someone who has the ability and desire to establish, administer and succeed in a startup venture along with risk entitled to it, to make profits. The best example of entrepreneurship is the starting of a new business venture. The entrepreneurs are often known as a source of new ideas or innovators, and bring new ideas in the market by replacing old with a new invention.

It can be classified into small or home business to multinational companies. In economics, the profit that an entrepreneur makes is with a combination of land, natural resources, labour and capital.

In a nutshell, anyone who has the will and determination to start a new company and deals with all the risks that go with it can become an Entrepreneur.

Women Entrepreneurs

The **Government of India** has defined a women entrepreneurship as "an enterprise owned and controlled by a women having a minimum financial interest of 51% of the capital and giving at least 51% of the employment generated in the enterprise to women".

Kerala Government defined women industrial units as units owned/ organized by women and engages in small scale and cottage industries with not less than 80% of the total workers as women.

With effect from **6th Feb. 1992, the definition of 'Women Entrepreneurs'** Enterprises is as follows: "A small scale industrial units/industrially related services or business enterprise managed by one or more women entrepreneurs in proprietary concerns in which she/they will individually or jointly have share capital of not less than 51% as partners/shareholders/directors of a private limited company, members of co-operative society".

OBJECTIVES OF THE STUDY

The study is based on secondary data which is collected from the published reports of RBI, NABARD, Census Surveys, SSI Reports, newspapers, journals, websites, etc. The study was planned with the following objectives:

1 To evaluate the factors responsible for encouraging women to become entrepreneurs.

2 To study the impact of assistance by the government on women's entrepreneurship.

3 To study the policies, programmes, institutional networks and the involvement of support agencies in promoting women's entrepreneurship.

4 To critically examine the problems faced by women entrepreneurs

RESEARCH METHODOLOGY

This paper is descriptive cum exploratory in nature use secondary data for data collection from journals, newspaper, internet and earlier studies etc.

Reasons for the Slow Growth of Women Entrepreneurship

In spite of the initiatives taken by the government, the growth of women entrepreneurship is very slow. The reasons are outlined as below:

- Unfavourable family background
- Lack of business education
- Dual role of women
- Lack of aptitudes and training
- Absence of individualistic spirit
- Lack of freedom to choose a job according to ability, influence of sex, custom etc
- Inadequate infrastructure facilities
- Shortage of capital and technical knowhow
- Lack of adequate transport and communication facilities
- Shortage of power
- Lack of security
- Absence of ideal market conditions
- Corruption in administration.

Problems of Women Entrepreneurs

Basic problem of a woman entrepreneur is that she is a woman. Women entrepreneurs face two sets of problems specific to women entrepreneurs. These are summarized as follows.

- **Shortage of Finance**: Women and small entrepreneurs always suffer from inadequate fixed and working capital. Owing to lack of confidence in women's ability, male members in the family do not like to risk their capital in ventures run by women. Banks have also taken negative attitude while lending to women entrepreneurs. Thus women entrepreneurs rely often on personal saving and loans from family and friends.
- **Shortage of Raw Material**: Women entrepreneurs find it difficult to procure material and other necessary inputs. The prices of many raw materials are quite high.
- **Inadequate Marketing Facilities**: Most of the women entrepreneurs depend on intermediaries for marketing their products. It is very difficult for the women entrepreneurs to explore the market and to make their product popular. For women, market is a 'chakravyuh'.
- **Keen Competition**: Women entrepreneurs face tough competition from male entrepreneurs and also from organized industries. They cannot afford to spend large sums of advertisement.

- **High Cost of Production**: High prices of material, low productivity. Under utilisation of capacity etc. account for high cost of production. The government assistance and subsidies would not be sufficient for the survival.
- **Family Responsibilities**: Management of family may be more complicated than the management of the business. Hence she cannot put her full involvement in the business . Occupational background of the family and education level of husband has a direct impact on the development of women entrepreneurship.
- **Low Mobility**: One of the biggest handicaps for women entrepreneur is her inability to travel from one place to another for business purposes. A single women asking for room is looked upon with suspicion. Sometimes licensing authorities, labour officials and sales tax officials may harass them.
- **Lack of Education**: About 60% of women are still illiterate in India. There exists a belief that investing in woman's education is a liability, not an asset. Lack of knowledge and experience creates further problems in the setting up and operation of business.
- **Low Capacity to Bear Risks**: Women lead a protected life dominated by the family members. She is not economically independent. She may not have confidence to bear the risk alone. If she cannot bear risks, she can never be an entrepreneur.
- **Social Attitudes:** Women do not get equal treatment in a male-dominated society. Wherever she goes, she faces discrimination. The male ego stands in the way of success of women entrepreneurs. Thus, the rigid social attitudes prevent a woman from becoming a successful entrepreneur.
- **Low Need for Achievement:** Generally, a woman will not have strong need for achievement. Every women suffers from the painful feeling that she is forced to depend on others in her life. Her preconceived notions about her role in life inhibit achievement and independence.
- **Lack of Training**: A women entrepreneur from middle class starts her first entrepreneurial venture in her late thirties or early forties due to her commitments towards children. Her biggest problem is the lack of sufficient business training.
- **Lack of Information:** Women entrepreneurs sometimes are not aware of technological developments and other information on subsidies and concessions available to them. They may not know how to get loans, industrial estates, raw materials, etc.

Remedies to Solve the Problems of Women Entrepreneurs

The following measures may be taken to solve the problems faced by women entrepreneurs in India:

- In banks and public financial institutions, special cells may be opened for providing easy finance to women entrepreneurs. Finance may be provided at concessional rates of interest. Women entrepreneurs' should be encouraged and assisted to set up co-operatives with a view to eliminate middlemen.
- Scarce and imported raw materials may be made available to women entrepreneurs on priority basis.
- Steps may be taken to make family members aware of the potential of girls and their due role in society.
- Honest and sincere attempts should be undertaken by the government and social organizations to increase literacy among females.
- In rural areas self-employment opportunities should be developed for helping women.
- Marketing facilities for the purpose of buying and selling of both raw and finished goods should be provided in easy reach.
- Facilities for training and development must be made available to women entrepreneurs. Family members do not like women to go to a distant places for training.
- Therefore mobile training centers should be arranged. Additional facilities like a stipend, good hygienic chreches, transport facilities, etc., should be offered to attract more women to training centres.

Measures taken for the Development of Women Entrepreneurship in Haryana

Women empowerment should be one of the primary goals of a society. Women should be given equality, right of decision-making and entitlements in terms of dignity. They should attain economic independence. The most important step to achieve women empowerment is to create awareness among women themselves.

Development of women can be achieved through health, education and economic independence. Realizing the importance of women entrepreneurs, Govt. of India has taken a number of measures to assist them. Some of the important measures are outlined as follows:

SUPPORTIVE MEASURES FOR WOMEN ENTREPRENEURSHIP:

Various supportive measures are suggested to empower the Women are:-

I. **Federations and its Associations Support: -**

Federation of societies of women entrepreneurship is engaged in various activities for promotion of women entrepreneurship, such as providing market assistance, involvement with government officials. At National level, association of women entrepreneurs are:-

- Indian Council for Women Entrepreneur (ICWE).
- National Alliance of Young Entrepreneurs (NAYE).
- For promotion of women entrepreneurship.

II. **Financial Assistance Support: -** To overcome the financial problems in the way of setting up of enterprises, State Financial Corporation, Nationalised banks provide subsidies, loans and grants to women entrepreneurs. NABARD provide refinance facilities and rendering assistance to women entrepreneurs.

III. **Training facility Support for women entrepreneurs: -** Especially for women entrepreneurs which are industrially backward and from rural areas, EDP has been conducted by Entrepreneurship Development, Ahmadabad. Training and award have been started for improving women entrepreneurship programmes.

IV. **Educational Awareness Camps: -** Educational and awareness programmers should be arranged so that to change the negative social attitude towards Women in the society.

INITIATIVES OF GOVERNMENT FOR DEVELOPMENT OF WOMEN ENTREPRENEURS:

- Women Cooperatives should be provided with full financial support from the Government were formed to help Women in agro based industry like horticulture, dairy farming etc.
- Swarna Jayanti Swarozgar Yojana were introduced by Government to provide reservation for Women and to encouraging them to start their new ventures.
- Indira Mahila Yojana
- Integrated Rural Development Programme (IRDP)
- Khadi And Village Industries Commission (KVIC)
- Management Development programmes
- Indira Mahila Kendra
- Women's Development Corporations (WDCs)
- Mahila Vikas Nidhi
- Marketing of Non-Farm Products of Rural Women (MAHIMA)
- Mahila Samiti Yojana

Step Taken By the Government

The growth and development of women entrepreneurs required to be accelerated because entrepreneurial development is not possible without the participation of women. Therefore, a congenial environment is needed to be created to enable women to participate actively in the entrepreneurial activities. The Government of India has also formulated various training and development cum employment generations programs for the women to start their ventures. These programmes are as follows:

1. Seventh Five-Year Plan:

In the seventh five-year plan, a special chapter on the ―Integration of women in development‖ was introduced by Government with following suggestion:

- **Specific target group:** It was suggested to treat women as a specific target groups in all major development programs of the country.
- **Arranging training facilities:** It is also suggested in the chapter to devise and diversify vocational training facilities for women to suit their changing needs and skills.

- **Developing new equipments:** Efforts should be made to increase their efficiency and productivity through appropriate technologies, equipments and practices.
- **Marketing assistance:** It was suggested to provide the required assistance for marketing the products produced by women entrepreneurs.
- **Decision-making process:** It was also suggested to involve the women in decision-making process.

2. Eight Five-Year Plan

The Government of India devised special programs to increases employment and income-generating activities for women in rural areas.

- Prime Minister Rojgar Yojana and EDPs were introduced to develop entrepreneurial qualities among rural women. ―Women in agriculture" scheme was introduced to train women farmers having small and marginal holdings in agriculture and allied activities.
- To generate more employment opportunities for women KVIC took special measures in remote areas.
- Women co-operatives schemes were formed to help women in agro-based industries like dairy farming, poultry, animal husbandry, horticulture etc. with full financial support from the Government.
- Several other schemes like integrated Rural Development Programs (IRDP), Training of Rural youth for Self employment (TRYSEM) etc. were started to alleviated poverty.30-40% reservation is provided to women under these schemes.

3 Ninth Five-Year Plan

Economic development and growth is not achieved fully without the development of women entrepreneurs. The Government of India has introduced the following schemes for promoting women entrepreneurship because the future of small scale industries depends upon the women-entrepreneurs: Trade Related Entrepreneurship Assistance and Development (TREAD) scheme was launched by Ministry of Small Industries to develop women entrepreneurs in rural, semiurban and urban areas by developing entrepreneurial qualities.

CONCLUSION

India is a male dominated society and women are assumed to be economically as well as socially dependent on male members. Rural women entrepreneurs face lots of problems like lack of education, social barriers, legal formalities, high cost of production, male dominated society, limited managerial ability, lack of self confidence etc. Various factors like Pull and Push factors are influencing rural women entrepreneurs. Government has taken various steps for the upliftment of women entrepreneurs. Women have the potential and determination to setup, uphold and supervise their own enterprise in a very systematic manner.

Entrepreneurship among rural women, no doubt improves the wealth of the nation in general and of the family in particular. Women today are more willing to take up activities that were once considered the preserve of men, and have proved that they are second to no one with respect to contribution to the growth of the economy. Appropriate support and encouragement from the society, family, government can make the women entrepreneurs a part of the mainstream of national economy and they can contribute to the economic progress of Haryana.

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The Impact of Sexual Harassement at Work Place on the Mental Health of Women

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ABSTRACT
Millions of Indian women are entering the workforce today as a result of greater access to education and jobs. On a daily basis, many working women suffer sexual harassment at work. As a result, it is critical that we fight as a nation to eliminate workplace sexual harassment, because women have the right to work in a safe and secure atmosphere. Gender equality and the development of the nation as a whole necessitate the protection of women.

Sexual harassment at work is a form of everyday violence that is both discriminatory and exploitative because it threatens women's right to life and livelihood. It is a violation of a woman's fundamental rights to equality under Articles 14 and 15, as well as her right to live in dignity under Article 21 of the Indian Constitution. On July 9, 1993, India signed the Convention on the Elimination of All Forms of Discrimination against Women (CEDAW). After the savage gang rape of Bhanwari Devi, a social worker from Rajasthan, a petition was brought in India's Supreme Court for the first time in 1997 to defend fundamental rights of working women.

Keywords: Sexual harassment, Gender equality, fundamental rights.

1. INTRODUCTION

"You can tell the condition of a nation by looking at the status of its women."

– Pandit Jawaharlal Nehru

Sexual harassment of women is a worldwide problem that affects both industrialized and developing countries. It has spread like a virus across society, cutting over religion, culture, race, caste, class, and geographical barriers. It has erupted into a global issue, as it is disrespectful to human dignity, human rights, and gender equality. It's a complicated issue involving women, their views and behaviour, as well as the social conventions that stems from gender discriminating attitudes and is a complex interaction of gender, power, and sexuality. Every 12 minutes, a woman in India is sexually harassed. The role of women in India is fast changing as a result of industrialization, globalization, and progress in numerous sectors. Women in India are making strides in practically every field today. As women's roles have moved from domestic to commercial, so have the number of crimes committed against them. Despite increased rates of sexual harassment, women are reluctant to disclose it for fear of losing their personal and professional reputations and livelihoods as a result of the social stigma.

2. OBJECTIVES OF THE STUDY

- To determine the impact of sexual harassment at work place on the mental health of women.

3. DATA COLLECTION

For this research work, secondary sources were employed. The term "secondary data" refers to information that is previously available but has been updated to meet the research's needs. During secondary data collecting, the researchers looked at a number of studies on the issue of sexual harassment and the impact it leads to the psychological health of women. It's also based on certain secondary sources.

4. WHAT IS SEXUAL HARASSMENT

Sexual harassment is defined as any form of harassment that has explicit or implicit sexual undertones, such as uninvited and improper offers of benefits in return for sexual favours. Sexual harassment can take many forms, ranging from minor infractions to sexual abuse or violence. Harassment can take place in a variety of social situations, including the job, the family, school, churches, and so on. Harassers and victims might be of any gender or sexual orientation.

Sexual harassment is criminal in today's legal circumstances. Because there is no "universal civility code" in place, laws prohibiting sexual harassment often do not cover simple taunting, offhand comments, or tiny isolated incidences. When harassment occurs frequently or severely, producing a hostile or offensive work environment, or when it results in an adverse employment decision (such as the victim's demotion, dismissal, or resignation), it may be deemed criminal. The legal and societal definitions of sexual harassment, on the other hand, differ by culture. Sexual harassment is defined as any form of harassment that has explicit or implicit sexual undertones, such as uninvited and improper offers of benefits in return for sexual favours. Sexual harassment can take a variety of forms.

An employer's sexual harassment is a kind of illegal employment discrimination. Preventing sexual harassment and defending workers accused of sexual harassment have become significant priorities of legal decision-making for many firms and organisations.

5. SEXUAL HARRASEMENT AT THE WORK PLACE

Unwelcome sexual advances, requests for sexual favors, and other verbal or physical conduct of a sexual nature. When this conduct explicitly or implicitly affects an individual's employment, unreasonably interferes with an individual's work performance, or creates an intimidating, hostile, or offensive work environment," according to the Equal Employment Opportunity Commission (EEOC) of the United States (EEOC). "The challenged behaviour must be unwanted in the sense that it was not solicited or incited by the employee, and in the sense that the employee found it disagreeable or offensive." Especially when the accused harasser has reason to assume that the approaches would be welcomed (e.g., past consensual relationship), it is critical for the victim to indicate that the conduct is undesirable.

SEXUAL BRIBERY

The solicitation of sex, any sexual activity, or other sex-related behaviour in exchange for a promise of increased employment status or income is known as a sexual bribe. A sexual connection with an employer or superior is made an explicit or implicit condition for obtaining/retaining employment or its perks in an employment situation. A sexual bribe might be overt or covert, but it is still considered Quid Pro Quo sexual harassment.

6. IMPACT OF SEXUAL HARASSEMENT AT WORK PLACE ON THE MENTAL HEALTH OF WOMEN.

Sexual harassment can have a negative influence on one's mental health, physical well-being, and professional growth. Harassment can cause a variety of psychological and bodily reactions, including:

PHYSIOLOGICAL REACTIONS LIKE

- Headaches, Gastrointestinal distress
- Sleep disturbances, nightmares and Lethargy
- Dermatological reactions, Weight fluctuation
- Sexual problems, Phobias and panic reactions
- Depression, anxiety, shock, denial, Confusion, feelings of being powerless
- Anger, fear, frustration, irritability, Shame, self-consciousness, low self-esteem
- Insecurity, embarrassment, feelings of betrayal, Guilt, self-blame, isolation
- Decreased job satisfaction, Absenteeism
- Unfavorable performance evaluations, Withdrawal from work or school
- Loss of job or promotion
- Change in career goals, jobs, educational programs, academic majors, etc.
- Drop in academic/work performance due to stress

7. ACTION TAKEN TO PREVENT WORKPLACE HARASSMENT

Employers must take steps to prevent workplace harassment in order to encourage healthy mental health. Indeed, harassment is a prevalent source of work-related stress, and it puts employees' health at risk. A 2014 study indicated that workplace harassment is linked to considerable health risk factors and morbidity in the United States, and that anti-harassment workplace rules and practices can help to reduce harassment and its negative health implications. Employers can take proactive actions to prevent or restrict workplace harassment by:

a) Maintain an anti-harassment policy in writing. The policy should be straightforward and simple to comprehend. All staff should go over the policy, and it should be clearly available for future reference.

b) Training programs should be instituted. Employers may want to consider offering training to all workers on how to recognize and report improper behaviour in the workplace, including sexual harassment. Managers and supervisors may also undergo specialist harassment training on problems such as spotting harassment and responding appropriately to complaints and reports of harassment received from subordinates.

c) Establish a clear mechanism for reporting complaints. The procedure for filing a complaint should be simple and straightforward. Employees should have the impression that their complaints are taken seriously and that they will be examined when the time comes. Additionally, keeping in touch with the employee who filed the complaint throughout the process is beneficial in terms of providing guarantees.

d) Create a procedure for investigating complaints and reports. Larger firms may find it beneficial to have a standard investigative procedure in place to guarantee consistency in the company's approach and that the proper steps are performed each time.

8. CONCLUSION

Mental disease status was discovered among women who had been sexually harassed, and it was also discovered to be one of the responsible factors in the victim's mental health status, which includes sadness, anxiety, and stress. Similarly, owing to sexual harassment by seniors, male colleagues, females experienced dread, annoyance, anger, and sleeplessness in their everyday lives. Such misdeeds against women may have a negative impact on their physical health and there overall achievement, as well as their bad mental health. Preventive measures should be taken by organisations in order to protect the rights of women.

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Issues in Online Marketing

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ABSTRACT
In recent years, e-commerce has more and more become a necessary factor of business strategy and play a significant role in economic development. Present paper examines the main issue involved in Online Marketing. It is based on secondary source of information, available on various websites, books, articles published in various books and journals. The paper throw an adequate light on various problematic area faced by the marketer and customers. It has been observed from the customers that sometime the companies give fallacious information about their product. As a result, the customer do not satisfied with their purchasing of product online from the e-line marketing portal. Marketers also faced many problems in online marketing which are discussed in this paper. Along with problems and issues, there are some of suggestions which may improve the conditions of online marketing.

Keywords: Online Marketing, E-commerce, Problems, Credibility, Suggestion for improvement

INRODUCTION

Information technology has transformed the way people work. Electronic commerce or e-commerce is a term for any type of business, or commercial transaction that involves the transfer of information across the internet. E-commerce introduces the revolution regarding the traditional selling and purchasing concept. E-commerce plays a significant role in boosting the concept of online marketing. Online marketing refers to all advertisements and other sales promotion activities done by the marketer through internet. Internet marketing or online marketing efforts are typically used in conjunction with traditional types of advertising like radio, television, newspapers and magazines. In online marketing, you can promote the products and services via websites, blogs, e-mail, social media, forums and mobile apps. Internet marketing basically includes the following areas:

1. Social Media Marketing i.e., Facebook, Twitter, Instagram
2. E-Mail Marketing
3. Content Marketing
4. Blogs
5. Video Marketing

OBJECTIVES OF THE STUDY

- To review about the present status of online marketing in India.
- To identify the problems or issues prevailing in online marketing regarding marketers and consumers.
- To provide suggestions to overcome the above mentioned problems.

Present scenario of Online Marketing

India is the world's 3rd largest internet using population. From last recent years, digital marketing or online marketing has shown a tremendous growth in this field. India has seen a 20x growth in search queries in the last 5 years. The Indian Online advertising market is growing fast at the rate of 50% per year. In short, we can say that the concept of online marketing is growing at a very fast rate. Currently, leading Indian online retailers includes Snapdeal, Flipkart, Amazon and eBay. All these sites work successfully in this field and Amazon becomes the world's largest online retailers. In India the traditional marketing concept started changing with the digital marketing.

ISSUES OR PROBLEMS IN ONLINE MARKETING

From the point of view of marketer:

1. E-CRM – Customer is the king of marketing whether it's an online marketing or traditional marketing. It's essential to correctly understand their needs and wants so that a marketer is able to fulfill them in a right way. Only then the marketer will successful in maintaining better customer relationship which is essential for the success of any business.

2. Trigger-Based E-Mail – “Right message, Right person, Right time”. If the information is not provided to the right person at the right time then it lost its usefulness and creates problem for the marketer.
3. Start-up Cost – It is assumed that the cost of online marketing is very minimum, but in reality it involves a huge cost for maintaining the website. The main cost in the online marketing arises due to the acquisition of software required for that marketing.
4. Competition – In online marketing the competition is very hard. There are many websites available on the internet and customer can easily compare the prices and other features of the product or services while purchasing and choose the best one which suits its requirements. So the marketer must adopt the strategy that can meet the competition successfully.
5. Technology – Online marketing heavily depends on technology, which is vulnerable to technical faults. For example, if a customer clicks on your advertisement but due to technical glitch, is enable to buy the product, he may easily become irate and proceeds his purchases somewhere else.
6. Timing Problems – It would become difficult for marketer to decide the time to be active on different social networking sites for checking the customer response towards his advertisement on these sites.
7. Illiteracy of customers – Many of customers are not literate to understand the concept of online marketing and because of that they are not able to use it. They prefer purchasing through traditional way and it creates a hindrance in the success of online marketing.

From the point of view of customers:

1. **Authenticity** – There is a lot of window dressing in online marketing because of which the customer’s expectations increases but the actual product do not meet with those expectations. So there is a lack of authenticity in online marketing.
2. **Scams of Internet Marketing** – There are lot of fake schemes in online marketing like, ‘win cash prizes’ or ‘get rich quick’, which mislead the customers. And the innocent customers pay money for such fake scheme but does not receive any benefit in return.
3. **Security Issues** – Customer may feel hesitation and discomfort while sharing their personal information at the time of purchasing online. There are chances of hacking which means hackers can deface websites and steal valuable data from systems. Their information stored in computers connected with the internet and it increases the chance of cyber attacks.
4. **Delay in decision making** – There are so many choices available on internet and consumer may feel puzzled or confused about what to purchase and what not to purchase which leads to delay in his purchasing.

SUGGESTIONS

- Providing efficient services to the customers like, timely delivery and appropriate payment system which helps in making online marketing more effective.
- Increasing viability of e-commerce.
- As we know that online marketing is based upon internet, so efforts should be made to educate the customers regarding the concept of online marketing so that he would be able to make his purchase decision.
- Efforts should be made for the protection of the customer’s personal information.
- The marketer should opt a cheaper and measurable digital campaign instead of adopting the traditional expensive way of advertisement.
- Customers are very conscious regarding online payment because of various scams and cyber malfunctions. Marketers should provide adequate security to the customers in online payment system.
- Marketing efforts must include language and images that reflect your target market because an effective content marketing contributes in a great deal to the improvement in consumer conversion and retention.
- The customer should verify that the product offered from e-marketing, has been enlisted in ISI.

- The digital marketing team plays a significant role in success of e-marketing. So the team should be up to the mark otherwise everything will out of place and it ruin all efforts.
- Any complaint regarding the quality and quantity of the product sent should be verified with the requisite standard. In this context, if there is any complaint, as a result, it should be immediately acknowledged to the concerned official belong to customer care, so that the right step may be raised within the time.

CONCLUSION

Online marketing system has been become a one of modern mode of purchasing and selling of various durable and non-durable products and services. It is a good device and relatively cost effective. It is due to the reason of absence of middleman between buyers and sellers. In present study, it deals with various problems faced by the marketers and customers in online marketing. In this, the problems are studied in a systematic way and lastly, there are some suggestions, which have been recommended for improving the present online marketing system. These suggestions should be followed appropriately for the successfully implementation of online marketing.

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Study of Gender Inequality in India

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ABSTRACT
Gender Inequality (GI) is severe and persistent problem especially in developing countries like India. Gender equality is human right of all persons irrespective of their gender to live with dignity. Empowered women can improve health conditions, educational status and; productivity of whole family and community which in turn improve prospects of next generation as well as of our country. This research paper is an attempt to understand types and main causes of GI and suggestions are made to tackle issue of GI in India. It also throws light on certain initiatives taken by Government of India. The initiatives taken by Government will certainly help us to reduce GI.

Keywords: Poverty, Illiteracy, lack of awareness, lack of employment facility

1. INTRODUCTION

The United Nations describes inequality as "the state of not being equal, especially in status, rights and opportunities". Parameters for measuring gender inequality (GI) in India are educational attainment, economic participation and opportunity, political empowerment and health and survival. According to the new (2015) report of the McKinsey Global Institute, 'The Power of Parity', India's global Gender Parity Score (GPS) is 0.48, which indicates higher level of GI (Misra 2015). Maternal Mortality Rate (MMR) is high in India.

Labour force participation rate of women in India is low as compared to other countries. Even the percentage of receiving Secondary Education is very low. As a result of GI women are not only deprived of resources and opportunities but it also undermines their prospects for the future. Due to GI Women are restricted to domestic tasks and this prevents them from accessing material & social resources as well as their participation in political, economic, and social decision-making. For example, Many adolescent girls are forced to look after their siblings rather than attend school. This results in women having significantly lower literacy rate than men.

2. REVIEW OF LITERATURE

Several studies & researches have been conducted on GI. In this paper some of important studies are presented

I. Dr. A. Guravaiah, (2016) emphasizes need for the girl child education. In his eyes today's educated girl child is an empowered woman of tomorrow. Our country has made some significant strides in universalizing primary education. In India still there are some schools without playgrounds and toilets.

II. Sandeep Kumar (2016) concludes that in mid-nineties the issues of gender bias were taken seriously by our legislature, judiciary and executive through various constitutional provisions, amendments and other legal provisions. His research marks that liberalization phase has provided benefit to women in all sectors and increased their participation in different roles.

III. P. Lakshmi, (2015) summarizes in this research that Uniform Civil Code was not implemented by Britishers in colonial India as their policy was to divide and rule the state. Even today's political leaders of the country follow the same policy and avoid to implement the same. This research work revisits the recommendation of the Apex Court on various occasions to the legislative wing of State. The research emphasizes to put an end to all kinds of division in the society & to bring about much awaited Uniform Civil Code, which is the need of the hour.

IV. Dr. Sheetal J Tamakuwala (2015) discusses violence against women in India is an issue rooted in societal norms and economic dependence and discriminatory practices underlined by laws favouring men. The challenges Indian women faces are misogynistic society, outdated and sometime repressive governance structure, a weak rule of law, heavily male-centric social and political structure. The research further details that although the laws have been amended and female participation in public life has increased, we still have a long way to go to achieve gender justice and gender equality.

V. Amtul Waris and B. C. Viraktamath, (2013) considered gender equality as a critical element in achieving social and institutional change that leads to sustainable development with equity and growth. The study highlights discrimination against women in India, which started from early days and is evident in the skewed sex ratio. The present study analyses the gender gaps and lists out the strategies in the twelfth Five Year Plan of Government of India for women's empowerment.

VI. Dr. Simmi Virk, (2014) in her research paper discusses the status of females in relation to inheritance and acquisition of property including 'Streedhan' during various periods in Indian society and the law relating to the women. Different positions of female coparceners as daughters and wives, their rights and liabilities and social impediments in implementation of laws specially, Hindu Succession Act are emphasized in this research paper

3. RESEARCH METHODOLOGY

This study is based on secondary data which is collected from various websites and journals. This study is purely conceptual and descriptive in nature. In this paper GI is studied based on types, causes and initiatives of Government.

3.1 TYPES OF GENDER INQUALITY

Inequality between is not same in different parts of the world. As per Nobel Laureate Amartya Sen it can be present in different forms. The types of GI presented below is glimpse of extract from Prof. Sen's inauguration lecture for the new Radcliff Institute at Harvard University delivered on 24th of April, 2001.

Types of GI –

i. Mortality Inequality -mortality rate of women is higher as compared to men in some parts of the world.

ii. Natality inequality -Boys are given more preference over girls as its male dominated society. Now-a-days techniques are use to identify sex of foetus & if its girl child abortion is done.

iii. Basic facility inequality – The girls lack opportunity to educate themselves in many countries. They are neither allowed to develop their talents nor allowed to participate in community functions.

iv. Special Opportunity inequality –Certain areas are fixed where men & women can work. The work is divided on basis of feminine & masculine nature.

v. Professional inequality- In some professions men are prefer over women.

vi. Ownership inequality-In case of inheritance of property son is prefer over daughter.

vii. Household inequality- Wife should to do household a look after the family and husband should be office goer. If women go out and work then they will have to balance household as well as office work.

3.2 CAUSES OF GENDER INQUALITY

i. Illiteracy - There are usually a number of problems that arise from lack of education of females. Nutritional food is given more to boys than girls. Mother who are illiterate is not ready to send girl child to school & do not participate in workforce or the political process. Due to lack of education women do not have confidence to make independent decisions & are pressurized to marry at an early age. Such girl has to face many problems as they become adult & often mothers before they mature emotionally & physically. Hence, gender discrimination in education is both cause and consequences of broader form of GI in society

ii. Patriarchal setup in Indian society - Apart from Education, the root cause of GI in Indian society is the patriarchal system. In many parts of India with some exceptions, has strong patriarchal custom in which men have many powerful rights over female family members & automatically gets family property and title. According to patriarchal customs girls are in custody of father before marriage and after marriage in the custody of husband. Marriages also includes dowry. This is also one of the strong social and economic incentive for raising sons & not raising daughter. Due to this sex ratio of India become imbalanced. According to data by National Commission for Women (NCW), domestic violence against women had increased manifold in 2021. In 2020, the NCRB (National Crime Records Bureau) recorded a total of 28,046 rape cases. Nearly 77 rape cases were reported across India on an average in 2020.

iii. Poverty -India's gender inequality can be attributed largely to poverty as one of the most significant factors behind it. Of the 30 percent of the population that lives in poverty, 70 percent are women. This factor is closely related to the gap between men and women in terms of access to employment opportunities. According to the World Bank, 90% of Indian working women are employed in informal sector and perform occupations that require intense physical labour of various types, long working hours with little compensation, job instability, and a lack of basic workplace amenities. As a result, women's economic disempowerment is exacerbated by disparities in employment prospects and the nature of the labour they do. Poverty has many causes in itself including lack of income and resources adequate to ensure a sustainable livelihood, unhealthy, malnutrition & hunger, no access to education and other basic services, illness leads to rising morbidity and mortality, inadequate housing, unhealthy environments and social discrimination.

iv. Lack of employment facilities- women is unable to resolve conflict between new economic & old domestic roles. They are unable to find & accept new opportunities & shift to new occupations because they are more influenced by household allocation of responsibility. Factors such as Unequal distribution of rights & duties among men & women, male ownership of assets, wrong belief have led to reduction in taking of new job in women. After marriage women engrossed themselves into household work & upbringing of children and hence have to be financially dependent on men.

v. Social customs, beliefs & practice -In Indian culture, women are always dominated by men & hence their status is considered very low as compared to women. Sons are considered as asset for family whereas girls are considered as liability. Thus, anti-female social bias is cause of GI in India.

vi. Lack of awareness among women- Women is unaware of their basic rights. Hence, they have to face all types of discriminatory practices in their family as well as society. Article 15 of Indian constitution forbids discrimination on grounds only of religion, race, caste, sex, or place of birth.

3.3 INITIATIVES OF GOVERNMENT

Some programmes and Schemes are formed by Indian Government for eliminating GI in all aspects i.e., economic, political and social life. Some of Programmes /schemes are as follows

I. ECONOMIC PARTICIPATION:

a) Beti Bachao Beti Padhao (BBBP) ensures protection, survival and education of girl child.

b) Mahila Shakti Kendra (MSK) aims to empower rural women with opportunities for skill development and employment.

c) The National Crèche Scheme ensures that women take up gainful employment through providing a safe, secure and stimulating environment to children.

d) Pradhan Mantri Matru Vandna Yojna aims to provide maternity benefit to pregnant and lactating mothers.

II. EDUCATIONAL ATTAINMENT:

Several steps and initiatives have been taken up in school education system such as –

a) In Educationally Backward Blocks, Kasturba Gandhi Balika Vidyalayas (KGBVs) have been opened.

b) Gender sensitisation is also done by constructing toilets for girls and residential quarters for female teachers

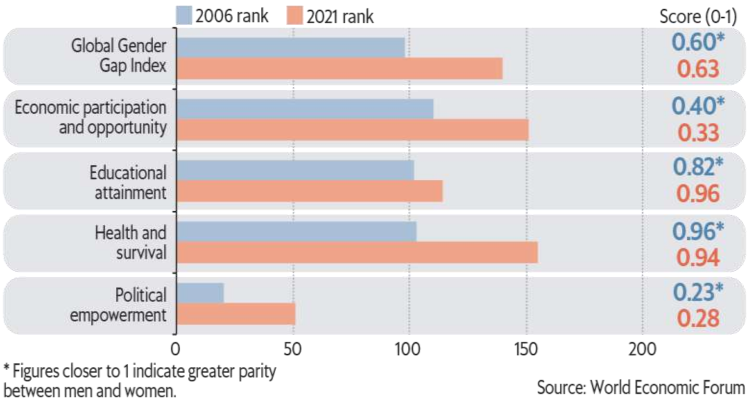
c) National Curriculum Framework (NCF) 2005 and flagship programme and Right to Education Act (RTE).

III. POLITICAL PARTICIPATION:

Government has reserved 33% of the seats in Panchayati Raj Institutions for women.

With a view to empower women at the grass root level and giving them chance in political leadership. Gender Budget is included in Union Budget of India since 2005 that allows allocation of fund towards schemes dedicated to women. As per the Gender Budget Statement, Government has sanctioned Rs.153326.28 Crore for FY 2021-22 for schemes aim at reducing GI in all aspects of life.

4. DATA ANALYIS & INTERPRETATION



The World economic forum report is a measure of gender gap on four parameters:
Economic participation and opportunity, educational attainment, health and survival, and political empowerment. The index has benchmarked 156 nations across the globe in 2021. The data shows that it will take 135.6 years to bridge the gender gap worldwide and the pandemic has impacted women more severely than men. The gap is the widest on the political empowerment dimension with economic participation and opportunity being next in line. However, the gap on educational attainment and health and survival has been practically bridged

India in 2021 has slipped 28 places and has been ranked 140th among 156 nations participating in the rankings. It is the third-worst performer among South Asian countries, The report states that the country fared the worst in political empowerment, regressing from 23.9% to 9.1%. Its ranking on the health and survival dimension is among the five worst performers. The economic participation and opportunity gap saw a decline of 3% compared to 2020, while on the educational attainment front India is in the 114th position.

The pandemic has only slowed down in its tracks the progress India was making towards achieving gender parity. The country urgently needs to focus on “health and survival" which points towards a skewed sex ratio because of high incidence of gender-based sex selective practices and economic participation of women. Women’s labour force participation rate and the share of women in technical roles has declined in 2020, reducing the estimated earned income of women, which is one-fifth that of men.

5. SUGGESTIONS

a) Bring up healthy child, either boy or a girl

b) Try to Give the best education to daughter along with sons

c) Allow girl child to follow her dream and utilise her full potential

d) Instead of spending much on wedding invest amount in property for the daughter, or put it in her bank account.

e) Like women, men should be also taught household work from childhood.

6. CONCLUSION

We have to reach a stage where every human life is precious and sacred. Therefore Each person,irrespective of gender, has a right to select not only career but also realize one’s true potential! If we are denying this right to the women in our lives – be it our wife, daughter(s), sister(s) or daughters-in-law, we’re doing something wrong.

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Stress among College Students and its Managing Techniques

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ABSTRACT
Stress is the response of the body and the minds to demand and expectations. Stress is a condition of mental pressure for particular individual facing problems from Environmental and social well-being which leads to so many diseases. Young age is the very complicated period because at this time youth faces lots of changes in his/her life. They also face different types of stress at different situations. There are a number of physiological changes that take place in the individual who is experiencing stress. Challenges during education create sources of stress for students, and put their health at risk, in a way that affects their learning abilities. These could range from rapid breathing to increased heartbeat and pulse rate, tightening of muscles and so on. When a child enters into the youth age, they need to not only adapt themselves to the new life and new environment but also be familiar with many new people, events, and things. The life stress on them is considerable. Therefore, understanding the sources of stress among them and how they can cope with the stress is very important.

Present study is done to identify major causes of stress among students and mostly preferred stress managing techniques by students.

Keywords: Stress Management, Students, Stress Control

INTRODUCTON

What Is Stress?

Stress is a feeling of emotional or physical tension. It can come from any event or thought that makes you feel frustrated, angry, or nervous. For example, if you have an important test coming up, a stress response might help your body work harder and stay awake longer. But stress becomes a problem when stressors continue without relief or periods of relaxation. Symptoms of stress can classified and described as:

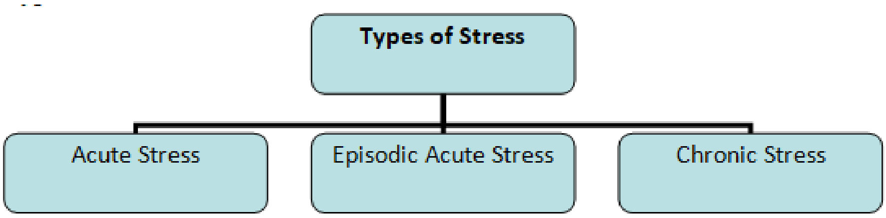
Physical symptoms of stress include:

- Aches and pains.
- Chest pain or a feeling like your heart is racing.
- Exhaustion or trouble sleeping.
- Headaches, dizziness or shaking.
- High blood pressure.
- Muscle tension or jaw clenching.
- Stomach or digestive problems.
- Trouble having sex.
- Weak immune system.

Emotional and Mental symptoms like:

- Anxiety or irritability.
- Depression.
- Panic attacks.
- Sadness.

Types of stress:



1. Acute stress
Acute stress is of routine kind which everyone face in regular occurs as a body's reaction to challenging or new circumstances, fulfilling deadline. This stress can be helpful and motivating for keeping work going and complete the things get completed

2. Episodic acute stress
Episodic acute stress causes if acute stresses happens frequently. Repetitive tight work and fulfilling deadlines leads to high-stress situations.

3.Chronic Stress
Chronic stress arises due to high-pressure situation over a longer period of time. This result in constant feelings of anxiety, depression, or other symptoms of stress.

Causes of stress:
There are so many causes of stress .Major causes includes Financial Obligations, Death of a loved one, Loss of Job, Relationship Issues, Emotional well-being,Sruggles, Problems at Work, Traumatic Events

Impacts of Stress:
Physical signs of stress includes sleep disturbance ,high blood pressure, lack of energy , difficulty swallowing ,agitated behavior, fatigue ,Diabetes, Gastrointestinal problems, Asthma Obesity, Heart disease, Alzheimer's disease ,Depression

Emotional signs of stress includes irritation, feeling overworked, Frustration, feeling overwhelmed, apathy

Behavioral signs of stress includes Isolation with family and friends, poor work relations, loneliness, decreased sex drive ,avoiding others failing to set aside times for relaxation through activities such as hobbies, music, art or reading

Cognitive signs of stress include: mental slowness, confusion ,general negative attitudes or thoughts, constant worry ,difficulty concentrating forgetfulness, difficulty thinking in a logical sequence

As per Global Emotion Report 2021, 2020 was most stressful year in recent history

World's Most Negativity and Stress Countries	Percentage (%)
Iraq	53
Lebanon	51
Peru	51
Egypt	50
Tunisia	47
Congo	46
Iran	46
Uganda	45
Ecuador	45
Mali	43

(Source: Global Emotion Report 2021)

STRESS MANAGEMENT:
Stress management refers to the tools, tactics, and procedures that help to manage stress and the negative effects it has on mental and physical health. Stress management is adopting lifestyle changes if anyone constantly stressed, preventing stress through self-care and relaxation, and managing your reaction to stressful situations when they arise.

Stress can be managed using a variety of methods. Mental, emotional, and behavioral methods are among them. It may improve our well-being by using stress management on a regular basis and in response to stressful life events.

Stress Management Techniques helps for
- Use Refusal Skills
- Think Positively
- Plan ahead
- Seek Support

- Redirect Your Energy
- Practice relaxation technique

Stress Management Advantages are

1. Fewer headaches.
2. Less joint pain.
3. Better sleep.
4. Less indigestion.
5. Easier weight loss.
6. Better nutrition.
7. Improved hormone balance.
8. Fewer colds.
9. Lower blood sugar.

OBJECTIVES OF THE STUDY

1. To identify major causes of stress among students
2. To study stress managing techniques mostly preferred by students

HYPOTHESIS OF THE STUDY

Ho: There is no impact of stress on students' academics

H1: There is negative impact of stress on student's academics

RESEARCH METHODOLOGY

Data for research has been collected through primary and secondary data sources Google Form Questionnaire has been shared through email and social media among the 400 college students studying in 11th to post-graduation. Near-about 100 students have been filled up the questionnaire. Journals, websites have been used for reviewing articles and information about stress management. Data analysis tool used are Graphs and for Hypothesis testing, Median tool is used. Following table shows Stress level among college students

Table No.1

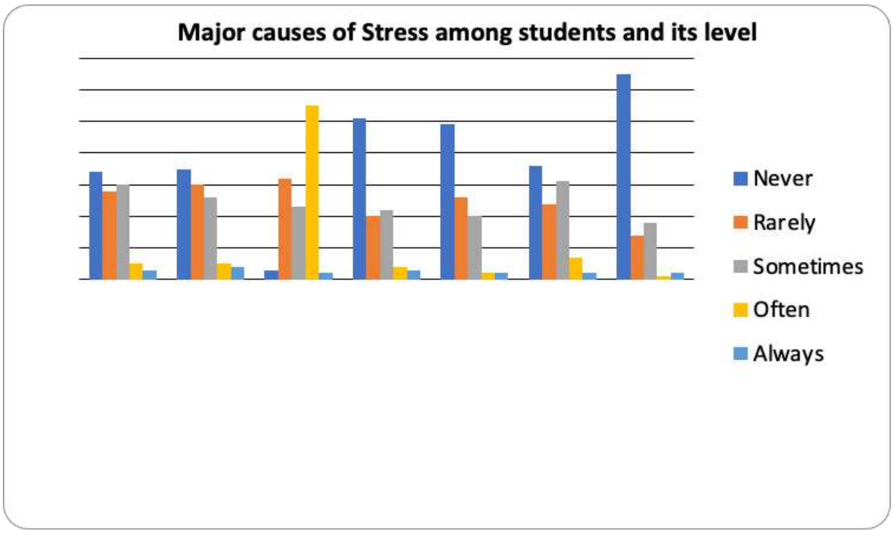
Sr. No.	Opinion about Stress level	Stress levels
1	Not Stressed at All	33%
2	Slightly Mild stressed	36 %
3	Moderate Stress	25%
4	Much Stress	9%
5	Extreme Stress	0%

Above table shows that 36% students are slightly mild stressed.25% were having moderate stress level.

Table No.2

Reason of Stress among students

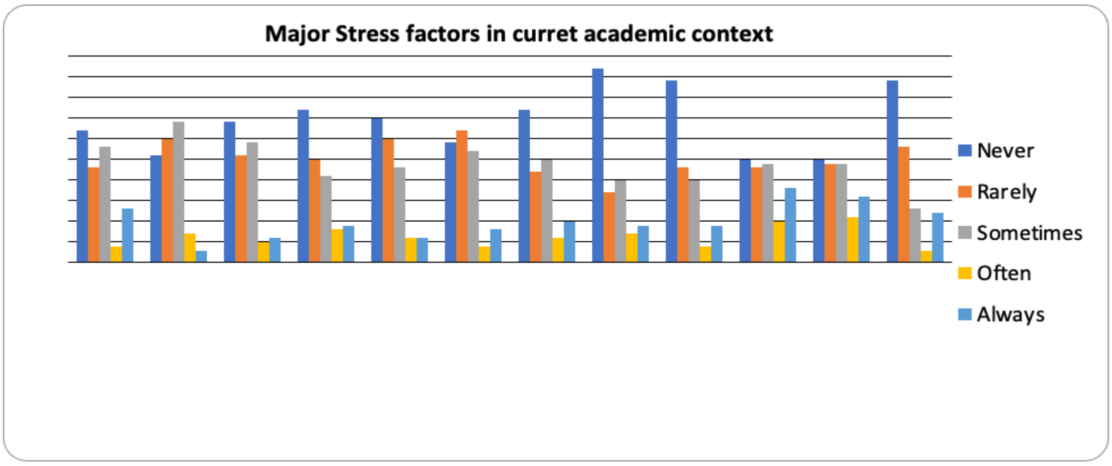
Sr. No.	Opinion	Studies Issues	Financial Issues	Family Issues	Friends issues	Issues with Significant Person	Health Related Issues	Sports/Athletic Issues
1	Never	34	35	3	51	49	36	65
2	Rarely	28	30	32	20	26	24	14
3	Sometimes	30	26	23	22	20	31	18
4	Often	5	5	55	4	2	7	1
5	Always	3	4	2	3	2	2	2



Above table shows that Offenly 55 % students are facing stress due to family issues, 30 % due to study issues. Slightly mild stressed.25% was having moderate stress level.30 % faced stress due to health issues sometimes. While sometimes 30 % respondents has study issues, 26 % has financial issues, 23% has family issues, 22% has friends issues, 20% has issue with significant other (parents), 31% has health related issues, 18% has sports / Athletics activities issues.

Table No.3 Reason of Stress among students

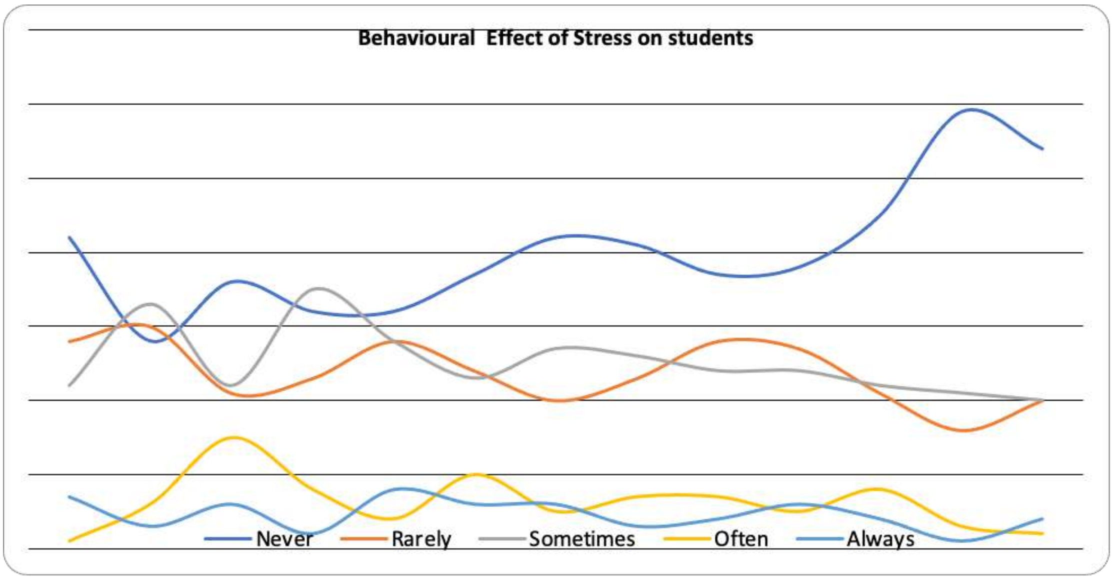
Sr. No.	Reason	Goals in life	Study Workload	Social Life Issue	Grades	Financial Pressure	Life Balance	Relationship With Friends	Relationship with Other students	Relationship with Teachers	Worry about Future Career	Worry of Life	Other
1	Never	32	26	34	37	35	29	37	47	44	25	25	44
2	Rarely	23	30	26	25	30	32	22	17	23	23	24	28
3	Sometimes	28	34	29	21	23	27	25	20	20	24	24	13
4	Often	4	7	5	8	6	4	6	7	4	10	11	3
5	Always	13	3	6	9	6	8	10	9	9	18	16	12



Above graph shows that 28% of respondents feels that goal of life is the factor which sometimes affects on academic context, 34% feels study workload affects, 29% feels social life issue in college, 21% feels grads, 23% feels Financial pressure, 27% (work and study) life balance, 25% relationship with friends, 20% feels relationship with other friends, 20% feels relationship with teachers, 24% feels worry about future career, 24% feels worry about life, 13% feels other stress.

Table No.4 Behavioral effect of stress on students

Opinion	Anxiety or fear	Irritability or anger	Worry about safety of self or others	Restlessness	Sadness	Feeling Isolated	Feeling Overwhelmed	Feeling Misunderstood	Guilt or survival Guilt	Vivid or Distressing Dreams	Apathy	None of Above	Other
Never	42	28	36	32	32	37	42	41	37	38	45	59	54
Rarely	28	30	21	23	28	24	20	23	28	27	21	16	20
Sometimes	22	33	22	35	28	23	27	26	24	24	22	21	20
Often	1	6	15	8	4	10	5	7	7	5	8	3	2
Always	7	3	6	2	8	6	6	3	4	6	4	1	4

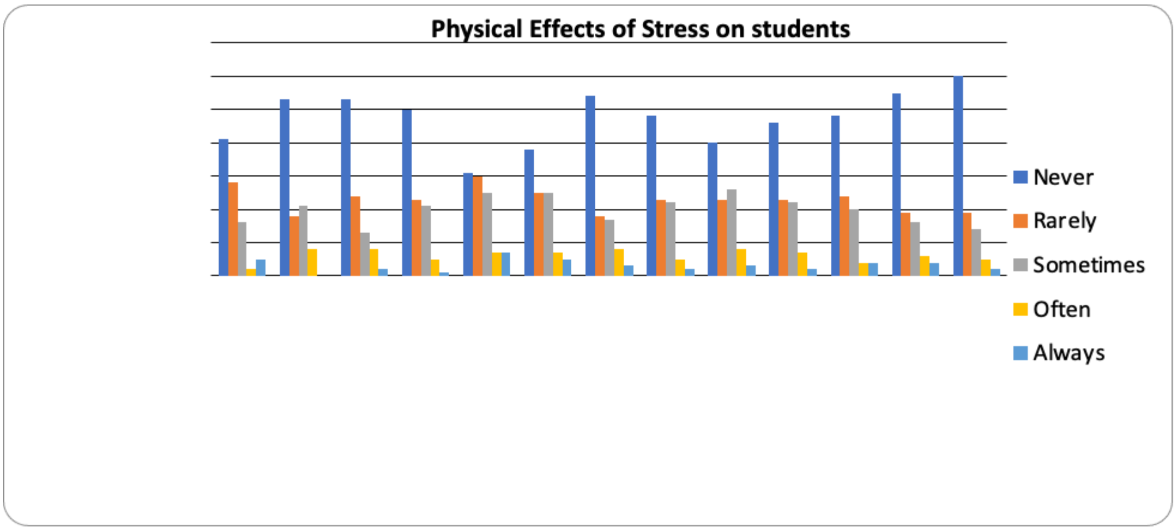


Above graph indicates that 22% of respondents feels that sometimes fear increases due to stress,33 % feels that stress affects on anger,22% feels that worry about safety of self or others increases due to stress, 35% feels that stress affects on restlessness,28% feels that sadness, moodiness, grief of depression increases due to stress, 23% feels that stress affects on isolated , lost lonely or abandoned ,27% feels that overwhelmed helpless or hopeless increases due to stress, 26% feels that misunderstand or unappreciated increased due to stress, 24% feels that guilt or survivor guilt increased due to stress, 24% fells that vivid or distressing dreams increased due to stress, 22% feels that apathy increased due to stress, 20% feels that other reasons increased due to stress.

Table No.5 Physical effect of stress on students

Opinion	Increase Heart rate and Respiration	Increase Blood Pressure	Upset Stomach, Nausea and Diarrhea	Sweating or Chills	Headaches	Lower Back pains	Feeling Lump in throat	Fatigue	Feeling Un-coordinated	Increased or Decreased Appetitive	Light Sensitive Vision	None of the above	Other
Never	41	53	53	50	31	38	54	48	40	46	48	55	60
Rarely	28	18	24	23	30	25	18	23	23	23	24	19	19
Sometimes	16	21	13	21	25	25	17	22	26	22	20	16	14

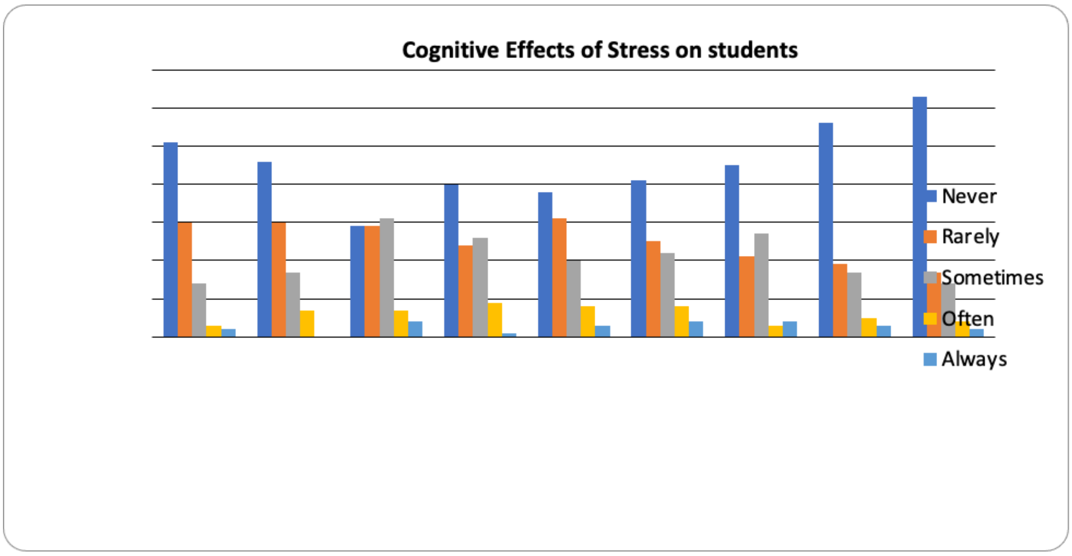
Often	2	8	8	5	7	7	8	5	8	7	4	6	5
Always	5	0	2	1	7	5	3	2	3	2	4	4	2



Above graph shows that 16% of respondents feels that sometimes stress affects on increase heart rate and respiration, 21% agrees it affects on increased blood pressure, 13 % feels it affects on upset stomach , nausea , diarrhea, 21% agrees it affects on sweating or chills, 25% feels it causes headaches, 25% agrees it causes on lower back pain , 17% feels it affects on feeling a lump in the throat, 22% causes s it affects on fatigue that does not improve with sleep, 26% feels it affects on feeling uncoordinated, 22% agrees it affects on increased or decreased appetite which may be accompanied by weight loss or gain, 20% feels it affect on light sensitive vision, 14% agrees it affects on other reasons.

Table No.6 Cognitive effect of stress on students

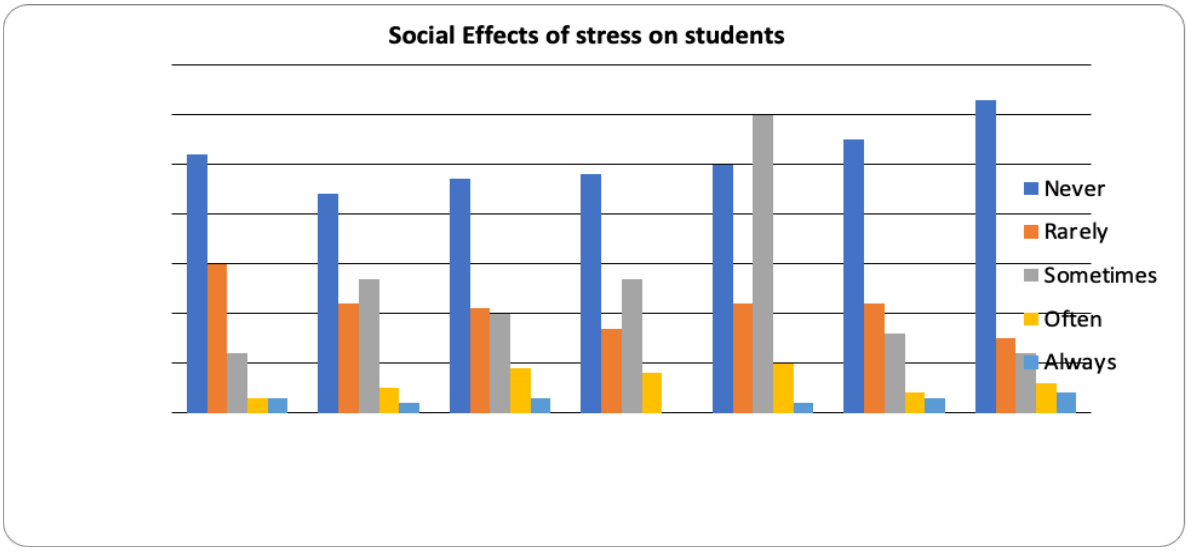
Level of stress	Memory Problems	Disorientation	Difficulty in Calculating	Difficulty in concentrating	Inability to stop thinking about disaster	Confusion	Slowness in thinking	Other	None of above
Never	51	46	38	41	45	29	40	63	56
Rarely	30	30	31	25	21	29	24	17	19
Sometimes	14	17	20	22	27	31	26	14	17
Often	3	7	8	8	3	7	9	4	5
Always	2	0	3	4	4	4	1	2	3



Above graph shows that 14 % of respondents feels that there is memory problem due to stress, 17% respondents feels there is disorientation issues, 31% of respondents feels that there is confusion due to stress, 26%of respondents feels there slowness in thinking, analyzing or comprehending issues, 20% of respondents feels that there is difficulty calculation, setting priorities or making decisions, 22% respondents feels there is difficulty concentrating issues, 27% of respondents feels that there is inability to stop thinking about the disasters or an incident, 14% of respondents feels that is other reasons.

Table No.7 Social effect of stress on students

Level of stress	Withdrawing or Isolating	Difficulty in Listening	Difficulty in sharing ideas	Difficulty in giving or accepting support	Impatient with or Disrespectful to others	None of above	Other
Never	52	44	47	48	50	55	63
Rarely	30	22	21	17	22	22	15
Sometimes	12	27	20	27	60	16	12
Often	3	5	9	8	10	4	6
Always	3	2	3	0	2	3	4



Above graph shows that so many of respondents feels sometimes stress affects on their social behavior such as, 12%respondents feels it affects on withdrawing or isolating from, 27% respondents feels it affects on difficulty listening, 20% respondents agrees it affect on difficulty sharing ideas, 21% respondents feels it affects on difficulty living or excepting support or help, 16% respondents agrees it affects on impatient with or irrespective others, 12% respondents feels it affects on other reasons.

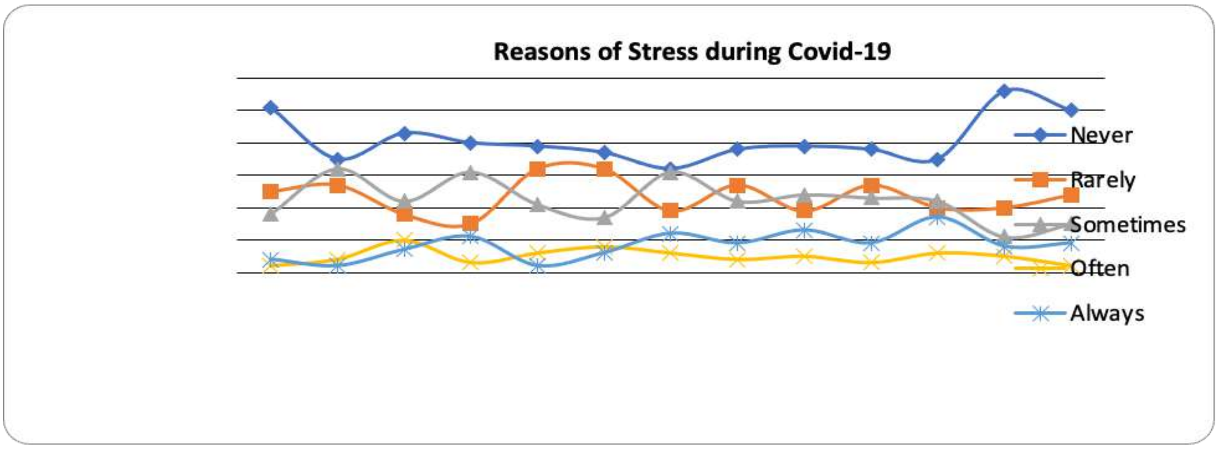
Table No.8 Reasons for stress on students during Covid-19

Part-1

Level of stress	Mental Health Issues	Physical Health Issues	Social Disconnection	News about covid	Family Illness Problem	Financial Problems	Online Learning	Worry about future career
Never	51	35	43	40	39	37	32	35
Rarely	25	27	18	15	32	32	19	20
Sometimes	18	32	22	31	21	17	31	22
Often	2	4	10	3	6	8	6	6
Always	4	2	7	11	2	6	12	17

Part-2

Level of stress	Financial Pressure	Over-use of Social Media	Friends Disconnection	Other	None of above
Never	38	39	38	56	50
Rarely	27	19	27	20	24
Sometimes	22	24	23	11	15
Often	4	5	3	5	2
Always	9	13	9	8	9



Above graph interprets that, 18% of respondents feels that mental health issues, 32% of respondents feels that physical health issues, 22% of respondents feels that social disconnection ,31% of respondents new or gossips about COVID-19, 21% of respondents feels that family illness problems, 31% of respondents feels that online learning, 22%of respondents feels that financial pressure, 24% of respondents feels that over use of social media, 23% of respondents feels that friends disconnection, 22% of respondents feels that worry about future career, 11% of respondents feels that other reasons was the problem faced during COVID-19.

Table No.9 Student Preferences for Stress Relief Techniques

Stress Management strategy	Examples	Percentage (%)
Replacement gratification	I listen to music	24
	I meet with friends or someone	29
	I read books, newspaper	29
	I handle my hobby	30
	I go for shopping	31
	I play computer games	40
	I watch comedy movies	27
	I keep engaged myself on Social media	32
	I eat or drink	32
	I go for sleep	27
	I do exercise	29
Solving Problems	I concentrate on problem solving	23
	I analyze the future doings	26
Distancing	I rationally solve the situation	29
	I rest Escaping the difficulty	39
	I seek support of others Support	32
	I sleep	36
	I avoid stress factors	30
	I try to forget the situation	36
	I seek pleasure in food	34
	I escape in dreams	37
	I deal with artistic work	38
Physical Activity	I walk	31
	I deal with tourism	33
	I deal with physical work	30
	I train individually	30
	I train in a group/group activity	36
Adjusting tension and emotions	I relax	34
	I focus on the good sides of the situation	29
	I focus on visualizing	33
	I used breathing techniques	27
	I focus on sensual experiences	34
	I use autosuggestion	32

	I meditate	36
Escaping the difficulty	I focus on religious practices	48
	I engage in risky activities	41
Lack of activity	I passively wait for the situation	37
	I resign from activities	48
Support	I contact specialists or family, relatives ,friends ,teachers	30

Above table interprets those mostly preferred stress relief techniques by students under Replacement gratification includes playing computer games (41%), shopping (32%), social media (32%) and engaging in hobbies (31%), eating etc.As a Distancing part of stress relief techniques, mostly preferred technique is deal with artistic work (38%); escaping the difficulty (38%), forget the situation (36%).As a Physical activity of stress relief techniques, mostly preferred techniques is group activity(36%) and tourism(33%).As a adjusting tension and emotions, meditation (36%), sensual experiences (34%) are mostly preferred techniques

As a part of Escaping from difficulty, religious practices (48%) and engaging in risky activities (41%) are preferred and as a part of lack of activity, resigning from activities (48%), and as a support, guidance from specialist people is preferred by the students.

HYPOTHESIS TESTING

Ho: There is no impact of stress on students' academics

H1: There is negative impact of stress on students' academics

Table No.1 shows that students are having impact of stress due to academics. 36% students are slightly mild stressed.25% were having moderate stress level.So, Null Hypothesis is rejected.

Table No.2 indicates that 30 % due to study issues. Slightly mild stressed.25% was having moderate stress level. Remaining tables No.3 to 8 also shows physical effect, behavioral effect, social effects, and cognitive effect on students. These all indicates that there is negative impact of stress on students. So alternative hypotheses is accepted.

CONCLUSION

Present research indicates that students are also suffering from different stress levels and different types of stress. There are some stress relief techniques which are adopted by students such as Playing computer games, shopping, social media and engaging in hobbies , eating, Deal with artistic work ,escaping the difficulty , forget the situation , group activity and tourism , meditation , sensual experiences, Escaping from difficulty, religious practices and engaging in risky activities , support, guidance from specialist people are mostly preferred techniques by the students..So, students are taking efforts to how to overcome the stress and live happy life.

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Futuristic Education: Online or Virtual Mode

Neha Manik Mane, Viraj Balaso Patil, Manali Prakash Bhosale and Pratibha Ajit Jagtap

ABSTRACT
Information Technology has influenced every aspect of human life. Technology has introduced electronic system in every sector as-E-commerce, E-Government and also E-education etc. So, Education sector is also being affected. Teaching and Learning pattern are changing. Transformation in Delivery Models has been rapidly introduced. New methods are now opted for education which is productive. This new approach in education is known as Futuristic Education. Through this approach, students are able to learn at the global level. Internet and World Wide Web have made possible virtual learning which can reach to large masses and at remote locations with fast speed. E-education facility has been started at first in England in the mid-nineteenth century and through which introduced online discussion boards, chat rooms, and video conferencing. Diversified Education at global level has become possible. People can learn any course in any language and get degrees and improve their skills.

Present research paper is conceptual one and aims at to highlight on Virtual Education, its pros and cons and challenges.

Keywords: E-education, Virtual or Online, Futuristic

INTRODUCTION

Online Education is process of gaining and improving knowledge as well as skill through electronic device like mobiles, computers, laptops, tabs etc. using internet. Due to lockdown students were not able to attend the traditional classroom that falls a negative impact on their studies as well as their career. So, Educational Government of India decided to start online classes for the students. So that their studies can be continued. The benefits of virtual education have made it easy to students to get qualitative and more knowledgeable education. Global or Integrated education has made it possible to offer lectures through internet connection.

Objectives of present study are –a) To know about online or virtual education as a new mode of learning. b) To know challenges in online learning.

Research Methodology for present study includes use of secondary data including journals and websites, articles for completion of work.

The concept of online education has only used in the year 1999 at first time at a Computer Based Training Seminar. Digitalization has brought drastic change over the world. Education is also being influenced by this digialisatilisation. Global Internet users are increased from 5.6 % to 56.8 %t. ICTs tools such as You Tube, Audios, audio and videotapes, satellite broadcasts and television are mostly used. In developing countries, Virtual Learning has got great response and also offers potentiality to fill gaps in education access and quality, including a lack of teachers, textbooks and classrooms. In India, Online Teaching has become more popular during Covid-19 pandemic and proved its importance as a key player in the education system. Online teaching took place easily and students and teachers didn’t need to present together at a particular place.

Importance of Online Education
Online teaching was beneficial in a number of ways –

- It enables the students for saving time and utilizing it for other activities to enrich their personality.
- Parents can take care of their children and engage themselves in the education of their children.
- Online teaching facilitates recording of lectures which students can watch or re-learn from it..
- Online teaching, which was promoted by the government, gives the opportunity to all students of the country to get education from one of the best teachers selected by the education department.

In short, advantages of Online Learning can be summarized as:

- Flexible to use
- User-friendly
- Comfortable atmosphere
- Online tutoring specialists

- Less time investment
- Learning as per users speed and understanding
- Assist for skill development
- Accessibility through many resources
- Inculcate discipline
- Affordable
- safe and secure
- Reusable, Long-lasting

According to a report of UNESCO, the educational inequalities increased during Covid 19 pandemic. Lack of resources for the children of marginal sections of society is major reason for this disparity. Online teaching needs electronic gadgets like smart-phones or Computer or Tablets or Laptop and also internet availability with high speed connectivity

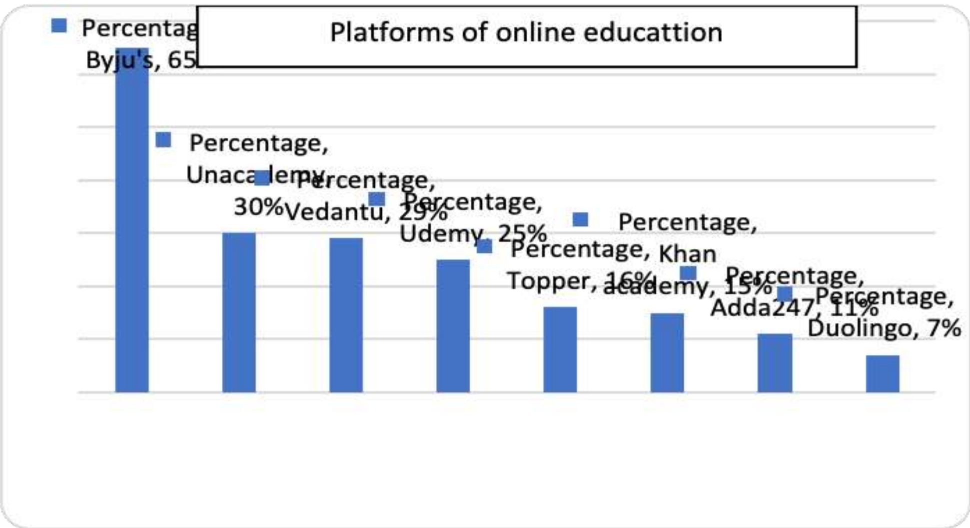
Disadvantages of Online Learning are as follows:

- Impossible Without Technology
- Great Discipline
- Students can lose Interest
- Students cannot concentrate
- Health and Mental impact due to continues screen watching
- Social relations are impacted

Online Platforms Education used in India are:

In India, Ministry of Human Resource Development with UGC has released ICT platforms for E-Education. SWYAM, NPTEL, E-PG Pathshala, SWAYAMPRABHA,CEG-YOU-TUBE Channel, National Digital Library, Vidwan ,Shodhganga etc. Other most famous platforms preferred by students in India are as follows-

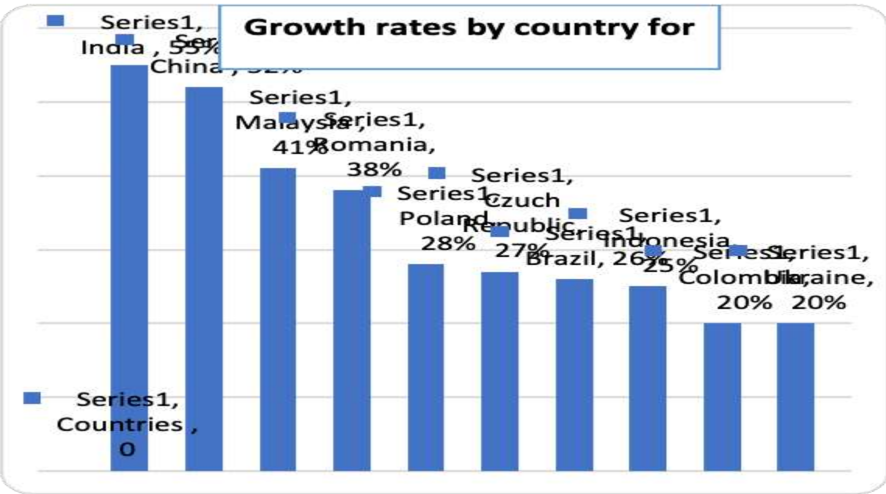
Platforms Names	Percentage
Byjus	65%
Unacademy	30%
Vedantu	29%
Udemy	24%
Topper	16%
Khan academy	15%
Adda247	11%
Duolingo	7%



Major countries who adopted online learning

Top countries in which E-learning has already become an important sector are-US, India, China, South Korea.

Countries	Percentage (%)
India	55%
China	52%
Malaysia	41%
Romania	38%
Poland	28%
Czech Republic	27%
Brazil	26%
Indonesia	25%
Colombia	20%
Ukraine	20%



India is major user now days of E-education platform. Most of developing countries are now leaning users of Digital platform.

SWOC Analysis of Online Education:

Strength	Opportunities
Anywhere ,Any-time and Any Place Creative Teaching Access to resource High Quality Dialog	Mobile learning Investor's Interest Blended model New courses
Weakness	**Challenges**
Administration Faculty Advanced Curriculum Online Environment Technology	Limited social interaction Language of the course Questionable creditability Motivation of degrees Insufficient Digital Infrastructure

CONCLUSION

Virtual Education encourages student-centred learning and they are easily manageable .Online environment offers a new way of learning for educators with dynamic courses and through which highest quality development is possible. Faculties are required to still train to use these advanced technology. Because future is online education based and this online environment is a need of hour.

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Effects of Yogic Exercise on Cardiac Parameters in Medical Students under Examination Stress

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ABSTRACT

Background:
The aim of this study is to find out the effect of Yogic exercise on cardiovascular parameters in Medical students under examination stress.

Methods:
150 Medical students of 17-24 years age group in the Santosh Medical College, Ghaziabad, were chosen depending on the Inclusion and Exclusion Criteria. They were divided into Control and Study group of 75 subjects each. The resting Heart Rates (HR), Systolic Blood Pressures (SBP) and Diastolic Blood Pressure (DBP) of the Subjects were taken, 40 days before the examination and during examination, without and with yogic interventions, respectively. The statistical evaluation of was be done by using the software SPSS Software Package.

Result:
The Resting SBP and HR of the Study subjects are significantly (t=0.0001) decreases During Examination with no significant (t=0.252) change in DBP. During Examination the Resting HR and SBP of the Study subjects are significantly (t=0.0001) less than the Control subjects with no significant (t=0.269) change in DBP.

Conclusion
From this study we concluded that, stress during examination produces adverse effect on cardiovascular system in medical students. Here we also concluded that the practice of yogic asanas and pranayama not only reduces these adverse effects of examination stress, but also produces beneficiary effects on cardiovascular system that will help the medical students to perform better in examination.

Keyword: Yogic exercise and Examination Stress, Cardiac Parameters and Examination Stress, Examination Stress & Medical Studies, Yogic exercise and Medical Studies.

ABBREVIATIONS

- SBP = Syatolic Blood Pressure
- DBP = Diastolic Blood Pressure
- HR = Heart Rate
- HR_{max} = Maximum HR
- Ca_{40} = Control During Examination
- Cb_{40} = Control 40 Days Before Examination
- Exa_{40} =Study During Examination
- Exb_{40} = Study 40 Days Before Examination
- NS = Not Significant
- HS = Highly Significant
- Df = Degree of Freedom
- N = Total number of Subjects
- t = t-Value
- Sig. (2-tailed) = Significant level
- SBPr =Resting SBP
- DBPr = Resting DBP
- HRr = Resting HR

INTRODUCTION

Yoga has an effect in regulating stress which in turn is reflected by increased performance in enhancing the workload capacity, because of increased ability for handling stress, which in turn reflected by increase in subjective scores.[1] The regular practice of yogic asanas can reduce the pulse rate and blood pressure, shows significant improvement in diastolic function with a minimal change in systolic function and also attenuate the increase in these parameters during stressful situations like examination thus improving the ability to withstand the stress, which may help medical students to improve their performance in the examination.[2,3] This cardiovascular benefit probably depends on reduction in sympathetic drive and increase in parasympathetic output to the heart, thus, indicating a better sympatho-vagal balance with resting balance tilting toward better parasympathetic control.[4,5] Therefore several time the scientists suggested that the yoga should be included it in the teaching curriculum of MBBS course so that our future doctors adopt and maintain positive health and disseminate the same to their patients and the community, which forms the main basis of conducting this study.[6] Medical students are subjected to different kind of stressors, such as the pressure of academics with an obligation to succeed, an uncertain future and difficulties of integrating into the system & different teaching protocol, which may affect their learning ability and performance.[7,8] On the other hand this stress level was heightened as examination approaches and in some cases that stress becomes very acute, resulting panic attacks with the symptoms of depression and anxiety.[9,10,11] This academic examination stress covers a wide range of situations that may have very different cardiovascular consequences. The Cardiac changes reflect changes in heart rates and blood pressures. Pranayama is known since ancient times to relieve stress and stabilize autonomic function of the body. [12, 13]

MATERIAL AND METHODS

Ethical Clearance: This study was conducted in Santosh Medical College, Department of Physiology in collaboration with Department of Physiology. Ethical clearances were obtained from both the institutions before carrying out the project.

Subject Consent: The entire procedures and methods were explained to all subjects**.** Written consent was taken from each subject for doing the study and to publish the result in National/International Journals.

Study population: The selection of the samples were done from Medical students of 17-24 years age group in the Santosh Medical College, Ghaziabad.

Place of Study: Physiology department in Santosh Medical College & Hospital, Ghaziabad.

Sample Size:

t tests – Means : Difference between two dependent means (matched pairs)

Analysis: A priori : Compute required sample size

Input:

Tail (s)	=	Two
Effect size dz	=	0.4486897
α err prob	=	0.05
Power (1- β err prob)	=	0.95
Output: Noncentrality parameter δ	=	3.672683
Critical t	=	1.996564
Df	=	66
Total sample size	=	75
Actual Power	=	0.951419

The was calculated by G*Power3.0.10 software.

Inclusion Criteria of Subject:

Normal healthy subjects were included in the study that fulfilled the following criteria, listed below---

1. Age between 17-24 years
2. Subject willing to complete the study
3. Informed written consent.

Exclusion Criteria of Subject:
Subjects having any medical history as stated below or risk causing or at risk (Screening Question) were excluded from the study.

1. History of malignancy or any major surgery.
2. Past or recent history suggesting any cardiovascular or respiratory illness.
3. Skin Disease (Atopic)
4. Asthma, hay fever, sinusitis, emphysema, bronchitis and any respiratory troubles.
5. Hepatitis, cirrhosis
6. Arthritis, joint pain
7. High blood pressure & any heart troubles.
8. Any major chronic illness or any drug therapy (ATT etc).
9. Subjects with the previous history of yoga.

Cardiac Parameters:
Resting Heart Rate (HR): The rate at which the heart beats. In Adult: 70-80 bpm. Heart rates were determined by palpating the pulse from redial artery in terms of number of beats in one minute.

Arterial Blood Pressure: Lateral pressure exerted by the column of blood on the arterial wall.

Systolic Blood Pressure (SBP): it is the maximum pressure exerted during systole.

Diastolic Blood Pressure (DBP): it is the minimum pressure exerted during diastole.

Dial Sphygmomanometer of Chopra Bros. Industries was used for that.

Measurement of BP were done first by Palpatory method and then by Auscultatory Method.

Auscultator method: Korotkoff sounds (described by the Russian scientist Korotkoff in 1905). They are heard in five different phases:

PHASE I: sudden appearance of faint tapping sounds which become gradually louder and clearer during the succeeding 10mmHg fall in pressure.

PHASE II: the sound becomes murmurish in the next 10mmHg fall in pressure.

PHASE III: the sound changes a little in quality but becomes clearer and louder in the next 15mmHg fall in pressure.

PHASE IV: sounds become muffled in character during the next 5mmHg fall.

PHASE V: sounds completely disappear.

Appearance of the sound is recorded as SBP & disappearance of the sound is recorded as DBP. In persons with severe hypertension, and in children, muffling rather than the disappearance of the sound is taken as the DBP.

STUDY DESIGN:
Initially 150 subjects were selected from Medical students of 17-24 years age group in the Santosh Medical College, Ghaziabad, depending on the Inclusion and Exclusion Criteria. All the subjects were asked to come to the laboratory within 8-9 a.m., 50 days before their 3rd internal assessment examination. Then the subjects were allowed to take rest for 30 min. Then the resting HR and BP was noted down. During the whole procedure, the environmental conditions was kept constant at room temperature = 27-32^{O}C. After the initial study, selected subjects were divided into 02 groups; **Control Group** and **Study Group**, with 75 subjects in each group. **Control Group** subjects were asked to come for the experimental procedure after 40 days at the time of their examination. The subjects of **Study Group** were asked to come to yoga lab at 07:00 a.m. sharp for yogic asanas and pranayamas for 40 days. In first 2 weeks subject will participate in monitored sessions for 03 days a week (Total 06 days Monitored sessions) under supervision of appointed yoga trainer. After that the subjects will practice the same for 17 days under direct supervision of the yoga trainer and 17 days at their own with each alternate day. Each session will last for 01 hour. During each session, subjects practiced the asanas and pranayamas are given in Table1.[14,15] After 40 days, at the time of their examination, all the Cardiac parameters was tested again in both the groups.[16]

Table I: Asanas and Pranayamas included in this study

Name of the practice	Repetition	Duration (59 min) Approx
Loosening practices	1	10 min
Makarasana	2	02 min
Tadasana	2	02 min
Trikonasana	2	02 min
Veerasana	2	02 min
Ardha Kati Chakrasana	2	02 min
Vakrasana	2	02 min
Matsyasana	2	02 min
Anulom Vilom Pranayama	3	10 min
Bhramari Pranayama	3	10 min
Savasana	1	15 min

STATISTICAL ANALYSIS:

The statistical evaluation of this study was be done by using the software SPSS (Software Package of Social Studies), designed by the TISS (Tata Institute of Social Studies).

RESULTS:

Control Group = 75 subjects examine 40 days before examination and during examination with no Yogic Exercise.

Study Group = 75 subjects examine 40 days before examination and during examination after 40 days Yogic Exercise.

Table II: Mean and SD of Cardiac Parameters 40 Days Before Examination and During Examination

Parameters	Group		p value
	Study (n = 75)	Control (n = 75)	
SBP (mmHg) (40 Days Before Examination)	116.72 ± 8.55	116.42 ± 8.55	.874
SBP (mmHg) (During Examination)	108.32 ± 7.45	116.84 ± 8.53	.0001
DBP (mmHg) (40 Days Before Examination)	79.12 ± 9.95	79.12 ± 9.95	.708
DBP (mmHg) (During Examination)	76.92 ± 9.1	79.04 ± 9.94	.269
HR (beats/min) (40 Days Before Examination)	72.7 ± 5.38	72.7 ± 5.38	.995
HR (beats/min) (During Examination)	67.82 ± 4.93	72.68 ± 5.01	.0001

Table III: Blood Pressure and HR Profile of the Control Subjects Before and During Examination

Variables		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
SB Pr	Equal variances assumed	.000	.986	-.070	98	.944 NS	-.120	1.708
	Equal variances not assumed			-.070	98.000	.944 NS	-.120	1.708
DB Pr	Equal variances assumed	.003	.953	.040	98	.968 NS	.080	1.991
	Equal variances not assumed			.040	98.000	.968 NS	.080	1.991
HR r	Equal variances assumed	.156	.694	.019	98	.985 NS	.020	1.041
	Equal variances not assumed			.019	97.492	.985 NS	.020	1.041

- Here is no significant difference between the Resting SBP of Control subjects before and During Examination.

- Here is no significant difference between the Resting DBP of Control subjects before and During Examination.
- Here is no significant difference between the Resting HR of Control subjects before and During Examination.

Table IV: Blood Pressure and HR Profile of the Study Subjects Before and During Examination

Variables		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
SBPr	Equal variances assumed	.622	.432	5.236	98	.0001 HS	8.400	1.604
	Equal variances not assumed			5.236	96.213	.0001 HS	8.400	1.604
DBPr	Equal variances assumed	.107	.744	1.153	98	.252 NS	2.200	1.908
	Equal variances not assumed			1.153	97.218	.252 NS	2.200	1.908
HRr	Equal variances assumed	.088	.767	4.723	98	0.0001 HS	4.880	1.033
	Equal variances not assumed			4.723	97.254	0.0001 HS	4.880	1.033

- The Resting SBP of the Study subjects are significantly (t<0.001) decreases During Examination.
- The Resting HR of the Study subjects are significantly (t<0.001) decreases During Examination.
- Here is no significant difference between the Resting DBP of Study subjects before and During Examination.

Table V: Blood Pressure and HR Profile of the Control and Study Subjects after 40days

Variables		Levene's Test for Equality of Variances		t-test for Equality of Means				
		F	Sig.	t	df	Sig. (2-tailed)	Mean Difference	Std. Error Difference
SBPr	Equal variances assumed	.591	.444	5.317	98	.0001 HS	8.520	1.602
	Equal variances not assumed			5.317	96.260	.0001 HS	8.520	1.602
DBPr	Equal variances assumed	.155	.695	1.112	98	.269 NS	2.120	1.907
	Equal variances not assumed			1.112	97.231	.269 NS	2.120	1.907
HRr	Equal variances assumed	.013	.910	4.886	98	.0001 HS	4.860	.995
	Equal variances not assumed			4.886	97.977	.0001 HS	4.860	.995

- During Examination the Resting SBP of the Study subjects are significantly (t<0.001) less than the Resting SBP of Control subjects During Examination.
- There is no significant difference between the Resting DBP of Control and Study subjects During Examination.

- During Examination the Resting HR of the Study subjects are significantly (t<0.001) less than the Resting HR of Control subjects During Examination.

DISCUSSION

The results of this study reflect that the Yogic exercise combination program is helping the cardiovascular system to adopt quickly with the sudden increasing demand of oxygen and metabolism so nicely and systematically that after training program our body will show the delayed fatigability. On the contrary if we consider that physical exercise is common form of acute stress encountered during everyday life. On exposure to such an acute bout of stress, the body makes rapid and integrated adjustment in the functions of body organ system to meet the metabolic and thermal needs. Slower but nice adaptation occurs to physical exercise stress, which forms the basis of health improvement in any physical training. In this study the there were no significant difference in BP for control and Study group subjects, 40 days before the examination. This was true for both SBP and DBP. But after 40 days i.e. during examination the SBP lowered in Study subjects due to Yogic exercise, whereas there were no significant changes in DBP, even there were no change in SBP or DBP of control group subjects. The SBP can be lowered with the regular yoga exercise for medical students. The significant contributing factors included here are: -

a) Reduced activity of sympathetic discharge causes decrease in peripheral resistance to blood flow and subsequent reduction of blood flow.

b) An altered renal function to facilitate the elimination of sodium by the kidney to subsequently decrease the fluid volume and blood pressure.

Therefore, yoga is a spiritual path that may reduce blood pressure (BP) through reducing stress, increasing parasympathetic activation, and altering baroreceptor sensitivity. The finding of this is supported by the study of Tyagi A. et.al. in 2014, where the researcher suggest that yoga is an effective adjunct therapy for hypertension and worthy of inclusion in clinical guidelines, yet the great heterogeneity of yoga practices and the variable quality of the research makes it difficult to recommend any specific yoga practice for hypertension.[16] Another study by Kuppusamy M. et. al. also supports the findings of present study with the special reference given to Bhramari Pranayama, which has parasympathetic dominance and responsible for decreasing the BP by decreasing the sympathetic activity.[17]

In this study the resting HR of control group remain same but the Resting HR of Study group subjects decreases significantly, probably due to increased vagal tone, which comes under the influence of yogic exercise on autonomic nervous system. In this study the resting HR significantly became low than previous to yogic training i.e. vagal tone increases. Increased vagal tone is useful during yogic exercise because it increases the range through which the HR can increase without any change in the maximal HR (HR_{max}). Therefore, due to yogic exercise there occurs less increase in sympathetic activity and less decrease in parasympathetic activity.[18] Heart rate variability has been used as a proxy for health and fitness and indicator of autonomic regulation and therefore, appears well placed to assess the changes occurring with Yogic practices that facilitate autonomic balance. This finding of our study is supported by the study done by Thayer JF. et. al. in 2012.[29] Heart Rate (HR) in healthy humans is influenced by physical, emotional, and cognitive activities.[20] However in 2016 Bahrainy et al. suggest that neither an increase in resting parasympathetic tone nor a decrease in response to beta-adrenergic stimulation contribute to the decrease in RHR after regular exercise or physical activity in humans. The effect may be due to a decrease in the intrinsic heart rate via mechanisms which have not yet been fully understood.[21] The stress reduction may be attributed to sympathetic-vagal balance modulated by yogic exercises, therefore, yoga could be an alternative method for stress reduction for people who live under high stress or negative emotions. This finding of this study regarding stress related effect on heart rate and its prevention by yoga is also supported by a study done by Zou L. et. al. in 2018.[22]

On view of the above discussions, yoga classes can be offered as a strategy to help health professionals to reduce their work-related stress and balance autonomic nerve activities. This finding is also supported by the study of Lin SL. et. al. in 2015.[23] Therefore, practices that include yoga asanas appear to be associated with improved regulation of the sympathetic nervous system and hypothalamic-pituitary-adrenal system in various populations.[24]

CONCLUSION

From this study we concluded that, stress during examination produces adverse effect on cardiovascular system in medical students. Here we also concluded that the practice of yogic asanas and pranayama not only reduces these adverse effects of examination stress, but also produces beneficiary effects on cardiovascular system that will help the medical students to perform better in examination. Therefore, we recommend the incorporation of a formatted yogic exercise programme in MBBS curriculum will help the students to perform better in future.

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Authors’ Contribution Statement:
Subarna Ghosh and Rinku Garg have done the conception or design of the work. Subarna Ghosh also done the acquisition, analysis, or interpretation of data for the work. Rinku Garg also contribute to the drafting the work or revising it critically for important intellectual content. Sushma Sood have done the final approval of the version to be published. Subarna Ghosh and Rinku Garg have done the agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Lastly all authors read and approved the final version of the manuscript.

CONFLICTS OF INTEREST
We all the authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

Antimicrobial Potential of Streptomyces Sp. From Soil and a Study on its Antibacterial Activity against Clinical Pathogens

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ABSTRACT

A total of 50 diverse Streptomyces colonies was isolated from soil samples acquired from various sampling sites. The isolates were screened for their ability to produce antimicrobial substances. Upon primary, secondary, and tertiary screening, the isolate that possessed maximum antibacterial activity against both Gram-positive and Gram-negative microorganisms was selected. Solvent (ethyl acetate) extraction of metabolites from the fermentation broth of the best isolates was carried out. Based on Bergey's manual of determinative bacteriology and the International Streptomyces Project (ISP), the potential isolate was morphologically, physiologically, and biochemically characterized.

Minimum inhibitory concentration (MIC) of the compound obtained by solvent extraction was compared with the MIC of the standard antimicrobials against various clinical pathogens and its synergistic effect with the antimicrobials was studied. The ethyl acetate extract was further analyzed by thin-layer chromatography and UV-visible spectroscopy. FTIR studies of the extract further revealed the functional groups of the antimicrobial compound.

Keywords: Antimicrobial compound, UV Spectroscopy, minimum inhibitory concentration, TLC.

INTRODUCTION

The history of the drug discovery process indicates that the majority of the new skeletons come from natural resources [1]. Microorganisms and plant extracts are screened in this process. [2]. Infectious diseases are increasingly resistant to antimicrobials throughout the world [3, 4] and consensus has emerged that it is essential that novel antimicrobial classes be developed as part of the strategy to control the emerging drug-resistant pathogens [5, 6, 7]. Search for new antimicrobials which are effective against multi-drug resistant pathogenic bacteria is an important area of antimicrobial research. Novel structures of natural products have been found to possess biologically useful properties. Antimicrobials are a chemically diverse group of compounds produced by microorganisms that have micro static or microcidal activity e.g., Penicillin produced by fungi in the genus *Penicillium*, Streptomycin produced by bacteria of the genus *Streptomyces*. [8]. Almost 50 years ago, antimicrobials were discovered and used for the first time in clinical trials, which coupled with improvements in immunization drastically reduced human suffering and mortality from infectious diseases.

Marine actinomycetes have been attracting the attention of scientists for a long time. In the early works, the species of *Mycobacterium, Actinomyces, Nocardia, Micromonospora* and *Streptomyces* have been isolated from the marine sediments [9, 10, 11]. A significant part of these actinomycetes was found to exhibit antimicrobial activity, suggesting that the marine environment can be an interesting source for bioprospecting. Recently, researchers have gained considerable attention to microbial communities from extreme environments because their diversity and biological activity, primarily for their abilitytoproducenovel chemical compounds that have high commercial value [12, 13] .

More than 5000 antimicrobials have been identified from Gram-positive, Gram-negative, and filamentous fungi, but only about 100 antimicrobials have been used in the treatment of human, animal, and plant diseases [14]. The need for less toxic, more potent antimicrobials from non-infective organisms, which overcome the resistance exhibited against the existing antimicrobials, is felt acutely. The Actinomycetes have provided many important bioactive compounds of high commercial value in the past decades. Due to this, they are routinely screened for new bio-active compounds. These searches have been remarkably successful, and approximately two-thirds of naturally occurring antimicrobials have been isolated from actinomycetes [15, 16]. Actinomycetes, which are prolific producers of antimicrobials and important suppliers to the pharmaceutical industry, can produce a wide variety of secondary metabolites [17]. In nature, Actinomycetes are widely distributed, and their ability to produce secondary metabolites with diverse chemical structures and biological activities makes them useful for the pharmaceutical industry [18]. It has been discovered that *Streptomyces* produces countless antimicrobials, but these represent a small part of the entire repertoire of bioactive compounds [19, 20]. It is therefore important to find new species of *Streptomyces* and characterize their secondary metabolites from natural resources.

The name Actinomycetes is derived from the first anaerobic species described, *Actinomyces bovis*, that causes Actinomycosis, or the Ray-fungus infection among cattle. As prokaryotic organisms, they have the attributes of bacteria and fungi. Actinomycetes are free- living saprophytes that generally live in soil, water, or plants. There are many different types of Actinomycetes that reside within soils [21], but some very depending on their type.

In recent years, the emergence of bacteria that are resistant to multiple antimicrobials has posed a significant threat to human health. This has prompted some researchers to search for new drugs. [22]. Over the past two decades, fewer and fewer new drugs have been discovered through target screening, and scientists have turned to new technologies to create new compounds. One new promising technology is named combinatorial biosynthesis, which uses biosynthetic genes as tools to develop new drugs [23]. The orthosomycins are a prominent class of antimicrobials produced by various actinomycetes [24]. Gram-positive pathogenic bacteria, such as glycopeptide- resistant *Enterococci*, methicillin-resistant *Staphylococci*, and penicillin-resistant *Streptococci*, are susceptible to members of this class [25, 26, 27].

Considering above-mentioned facts, the present study was geared toward detection of the ability of the Streptomyces species isolated from soil to produce bioactive compounds of applied importance. The potential isolate was morphologically, physiologically and biochemically characterized based on Bergey's manual of determinative bacteriology and International *Streptomyces* Project (ISP).

MATERIALS AND METHODOLOGY

Isolation of Streptomyces

In order to isolate and characterize the *Actinomycetes strains*, we procured the isolation medium and nutrients medium from the Viva scientific company and from Himedia. *Staphylococcus aureus* ATCC 29736 and *Escherichia coli* ATCC 8739 were obtained from the ATCC culture center. The soil samples were collected from marine and various agricultural areas in and around Chennai, which were pre-treated with calcium carbonate (CaCO3). The treated samples were serially diluted and were spread over the surface of Actinomycetes isolation agar and incubated at 28°C for 1-2 weeks. Streptomycin (30 µg/ml) and amphotericin B (75 µg/ml) were added to the media in order to inhibit bacterial and fungal contamination. After incubation, the colonies of *Streptomyces* were purified, sub-cultured, and stored on Starch casein agar.

Screening of antimicrobial activity

Morphologically distinct Actinomycetes isolates were selected for antibacterial activity screening against the pathogenic test organisms by spot inoculation method, where pure Actinomycetes isolates were spot inoculated on starch casein agar medium and incubated at 37°C for 24 hours. After incubation, soft agar containing test organisms (*Staphylococcus aureus* ATCC 29736 and *Escherichia coli* ATCC 8739) were overlayed on the starch casein agar medium and incubated at 37°C for 24 hours. The zone-producing colonies were picked and streaked using a single line streak and perpendicular streak method to check the antimicrobial activity of the isolates. Well diffusion method was carried out for further screening using the test organism against which inhibition was produced [28].

IDENTIFICATION

Streptomyces colonies were characterized morphologically and physiologically following the International *Streptomyces* Project (ISP) [29].

Optimization of culture conditions for the growth of *Streptomyces* sp. and antimicrobial production [30]

Effect of the Incubation period, temperature, and pH on antimicrobial production

To determine the effect of antimicrobial production, *Streptomyces* sp. was grown at a maximum incubation period of about 8 days in starch nitrate broth, different temperatures (25ºC, 28ºC, 30ºC, 37ºC and 40ºC) and pH (6, 6.5, 7, 7.5 and 8).

Extraction of the antimicrobial substance from culture supernatant using different solvents [31]

The maximum production of antimicrobial substance was observed on the 8th day of incubation, so fermentation was halted and the broth was centrifuged at 10,000 RPM for 20 minutes to separate the mycelia biomass from the broth. For the extraction of the antimicrobial from the culture supernatant, different solvents were tested. The ideal solvent for extraction of the antimicrobial substance from the culture supernatant was determined using n-butanol, n-hexane, ethyl acetate, petroleum ether, and chloroform. The solvent was added to the supernatant in a proportion of 1:1. The solvent-supernatant mixture was homogenized with a homogenizer for 45 minutes.

The solvent was separated from the broth using a separating funnel. Each organic acetate phase containing an antimicrobial was separated from the aqueous phase, which was evaporated by heating at a temperature of 80-90ºC and the obtained residue was weighed. The dried extract was then dissolved in 1ml of methanol. Thus, obtained compound was used to determine the antimicrobial activity. The residue obtained (crude extract) was subjected to purification.

Thin-layer chromatography [32]
The partially purified antimicrobial substance obtained after solvent extraction was spotted on Silica gel. The crude antimicrobial was tested for a number of components present using precoated thin-layer chromatography (TLC) plates using ethanol: water: chloroform (40:40:20) solvent system. The spotted TLC plates were exposed to iodine vapors for the presence of antimicrobial compounds.

UV- Spectroscopy [32]
The partially purified antimicrobial compound after solvent extraction was dissolved with methanol (0.1g / ml) and analyzed for UV absorption spectrum. The UV absorption spectrum (200

– 400nm) of the active molecules in methanol was determined using Hitachi 2900 double beam spectrophotometer.

Minimum inhibitory concentration (MIC)
A minimum inhibitory concentration (MIC) and a minimum bactericidal concentration (MBC) were determined using serial tube dilution technique or turbidimetric assay against Staphylococcus aureus ATCC 29736, Escherichia coli ATCC 8739 [33] . In sterile nutrient broth media, crude extract was serially diluted. From the stock solution, varying concentrations of the extract were prepared, and 60 µl of diluted inoculums were added to the broth containing the extract [34]. During the incubation process, the tubes were maintained aerobically at 37°C for 18-24 hours. Two separate control tubes for each organism were maintained. The lowest concentration of the extract that produced no visible sub-culturing growth (no turbidity) when compared with the control tubes was regarded as the MIC. The minimum bactericidal concentration (MBC) was determined by sub-culturing the contents of the tubes of MIC showing no growth after adding 5ml of nutrient broth medium and incubating at 37ºC for 24 hrs.

RESULTS
In a study, *Streptomyces sp* was isolated and screened from various soil samples for the production of antimicrobial compounds using the serial dilution method. A total of 50 colonies were isolated and subjected to the primary screening process. Out of 50 isolates, only 14 were found to be positive against test organisms and were further processed were only 5 isolates showed the antimicrobial activity against test organisms in the primary screening. The selected isolates were further subjected for the secondary screening, out of which 2 isolates were active against *Staphylococcus aureus* and 3 against *Escherichia coli*. After Screening for the antimicrobial activities, the active metabolites produced by *Streptomyces* culture exhibited various degrees of activities against pathogenic test strains. *S aureus* ATCC 29736 and *Escherichia coli* ATCC8739 (Table 1).

Table 1- Isolate and screen the antimicrobial compound of *Streptomyces* from various soil samples

Sample types	**Total no of isolates**	**Primary screening method for antimicrobial production**				**Secondary screening method for antimicrobial production**
		Agar overlay method		**Single streak method**		
Agricultural soil	32	Positive isolates	Negative isolates	Positive isolates	Negative isolates	3
Marine soil	18	14	36	5	9	2

The isolate *Streptomyces* culture SS36 showed white and pink color and the reverse pigment could be detected as pink on Starch casein agar (SCA), Oatmeal agar (ISP 3), and brown on Yeast Extract–Malt Extract Agar (ISP 2). The vegetative mycelia grew abundantly on a specific medium. The colonies showed smooth colonies and flexible spore chains. The physiological and biochemical characteristics of the isolate are shown in (Table 2 & Table 3).

Table 2. Morphological, Biochemical, and Physiological characteristics of the *Streptomyces* isolate

Characteristic feature Morphology	**Result**
Gram staining	Gram positive
Motility	-
Spore chain	Rectus flexible

Spore Surface	Smooth
Spore mass	Grey
Pigmentation of substrate mycelium	+
Diffusible pigment	-

Table 3. Physiological and Biochemical Characteristics

Melanin production	+
H2S production	+
Nitrate reduction	+
At 45°C	-
NaCl tolerance	4%
Gelatin hydrolysis	-
Pectin hydrolysis	-
Chitin hydrolysis	+

Optimization for the Production of antimicrobial substance

The selected isolates were optimized for antimicrobial production at varying incubation period, temperature and pH. When the isolate was grown at different incubation period (5,6,7 and 8 days), the antimicrobial production was observed after 5 days of the incubation period, but maximum antimicrobial production with maximum antimicrobial activity was observed only on 8th day of the incubation. The work of [34] reported the highest level of antimicrobial production after 10 days of incubation and then declined gradually.

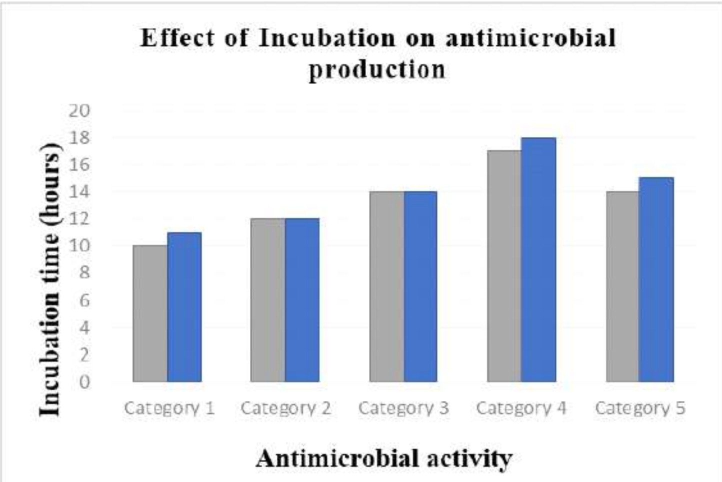


Fig.1 Effect of incubation on antimicrobial production

A variety of factors influence bacterial growth, including the environment and the physiological state. The temperature of the environment directly impacts the activity and growth of cells in each species. Every species has a physiologically appropriate temperature for growth. [35]. Effect of various temperatures like 25°C, 28°C, 32°C, 37°C and 40°C was studied for the maximum production of antimicrobial activity. Based on the results, it was observed that maximum activity was observed at 37°C which is the optimum temperature for antimicrobial production (Fig:2).

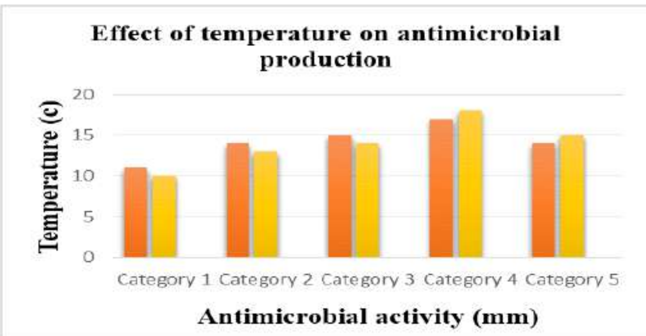


Fig.2 Effect temperature of antimicrobial production

It was observed that at neutral pH 7, the antimicrobial activity was maximum in the production medium, while at pH 6 and 8 no activity was observed (Fig:3). [36] showed maximum antimicrobial production by *Streptomyces* at pH 7 which is in confirmation to our findings.

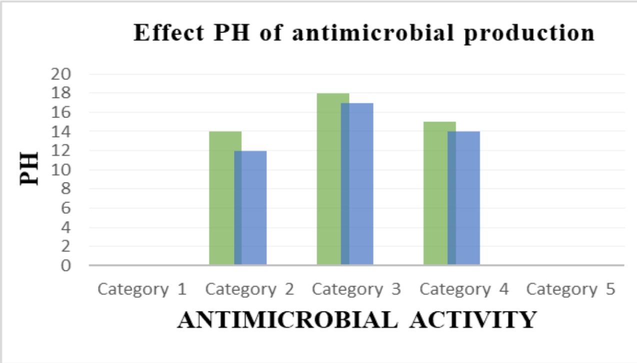


Fig.3 Effect PH of antimicrobial production

Extraction of the antimicrobial substance

Different solvents were used and tested for the extraction of the antimicrobial substance. In case of selected isolate antimicrobial yield was observed in residue, which was extracted by using chloroform, n-hexane, n-butanol, ethyl acetate and petroleum ether. The solvent extracts were spotted on silica gel then exposed to iodine vapors and examined for bands. Different bands of yellow color were appeared, in which ethyl acetate produced highest concentration (0.72).

The partially purified antimicrobial product after solvent extraction was dissolved with methanol and analyzed the Ultraviolet (UV) absorption spectrum. The absorption peaks of the different solvent extracts are given in Table 4.

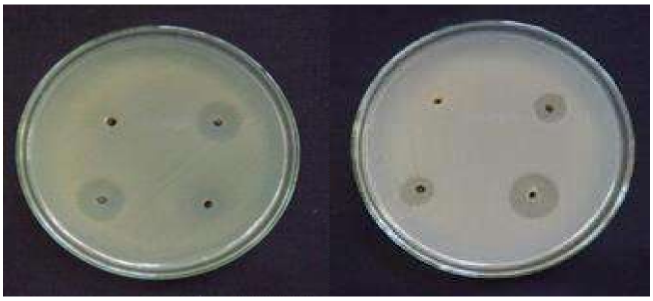
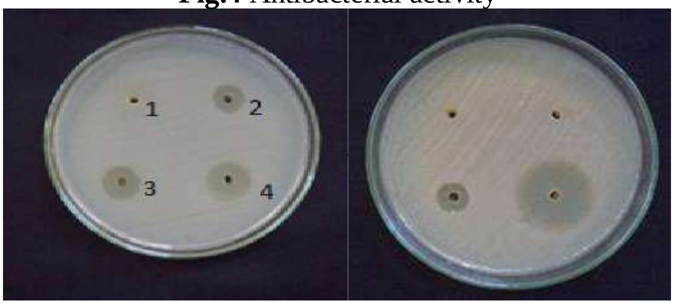


Table 4: Ultraviolet (UV) absorption spectrum of different solvent extracts

Solvent	Absorption peak values (nm)
Chloroform	225, 216
Butanol	229, 215
Hexane	232, 222
Ethyl acetate	224, 214
Petroleum ether	219

Fig.4 Antibacterial activity



(**A**.Bacillus subtilis; **B.**Staphylococcus aureus; **C**.Pseudomonas aeruginosa; **D**.Proteus mirabilis**)**

A	**B**	1 – Positive control 2 – Negative control 3 – test organism 4 – Partially purified compound
C	**D**	

The partial purified antimicrobial compound after solvent extraction was observed for the best antimicrobial activity against test organisms, *Staphylococcus aureus* ATCC 29736, *Escherichia coli* ATCC 8739, *B.subtilis* ATCC 6633 and *P.aeruginosa* ATCC 27853 and observed the zone of inhibition. All the solvent extract showed similar antimicrobial activity but *Staphylococcus aureus* had slightly higher zone of inhibition than *Streptomyces* extract (Figure.4).

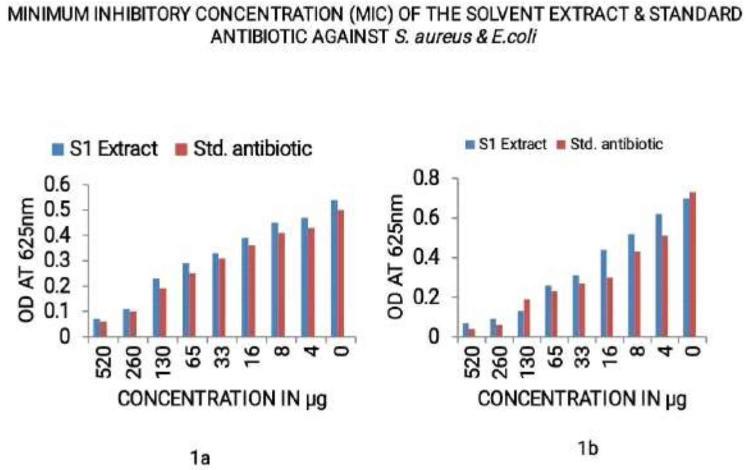


Fig 5. Minimum inhibitory concentration

The identification of the *Streptomyces* isolates was done by using PIB Win programmed which provides probabilistic identification of unknown bacterial isolates against identification matrices of known strains. The characterization was based on ISP [29] and Bergey's manual of

Systematic Bacteriology and PIB Win program that the identified isolates was *Streptomyces exfoliates*.

CONCLUSION

In the pharmaceutical industry today, acquiring new, safe and effective antimicrobial products is a major challenge, especially with the rise of opportunistic infections in the immune- compromised host. Results obtained from the present investigation suggest that Streptomyces sp. produces potential antimicrobial compounds against pathogens.

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The Impact of Artificial Intelligence on Hospitality Sector

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ABSTRACT
An evaluation of the current adoption level and an assessment of the prospective effect of AI systems in hospitality sectors are presented in the present paper Current. AI applications, such as chat bots or robotics, are a major emphasis of the project's effort. A number of real-world use cases are analysed to determine the current level of adoption. Goal of this paper is for the organisation's executives to learn how to use AI in their hospitality sectors.

Keywords: AI, chat bots, robotics etc.

1. INTRODUCTION

In nearly every industry, there has been a considerable trend toward automation in the new millennium. This development in robotic labour has shown to be efficient in increasing efficiency, but it has raised questions about how employees would be needed in the future. Here are a few instances of how the hotel business has grown in this area, according to Ivanov and Webster (2018), include "chatbots, delivery robots, robot-concierge, conveyor restaurants, self-service information/check-in/check-out kiosks, and many more."

A long time aspect of our common cultural legacy is the presence of inns and host-guest interactions, making hospitality one of the world's oldest professions. We've spent thousands of years trying to make people feel at ease and at home when they're away from home. The status quo has been to customise their experience and offer them with unique and delightful service, which has been the goal of all operations. There are additional hurdles specifically aligned against the hospitality industry and "everything that occurs across the globe may damage the business climate directly or indirectly." Organizations' competitiveness and profitability are influenced by proactive and reactive techniques that increase decision-making and value cocreation (Buhalis and Leung, 2017).

For millennia, the human touch has been an important component of our profession, but it is only now that the emphasis is beginning to move away from the human side of service. RAISA is for robotics, artificial intelligence, and service automation, and it is the name given to this sector of progress. When the term "smart technology" is used, it refers to the "integration of a network of organisations and intelligent characteristics that participate in interoperable and interconnect systems to simplify and automate everyday tasks" (Buhalis and Amaranggana, 2015). Artificial intelligence refers to "algorithms that replicate human cognitive capabilities and display characteristics of human intelligence" in addition to smart technologies (Huang and Rust, 2018). However, there are still numerous cases when hoteliers are apprehensive about whether visitors will still prefer the personal side of the experience. Young people in Russia have indicated that robots are suitable for managing information, food, and money, but visitors still have reservations about them offering security or massage services. (Ivanov, 2018).

Competition in the sector has been fueled by the adoption of innovative approaches. Every year, the cost of automation continues to fall, and it shows no indication of stopping down. In this graph, Lu (2019) arranges the many benefits and downsides of using artificial intelligence extremely efficiently. A guest's initial impression of a hotel might be tarnished if the check-in process takes too long or is difficult. This may be alleviated by adopting a new artificial intelligence system, which would speed up the procedure and make it easier for the staff to keep guests interested. Everything functions more smoothly in a hotel with a smart ecosystem incorporated because interconnectivity provides more precise information and data is "one of most precious assets in hospitality sector" (Buhalis and Leung, 2017).

Intelligent technology may make it easier for hotel staff to go above and beyond visitors' expectations, which is something employers are well aware of. Guest perception was studied by Dr. Nakanishi (2018) and discovered that they were looking for an intimate encounter, but that there were still areas in which AI might be used to their advantage. It is possible that with an integrated operation, a client walks into the lobby and uses a computerised kiosk to check in, rather of manually entering their information. With the Internet of Things, a space's equipment and electronics are networked to a greater or lesser extent, allowing staff to tailor the guest's experience accordingly. Internet of Things may revolutionise the hotel sector and aid in "controlling and monitoring operations," according to Porter and Heppelmann (2014). The finest of both human and artificial intelligence may be used to enhance the visitor experience. When it comes to the employee's experience and work performance, there is a lot of room for automation.

According to many hospitality workers, an increase in the use of automation would lead to a loss of employment. However, human interaction is essential in this industry, and technology may be a powerful instrument for empowerment. Rather of rendering people obsolete, smart technology may be utilised to enhance the performance of employees rather than to replace them. "Competitiveness, service quality, and human resource management" must also be examined (Ivanov, 2017).This research looked at how AI and automation are being used in the hotel sector and concluded that a balance may be achieved between human labour and automation.

2 LITERATURE REVIEW

Hospitality has always centred on individuals offering caring and helpful lodging to others, and the human aspect has been there from its origin. "The global hotel sector would not function as it does now without people," says Tuomi (2020). It's common for hotel guests to have interactions with a front desk agent, as well as with housekeeping, while they're at the establishment. Certain processes, on the other hand, have shifted away from this constant in recent decades as they make use of smarter systems and improved computational intelligence. Cognitive and emotive demands of visitors are being studied by management researchers in order to provide more customised and integrated hotel experiences (Gursoy, 2017). Servicing robots are defined as "system-based autonomous and flexible interfaces that interact, communicate, and give service to an organization's client," as stated by Wirtz et al. (2018). Employees may utilise these devices to speed up check-ins, assist visitors with queries so that they can aid other guests, and give guests greater control over their experiences. All areas of a hospitality organisation, from the client experience to administration to maintenance to security, may be revolutionised by the use of automation, Significant study has gone into how these breakthroughs may be applied, however there is a gap in the research on how operations can merge AI with human equivalents. Managers must also keep in mind the need of fostering customer loyalty and happiness, as well as keeping up with the latest trends, as important considerations (Gursoy, 2017). The popular belief is that automation's involvement is all or nothing, but study into how these two components might work together to increase overall performance is required. It's also crucial to think about how much a company's brand image will change as a result of using service robots (Kuo et al., 2017).

There is a growing interest in artificial intelligence, particularly in the United States, as seen by Castro's table (2019). Because of this, RAISA's potential for worldwide expansion means that it will need to adopt more advanced technologies in order to remain competitive. It is possible to reap the benefits of automation in every area of a hospitality institution, and each field has its own set of advantages.

The research of Kanuganti (2005), Mamula (2019), and Verma (2016) focuses on how artificial neural networks and computational intelligence may enhance company administration. A significant advantage to forecasting and historical trend comparisons would be the capacity of present hospitality operations to gather real-time data to anticipate visitor behaviour. In 2019, (Ivanov and Webster, 2019), These characteristics are crucial for the hotel to maintain the most accurate predictions and to stay up to date, but they also ensure that all visitors have a consistent experience, which is highly desired for a hotel business. Because managers might make tactical or strategic errors as a result of not understanding how AI works, knowing how AI works is critical. the year 2021, according to Mustak).

To assist hotel staff provide their visitors a really unique experience, RAISA is an excellent tool. It is possible to use a fleet of robots to essentially replace the hotel's room service staff while enabling them to focus on other, more urgent matters. Guest information and facilities may be provided by robots, as well as possible payment for stays or upgrades. It may be possible for guests to adjust the brightness of their lighting (Kabadayi, 2019).

Lighting, HVAC, and maintenance of all types may be improved with the aid of these technologies, which have a direct influence on energy and water use. A "multi-modality system" that can handle "communication, entertainment, safety, security, lighting, HVAC, electric consumption, and water use" information adds to the adaptability of contemporary automation (Verma, 2016). Using artificial neural networks, the space can be made more connected and alarms and faults may be sent to the appropriate parties more simply.

It is possible to re-allocate people' time and effort to more challenging duties, rather than wasting time on mundane chores that an AI can do more effectively. To most workers, A.I. is a preferable option to the slower, more arduous experience of completing the same task by hand because of its capacity to effectively take on the minor and time-consuming elements of the assignment. In 2019, (Mamula, 2019).

Gouda Naveen et al. (2019), study investigates the possibilities of intelligent machines and expert systems on addressing the complexity of reproducing the human cognition and its comparative progress, this study emphasized the theoretical lens of discussions on artificial intelligence and expert systems was stated, the first application of successful artificial intelligence was in financial services industry for qualifying and sanctioning the loans and other on expert systems helping navy pilots land jets on aircraft carriers, also a few discussions witnessed on artificial intelligence systems being using in flight tracking system, clinical system and pattern recognition etc.

Pierre Blanchard (2019), examined the four clusters, where artificial intelligence will play a role in enhancing operations and supports innovation and growth of the firm those are customer engagement, network management, service and business assurance, smartphones and smart devices. In this context he examined that thoughts on the potential of artificial intelligence enabled solutions and discussed the steps to incorporate artificial intelligence into the business functions that includes the need to address several transversal questions and challenges.

David Ballantyne and Elin Nilsson (2017), study investigates the service scape and digital space on the traditional challenges involved in delivering quality healthcare services and desired value through the help of technology enablement. Though there is lot of dynamic moves with the use of technology still there are many processes to accomplish the services using strong digital platforms like AI and Internet of Things is creating a huge shift in the current market place from physical to virtual space there are new forms of creating the services that can be critically examined by adopting digital initiatives in the healthcare organizations to understand the attitudes, needs and desires of the potential clients.

Alexandre Gefen and Lea Saint Raymond (2020), examined the digital insights of artificial intelligence with the social science and humanities perspective. The study states that artificial intelligence enablement will create more transparency in the system based on the programmed algorithms. There is a no place for lacking transformation in the today’s competitive digital era. The author has examined the prospect of cognitive science and philosophy that aids digital transformation in becoming reliable source to the practitioners to analyze and evaluate the state of psychology to remain sustainable in the forward moving economy at a massive pace and the author concluded that institutions must invest to understand the theory of institutional psychology and cognitive science while building artificial intelligence solutions to meet the organizational goals for a customized, flexible and achieve successful transformation strategy.

Philipp Klaus (2014), explored that digital experience should start with understanding the business goals, identification of challenges an exploration of current and future customer needs, and then to apply those findings to the context of the organization. That potential adopters of artificial intelligence-based solutions can learn from new digital startups as well as those via technology success stories. It is stated that in order to see the depth and interaction that artificial intelligence systems can bringdown the human efforts in regular workflows and operations, and found that many organizations are still in the introductory stage.

Bernd Schreiber et al. (2017), examined a study on integratory lean principles into digital transformation through integration of artificial intelligence into the systems, the study figured out by implementing lean phases, like exploration, exploitation, and excellence and considering the value stream holistically as life cycle phases and reported the fine solutions of artificial intelligence tools and systems, “future of operations” is about to create a detailed transformation. The solutions are used by the organizations to meet the operational efficiency with the help of artificial intelligence based-solutions that are cognitive, connected, virtual, human centered and value added. Author also described that by adopting lean principles in building digital technologies in identifying the right areas for leveraging the appropriate and real-time AI enabled solutions, that would make things much simpler and effortless. As much as workforce adopt to digital way of thinking and using at workplace, the more you succeed and thus, it impacts on the business performance.

3. Artificial intelligence's Impact on the Hospitality Sector

On a certain activity, artificial intelligence's overall effect

One may see two main general effect dimensions of artificial intelligence systems when looking at the gathered application cases. The first step is to put processes in place that can be automated. Typical examples of artificial intelligence being utilised to automate tasks traditionally performed by people include chatbots and service robots. As a result, it's known as the automation effect. It is important to distinguish between automation via artificial intelligence systems and other kinds of technology use that are sometimes referred to as automation. When it comes to the travel and tourist industry, automation via terminals, whether at the airport or at a hotel, is becoming more commonplace (Preveden and Tiefengraber 2016; Ivanov and Webster 2017). It's not that the process itself is automated, but rather that it's been transferred from the business to the client. Because AI is capable of automating these processes, neither the business nor the customer will be obligated to do them. An example of an AI supermarket is Amazon Go, where an artificial intelligence system can recognise people and objects, records customers and the products they put in their shopping bags, then invoices customers' bank accounts automatically (Stark 2017). When arriving at a hotel or airport, a face-recognition system might be used to speed up the check-in process. A similar technique is already being tested by JetBlue at Boston's Logan Airport (Entis 2017).

The capacity to enhance judgments and allow previously unexecutable operations is the second impact factor. As an example, recommender systems, which use artificial intelligence to provide customers with more tailored services and goods, may be used. This is known as the "improving and enabling" effect.

One should not see these characteristics as discrete things but rather as a route of progress from automation to improvement and, finally, enablement in the context of the continuum idea of artificial intelligence. A self-driving automobile serves as a useful illustration of this notion. While self-driving vehicles automate the work of driving the automobile, formerly performed by people, they also enhance it. Almost 90% of automobile accidents might be prevented if self-driving cars had a 90% penetration rate (Fagnant and Kockelman 2015). AI began as an automation technology but evolved into an improvement technology in this situation. All artificially intelligent technologies, which are presently mostly utilised for automation, have a great deal of potential for a similar evolution.

The direct influence of artificial intelligence on businesses

The challenge remains as to how travel and tourism firms might make use of artificial intelligence technologies while avoiding their highly general influence. Artificial intelligence systems, like any other tool at an organization's disposal, may be used to boost that organization's competitive edge. In 2017, a McKinsey study found that using artificially intelligent systems gives a company a competitive edge. In comparison to the whole travel and tourism industry, early adopters of AI who used proactive AI techniques made an additional 2.5% in profit margins (Talwar and Koury 2017). Competitive advantage may be gained by either increasing consumer benefits or decreasing costs, according to Porter's model of comparative advantage. (Porter 1989).

Artificial intelligence-based differentiation

AI may have a positive or negative influence on a certain activity, as indicated above. Artificial intelligence technologies, such as recommender systems, that enhance or facilitate a specific job such as booking, offer additional advantages for customers. A customer's preferences may be predicted by the algorithms of these systems. Because of this, a company may separate itself from the competition. Automation, on the other hand, is often linked to a decrease in costs. It's reasonable to presume that the primary motivation for implementing AI systems that automate jobs is to save money. The expert group's talks and the data gathered from real-world applications, on the other hand, imply differently. Artificial intelligence technologies that automate an activity are often employed to provide additional advantages rather than merely reducing costs in the use cases gathered. Chatbots, for example, may be used to replace customer support and sales staff. But many businesses are instead using chatbots to extend their product and service offerings without having to cut down on the number of employees. By using chatbots on new platforms like Facebook message, Air France-KLM is able to market and update its clients about flight schedules. You may use this service around the clock, seven days a week. In part, this is due to the fact that chatbots are entirely digital systems that may be grown indefinitely (Kelly 2016). A contemporary sales channel not only allows the customer to purchase a travel produc.

Artificial intelligence (AI) technologies may reduce costs significantly

(Ivanov and Webster 2017) The use of AI systems, including the expenses of installation and operation, may save money by automating tasks that would have otherwise required human labour. The use of robots in the hotel business is a glaring illustration of their use. In 2015, a hotel in Japan opened that mostly relies on robots (Rajesh 2017). Robots at this hotel may be employed more for marketing purposes than to save money, but the fact that they exist proves that this concept is possible. Cleaning the floor with a robot vacuum cleaner would be a simpler use case for this technology. It would save money by displacing a portion of the current cleaning staff. However, artificial intelligence systems that enhance or just enable an existing work may and are utilised to save money as well. Artificial intelligence algorithms are used by British airline Easyjet to better estimate passenger demand for food and drink during flights. As a result, the airline saves money on inventory and can maintain its competitive edge. (emarketer 2017).

The extent to which artificial intelligence has a direct impact

There are too many variables to consider in order to make a bottom-up evaluation of the direct influence of a particular artificial intelligence system on the travel and tourist business. However, in order to get a rough estimate from the experts, a short poll was conducted. Artificial intelligence systems, which were deemed to be of particular interest, had a direct influence on travel firms in terms of cost savings and distinctiveness. In addition, the survey asked about the time and effort required by IT and management to set up an AI system of this calibre. Figure 1 depicts the outcomes of the experiment.

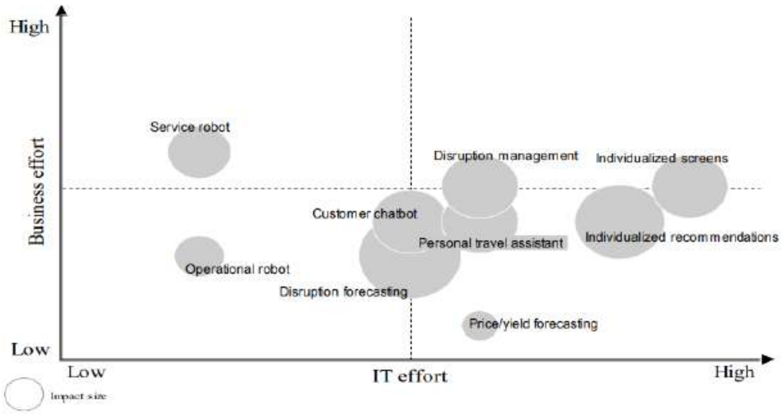

Figure 1: Instance of the effort put out and the direct impact of chosen AI systems.

The indirect impact of artificial intelligence on businesses

Beyond the direct influence on operational procedures and services, artificial intelligence also has an indirect impact on other sectors and organisations. As an example, a hotel's dining service provider may deploy AI technology to assist its sales staff in negotiations. Food and beverage expenditures may rise as a result, even if the hotel hasn't done anything differently. Although AI will have a direct influence on travel and tourism companies, it will also have an indirect impact on how tourists accept and perceive AI. Artificial intelligence (AI) technologies will reshape many aspects of business, including marketing, sales, and supply. Artificial personal assistants, or AI systems that support their owners in the same way that a human personal assistant would, became clear throughout the expert conversations. These systems represent a huge potential as well as a significant danger for existing travel firms. There are a number of firms, both large and small, working on these kinds of technologies. Examples include Siri from Apple and Alexa from Amazon. Experts believed that personal assistants like those shown in figure 2 will take the place of search engines and social media platforms like Google and Facebook as the next gatekeepers to the internet. Personal assistants, on the other hand, have the ability to make their own judgments, such as advising a certain trip location or transportation service. As a result, the travel business places a high value on issues such, "How do I gain the attention of such a personal assistant?" and "How does it get paid?" People's responses are what decide which businesses may offer their items to tourists.

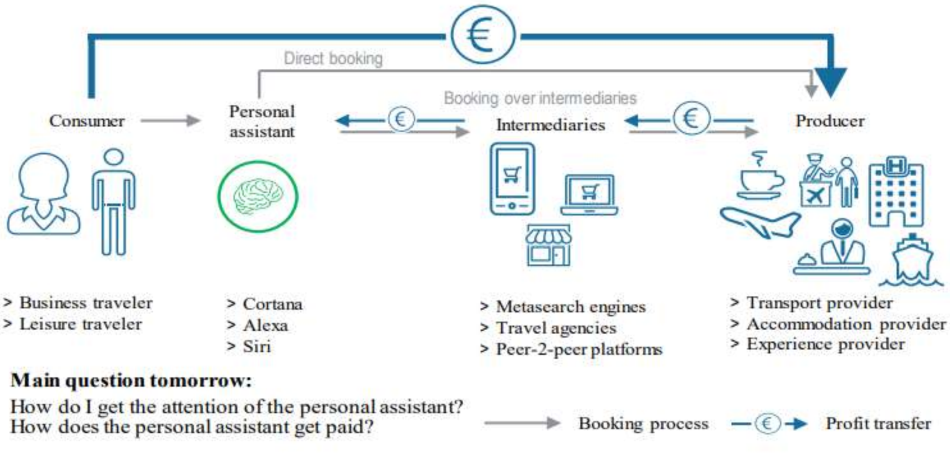

Figure 2: Hospitality sector sales and supply system

AI and supporting technologies are progressing.

Figure 3 shows that today's artificially intelligent systems fall into one of two categories: narrow minor intelligence or narrow super-intelligence. (Bostrom 2014; Tegmark 2017) Artificial intelligence systems, on the other hand, will only become better and more powerful as data collection and storage technology improves. Further improvements in AI algorithms are also likely to raise the bar on the technology's capabilities. In the future, chatbots may be able to converse more fluently than humans, and robot concierges may be able to provide greater service than human concierges. As more systems move into the realm of limited superintelligence, the value of such systems will rise. Current technical trends are seen in figure 8. In comparison to the leap from narrow superintelligence to general superintelligence, the scientific community generally accepts that the progress from narrow superintelligence to narrow superintelligence is very minimal. One of the hallmarks of this evolution is the so-called singularity (Bostrom 2014; Makridakis 2017). When artificial intelligence systems emerge from this singularity, they will be capable of doing whatever a human could. In this brave new world, there has been a lot written about the advantages and disadvantages (Bostrom 2014; Tegmark 2017; Harari 2016). The majority of study professionals, however, believe that this technology will not be widely available until at least the year 2040. (Bostrom 2014). As a result, enterprises should concentrate their efforts in the next years on the present shift from narrow minor intelligence to narrow super intelligence.

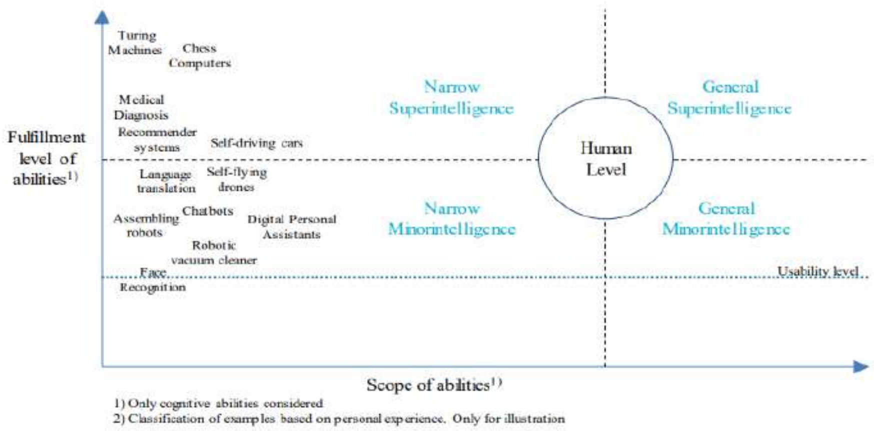

Figure3 Classification of artificial intelligence systems based on degrees of competence, using the author's illustration

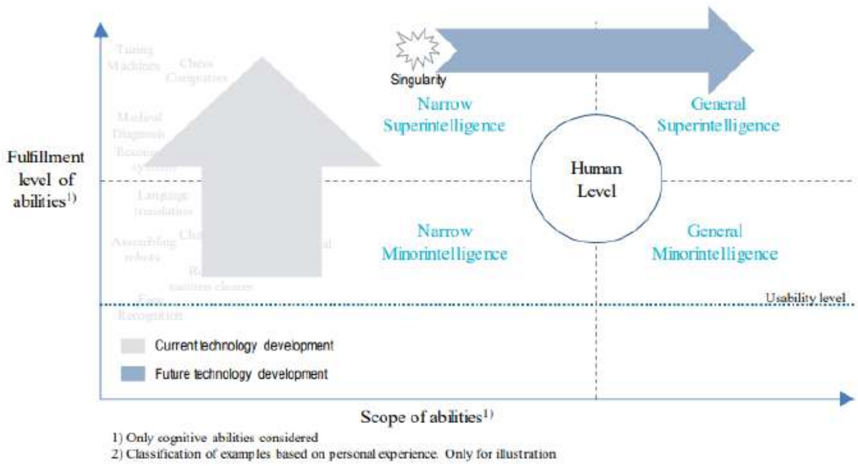

Figure 4: AI systems' ability development pathways.

The perception and acceptance of artificial intelligence

Those in the travel and tourist business need to be aware that the choice to use artificial intelligence technologies is not simply theirs to make. The industry has to change to meet the needs of the client. On the one hand, consumers are likely to want AI solutions out of need. Artificial intelligence (AI) is predicted to become a part of almost every product in a so-called 'AI everywhere' projection (Condliffe 2017). Hotel guests may assume that every room has a smart speaker running personal assistant software, or that the bed in their room remembers them and changes its settings accordingly. Certain clients, on the other hand, are likely to turn their backs on AI systems. Systems that utilise personal data, such recommender tools, have raised privacy concerns, or sociological reasons may be to blame. When it comes to the adoption of service robots in the travel and tourist business, for example, this sociological problem, meaning the belief that something is "unnatural," is likely to be a prevalent roadblock.

Organizational leaders must be aware of how their own staff and consumers see artificial intelligence (AI). In order to operate effectively with AI systems, the workforce must be properly taught and persuaded that doing so is in their own best interests.

AI SYSTEM REGULATION

When it comes to collecting and exchanging private information, it's more difficult in Europe because of the country's strict data protection laws. Experts' conversations indicated that for systems that utilise private data, such as robots, regulation isn't a major problem right now. Or, rather, it's not a significant deal at all. However, this does not rule out the possibility of change in the years to come. The governance of artificial intelligence is a hot-button issue right now, with prominent champions like Elon Musk leading the charge (Etzioni 2017). In order to guarantee that the decision-making process is compliant with the law, the primary focus of AI regulation is on determining which judgments artificial intelligence should be permitted to make (Nevejans 2017). Legislative proposals often begin with these research. It is important to note that the present lack of regulation of artificial intelligence systems will not last forever.

Development of Talent

In order for tourism and travel enterprises to remain competitive in the labour market, all experts agreed. Every industry fights for the best AI talent, including the travel and tourism sector. Corporations like Alphabet and Facebook, two of the world's largest technology companies, now offer their AI engineers six-figure US beginning salaries. In the past, universities have complained that scholars are quitting their positions to make more money at the Silicon Valley (Metz 2017). In the next years, travel and tourism firms must actively watch the development of this skills scarcity and alter their employee benefits appropriately. Without these skills, they won't be able to build and operate AI systems.

4. CONCLUSION

After looking at how artificial intelligence is today and in the future effecting the travel business, what can I do as an entrepreneur in the travel sector to take advantage of this new technology?

A broad variety of artificial intelligence applications may be found in the travel and tourist business today, ranging from recommendation engines to systems that predict prices and disruptions. It's not uncommon for these systems to be created and implemented in collaboration with technology suppliers. AI is directly affecting the industry, allowing for better products and cheaper operating expenses. And that's what we'll see more and more of in the years to come. AI technologies are expected to have a direct influence beyond the travel and tourist sector in the future years as well. Some instances include changes in marketing and sales systems, for example, because customers want or don't want artificial intelligence systems, and because of pending legislation.

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A Comparative Study of Antimicrobial and Antioxidant Properties of Prosopis Cineraria Stem and Curcuma Aromatica Rhizome

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ABSTRACT
The antimicrobial activity of polar and non-polar extracts of Prosopis cineraria(L.) stem and Curcuma aromatica(Salib.) rhizomewere tested against bacterial pathogens (Staphylococcus aureus, Bacillus subtilis, Pseudomonas aeruginosaand Escherichia coli) and fungal strains (Candida albicans, Aspergillus niger, Trichoderma reeseiand Penicilliumchrysogenum) using the agar well diffusion method. Antioxidant properties of these selected plants were also evaluated. Methanolic extract of Curcuma aromaticarhizomeshowed more potency against Bacillus subtilis and Pseudomonas aeruginosawith an inhibition zone of18 mm and 21 mm, respectively and methanolic extract of Prosopis cinerariastem exhibited higher activity against Staphylococcus aureus and Escherichia coliwith an inhibition zone of16 mm and 15mm. Methanolic extract of Curcuma aromaticarhizomeshowed more significantinhibition activity against Candida albicans,Trichoderma reeseiand Penicilliumchrysogenumwith an inhibition diameter of 24mm, 20 mm and 23 mm comparatively. While chloroform extract of Curcuma aromaticarhizome exhibited prominent antifungal properties against Aspergillus niger with a diameter of 34 mm when compared to Prosopis cinerariastem extracts. The results concluded that the Curcuma aromaticarhizomeextracts showed highest antifungal activities against all tested fungal strains, while highest antibacterial activities against only two bacteria i.e. Bacillus subtilis and Pseudomonas aeruginosa among the four bacterial strains. In addition, stem extracts ofProsopis cinerariawere showed maximum inhibitory activity against Staphylococcus aureus and Escherichia coli in comparison with other bacteria.Additionaly the highest catalase (0.608µMH_2O_2 reduce/gm Fwt/sec), peroxidae (0.557µM/L/gm dwt/sec) and FRAP (524.1µM at 100 µl)antioxidant activities were also observed with C. aromatica rather than P. cineraria.Overall, Curcuma aromaticarhizomeextracts were more effective as antimicrobial and antioxidant agents as compared to Prosopiscinerariastem extracts.

Keywords: Curcuma aromatica (Salib.), Prosopis cineraria (L.), Antibacterial activity, Antifungal activity, Antioxidant activity

INTRODUCTION
Infectious diseases are the most common causes of morbidity and mortality in developing countries (Food, medicine, 2009). Deaths from infectious diseases occur disproportionately in the developing world, where they are the biggest killer of children and young adults (Andrew *et al.*, 2011). However, antimicrobial agents have been used in the treatment of several human diseases, but these agents are not devoid of harmful effects. In addition, oxidative stress is also an abnormal condition due to alteration in cellular antioxidant defense system results production of excessive reactive oxygen species (ROS) which could initiate and aggravate many diseases (Ravi *et al.*, 2017).Herbal medicines have greatly replaced existing synthetic drugs for the treatment of diseases due to their lesser side effects and more effectiveness (Jain*et al.*, 2019). Natural substances from aromatic and medicinal plants receive particular attention as evidenced by various pharmacological effects, such as spasmolytic, carminative, hepatoprotective, antiviral, antimicrobial, and anticarcinogenic effects (Bowles, 2004). Approximately, 92 species of rhizomatous herbs belong to genus Curcuma, family Zingiberaceae is widely distributed in tropical and subtropical regions of the world and mostly cultivated in Asian countries; out of this *Curcuma aromatica*(wild turmeric) has high traditional importance (Jain*et al.*, 2019).The rhizome from this family is also known as turmeric in which the main bioactive compounds are essential oils and curcuminoids composed of curcumin, demethoxycurcumin (DMC) and bisdemethoxycurcumin (BDMC) (Funk *et al.*, 2010; Lee *et al.*, 2014; Kukula-Koch *et al.*, 2018).*C. aromatica*exhibits anti-inflammatory, wound healing, antitumor, anticancer, mosquito repellent, antiplatelet, antitussive, antioxidant, antimelanogenic and antinephrotoxic activities (Sikha*et al.*, 2015). Therapeutically, it possesses a strong antimicrobial effect and has been used since ancient times as a remedy against various microbial infections (Ahmed *et al.*, 2008).In addition, it is also used as therapeutic drugs for blood circulation promotion, skin diseases, snake poison, sprains, epilepsy, autoimmune diseases, bruises, to improve complexion, respiratory systems and cardiovascular, cosmetic formulations, and blood stasis removal (Jyotirmayee andMahalik, 2022). The phytochemicals from Zingiberaceae species have been extracted from several plant parts, especially the rhizome (Rachkeeree*et al.*, 2020). The *C. aromatica*rhizome has been reported to be rich in medically essential phytochemicals, such as

alkaloids, flavonoids, curcuminoids, tannins, and terpenoids (Anoop, 2015; Kanase and Khan, 2018). Due to presence of bioactive compounds, the rhizomes of *C. aromatica* are used in traditional medicine for eliminating blood stasis, delaying the ageing process, pain relief, and protecting against liver diseases (Dosoky and Setzer, 2018). In Thailand, the rhizome extracts of *C. aromatica* are widely used in dietary intake (Rachkeeree*et al.,* 2020).Also, *C. aromatica*rhizomes are used internally as a tonic and carminative, while being topically applied for various skin ailments, sprains, bruises, as an antidote for snake venom, and also to enhance complexion (Ahmad *et al.,* 2011; Dosoky and Setzer, 2018; Preethi*et al.,* 2010; Xiang *et al.,* 2017). Rural people are using the aqueous extracts and paste (with milk) of *C. aromatica* rhizomes and leaves for the treatment of indigestion, rheumatism, wound healing, and dysentery and also in the prevention of helminth infections (Sikha*et al.,* 2015).

Prosopos cineraria are also a well-known traditional medicinal plant used in the Cholistan desert of Pakistan. This plant belongs to Fabaceae family, is a small to moderate sized medicinal plant commonly known as Jhund. Numerous bioactive compounds like vitamins, sugars, free amino acids, β-sitosterol, alkaloids, flavonoids, phenols, di-ketones, prosogerin A, B, C, D, spicigerin and patulitrin have been isolated from different parts of *P. cineraria***(**Jameel*et al.,* 2019). It is used against the treatment of fungal diseases traditionally. The methanolic extract of stem bark of *P. cineraria* is used as anticonvulsant agent (Velmurugan*et al.,* 2010). The bark of stem of *P. cineraria* is used as anti-bacterial agent (Velmurugan*et al.,* 2012). The leaves of *P. cineraria* have antioxidant potential. These plants have commonly been found to have anti-inflammatory, anti-diabetic, antimalarial and antiflatulent activities (Dharani *et al.,* 2011). The aqueous extracts of tree bark also possess anti-cancer and anti-inflammatory activity. The smoke of the leaves was used for the treatment of eye ailments (Ravinayagam*et al.,* 2012). The bark is considered to have anthelmintic activity and is used in several diseases like leprosy, bronchitis and asthma**(**Jameel*et al.,* 2019). Thus due to havingnumerous considerable therapeutic potential, the present comparative study has been carried out to analysis the antimicrobial and antioxidant strategies of *Prosopis cineraria*stem and *Curcuma aromatica*(Salib.). This study may be helpful to provide future insight into the medical application of herbal plants for the treatment of infectious diseases.

MATERIAL AND METHOD

1) COLLECTION OF PLANT MATERIALS

The experimental plant material of *Prosopis cineraria*(L.) stem and *Curcuma aromatica*(Salib.) rhizomewas collected from Campus of University of Rajasthan, Jaipur and voucher specimen was deposited to the herbarium of Department of Botany, University of Rajasthan, Jaipur for authentication.

2) PREPARATION OF PLANT EXTRACTS

The freshly collected plant parts of *Prosopis cineraria*(L.) and *Curcuma aromatica*(Salib.)have been washed thoroughly with tap water and are subjected to air-drying in the shade at room temperature (32-37˚C) for about 2-3 weeks. The dried plant samples were ground into powder form by using a homogenizer. About 50gm of powdered plant materials (50gm/250mL) were extracted in a Soxhlet extractor for 8 to 10 hours, sequentially with methanol and chloroform. The extracts obtained were then concentrated and finally dried to a constant weight. Dried extracts were kept at 20˚C until further tests were carried out.

3) ANTIMICROBIAL ACTIVITY

Microbial Strains, culture medium and inoculum preparation:

Clinical laboratory bacterial isolates of*Staphylococcus aureus*MTCC 3381, *Bacillus subtilis*MTCC10619, *Pseudomonas aeruginosa*MTCC0424 and *Escherichia coli*MTCC 443, and fungal isolates viz. *Candida albicans*MTCC 183, *Aspergillus niger*MTCC 872, *Trichoderma reesei*MTCC 164and *Penicilliumchrysogenum*MTCC 5108were collected from the stock cultures of Microbiology Laboratory, SMS Medical College Jaipur, India.

Determination of Antibacterial Assay

In vitro antibacterial activity of the crude extracts were studied against gram positive and gram negative bacterial strains by the agar well diffusion method (Perez *et al.,* 1990). Mueller Hinton agar no. 2 (Hi Media, India) was used as the bacteriological medium. The extracts were diluted in 100% Dimethylsulphoxide (DMSO) at the concentrations of 10 mg/mL. The Mueller Hinton agar was melted and cooled and then poured into sterile petri dishes to give a solid plate. A standardized inoculum (1.5×108 CFU/mL, 0.5 McFarland) prepared in sterilized 0.9% saline water was used. Wells were prepared in the seeded agar plates. The test compound (20, 40, 60 and 80 µl) was introduced in the well (6 mm). The plates were incubated overnight at 37ºC. The antimicrobial spectrum of the extract was determined for the bacterial species in terms of zone sizes around each well. The diameters of zone of inhibition produced by the agent were compared with those produced by the commercial control antibiotics, Ciprofloxacin (40 µl). The control zones were subtracted from the test zones and the resulting zone diameter was measured with antibiotic zone reader to nearest mm. The experiment was performed three times to minimize the error and the mean values are presented.

Determination of Antifungal Assay

Anti-fungal activity of the experimental plant was investigated by agar well diffusion method (Bonjar*et al.*, 2005). The fungi were subcultured onto Sabouraud's dextrose agar, SDA (Merck, Germany) and respectively incubated at 37°C for 24 h and 25°C for 2-5 days. Suspensions of fungal spores were prepared in sterile PBS and adjusted to a concentration of 106 cells/ml. Dipping a sterile swab into the fungal suspension and rolled on the surface of the agar medium. The plates were dried at room temperature for 15 min. Wells of 6 mm in diameter were punctured in the culture media using sterile glass tube. 20, 40, 60 and 80 µl of fresh extracts was administered to fullness for each well. Plates were incubated at 37°C. After incubation of 24 h bioactivities were determined by measuring the diameter of inhibition zone (in mm). Ketoconazole (40 µl) was used as antifungal positive control. The All experiments were made in triplicate and means were calculated.

4) ANTIOXIDANT ACTIVITY

*In vitro*antioxidant activity of the *Prosopis cineraria* (L.) stem and *Curcuma aromatica*(Salib.) rhizomewere determined by using catalase activity, peroxidase activity (enzymatic) and FRAP (non-enzymatic) assay.

Catalase (CAT) activity

Catalase activity was assayed by the method of Teranishi*et al.* (1974) with some modification. 1gm fresh sample was homogenized in 50 mM chilled/ice cold phosphate buffer (pH 7.0) and centrifuge at 10,000 rpm for 10 min at 4°C and supernatant was treated as enzyme extract.The reaction mixture (3 ml) consists of 2.7 ml of 50mM phosphate buffer (pH 7.0) and 0.1 ml of enzyme extract. The reaction was started by adding 0.2 ml of 20mM H_2O_2. The decrease in absorbance was recorded at 410 nm for 3 minutes. The catalase activity was expressed as µM H_2O_2 reduce/gm fw/ sec.

Peroxidase activity

The peroxidase activity was assayed by using Chance andMaehly, 1955method with the following modifications.0.2gm sample was homogenized with 10mL of phosphate buffer and centrifuged at 10,000 rpm for 20 minutes. The supernatant was taken as the enzyme extract.2.2 mL of phosphate buffer, 0.3mL of pyrogallol and 0.3mL of H_2O_2 was added. The amount of purpurogallin formed was determined by taking the absorbency at 420nm immediately after adding 0.2 mL enzyme extract.

FRAP ASSAY

Ferric Reducing Antioxidant Powerassays were performed by usingPulido *et al.*, 2000method. 5 gm sample was incubated 24 h at 37°C after adding 50 ml methanol. Incubated sample was filtrated and dried in petri-plate. Dried sample was dissolved in methanol according to 1mg/ml. The sample range 10 µl to 100 µl was decided for FRAP estimation. Methanol was used for volume make-up. 30 minute incubated 1 ml of FRAP reagent at 37°C(10 ml 0.2M acetate buffer, pH 3.6: 10mM TPTZ in 1ml 40mM HCl: 1ml 20mM $FeCl_3$) was added into each tubes and vortexed properly and then incubated for 30 minute at 37°C tentatively. Absorbance was measured at 593 nm. The blank was prepared without sample extract. The results are expressedmicro molar.

RESULTS AND DISCUSSION

ANTIBACTERIAL ACTIVITY

The antibacterial activities of methanol and chloroform extracts of the stem of *Prosopis cineraria* and rhizome of *Curcuma aromatica*were tested against *Escherichia coli*, *Pseudomonas aeruginosa*(gram negative), *Staphylococcus aureus* and *Bacillus subtilis* (gram positive) that were shown in table 1-4. The antibacterial activity was recorded by measuring diameter of inhibition zone. When compared with the extracts of *C.aromatica* rhizome, methanolic extracts (80µl) of the *P. cineraria* stem showed maximum 16mm inhibition zone against *Staphylococcus aureus*.Both methanolic and chloroform extracts of the *C.aromatica*rhizome exhibited 13 mm inhibitory activity to *S.aureus*. Likewise highest inhibition activity towards *E. coli* also recognized with methanolic extract of *P. cineraria* stem i.e. 15 mm in comparison to *C.aromatica* rhizome extracts. While highest inhibitory property against *B. subtilis* and *P. aeruginosa* were observed with methanolic extract of *C.aromatica* rhizome as compared to *P. cineraria* stem.Methanolic extract of *C.aromatica* rhizome showed 18 mm zone of inhibition against *B. subtilis* and 21 mm inhibition zone against*P. aeruginosa*. Chloroform extract of *C.aromatica* rhizome also exhibited 21mm maximum antibacterial activity. Whereas *B. subtilis*, *P. aeruginosa*and *E. coli* were resistant to chloroform extract of *P. cineraria* stem. All microbes were susceptible to its respective positive control.Chloroform extract of *C.aromatica* rhizome showed 13.5mm diameter of antibacterial activity against *E. coli* that was highest than methanolic activity. A study conducted by

Joshi*et al.*, 2018 reported that *Curcuma aromatica* shows 7.5mm inhibition zone by methanolic extract and 4.5mm by ethanolic extracts at highest concentration of 20mg by using the well diffusion method against *Escherichia coli* pathogens. In another study of Singh, 2017, 6.4 mm antibacterial activity at 25mg/ml and 7.6mm at 300mg/ml were found against *Bacillus subtilis* by ethanolic extract of *C. aromatica*. The results of Jain *et al.,* 2019 showed that *C. aromatica* extracts have more potential to inhibit the growth of tested bacterial strain as compared to *C. longa* and *C. caesia*. In their study, the most pronounced activity was shown in petroleum ether extract of *C. aromatica* against *B. subtilis* and *S. aureus* with an inhibition zone of 21 mm and 30 mm, respectively at a concentration of 50 mg/mL.Ethanolic, methanolic and petroleum ether extract of *C. aromatica* showed the potential to inhibit the growth of *P. aeruginosa* with inhibition zone 10, 12 and 8 mm respectively. In this study, *C. aromatica* was unable to inhibit the *E.coli* bacteria at low concentration i.e. 20 µl and 40 µl. According to Jain *et al.*, 2019 study, they revealed that gram-negative bacteria have high intrinsic resistance to plant extracts as compare to gram-positive bacterial strains.Cordell, 2001 described that the presence of alkaloids, flavonoids and other curcuminoids in Curcuma species are the responsible compounds for the antibacterial activities.Ghais*et al.*, 2020 found 11mm and 2mm inhibition zone by 20% and 10% (w/v) methanolic extracts of *P.cineraria*stem bark against *B. subtilis,* 31mm against *S. enterica* at 20% and 8mm at 10% respectively, highest 36mm inhibition zone at 20% and 9mm at 10% against *P. aeruginosa*, 35mm and 20mm at 20% and 10% respectively to *E. coli* and 16 mm inhibitory activity at 20% and 11mm at 10% against *S. aureus.*

ANTIFUNGAL ACTIVITY

The results of antifungal activity of methanolic and chloroform extracts of the stem of *Prosopis cineraria* and rhizome of *Curcuma aromatica*against four different fungal strains in terms of zone of inhibition were shown in table 5-8. The fungicidal activity of *Curcuma aromatica*rhizomewas more effective to inhibit fungal strains as compare to *Prosopiscineraria*stem. Among two tested extracts, methanolic extract of *C.aromatica* rhizome showed highest fungicidal potential against *C. albicans*, *T. reesei* and *P. chrysogenum*while its chloroform extract was more efficient to inhibit *A. niger* when compared with *P. cineraria* extracts. The highest inhibitory diameter i.e. 24mm was recognized to *C. albicans* by 80 µl concentration of methanolic extract of *C.aromatica* rhizomeand its chloroform extract showed 13.5 mm inhibition zone comparatively. The chloroform extract of *C.aromatica* rhizome exhibited 34 mm and methanolic extract 13 mm zone of inhibition against *A. niger* as compared to standard (39 mm). While *P. cineraria*stem extracts were completely unable to inhibit pathogen *A. niger* at all concentrations. 20 mm inhibition zone at 80 µl concentrations was observed with methanolic extract followed by 15 mm with chloroform extract of *C.aromatica* rhizome against *T. reesei.*Methanolic extract of *C.aromatica* rhizome showed highest (23 mm) inhibition activity followed by chloroform extract that was showed 16 mm antifungal activity against *P. chrysogenum* as compared to *P. cineraria*stem extracts. Consequently, the rhizome extracts of *C.aromatica* gave significant antifungal properties against all studied fungal strains in comparison with stem extracts of*P. cineraria*. The result of antifungal activity of Jameel*et al.*, 2019 described that all water, n-hexane, ethyl acetate and methanol extracts of *P. cineraria*are more effective against *Candida albicans* as compare to *Aspergillus niger*. Among four tested extract, methanol extract had greater fungicidal potential followed by ethyl acetate extract as similar to this study.Antifungal of medicinal plant is due to the presence of saponin or phenolic compounds (Mothana*et al.*, 2007, Baydar*et al.*, 2004) that might be present in *P. cineraria* plant.*C. aromatica* is also composed of several bioactive compounds, such as ar-turmerone (Dhingra*et al.*, 2007; Lee, 2006), camphor (Kordali*et al.*, 2005; Kotan*et al.*, 2008; Zafar *et al.*, 2019), curdione (Naz*et al.*, 2010), linalool (Queiroga*et al.*, 2007; Van Zyl*et al.*, 2006), and xanthorrhizol (Rukayadi and Hwang, 2007; Rukayadi*et al.*, 2006), that are reported to antimicrobial effect against fungi (*Aspergillus flavus, Fusarium semitectum, Colletotrichumgloeosporioides, Colletotrichummusae, Candida albicans, Candida glabrata, Candida guilliermondii, Candida krusei, Candida parapsilosis*, and *Candida tropicalis*).

Antioxidant Activity

Enzymatic Antioxidant Activity

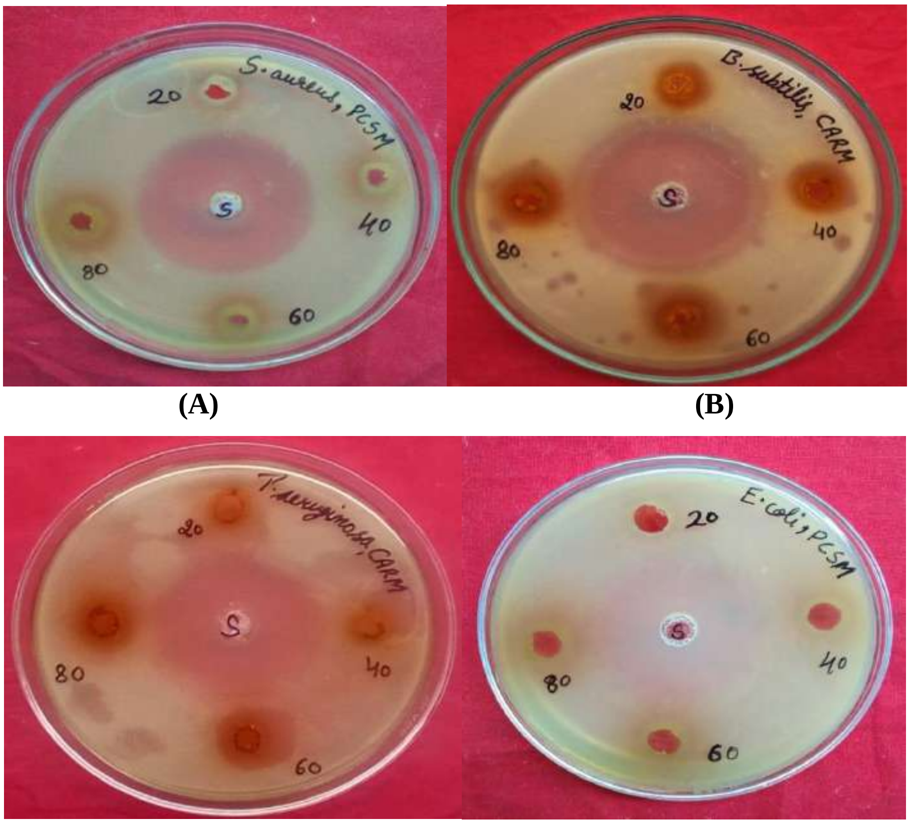
Oxidative stress plays a significant role in diverse diseases such as cardiovascular conditions, cancer, inflammatory diseases and early ageing (progeria) (Valko*et al.*, 2007 and Uttara*et al.*, 2009). Medicinal plants have capability to exerting protective effects against oxidative stress in biological systems (Ness and Powles, 1997). Catalase and peroxidase are enzymatic cellular antioxidants which could act as first line of defense system in cell and protects the organism from ROS induced oxidative damage (Nonaka *et al.*, 1991).Catalase is a major player in cellular defense system as it is known to catalyze the decomposition of hydrogen peroxide to water and oxygen, and it is one of the key enzymes involved in the removal of toxic peroxides (Mhamdi*et al.*, 2010).In the present study, *C. aromatica*rhizome was showed 0.608 µM H_2O_2 reduce/gm Fwt/sec.highest CAT properties as compared to*P. cineraria*stem (0.132µM H_2O_2 reduce/gm Fwt/sec.The antioxidant activity can be explained by the action of phytochemical compounds as free radical scavengers, hydrogen donors and peroxide decomposers (Moyo*et al.,* 2012). Chumark*et al.,* 2008 revealed that the crude extracts of curcuma species contained very high amounts of phenolic compounds which showed antioxidant properties.Al-Reza *et al.*, 2010reported significant anti-oxidative activity of both essential oil and organic extracts of C. aromatica leaves. The results of Dharani*et al.,* 2011 study revealed that the ethyl acetate and methanolic extracts of *P. cineraria* leaf exhibited a strong scavenging effect against hydrogen peroxide.In the another study of Bangaruswamy*et al.,* 2015 the methanolic extract of *Prosopis cineraria* leaf caused a significant increase in the enzymic antioxidant status when compared to the untreated control group.

Peroxidase is located in cytosol, cell walls, vacuoles and extracellular spaces. It is considered as stress marker enzyme having a broad specificity for phenolic substrates and a higher affinity for H_2O_2 than CAT(Halliwell and Gutteridge, 1999).In this investigation, 0.361 µM/L/gm dwt/sec. peroxidase activity was recognized with *P. cineraria* stem and 0.557 µM/L/gm dwt/sec. with *C. aromatica* rhizome. Accordingly *C. aromatica* rhizome showed maximum peroxidase activity in comparison to *P. cineraria* stem. The activity was associated with the presence of antioxidant compounds such as 1,8-cineole (Miri, 2018; Saito *et al.*, 2004), germacrone (Hamdi*et al.,* 2015; Hossain *et al.,* 2015), xanthorrhizol (Liao *et al.,* 2019; Oon*et al.,* 2015), and β-sesquiphellandrene (Zhao *et al.,* 2010) in *C. aromatica*. The results of Kasai*et al.,* 2019 confirmed that all extracts of the Curcuma rhizomes species have superoxide anion radical ($O_2^{\cdot -}$) scavenging strategy. The antioxidant potential of the aerial parts such as barks, leaves (mostly inedible for humans) of *P. cineraria* has been studied previously by many researchers (Asati*et al.,* 2021). Hydroethanolic extract of *P. cineraria*bark was found to increase the activity of catalase and glutathione peroxidase enzyme in diabetic mice, indicating that the phytochemicals present in the plant extracts can induce antioxidant activity via inducing these enzymes (Sharma*et al.,* 2010).

Non-Enzymatic Antioxidant Activity

Ferric ion reducing antioxidant power (FRAP) Assay

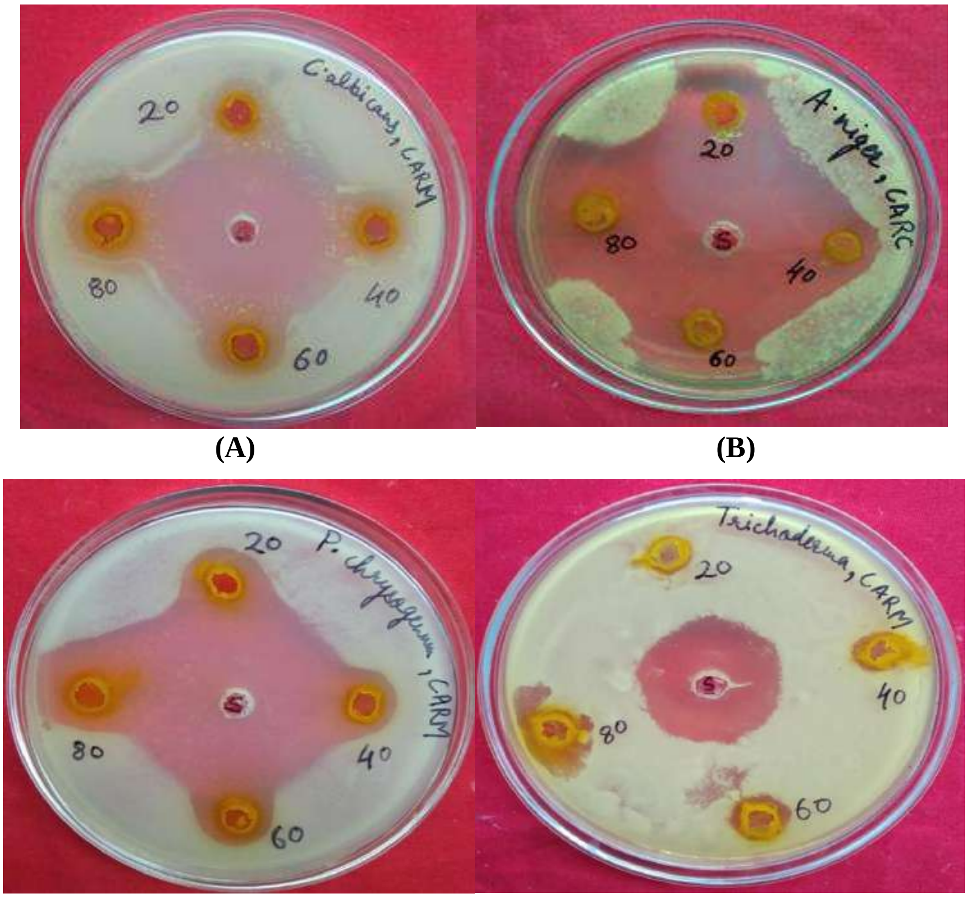
Antioxidant components of plants are effective in preventing many diseases (Krishnaiah*et al.,* 2011). Plants contain various types of compounds with antioxidant activities, such as antioxidant vitamins (A, C, and E), carotenoids, coenzyme-Q, lycopenes, and phenolics (phenolic acids, flavonoids, flavonols, anthocyanins, tannins, and lignins) (Mollica*et al.,* 2016).The ferric reducing antioxidant power assay is based on the reducing power of the compound. It measures the ability of the plant extract to donate electron to Fe^{3+} and reduce it to Fe^{2+} ion. The higher the FRAP value, the greater is the antioxidant activity (Yan *et al.,* 2006). As similar to CAT and Pox activity, highest Fe^{+3}ion reducing activity was also observed with *C. aromatica* rhizome. At 10 µl concentration of *P. cineraria* stem 21.1µM and at 100 µl 344.1 µM concentration of ferrous ion was recognized. While *C. aromatica* rhizome exhibited 375.6µM ferrous ions at 10 µl and 524.1µM at 100 µl that was maximum with respect to *P. cineraria* stem activity.According to Rungruang*et al.,* 2021 results, these values confirmed that the presence of phenolic compound in *C. aromatica*is the important molecule that exhibit antioxidant activity via electron donation. The crude extracts of curcuma species showed a variety of antioxidant activities such as $ABTS^{\cdot+}$ and $DPPH^{\cdot}$. SimilarlyKosem*et al.,* 2007 also reported that the phenolic contents in turmeric play a significant role in therapeutic potential such as antioxidant activity. As compared to leaf part, rhizomes part of *Curcuma aromatica* were recorded high phenolic contents (Xiang*et al.,* 2018). Therefore, in this study rhizomes part of *C.aromatica* was used to investigate medicinal properties.In the study of Poonarand Gehlot, 2000, FRAP value increased from immature stage to mature stage of fruit development of *P. cineraria*. Polyphenols and vitamin C contributes a large portion of the antioxidant activity because these are the very strong antioxidants present in the fruits and vegetables (Pal *et al.,* 2015). Since, antioxidants can scavenge reactive oxygen species, the tissue exhibiting high antioxidant activities would better resist oxidative stress than tissue with lower antioxidant potential (Lester, 2008).



(A) **(B)**

(C) **(D)**

Figure 1: Maximum antibacterial activity of Prosopis cineraria stem and Curcuma aromatica rhizomeagainst (A) Staphylococcus aureus(B) Bacillus subtilis (C) Pseudomonas aeruginosaand (D) Escherichia coli



(A) **(B)**

(C) **(D)**

Figure 2: Maximum antifingal activity of Prosopis cineraria stem and Curcuma aromatica rhizomeagainst (A) Candida albicans(B) Aspergillus niger(C) Trichoderma reeseiand (D) Penicilliumchrysogenum

Table 1: Antibacterial activity of Prosopis cineraria stem and Curcuma aromatica rhizome againstStaphylococcus aureus

Plant samples	Extracts	Inhibition zone (mm)				
		Standard	**20 µl**	**40 µl**	**60 µl**	**80 µl**
Prosopis cineraria stem	Methanol	40	10	12	13	16
	Chloroform	40	Nil	10	11	12
Curcuma aromatica rhizome	Methanol	40	10	11	12	13
	Chloroform	40	8	9	11	13

Table 2: Antibacterial activity of Prosopis cineraria stem and Curcuma aromatica rhizome against Bacillus subtilis

Plant samples	Extracts	Inhibition zone (mm)				
		Standard	**20 µl**	**40 µl**	**60 µl**	**80 µl**
Prosopis cineraria stem	Methanol	40	10	11	12	13
	Chloroform	40	nil	nil	nil	nil
Curcuma aromatica rhizome	Methanol	40	12	15	17	18
	Chloroform	40	11	12	13	14

Table 3: Antibacterial activity of Prosopis cineraria stem and Curcuma aromatica rhizome against Pseudomonas aeruginosa

Plant samples	Extracts	Inhibition zone (mm)				
		Standard	**20 µl**	**40 µl**	**60 µl**	**80 µl**
Prosopis cineraria stem	Methanol	40	nil	9	11	12
	Chloroform	40	nil	nil	nil	nil
Curcuma aromatica rhizome	Methanol	40	17	19	20	21
	Chloroform	40	15	18	20	21

Table 4: Antibacterial activity of Prosopis cineraria stem and Curcuma aromatica rhizome against Escherichia coli

Plant sample	Extracts	Inhibition zone (mm)				
		Standard	**20 µl**	**40 µl**	**60 µl**	**80 µl**
Prosopis cineraria stem	Methanol	40	nil	11	12	15
	Chloroform	40	nil	nil	nil	nil
Curcuma aromatica rhizome	Methanol	40	9	10	11	12
	Chloroform	40	nil	nil	12	13.5

Table 5: Antifungal activity of Prosopis cineraria stem and Curcuma aromatica rhizome against Candida albicans

Plant samples	Extracts	Inhibition zone (mm)				
		Standard	**20 µl**	**40 µl**	**60 µl**	**80 µl**
Prosopis cineraria stem	Methanol	39	8	10	11	12
	Chloroform	39	8	9	10	12
Curcuma aromatica rhizome	Methanol	39	16	18	21	24
	Chloroform	39	9	10	13	13.5

Table 6: Antifungal activity of Prosopis cineraria stem and Curcuma aromatica rhizome against Aspergillus niger

Plant samples	Extracts	Inhibition zone (mm)				
		Standard	**20 µl**	**40 µl**	**60 µl**	**80 µl**
Prosopis cineraria stem	Methanol	39	nil	nil	nil	nil
	Chloroform	39	nil	nil	nil	nil
Curcuma aromatica rhizome	Methanol	39	10	11	12	13
	Chloroform	39	22	24	31	34

Table 7: Antifungal activity of Prosopis cineraria stem and Curcuma aromatica rhizome against Trichoderma reesei

Plant samples	Extracts	Inhibition zone (mm)				
		Standard	**20 µl**	**40 µl**	**60 µl**	**80 µl**

Prosopis cineraria stem	Methanol	39	10	11	12	13
	Chloroform	39	nil	10	11	12
Curcuma aromatica rhizome	Methanol	39	10	12	14	20
	Chloroform	39	7.5	11	12	15

Table 8: Antifungal activity of Prosopis cineraria stem and Curcuma aromatica rhizome against Penicilliumchrysogenum

Plant samples	**Extracts**	**Inhibition zone (mm)**				
		Standard	**20 µl**	**40 µl**	**60 µl**	**80 µl**
Prosopis cineraria stem	Methanol	39	9	10	12	13
	Chloroform	39	nil	nil	8	10
Curcuma aromatica rhizome	Methanol	39	18	19	20	23
	Chloroform	39	11	12	13	16

Table 9: Catalase activity of Prosopis cineraria stem and Curcuma aromatica rhizome

Plant Samples	Catalase activity (µMH_2O_2 reduce/gm Fwt/sec.)
P. cineraria stem	0.132±0.0261
C. aromatica rhizome	0.608±0.0775

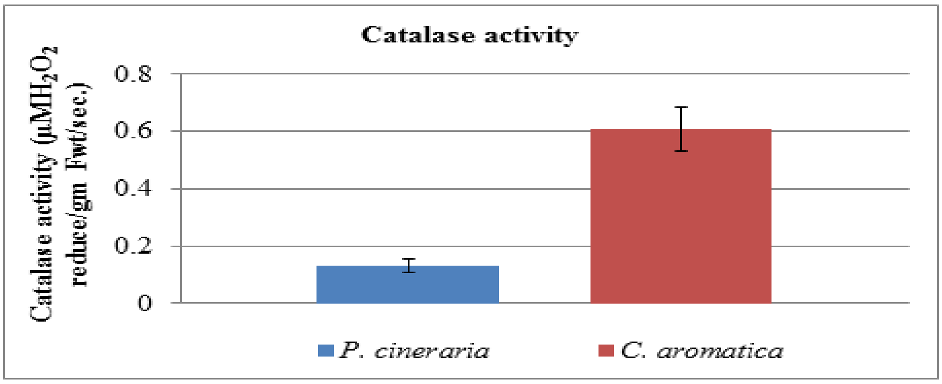


Figure 3: Catalase activity of Prosopis cineraria stem and Curcuma aromatica rhizome

Table 10: Peroxidase activity in of Prosopis cineraria stem and Curcuma aromatica rhizome

Plant Samples	Peroxidase activity (µM/L/gm dw/sec.)
P. cineraria stem	0.361±0.0586
C. aromatica rhizome	0.557±0.0270

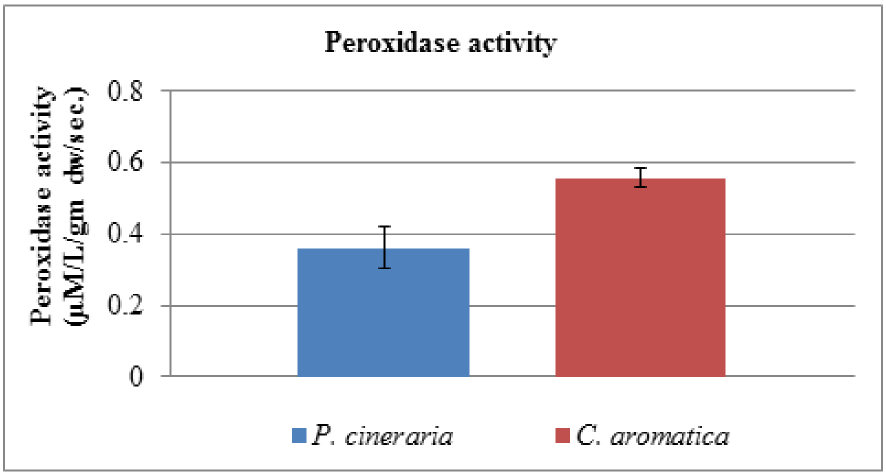


Figure 4: Peroxidase activity of Prosopis cineraria stem and Curcuma aromatica rhizome

Table 11: FRAP activity of Prosopis cineraria stem

***P. cineraria* stem sample**	**Concentration (µM)**
10 µl	21.1±4.46
20 µl	93.6±1.05
30 µl	110.6±2.61
40 µl	126.6±1.77

50 µl	153.6±1.92
60 µl	165.1±3.20
70 µl	168.1±5.01
80 µl	173.1±1.41
90 µl	175.6±2.08
100 µl	344.1±3.75

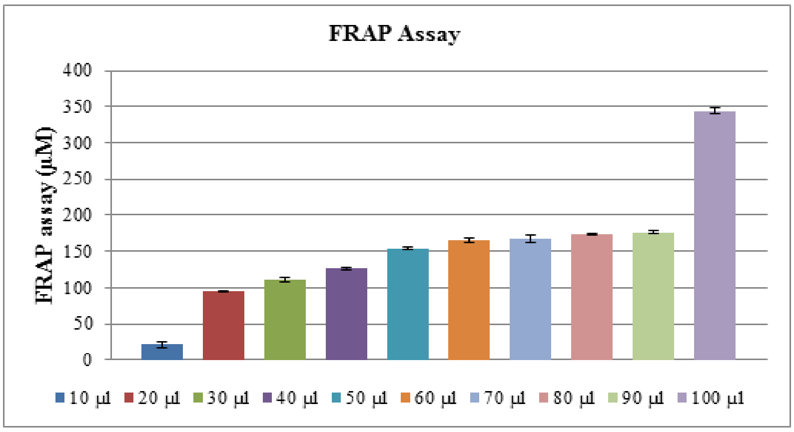


Figure 5: FRAP activity of Prosopis cineraria stem

Table 11: FRAP activity of Curcuma aromatica rhizome

***C. aromatica* rhizome sample**	**Concentration (µM)**
10 µl	375.6±1.25
20 µl	405.1±4.16
30 µl	450.6±4.74
40 µl	462.6±2.29
50 µl	475.6±5.00
60 µl	479.1±3.25
70 µl	493.1±8.28
80 µl	507.1±1.81
90 µl	513.1±6.88
100 µl	524.1±3.60

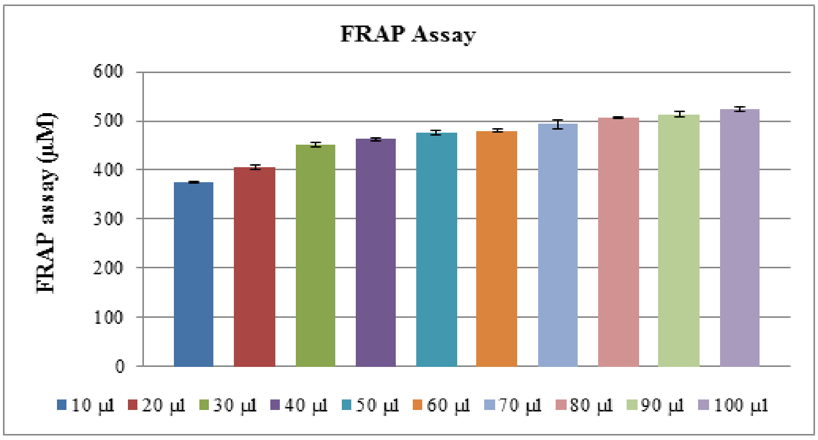


Figure 6: FRAP activity of Curcuma aromatica rhizome

CONCLUSION

The result of this work suggests that*Curcuma aromatica* (Salib.) extracts are more effective against pathogenic strains (bacterial and fungal) as compared to *Prosopis cineraria* (L.) extractsand can be used for the future references for various other diseases.Among the two extracts, methanolic extract gave more significant antimicrobial results than chloroform extract. Methanolicextracts of *P. cineraria* showed inhibition activity only for *S. aureus* and *E.coli* pathogens.Similarly both enzymatic and non-enzymatic antioxidant activity were also recognized with *C.aromatica*when compared with *P. cineraria.* Consequently, the obtained activity of this assess may be due to the presence of various phytochemical compounds. Hence, further studies are under progress to characterize the active metabolites present in the extracts.

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Comparative Studies on Production of Bioethanol Using Peels of Punica Granatum and Sugarcane Wastes through Zymomonas Mobilis

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ABSTRACT
This study deals about the production of ethanol from fruit peels of Punica granatum (Pomegranate) and sugarcane wastes (molasses) using Zymomonas mobilis as fermenting organism. To obtain the maximum level of reducing sugars, fruit peels and molasses were hydrolyzed using thermal degradation. The estimation showed that saccharified peels were able to produce more amount of alcohol. The experiment was carried with infusion of different nutrients (Mashtone and CWR pro). The maximum levels of reducing sugars were obtained in Punica granatum (Pomegranate) samples than in molasses. The substrates infused with nutrient Mashtone produced higher ethanol yield than CWR pro in both molasses and pomegranate. From the present study the ethanol production was higher (14%) in Punica granatum (Pomegranate) compared to molasses (8.4%).

1. INTRODUCTION
The important organic chemical compound ethanol or ethyl alcohol (CH_3CH_2OH) is a volatile, flammable, clear, colorless liquid, miscible in both water and non-polar solvents. Due to these properties it can be widely used for various purposes. Ethanol is monohydric primary alcohol and has a boiling point of 78.5°C (Hafiz O *et al*., 2012). There are two methods for the production of ethanol such as synthetic and biological. In the synthetic method, the ethanol is produced by a catalytic hydration of ethylene in vapor phase and it is a by-product of various industrial operations. This product is mostly used as a solvent (60%) and chemical intermediates (40%). Fermentative ethanol production contributes 93% of the total ethanol production in the world. In the biological method the ethanol is produced from fermentation of sugars which is derived mostly from crops. Due to the high ethanol yield and tolerance to high ethanol concentration *Saccharomyces cerevisiae* is widely used for ethanol production. The produced ethanol is mainly used as fuels (92%), industrial solvents and chemicals (4%), and beverages (4%) (G.Lalitha and Rajeshwari Sivaraj, 2011).

Several microorganisms have been considered as ethanologenic microbes. For industrial alcohol production *Saccharomyces cerevisiae*, *Kluyveromyces marxianus* and the facultative bacterium *Zymomonas mobilis* are widely used. Cellulosic biomass extracted from various agricultural residues is abundant renewable resource on earth. Agricultural residues such as straw, cornhusk and sugarcane residue are also inexpensive and easily available source of renewable lignocellulosic biomass. The possible way to meet the high demand for ethanol in the present situation of energy crisis is the production of ethanol from comparatively cheaper source of raw materials using efficient fermentative microorganisms (Hafiz O *et al*., 2012)

Pomegranate (*Punica granatum, L.Punicaceae*) is one of the oldest well known fruit and the dried fruit peel is used for diarrhea and to treat respiratory and urinary tract infections. Also, pomegranate fruit peel possessed diverse pharmacological functions such as antioxidant activity, anti fertility effect, cytotoxic activity, hepatoprotective activity and hypoglycemic activity. It also contains significant amounts of polyphones such as ellagic tannins, ellagic acid and gallic acid. Pomegranate peels are expected to produce higher yields of alcohol (Mahgoub Mohammed Ahmed, and Safaa Eid Ali, 2010)

Molasses is the final effluent which is obtained from the sugar production process by repeated crystallization. The yield of molasses per ton of cane is approximately 2.7% but it is influenced by various factors and may vary from the range of 2.2% to 3.7%.The molasses is also used as a feedstock for the production of alcohol. During the chemical conversion of molasses into ethanol, half of the fermented sugar is converted to carbon dioxide, which could be used for industrial application. The remaining half of the fermented sugar is converted to ethyl alcohol (M.L.Cazetta *et al*., 2007)

The ultimate aim of the present study is the recycling of the agro industrial wastes to reduce the financial cost of the process and utilize the potential of molasses and *Punica granatum* peel as substrates for ethanol production by bacterial strains.

2. MATERIALS AND METHODS
2.1. Microorganism:
Zymomonas mobilis was selected as strain for ethanol production. The microbial cultures were obtained from Sakthi Sugars, Erode.

2.2. Preparation of Medium for Zymomonas mobilis:
The bacteria fermentation medium consists of the following ingredients added in distilled water. Glucose-2 g, Yeast extract-1.2 g, Dextrose-0.2 g, Potassium dihydrophosphate-0.1 g. The pH was adjusted to 6.0 and autoclaved at 121°C for 15 minutes.

2.3. Preparation of substrate:

Punica granatum peel:
Punica granatum peels were collected from local store in a sterile plastic bag. The peels were washed under tap water and it was sundried for 8-9 days to completely remove the water content. It was ground to fine powder. About 50 g of finely ground peel is weighed and made up to 500 mL with distilled water. It was prepared for 3 conical flasks.

2.3.1. Pretreatment of Punica granatum peel extract:
Peels were pretreated by heating. The finely ground peels heated at 100°C for 20 min and then cooled at room temperature. The filtrate was then filtered using filter paper.

2.3.2. Molasses:
Raw molasses was collected from sugar unit of Sakthi Sugars, Erode. About 50 g of molasses was weighed and diluted to 500 mL with distilled water.

2.3.3. Pretreatment of molasses:
Molasses was pretreated by heating. Raw molasses was heated at 100°C for 20 min. It was then cooled at room temperature. The filtrate was then filtered using filter paper. It was prepared for 3 conical flasks.

2.4. Fermentation:
Fermentation is a bio-chemical process which is used for the production of different commercial products through the activity of microorganism. The chemical changes are achieved in an organic substrate through the action of enzymes by micro-organism. Microorganisms which includes; bacteria, yeast and moulds are widely used. These micro vegetative organisms are involved in the conversion process of substrate into other chemical substances.

The bacterial (*Zymomonas mobilis*) culture (100 mL) was transferred to pretreated substrate(*Punica granatum* peel and molasses).Then the setup was transferred to conical flask and incubated in a shaking incubator at 27°C for 4-7 days. After each day, Residual sugar, specific gravity and ethanol yield percentage was calculated.

2.5. ALCOHOL FORMATION:
200 mL of fermented sample was taken in a round bottomed flask along with 200 mL of distilled water and boiled at 78°C. Alcohol begins to get collected in a round bottomed flask.

2.6. FERMENTATION ANALYSIS:

2.6.1. CALCULATION OF RESIDUAL SUGAR (RS):
Fehling's solution A - 5 mL

Fehling's solution B - 5 mL

The two solutions were added along with the water and then heated to boiling condition. They were taken in a conical flask and wash solution was taken in the burette. When they were titrated against wash solution, brown color appears. 4 or 5 drops of methylene blue indicator was added and blue colour appears. It was again titrated against the remaining wash sample and the colour changes from blue to brown. The titrate value was noted.

Residual sugar (RS) = (Fehlings factor/Titrate value)*100

2.6.2. CALCULATION OF ALCOHOL PERCENTAGE:
METHOD 1:
10 mL of sample was taken in a conical flask and 5-6 mL of con.H_2SO_4 and 9-10 mL of $K_2Cr_2O_7$ was added. Ferrous Ammonium Sulphate (FAS) was taken in burette and titrated against solution in the conical flask. The end point was the appearance of green colour. The titrate value was noted and it gives the alcohol percentage.

METHOD 2:
This method was based on specific gravity. Initial gravity before fermentation was noted and the specific gravity for fermented sample was noted. Alcohol percentage was calculated by the following formula:

Ethanol percentage = (Initial gravity-Final gravity)/0.0074

METHOD 3:
The distillate was collected to 200 mL and the specific gravity was measured using hydrometer. Alcohol percentage is calculated using the following formula

Alcohol percentage = (100-titrate value) x 0.5714 or (100-value)/1.75

2.6.3. Total reducing sugar (TRS):
About 5 g of substrate was weighed (*Punica granatum* peel or molasses) and dilute with 100 mL of dis.H_2O. Add 5 mL of concentrated hydrochloric acid. Then it was heated and maintained 70°C for 10 minutes. Then the solution was cooled at room temperature and it was neutralized with NaOH using phenolphthalein as an indicator.

Total reducing sugar (TRS) = (1000/5) x Fehling's factor x 100/Titrate value

2.6.4. Total volatile acids (TVA):
About 50 mL of wash sample was added along with 200 mL distilled water and 0.5 mL of conc.H_2SO_4. They were titrated with 0.1 N NaOH using phenolphthalein indicator and the end point was the appearance of pink colour.

TVA = Titrate value x 171.4

2.6.5. ETHANOL CONFIRMATION TEST:
This was the qualitative test for ethanol. To confirm that the obtained distillate was ethanol, 1 mL of $K_2Cr_2O_7$, 5 mL of con.H_2SO_4 and 3 mL of distillate was added. The end point was the appearance of blue-green colour.

3. RESULTS AND DISCUSSION
The present study was based on the analysis of ethanol producing efficiency of *Zymomonas mobilis* strain in 15% sugar concentration with three different nutrient infusion and two carbon sources. The colour of *Punica granatum* peel extract changed from brown to reddish brown which indicates that fermentation has occurred. The colour of molasses turned from dark black to brown in colour which indicates the occurrence of fermentation process. The different parameters such as temperature, specific gravity, alcohol percentage, total residual sugar and total volatile acids were observed. The residual sugar gets reduced each day as the bacterium consumes the substrate. It was found to be consumed much faster in *Punica granatum* peel than molasses. The specific gravity gets dropped by time due to reduction in mass of substrate as it is consumed by bacterium.

3.1. Punica granatum peel extract

Fig.1. Punica granatum peel extract- Before and after fermentation

Table1: Punica granatum PEEL (15% SUGAR CONCENTRATION):

Day	Nutrients	Residual Sugar	Specific Gravity	Alcohol Percentage
1	Mashtone	31.26	1.459	2.83
	CWR pro	32.81	1.410	2.42
	Inoculum alone	33.07	1.367	2.29
2	Mashtone	30.69	1.440	5.4
	CWR pro	31.02	1.389	5.27
	Inoculum alone	31.18	1.347	5
3	Mashtone	27.22	1.420	8.10
	CWR pro	27.52	1.369	7.97

	Inoculum alone	28.8	1.326	7.83
4	Mashtone	23.92	1.397	11.20
	CWR pro	24.38	1.346	11.08
	Inoculum alone	24.77	1.304	10.81

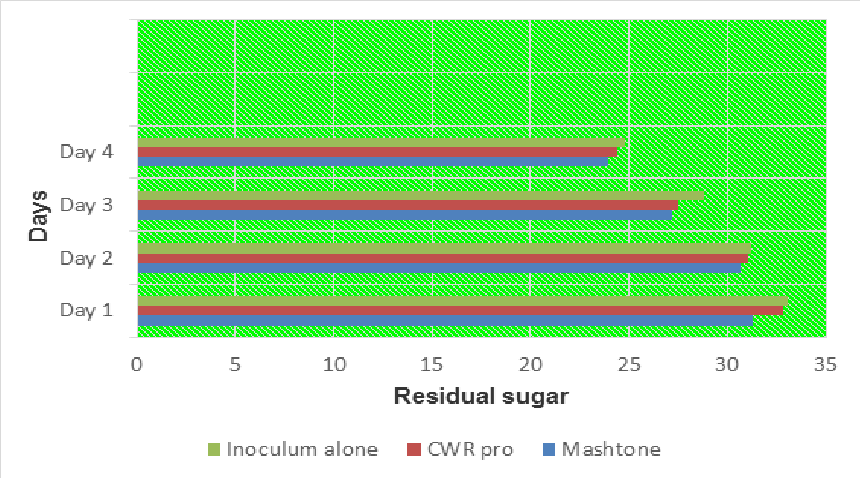

Fig.2. Residual sugar in Punica granatum peels with different nutrients

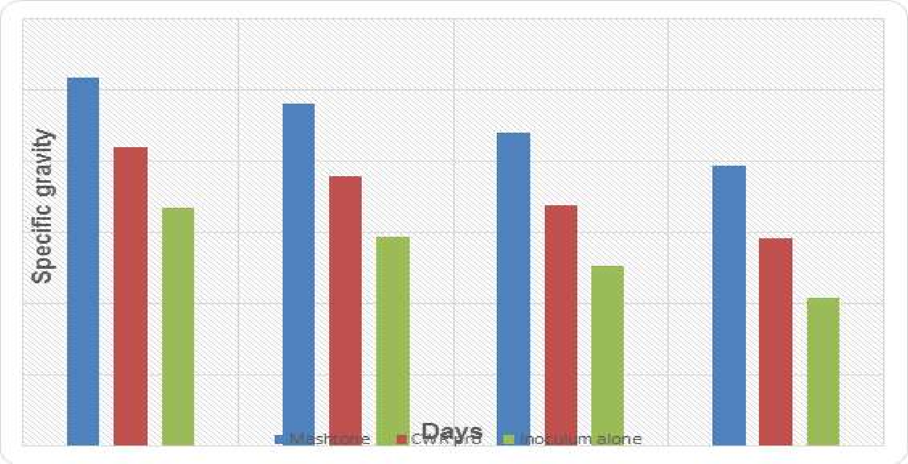

Fig.3. Specifc gravity in Punica granatum peels

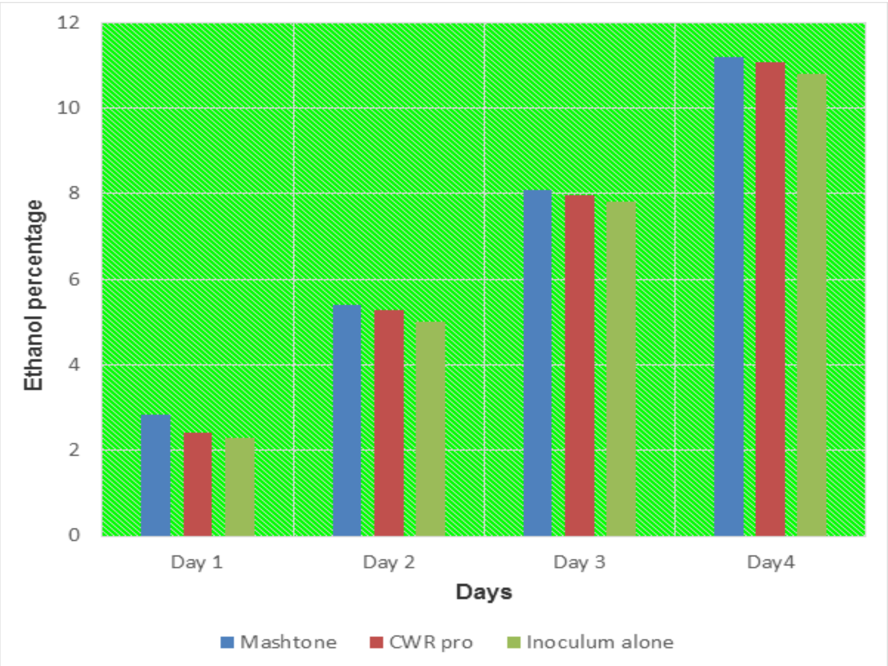

Fig.4. Ethanol Percentage in Punica granatum peels

3.2. Ethanol fermentation using Molasses:

Fig.5. Molasses – Before fermentation and after fermentation

Table 2: Preparation of MOLASSES (15% SUGAR CONCENTRATION):

Day	Nutrients	Residualsugar	Specific Gravity	Alcohol Percentage
1	Mashtone	27.12	1.256	3.24
	CWR pro	27.41	1.229	3.10
	Inoculum alone	28.87	1.208	2.97
2	Mashtone	24.88	1.244	4.86
	CWR pro	25.24	1.220	4.32
	Inoculum alone	25.91	1.199	4.18
3	Mashtone	22.77	1.234	6.21
	CWR pro	23.1	1.207	6.08
	Inoculum alone	23.7	1.186	5.96
4	Mashtone	20.08	1.215	8.78
	CWR pro	20.12	1.190	8.37
	Inoculum alone	20.81	1.170	8.10

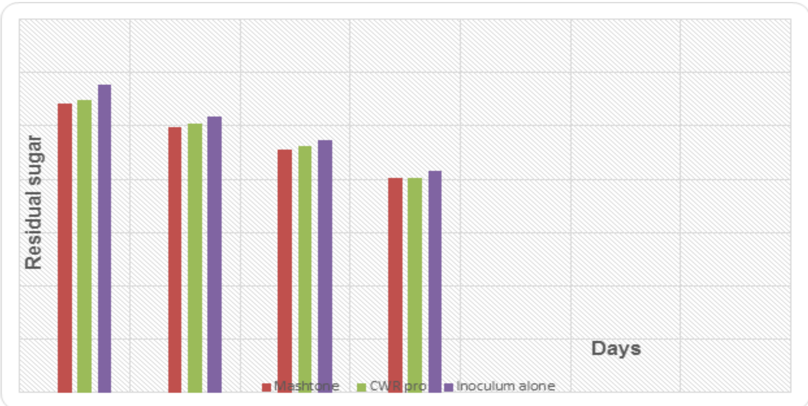

Fig.6: Residual sugar in Molasses with different nutrients

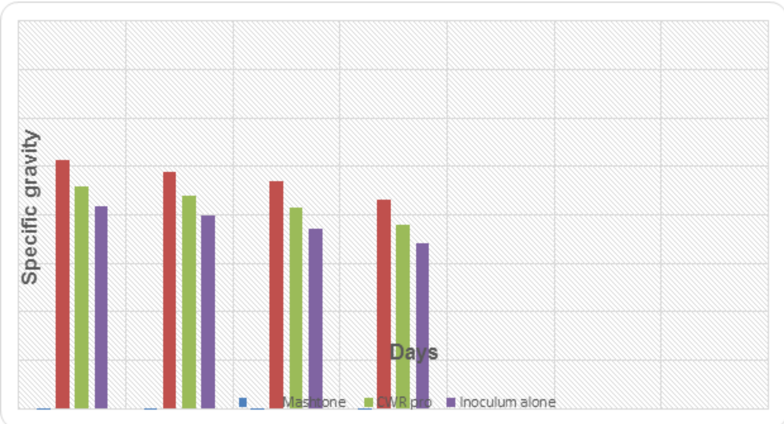

Fig.7: Specific gravity in molasses

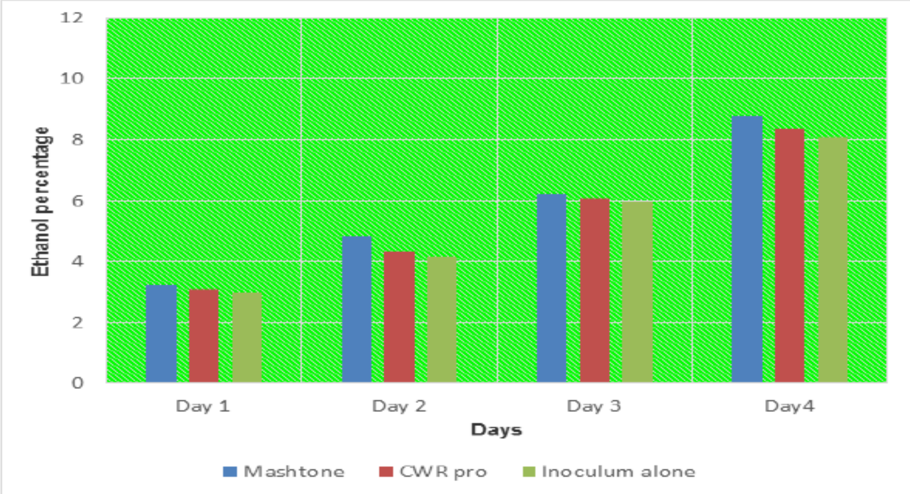

Fig.8: Ethanol Percentage of molasses

4. CONCLUSION:

The present study was carried out with different nutrients such as Mashtone, CWR pro and inoculum alone. The results showed that Mashtone gave better results, when temperature is maintained at 27°C. Mashtone was suitable for both *Punica granatum* peels and cane molasses as it provided vital nutrients for bacterial growth. In case of *Punica granatum* peels, the alcohol percentage was 11.20% with mashtone on the fourth day. On seventh day of fermentation, the yield was observed to be around 14% and it reached 17.4% on 10^{th} day of fermentation, whereas in case of molasses, the yield was observed to be 8.78% on the fourth day and it crossed 11% on the seventh day, which was achieved by *Punica granatum* peels on the fourth day of fermentation. When CWR pro was used, the cell count was found to be increasing in 15% sugar concentration. When CWR pro was used, it produced similar yield percentage compared to mashtone. Without usage of these nutrients, the yield was significantly lower when inoculum alone was used. The results showed that *Punica granatum* peels produced higher yields of alcohol compared to cane molasses.

ACKNOWLEGEMENT

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Effects of Yogic Exercise on Memory in Medical Students under Examination Stress

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ABSTRACT

Introduction

Memory is an ability to recall past events or previously learnt information or skills. Therefore, the authors suggest that one of the best strategies for improving academic performance is expanding the use of yoga techniques in medical colleges as the daily yoga practice for a short duration helps to improve attention, concentration, and memory of medical students and it reduced the stress level of students in examination time and its also irrespective of sex.

Material and Methods

150 Medical students of 17-24 years age group in the Santosh Medical College, Ghaziabad, were chosen depending on the Inclusion and Exclusion Criteria. They were divided into Control and Study group of 75 subjects each. The memory scores for the Subjects were taken, 40 days before the examination and during examination, without and with yogic interventions, respectively.

Result

Memory Score of the Study Group subjects increases significantly (p = <0.001) during examination, where as that of the Control Group subjects decreases significantly (p = <0.001).

Conclusion

Here we concluded that the practice of yogic asanas and pranayama reduces the adverse effects of examination stress and produces beneficiary effects on memory performances, that will help the medical students to perform better in examination.

INTRODUCTION

Yoga is becoming an increasingly popular mind-body therapy used to reduce and prevent the harmful effects of stress on the body. [1] “Yoga” is a Sanskrit word from the root “yuj” which means union. Yoga is a psycho somatic spiritual discipline for achieving union & harmony between our mind, body and soul and the ultimate union of our individual consciousness with the Universal consciousness. “Pranayama” is the forth limb of Ashtanga Yoga has its earliest references in the Vedic literature, which extends back from approximately 1500BC backward into a hoary past. Yoga is also considered a mind and body practice with historical origin. It facilitates communication between the brain and body, and the integration of both top-down and bottom-up cognitive processing. Yoga through its techniques of asanas, and pranayama results in a positive effect in the management of stress among teenagers. [2] The purpose of the pranayama is to balance the mental energy and physical energy, to bring harmony between Body and Mind. Therefore, yogic asanas and Pranayama together helps to cure mental problems like Depression, Anxiety, Tension etc.[3,4] Pranayama has an effect in regulating stress which in turn is reflected by increased performance in enhancing the workload capacity, because of increased ability for handling stress, which in turn reflected by increase in subjective scores.[5] Memory is an ability to recall or remember past events or previously learnt information or skills. A power of recalling (memory) are the major factors in learning.[2] The term “Memory” has a dual meaning. It refers to the process or processes whereby we store and preserve newly required information for later recall.[6] Short term memory is viewed as a system for temporarily storing and managing information required to carry out complex cognitive tasks.[7] The processing of sensory information at the thalamic level is facilitated during the practice of pranayama.[8] Yoga breathing through a particular nostril increased memory scores.[9] Therefore, the authors suggest that one of the best strategies for improving academic performance is expanding the use of yoga techniques in medical colleges as the daily yoga practice for a short duration helps to improve attention, concentration, and memory of medical students [10] and it reduced the stress level of students in examination time[11] and its also irrespective of sex.[12.] Even in this respect the scientists given the same importance to yoga as MET (memory enhancement training).[13]

STUDY DESIGN

Initially 150 subjects were selected from Medical students of 17-24 years age group in the Santosh Medical College, Ghaziabad, depending on the Inclusion and Exclusion Criteria. All the subjects were asked to come to the laboratory within 8-9 a.m., 50 days before their 3rd internal assessment examination. Then the subjects were allowed to take rest for 30 min. Then the memory status of all the subjects was assessed by using "PGI (Post Graduate Institute) Memory Scale". During the whole procedure, the environmental conditions was kept constant at room temperature = 27-32^{O}C. After the initial study, selected subjects were divided into 02 groups; **Control Group** and **Study Group**, with 75 subjects in each group. **Control Group** subjects were asked to come for the experimental procedure after 40 days at the time of their examination. The subjects of **Study Group** were asked to come to yoga lab at 07:00 a.m. sharp for yogic asanas and pranayamas for 40 days. In first 2 weeks subject will participate in monitored sessions for 03 days a week (Total 06 days Monitored sessions) under supervision of appointed yoga trainer. After that the subjects will practice the same for 17 days under direct supervision of the yoga trainer and 17 days at their own with each alternate day. Each session will last for 01 hour. During each session, subjects practiced the asanas and pranayamas are given in Table1.[14,15] After 40 days, at the time of their examination, all the Cardiac, Blood and Memory parameters was tested again in both the groups. [16]

Table 1. Asanas and Pranayamas included in this study

Name of the practice	Repetition	Duration (59 min) Approx
Loosening practices	1	10 min
Makarasana	2	02 min
Tadasana	2	02 min
Trikonasana	2	02 min
Veerasana	2	02 min
Ardha Kati Chakrasana	2	02 min
Vakrasana	2	02 min
Matsyasana	2	02 min
Anulom Vilom Pranayama	3	10 min
Bhramari Pranayama	3	10 min
Savasana	1	15 min

MATERIAL AND METHODS

This study was conducted in Santosh Medical College, Department of Physiology in collaboration with Department of Physiology, N.C. Medical College and hospital, Panipat, Haryana. Ethical clearances were obtained from both the institutions before carrying out the project.

Study population: The selection of the samples were done from Medical students of 17-24 years age group in the Santosh Medical College, Ghaziabad.

Place of Study: Physiology department in Santosh Medical College & Hospital, Ghaziabad.

Sample Size

t tests – Means : Difference between two dependent means (matched pairs)

Analysis: A priori : Compute required sample size

Input:

Tail (s)	=	Two
Effect size dz	=	0.4486897
α err prob	=	0.05
Power (1- β err prob)	=	0.95
Output: Noncentrality parameter δ	=	3.672683
Critical t	=	1.996564
Df	=	66
Total sample size	=	67

Actual Power = 0.951419

The was calculated by G*Power3.0.10 software.

Inclusion Criteria of Subject
Normal healthy subjects were included in the study that fulfilled the following criteria, listed below---

1. Age between 17-24 years
2. Subject willing to complete the study
3. Informed written consent.

Exclusion Criteria of Subject
Subjects having any medical history as stated below or risk causing or at risk (Screening Question) were excluded from the study.

1. History of malignancy or any major surgery.
2. Past or recent history suggesting any cardiovascular or respiratory illness.
3. Skin Disease (Atopic)
4. Asthma, hay fever, sinusitis, emphysema, bronchitis and any respiratory troubles.
5. Hepatitis, cirrhosis
6. Arthritis, joint pain
7. High blood pressure & any heart troubles.
8. Any major chronic illness or any drug therapy (ATT etc).
9. Subjects with the previous history of yoga.

PGI (Post Graduate Institute) Memory Scale
It contains following ten types of memory. Questionnaires and tasks to evaluate the cognitive performance of the subjects were presented in memory scale.[27]

I. Remote Memory
II. Recent Memory
III. Mental Balance
IV. Attention and concentration
V. Delayed Recall
VI. Immediate recall
VII. Retention of similar pair
VIII. Retention of dissimilar pair
IX. Visual retention
X. Recognition

STATISTICAL ANALYSIS
The statistical evaluation of this study was be done by using the software SPSS (Software Package of Social Studies), designed by the TISS (Tata Institute of Social Studies).

RESULTS
Control Group = 75 subjects examine 40 days before examination and during examination with no Yogic Exercise. **Study Group** = 75 subjects examine 40 days before examination and during examination after 40 days Yogic Exercise. Mean and SD of Memory Scores, 40 Days Before Examination and During Examination are given in Table2.

Table 2. Mean and SD of Memory Scores 40 Days Before Examination and During Examination

Parameters	Group	p value

	Study (n = 75)	Control (n = 75)	
Memory Score (40 days before examination)	46.89 ± 2.67	47.84 ± 1.97	0.024
Memory Score (During Examination)	51.49 ± 1.74	45.67 ± 1.98	<0.001

In Group: Study, the mean Memory Score increased from a minimum of 46.89 at the Before Examination timepoint to a maximum of 51.49 at the After Examination timepoint. This change was statistically significant (Wilcoxon Test: V = 0.0, p = <0.001). In Group: Control, the mean Memory Score decreased from a maximum of 47.84 at the Before Examination timepoint to a minimum of 45.67 at the After Examination timepoint. This change was statistically significant (Wilcoxon Test: V = 2316.0, p = <0.001). The overall change in Memory Score over time was compared in the two groups using the Generalized Estimating Equations method. There was a significant difference in the trend of Memory Score over time between the two groups (p = <0.001). All of it is shown in Table 3.

Table 3. Comparison of the two Groups in Terms of change in Memory Score over time (n = 150)

Memory Score	**Group**		**P value for comparison of the two groups at each of the timepoints (Wilcoxon-Mann-Whitney Test)**
	Study	**Control**	
	Mean (SD)	**Mean (SD)**	
Before Examination	46.89 (2.67)	47.84 (1.97)	0.024
After Examination	51.49 (1.74)	45.67 (1.98)	<0.001
P Value for change in Memory Score over time within each group (Wilcoxon Test)	<0.001	<0.001	
Overall P Value for comparison of change in Memory Score over time between the two groups (Generalized Estimating Equations)	<0.001		

DISCUSSION

The results of this study reflect the remote memory of the students with Yogic exercise and without yogic exercise shows that anxiety has adverse effect on remote memory. Neuronal activity in the orbitofrontal cortex early post- learning also impaired remote memory and structural plasticity, indicating that early cortical activity is required for subsequent maturation and stabilization of the memory pathways.[15] Such early tagging in the orbitofrontal cortex was found to be Nmethyl-D- aspartate (NMDA) receptor (NMDAR)-dependent and to trigger signalling cascades leading to histone acetylating, an epigenetic modification.[17] Specifically, the orbit frontal cortex involvement was odorspecific, which suggests that tagging may minimize interference during the consolidation process, for instance by making the new trace more compatible with existing cortical mental architecture.[17] Recent memory is involved in the selection, initiation, and termination of information-processing functions, such as encoding, storing, and retrieving data.[18] Recent memory is stored in the prefrontal cortex and is used for immediate recall, and then forgotten after the information is used.[18] The effect on recent memory included increase of the brain derived neurotrophin factor (BDNF), neurogenesis, IGF-I, and CAMK II activation, that mechanisms involved in memory consolidation may be the best targets to achieve memory enhancement or prevent memory decay.[18] Mental balance of medical students changed during examination period are related to fatigue include metabolic changes in levels of serotonin, dopamine and norepinephrine.[19] Serotonin with high level are associated with negative behaviors, lethargy and sleepiness.[19] The possible mechanism for these effects depicted in the literature is competition between tryptophan and free fatty acids for binding sites on the albumin protein.[19] Both physical and mental exhaustion may be related to dopamine deficiencies in specific brain areas such as the ventral tegmental area of the midbrain, the substantial nigra pars compacta and the infundibular nucleus of the hypothalamus.[20] Dopamine deficiencies in these brain areas in conjunction with exhaustion support the hypothesis that dopamine ,its low levels may hamper motivation and motor coordination and enhances lethargy and fatigue.[20] Nor epinephrine is related to a heightened state of arousal (e.g. alertness) and activation of the adrenal medulla, which stimulates cardiovascular responses, blood perfusion and energy supply.[20] A recent study found that compounds with central action, such as dopamine, nor epinephrine and glucose, best predict the rate of increase in the ratings of perceived exertion during constant exercise sets at different intensities.[21] Delayed recall is due to memory disturbances are of cognitive impairment.[22] The demonstration that only axial impairment was correlated with age, whereas delayed recall or dementia cases have an association with bradykinesia and speech, suggests that both dopaminergic and non-dopaminergic structures are involved in the temporal lobe of delayed recall or dementia.[22] Immediate recall is based on polyvagal theory, stated that suppression of vagal tone during a challenge would predict better cognitive performance.[23] Greater vagal tone suppression during a task is related to better attention, faster habituation and better memory recogniion.[23] The current results supported these past findings by showing that vagal tone suppression during a task is related to immediate memory recall.[23] Recognition Memory system of brain structures important for memory includes the hippocampus and the adjacent entorhinal, perirhinal and parahippocampal cortices.[24] While the hippocampus was the early focus for most of the work with the animal model, it was eventually discovered that selective damage to the cortical regions adjacent to the hippocampus, particularly the perirhinal cortex, produced more profound recognition memory impairments than selective damage to the hippocampus itself. As noted above, it has become common in modern speculations to deemphasize the role of the hippocampus in familiarity based recognition memory performance.[24] The fact that perirhinal neurons tend to respond to a repeated item in a stimulus- selective fashion, whereas hippocampus neurons tend to convey a non-selective (abstracted) recognition signal suggests that the two regions make distinct, and potentially complementary, contributions to recognition performance.[25] Specifically, activity at retrieval is inversely related to memory strength that is, activity is strongest for novel items and weakest for old items that are correctly recognized.[25] Pandey S. et al. supported the study reported comprehensive cognitive retrain group along with vocational training remote memory, mental balance, immediate recall, retention of similar pair, retention of dissimilar pair during cognitive task performance was significantly higher.[26] It has been recently supported by Joshi et al. mental balance, visual retention, recognition during cognitive task performance was significantly higher in yogic group than control group.[27] On view of the above discussions yoga classes can be offered as a strategy to help health professionals to reduced their work-related stress and balance autonomic nerve activities. This findling is also supported by the study of SL. et. al. in 2015.[28] Therefore, practices that include yoga asanas appear to be associated with improved regulation of the sympathetic nervous system and hypothalamic-pituitary-adrenal system in various populations.[29]

CONCLUSION

To summarize, the present study was conducted in the department of Physiology, Santosh Medical College, Ghaziabad. A total of 150 medical students of 17-24 years age group were included in the study as subjects, who are divided into 75 subjects in control group with 75 subjects in Study group. All the subjects were from same Prof. of MBBS and same socio-economic background. In our study, we tried to find out the impact of yogic asanas and pranayama on memory and cardiovascular parameters in medical students, who are under examination stress.

From this study we concluded that, stress during examination produces adverse effect on memory. Here we also concluded that the practice of yogic asanas and pranayama not only reduces these adverse effects of examination stress, but also produces beneficiary effects on memory performances, that will help the medical students to perform better in examination.

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Authors' Contribution Statement

Subarna Ghosh and Rinku Garg have done the conception or design of the work. Subarna Ghosh also done the acquisition, analysis, or interpretation of data for the work. Rinku Garg also contribute to the drafting the work or revising it critically for important intellectual content. Sushma Sood have done the final approval of the version to be published. Subarna Ghosh and Rinku Garg have done the agreement to be accountable for all aspects of the work in ensuring that questions related to the accuracy or integrity of any part of the work are appropriately investigated and resolved. Lastly all authors read and approved the final version of the manuscript.

CONFLICTS OF INTEREST

We all the authors certify that there is no conflict of interest with any financial organization regarding the material discussed in the manuscript.

Problems and Prospectives on Marketing of Handloom Products in Odisha

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ABSTRACT
The development of a nation is reflected by its successful Industrialization. A Product has no meaning if it is not reached the ultimate consumer. In ancient period fair is the best practice for marketing the products and then marketing has spread its wings to different strategies. The present study is focused on problems and prospective on marketing of handloom products in Odisha. The data has been collected mainly from primary sources by mode of questionnaire. The present topic has also studied various aspects of marketing prospectives in terms of supporting hand given by Govt. and other agencies. The present research revealed that Odisha has built a distinguish image for its handlooms in national and international markets. Increasing rate of consumer participation, more revenue generation shows an upward demand for handloom products in our society.

Keyword: Handloom Products, Marketing, Problems, Prospectives.

INTRODUCTION
The handloom industry occupies an unique position in the Indian rural economy in view of its large coverage, capacity and potential in serving as an important source of livelihood of a fairly large segment of weaver population are from scheduled caste and the other backward Communities.

Odisha, situated on the East coast of India has a rich tradition of Culture, Costume and Crafts through centuries. A land of rich and diverse artistic achievements, Odisha’s art and culture are the product of a long historical process where the spiritual, philosophical and the human dimensions have merged to yield the finest effect of a cultured and civilized life.

LITERATURE REIVIEW
Review of literature has vital relevance with research work. In this regards few studies have been made which emphasized on various aspects. These are:

Kanaka Durga, (1995)summarised the APCO's performance, marketing mix tactics, organisational structure effectiveness, marketing control instruments, and marketing challenges. Kanaka came to the conclusion that APCO has insufficient operating capital and failed marketing tactics in terms of procurement, production, quality, colours, product designs, and packaging.

Amrik (1997) conducted a thorough investigation into several areas of handloom product marketing in the state of Jammu & Kashmir. He looked into the issues that the handloom sector, in general, and the Jammu & Kashmir State Development Corporation Ltd., in particular, were facing in order to make the marketing of handloom products a feasible proposal for the state's economy to function effectively.

Nesor (2001) evaluated the marketing roles of primary weavers, marketing techniques on primary weavers' sales performance, and weavers' perceptions of enhanced market and employment. According to Nesor, no societies established an exclusive marketing department for selling, no product mix plans, no developed brand, and no cost plus pricing mechanism for determining base prices.

Singh and Bansal (2012), they should be cognizant of modern techniques, practises, and tactics. These should be taken by them in order to satisfy their consumers and improve the amount of sales and exports of handloom units.

Narzary (2013) investigated the handloom industry's marketing issues and potential in the Bodoland Territorial Area District. For a better marketing strategy for the handloom business, he proposed logistic management, new promotional advertisement campaigns, continual customer feedback, availability, accessibility, and visibility of the handloom products.

RESEARCH GAP
Handloom industry has not received as much attention as it deserves from economists and researchers, only a few studies have been conducted so far, dealing with some aspects of the industry in Odisha. In this above study ,the role of Government and other agencies are not found. There is no clear picture about the impact on socio-economic factor of weavers towards marketing of handloom products.

HANDLOOM PRODUCTS IN ODISHA

Odisha is known for its rich cultural heritage and creative heritage. It has a long history of producing handloom textiles, particularly Ikat (a resist dyeing process developed from ikat in Indonesia) fabrics. It is thought that the state's old cottage industries and weaving craft existed before 600 B.C. Odisha hand-woven textiles have an unrivalled depth, range, and strength due to the skill and knowledge passed down through the generations. Nuapatana's "Khandua," Maniabandha's "Maniabandhi," Kalahandi's "Habaspuri," Ganjam's "Bomkai," and Sonepur's "Khandua".

Table 1: Geographical Profile of Handloom Products in Odisha

Sl. No.	HandloomProducts	Location
1	Sambalpuri handloom Fabrics	Bargarh and Nuapatna are two major area
2	Cotton & Silk Fabrics	Bomkai (Ganjam), Subarnapur and Boudh
3	Organic Dyed Fabrics (Kotpad saree & scarves)	Kotpad (Koraput)
4	Tassar Fabrics	Gopalpur (Jajpur), Makidia (Balasore), Fakirpur (Keonjhar) and Dihirakul (Mayurbhanj)

Source: Handlooms, Textile & Handicrafts Department, Government of Odisha

Obstacles And Challenges Of Handloom Industry In Terms Of Marketing:

In terms of marketing, the handloom business has faced numerous problems. Due to a lack of marketing data, an inefficient supply chain system, a lack of customer relationship management, a lack of understanding of customer preferences, competition from the power loom and mill sectors, a lack of commercially marketable products, a lack of knowledge about export potential, and competitive price fixing, lack of product development, discontinued marketing incentive, participation in trade fairs, delay in final settlement from Boyanika, lack of product advertisement, lack of understanding the prospective customers' preferences, low export and lack of government support for expo.

Government And Other Agencies Support On Handloom Industry:

For India's handloom weavers, August 15, 1947 was a watershed moment. The Swadeshi movement of Mahatma Gandhi, the usage of Charkha, the spinning wheel, as a symbol of national regeneration, and the subsequent attention on handloom weavers during the freedom movement.

The Block Level Cluster Scheme aims to integrate and holistically develop handloom weavers through skill up-gradation. Bunkar Mitra helpline for handloom weavers has been set up with a toll free number of 1800 208 9988 to provide a single point contact to handloom weavers across the country for addressing their professional queries. Providing distant education courses relevant to the handloom business, For SC, ST, BPL, and female weavers from handloom weavers households, the government grants a 75 percent rebate on course fees.Under welfare measures, handloom weavers are covered under Pradhan Mantri Jeevan Jyoti Bima Yojana(PMJJBY), Pradhan Mantri Suraksha Bima Yojana(PMSBY), Mahatma Gandhi Bunkar Bima Yojana(MGBBY) for those in the age group of 51-59 years. In these schemes, weavers are required to pay only Rs.80 to enrol and rest of the premium is borne by Govt. of India.The Handloom mark was lunched in the year 2006 to provide a distinct identity to handloom products. The India Handloom Brand(IHB)was lunched in 2015 for branding high quality handloom products. It aims to provide a bridge between the weaver and consumer , giving the higher earnings and assurance of quality. Expos and District level events are organised regularly to provide a marketing platform to the handloom weavers. Now 23 e-Commerce companies have been engaged to promote e-Marketing of handloom products. Ministry of textiles has been annually conferring various awards like Sant Kabir Award, National Award and National merit certificate, towards excellence in weaving, design development, and marketing efforts.

OBJECTIVE OF STUDY

- To study the obstacles and challenges faced by the handloom industry in terms of marketing.
- To study the Govt. and other agencies supports to handloom sector and weavers in respect of marketing.

RESEARCH METHODOLOGY:

a) Nature of Data

The present study is based on both primary and secondary data.

b) Sample size

The sample data size consists of 448 respondents in 5 to 6 major districts i.e. Bargarh, Sambalpur, Sonepure, Kalahandi, Koraput and Nabarangpur.

c) Sources of Primary Data
Primary data have been collected through a well-defined questionnaire and direct interview methods from handloom weavers and their family members.

d) Sources of Secondary Data
The secondary data have been collected from various reputed journals, magazines and websites. The collected data have been classified and tabulated according to the requirements of the study.

e) Stastical Tools
The stastical tools like percentage, mean score, standard deviation, coefficient-correlation, paired t-test and multiple regression analysis, Likert's 5 point scale have been used for analysis and interpretation of data.

f) Research Hypothesis
H_{1A} -Obstacles and Challenges on Marketing is faced significantly at Handloom Industry.

H_{1O} -Obstacles and Challenges on Marketing is not faced significantly at Handloom Industry

H_{2A} - Govt. and other agencies support for handloom industry in respect of Marketing is significant.

H_{2O} - Govt. and other agencies support for handloom industry in respect of Marketing is not significant.

ANALYSIS AND INTERPRETATION

Profile on Obstacles and Challenges

The served questionnaire contains the following for getting responses towards obstacles and challenges in the Handloom industry. The responses from weavers have been obtained in a five-point scale as (1) Strongly Disagree, (2) Disagree, (3) Neutral, (4) Agree, and (5) Strongly Agree against the framed questionnaire comprising the related questions. The questions on above cites aspects have been quantified for further analysis and are presented below:

Table-2 : Variables of Obstacles and Challenges on Marketing Profile of the Handloom Industry.

Sl. No.	Variables
1	Lack in available market information
2.	Lack in Promotion and Advertisement of Handloom
3.	Price fluctuations
4.	Unable to exploit export potentiality.
5.	Dependent on Weekly Haats.
6.	Consumers are shifting from handloom products to others.
7.	Lack of financial capability to undertake aggressive marketing activities.
8.	Competition from large-scale sector power looms
9.	Handloom products are available only at limited outlets.
10.	Handloom products are unavailable at vicinity of customers.
11.	Handloom products must be branded and marketed to niche markets
12.	Marketing handloom products online

N.B:- Scores on Likert Scale are obtained as Strongly Disagree [1], Disagree [2], Neutral [3], Agree [4] and Strongly Agree [5].

Table-3: t-Test on Scores towards Obstacles and Challenges on Marketing faced by Male And Female Weavers of Odisha.

Gender	N	Mean	Std. Dev.	t-value
Male	380	4.31	0.26	1.111 ^{NS}
Female	68	4.35	0.26	

NB:* - Significant at 5% level (P<0.05), NS – Not Significant at 5% level (P>0.05) for DF=446.

The mean scores towards obstacles on marketing by 380 male weavers are 4.31 with SD 0.26 and 68 female weavers are 4.35 with SD 0.26. The computed t-value 1.111 is not significant at the 5% level (P>0.05) for DF=446. This indicates both the sections have no significant difference in opinion towards obstacles to marketing. In consideration of the magnitude of mean values, both male (4.31) and female (4.35) weavers are agreed on obstacles on challeng es in marketing.

Table-4: Mean and SD of Scores towards Obstacles and Challenges on Marketing by Different Age Groups of Weavers of Odisha.

Age Groups	N	Mean	Std. Dev.
Young	142	4.21^{E}	0.18
Middle	152	4.34^{F}	0.28
Old	154	4.39^{F}	0.28
Total	**448**	**4.32**	**0.26**

N.B: Same superscript over means along an obstacle indicates their similarity and different superscripts indicate the differences at 5% level (p<0.05).

The mean scores towards obstacles on marketing by 142 young weavers are 4.21 with SD 0.18, 152 middle-aged weavers are 4.34 with SD 0.28 and 154 old weavers are 4.39 with SD 0.28. The computed F-value (19.745) against marketing in Table-4 is significant at 5% level (P<0.05) shows the existence of significant variations among the mean scores of obstacles and challenges on marketing due to age groups.

Table-5: Mean and SD of Scores towards Obstacles and Challenges on Marketing By Different Education Groups of Weavers of Odisha.

Level of Education	N	Mean	Std. Dev.
Up to HSC	232	4.24^{G}	0.32
Higher Secondary	150	4.34^{H}	0.12
Degree	66	4.38^{H}	0.25
Total	**448**	**4.32**	**0.26**

N.B: Same Superscript over Means along an Obstacle Indicates Their Similarity and Different Superscripts Indicate the Differences at 5% level (P<0.05).

The mean scores towards obstacles on marketing by 232 under HSC weavers are 4.24 with SD 0.32, 150 higher secondary qualified weavers are 4.34 with SD 0.12 and 66 degree holder weavers is 4.38 with SD 0.25. The computed F-value (10.322) against marketing in Table-6.22 is significant at 5% level (P<0.05) shows the existence of significant variations among the mean scores of obstacles and challenges on marketing due to education groups.

Table-6: Mean and SD of Scores towards Obstacles and Challenges on Marketing by Different Income Groups of Weavers of Odisha.

Income Groups	N	Mean	Std. Dev.
Low	178	4.40^{G}	0.30
Medium	126	4.34^{G}	0.19
High	144	4.18^{H}	0.22
Total	**448**	**4.32**	**0.26**

N.B: Same Superscript over Means along an Obstacle Indicates Their Similarity and Different Superscripts Indicate the Differences at 5% level (P<0.05).

The mean scores towards obstacles on marketing by 178 low-income group weavers are 4.40 with SD 0.30, 126 medium income group weavers are 4.34 with SD 0.19 and 144 high-income group weavers are 4.18 with SD 0.22. The computed F-value (30.074) against finance in Table-6.24 is significant at 5% level (P<0.05) shows the existence of significant variations among the mean scores of obstacles and challenges on marketing due to income groups.

Profile of Support from Government and Other Agencies

The served questionnaire contains the following for getting responses towards support from Government and other agencies to the Handloom industry. The major thrust has been on marketing of handloom products. The responses from weavers have been obtained in a five-point scale as (1) Strongly Disagree, (2) Disagree, (3) Neutral, (4) Agree, and (5) Strongly Agree against the framed questionnaire comprising the related questions. The questions on above cites aspects have been quantified for further analysis and are presented below:

Table-7: Variables of Support from Government and Other Agencies on Marketing Profile of the Handloom Industry.

Sl. No.	Variables
1	Government's initiatives on Marketing
2.	Government policies on export promotion through domestic and international exhibitions
3.	Promotion of Handloom Brand and Handloom Mark scheme

4.	Setting competitive pricing to increase domestic and international market share
5.	Handloom marketing assistance to organize the marketing events to sell handloom products from district to national level
6.	Organizing Exhibition/ Expos/ Fair by Government
7.	Publicity and Information Dissemination
8.	To link weavers directly with the market
9.	Brand building in global and domestic markets
10.	Govt. awards/rewards the wavers

N.B:- Scores on Likert Scale are obtained as Strongly Disagree [1], Disagree [2], Neutral [3], Agree [4] and Strongly Agree [5].

Table-8: t-test on Scores towards Government and Other Agencies Support on Marketing by Male and Female Weavers of Odisha.

Gender	N	Mean	Std. Dev.	t-value
Male	380	1.99	0.33	0.877 NS
Female	68	2.02	0.35	

NB:* - Significant at 5% level (P<0.05), NS – Not Significant at 5% level (P>0.05) for DF=446

The mean scores towards support on marketing by 380 male weavers are 1.99 with SD 0.33 and 68 female weavers is 2.02 with SD 0.35. The computed t-value 0.877 is not significant at 5% level (P>0.05) for DF=446. This indicates both the sections have no significant difference in opinion towards support on marketing by Government and other agencies. In consideration of the magnitude of mean values, both male (1.99) and female (2.02) weavers are dissatisfied with support on marketing by Government and other agencies.

Table-9: Mean and SD of Scores towards Government and Other Agencies Support on Marketing by Different Age Groups of Weavers of Odisha.

Age Groups	N	Mean	Std. Dev.
Young	142	2.16^{G}	0.24
Middle	152	2.19^{G}	0.39
Old	154	2.24^{H}	0.33
Total	**448**	**2.18**	**0.33**

N.B: Same Superscript over Means along an Obstacle Indicates Their Similarity and Different Superscripts Indicate the Differences at 5% level (P<0.05).

The mean scores towards support on marketing by 142 young weavers are 2.16 with SD 0.24, 152 middle-aged weavers are 2.19 with SD 0.39 and 154 old weavers are 2.24 with SD 0.33. The computed F-value (5.758) against marketing in Table-9 is significant at 5% level (P<0.05) shows the existence of significant variations among the mean scores of Government and other agencies' support on marketing due to age groups.

Table-10: Mean and SD of Scores towards Government and Other Agencies Support on Marketing by Different Education Groups of Weavers of Odisha.

Level of Education	N	Mean	Std. Dev.
Up to HSC	232	2.17	0.35
Higher Secondary	150	2.20	0.32
Degree	66	2.19	0.31
Total	448	2.18	0.33

N.B: Same Superscript over Means along an Obstacle Indicates Their Similarity and Different Superscripts Indicate the Differences at 5% level (P<0.05).

The mean scores towards support on marketing by 232 under HSC weavers are 2.17 with SD 0.35, 150 higher secondary qualified weavers are 2.20 with SD 0.32 and 66 degree weavers are 2.19 with SD 0.31. The computed F-value (0.341) against marketing in Table-10 is non-significant at 5% level (P>0.05) shows similarity among the mean scores of Government and other agencies' support on marketing due to education groups.

Table-11: Mean and SD of Scores towards Government and Other Agencies Support on Marketing by Different Income Groups of Weavers of Odisha.

Income Groups	N	Mean	Std. Dev.
Low	178	2.13 ^{C}	0.38
Medium	126	2.16 ^{C}	0.26
High	144	2.26 ^{D}	0.31
Total	448	2.18	0.33

N.B: Same Superscript Over Means Along an Obstacle Indicates Their Similarity and Different Superscripts Indicate the Differences at 5% level ($P<0.05$).

The Mean scores towards support on marketing by 178 weavers in the low-income group are 2.13 with SD 0.38, 126 medium income group weavers are 2.16 with SD 0.26 and 144 high-income group weavers is 2.26 with SD 0.31. The computed F-value (7.088) against marketing in Table-11 is significant at 5% level ($P<0.05$) shows the existence of significant variations among the mean scores of Government and other agencies' support on marketing due to income groups.

Relationship between Obstacles and Support

It is of great interest to study the relationship between obstacles/challenges and support from Government and other agencies support on marketing avenues for weavers of Odisha. In the first phase, Pearson's correlation has been applied over scores on provisions on support and overall scores towards obstacles and challenges as cited above. In the second phase, multiple regression has been applied over scores on provisions on support (predictors/independents) and overall scores towards obstacles and challenges (dependent) as cited above. In the third phase, the best mathematical relationship exists between overall scores towards support (independent) and aspects (dependent) on a particular avenue. Those mathematical models used are explained in the following as:

Independent (X) = Overall score on Support from Government and other agencies

Dependent (Y) = Overall score on aspects

Table-12: Correlation between Overall Scores on Obstacles and Challenges on Marketing and Various Provisions on Assistance for Marketing by Government for Weavers of Odisha.

Provisions on Assistance for Marketing by Government	Obstacles and Challenges on Marketing
Government's initiatives on Marketing	-0.047
Government policies on export promotion	-0.017
Govt. promotion of Handloom Brand and Mark	-0.015
Govt. price for domestic / international market	-0.136*
Govt. organize marketing events to sell products	-0.212*
Govt. organize Exhibition/ Expos/ Fair	-0.104*
Govt. steps on publicity and information dissemination	-0.140*
Govt. links weavers directly with market	-0.268*
Govt. build Brand in global / domestic markets	0.057
Govt. awards / rewards for weavers	0.044

NB:* - Significant at 5% level ($P<0.05$), NS – Not Significant at 5% level ($P>0.05$) for DF=447.

Table-12 presents the correlation coefficients calculated with the help of Pearson's correlation method between the scores on provisions of support by the Government and other agencies on marketing to combat the marketing crisis of weavers of Odisha. The correlation coefficients between overall constraints on marketing and Govt. links weavers directly with the market (-0.268), Govt. organize marketing events to sell products (-0.212), Govt. steps on publicity and information dissemination (-0.140), Govt. price for domestic/international market (-0.136) and Govt. organizes exhibition/ expos/ fair (-0.104) are significant at 5% level ($P<0.05$) for DF=447.

Table-13: Multiple Regression for Impact of Various Provisions on Assistance for Marketing by Government over Obstacles and Challenges on Marketing of Weavers of Odisha.

Provisions on Assistance for Marketing by Government	Un standardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		

(Constant)	3.963	0.112		35.447	0.000
Government's initiatives on Marketing (X_1)	0.01	0.014	0.035	0.69	0.490
Government policies on export promotion (X_2)	0.015	0.01	0.067	1.419	0.157
Govt. promotion of Handloom Brand and Mark (X_3)	0.007	0.013	0.027	0.584	0.559
Govt. price for domestic / international market (X_4)	-0.051	0.013	-0.178	-3.956	0.000
Govt. organize marketing events to sell products (X_5)	-0.051	0.013	-0.179	-3.872	0.000
Govt. organize Exhibition/ Expos/ Fair (X_6)	-0.012	0.016	-0.039	-0.792	0.429
Govt. steps on publicity and information dissemination (X_7)	-0.085	0.017	-0.242	-4.99	0.000
Govt. links weavers directly with market (X_8)	-0.109	0.014	-0.363	-7.74	0.000
Govt. build Brand in global / domestic markets (X_9)	0.023	0.013	0.077	1.744	0.082
Govt. awards / rewards for weavers (X_{10})	0.024	0.013	0.082	1.789	0.074

NB:R = 0.405, R^2 = 0.202.

Table-14 presents the results obtained on the application of multiple regression analysis using the scores on provisions of marketing support by the Government and other agencies as independent variables and constraints in the marketing of weavers of Odisha as a dependent. The coefficient of determination (R^2) has been computed as 0.202 which indicates only 20.2% of the data has been explained in this regression analysis. But the magnitude and sign of the t-values shown against each provision (independent variable) indicate its quantum and type of impact over obstacles and challenges on the marketing of the weavers. Accordingly, X_{10}, X_9, X_2, X_1, and X_3 have descending positive impact over obstacles and challenges on marketing as the descending t-values shown against these Xs are 1.789, 1.744, 1.419, 0.690, and 0.584 respectively. Further X_8, X_7, X_4, X_5, and X_6 have descending negative impact over obstacles and challenges on marketing as the descending t-values shown against these Xs are -7.740, -4.990, -3.956, -3.872, and -0.792 respectively. The expected mathematical equation relating to the above is

$Y = 3.963 + 0.010 * X_1 + 0.015 * X_2 + 0.007 * X_3 - 0.051 * X_4 – 0.051 * X_5 - 0.012 * X_6$

$- 0.085 * X_7 – 0.109 * X_8 + 0.023 * X_9 + 0.024 * X_{10}$

Table-14: Mathematical Relationship between Overall Scores towards Provisions on Assistance for Marketing by Government and Obstacles and Challenges on Marketing of Weavers of Odisha.

Models	R Square	Parameter Estimates			
		Constant	b1	b2	b3
Linear	0.048	3.865	-0.173		
Quadratic	0.106	7.103	-2.313	0.351	
Cubic	**0.110**	**6.256**	**-1.357**	**0.002**	**0.041**
Logarithmic	0.058	3.969	-0.57		
Inverse	0.068	2.746	1.783		
Compound	0.044	3.869	0.952		
Power	0.054	3.987	-0.163		
S	0.063	1.033	0.51		
Growth	0.044	1.353	-0.049		
Exponential	0.044	3.869	-0.049		

Table-14 presents the results obtained on the application of mathematical models (Eqn. 6.1 – 6.10) using the overall average scores of support by the Government and other agencies for marketing as an independent variable and obstacles and challenges on the marketing of weavers of Odisha as a dependent. The coefficient of determinations (R^2) against each model needs to be considered for determining the best-suited model for establishing the mode of the impact of support of Government and other agencies over the obstacles and challenges on marketing. Now, R^2 value shown against the cubic model (0.110) is the highest among all R^2 values. Hence, the desired relationship may be expressed as

$$Y = 6.256 - 1.357 * X + 0.002 * X^2 + 0.041 * X^3$$

where

Y = Average scores of support by Government and other agencies for marketing

X = Average scores obstacles and challenges on marketing

CONCLUSION

Weavers are the major stakeholder of the handloom industry. The conclusions so obtained have been presented in the following:

Non-significant variation in opinion towards support from obstacles and challenges over Government and other agencies in marketing from both male and female weavers.

Significant variations in opinions towards obstacles and challenges over Government and other agencies faced in marketing sectors are witnessed from weavers of different age groups. Middle and old groups face the obstacles and challenges on marketing to the same extent with a little variation from younger.

Significant variations in opinions towards obstacles and challenges over Government faced in marketing sectors are witnessed from weavers of different income groups. The micro-level analysis reveals that in low, medium, and high-income group weavers face the obstacles and challenges differently from each other.

It is observed that Govt. Link's weavers directly with the market, organize marketing events to sell products, steps on publicity and information dissemination, pricing for domestic/international market and organizes exhibition/ expos/ fair have negative significant individual impact over obstacles and challenges on marketing faced by weavers of Odisha. Further, the Government's initiatives on marketing, on export promotion, promotion of handloom brand and mark and Govt. Awards/rewards for weavers have non-significant little impact over obstacles & challenges on marketing faced by weavers of Odisha.

While considering the simultaneous impact of all aspects of marketing support from the Government and other agencies, it is observed that Government initiatives on award/reward for weavers, building brand in global/domestic market, policies on export promotion, marketing, and promotion on handloom brand have descending positive impact over obstacles and challenges on marketing. At the same time, Government initiatives on promoting links between weavers with market, publicity, price for domestic/international market, organizing marketing events, and conducting exhibitions / Expos / Fairs have descending negative impact over obstacles and challenges on marketing.

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Venture Capital –Post Covid-19

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ABSTRACT
The widespread of COVID 19 remains a health and humanitarian crisis affecting businesses and economy worldwide. The effect of COVID-19 is deep and far-reaching. The current pandemic has paralysed the entire economy including various sectors comprising of Airlines, Oil and gas drilling, Auto parts and Equipment and restaurants. In the given paper, the author tries to understand the impact of venture capital on the Indian economy, To study initiatives taken by the government to boost Venture Capital and how venture capital firm has revived post COVID -19. The researcher has used secondary data to understand the growth and adoption of hybrid model and digitalisation post COVID -19 for growth achieving the desired goal of firms. This data comprises literature review from journals/books, published sources, Newspapers, websites, blogs, and podcasts. Results reveal that the COVID-19 pandemic has affected the global economy and has left the world in uncertainty and instability. Despite the challenges, VC firms have successfully revived post COVID -19 and are on way to digitalization.

Keywords: Technology and Digitalization, venture capital, COVID-19, Startups, Vocal for local

INTRODUCTION

Venture capital is a vital source of financing. It is not a new concept and have come to existence in America around 1947.Over a period of time many countries across globe including France, Germany, UK, China, Japan, Israel and Taiwan started to recognise venture capital as an adequate source of funding to the start-up and helped to build the ideas into global business. A major development in venture capital investment recorded in the three vital venture capital markets i.e. the USA, China and Europe .It was in the year 2014 when highest capital investment was recorded for venture capital investments (Ernst & Young, 2014-2015).Development of venture capital firms depends on various factors including regulation, government support, entrepreneurial culture and innovation.Venture capital acts as an activator ,thus accelerating the pace of the economy and empowering it for facing the competition at the global level (Ajinkya and Goradia , 2002).In the last few decade VC Firms have grown tremendously imbiding the technological innovation ,creating economic growth and employment in many developed and developing nations (Ning,Y. et al., 2015).In one of the research , it has been highlighted that there are lot of challenges and problems which are identified in venture capital industry ,hence it becomes essential for these industries to work for cost effectiveness, updating technology ,initiate the right access to vital human resources to direct and track new ventures, as well as the obligatory funds to finance them (Mahesh, V.2019). Venture capital financing have helped many countries in achieving increased employment opportunities, large-scale industrial development and higher revenue generation to the government (Subhash, K. B. and Nair, T. G.2004). In Asia, the economic and political environment influence the venture capital market to larger extent .Some of the major sources to venture capital investments from private funds and government owned institutions Naqi, S.A. and Hettihewa, S. , 2007). Venture capitalists typically comes in picture when companies have already received more than one rounds of angel finance .At times , venture capital may be utilised for financing product development costs in case of biotechnology industry (Berger and Udell, 1998).

Venture Capital by stage

	Stages	Definition*
Venture capital	Pre-seed/Seed	Financing provided to research, assess and develop an initial concept before a business has reached the start-up phase
	Start-up/ Other early stage	Financing for product development and initial marketing. Companies have not sold their product commercially and are in the process of being set up.
	Later stage venture	Financing for the expansion of an operating company.

Source: Source OECD (2014d); *www.evca.eu

OBJECTIVES

- To study the impact of venture capital on the economy
- To study initiatives taken by the government to boost Venture Capital
- To study how venture capital firm has revived post COVID -19.

RESEARCH METHODOLOGY

The research has been done using secondary data sources. It is studied based on data available from the Ministry of Finance, RBI reports, Government reports, Books/Journals, published sources, Newspapers, websites, blogs, and podcasts.

LITERATURE REVIEW

The growth and development of new ventures play a significant role in shaping the economy of a nation and contributes significantly in job creation (Gompers & Lerner 1999, Amason & Sapienza 1993, Gregorio & Shane 2003). In the times of disruption, there is need to encourage vocal for local to promote tourism,heritage conservation, localism, and biodiversity in order to sustain the crisis (Outlooktraveller,2020).The economic exploitation of India's resources was the major reason for poverty in India .Mahatma Gandhi including other prominent leaders such as Dadabhai Naoroji and RC Dutt were on the opinion to promote "made in India " goods (The Pioneer, April 2021). COVID-19 Pandemic has affected different business lines with huge disparities in global production, supply chains and cross border as well as inter-country trade. (Business Management, May 2020). Digitalization has helped in leveraging the portfolio startups. enterprise software still enables progress in digitalization today through progressive integration and automation, utilizing socio-technical transformation (Legner et al., 2017).For the last decade,the trend in venture capital in the country is changing owing to corporate collaborations, IPO Exists etc (Gompers, I. and Lerner, J, 2001).Venture capital by adopting technology innovation and overcoming the macro environment challenges have successfully contributed in entrepreneurial activities for economic growth .The researcher highlights that Venture Capital and Private Equity investors are more interested to finance and invest in late stage companies with longer track records (Annamalai, T. R.,2012).Researches showed that COVID-19 had a significant impact on demand for digital goods and services(J.P. Morgan, 2021; Morgan Stanley, 2020).In the pandemic, relationship between VC and Digital Finance Market have been made evident that digitalization can be the stepping stone to success for the organisations.

Alternative External Financing Techniques for SMEs and entrepreneurs

Low Risk/ Return	Low Risk/ Return	Medium Risk/ Return	High Risk/ Return
Asset-Based Finance	**Alternative Debt**	**"Hybrid" Instruments**	**Equity Instruments**
• Asset-based lending • Factoring • Purchase Order Finance • Warehouse Receipts • Leasing	• Corporate Bonds • Securitised Debt • Covered Bonds • Private Placements • Crowdfunding (debt)	• Subordinated Loans/Bonds • Silent Participations • Participating Loans • Profit Participation Rights • Convertible Bonds • Bonds with Warrants • Mezzanine Finance	• Private Equity • Venture Capital • Business Angels • Specialised Platforms for Public Listing of SMEs • Crowdfunding (equity)

Source: OECD (2013b).

Impact of venture capital Economy

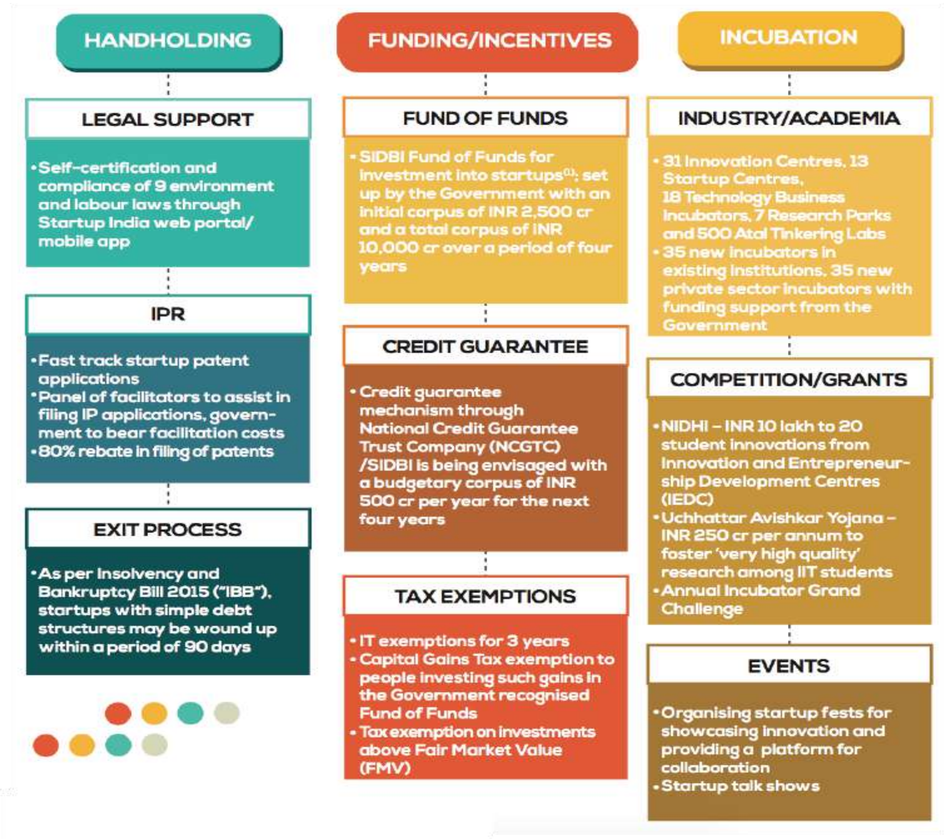
Venture capital plays a vital role in economic growth and innovation. Venture capital (VC) investments often gets affected by the economic boom and bust effect. Therefore, investments are considered highly volatile and cyclic in nature. It is observed that when the economy flourishes, venture capital investments grow and vice versa. History has witnessed some of the wort recessions and declines in the economy. One of such crises was tech bubble crisis (1999–2001) and the financial crisis (GFC) (2007–2009) VC financing of entrepreneurial ventures declines and the investors focusses on investing in already existing portfolios to the riskier opportunities. (Gompers et al., 2008, GomVC pers & Lerner, 2004, Bernstein et al., 2019). The revival of the US as a technology leader is closely linked to the success of Silicon Valley. Many Asian countries including Singapore, South Korea, Hong Kong and Japan have taken initiatives to promote venture capital industries since they are very much aware of the fact that the investment and promotion of venture capital firm will accelerate economic growth. Japan has made amendments wrt the regulations in order to promote venture capital. In Japan corporate pension funds were also allowed to invest in venture investment. Another amendment included the special tax deduction up to three year to ones who invest in start-up ventures as per The Angel Tax Incentive ,1997 (Francis C.C. Koh a,Winston T.H. Koh,2002).On the other hand, Singapore government have also done enormously to provide an environment for entrepreneurship to thrive. In this way these countries are undoubtedly paving its way to Country's economic growth..Hong Kong and Malaysian governments have taken active initiatives to invest US$100 million fund to invest in private equity /venture capital funds and have lunched MSC Venture Corporation respectively

Initiatives taken by the government to boost Venture Capital

Startup plays an important role in creating a healthy Ecosystem .Government facilitated through various government departments & programs. Start-up India takes the below initiatives to grow and boost Startups in the country and nurture the innovation. Atmanirbhar Bharat and Startups India are the new initiatives by the government of India in order to support the businesses with simplified compliance requirements and availability of capital for start-ups in India. Atmanirbhar Bharat has been established to make India Self-reliant. The Hon'ble Prime Minister, Shri Narendra Modi announced an economic package of INR 20 lakh crore in order to support the country in the pandemic . Beside this government has taken efforts for announcing announced new regulation in 2020 wrt to alternative investment funds in India .Indian Government enable 100 per cent FDI in B2B and e commerce industry and contributed to its growth in Covid-19 epidemic.

Some of the initiatives by Government of India relating to venture capital funds and private equities are as follows:

- The investment around 37 Billion ware done in the year 2019
- India aims to achieve 5 Trillion USD economy by 2024-25. Hence, major role of investing more than 100 billion USD lies in the hands of venture capital funds and private equity. Taxation policies of a country have an impact on the country. In order to achieve the set goal of attaining 5 Trillion USD economy by 2024-25, the government need to focus on the taxation policies.
- As per the proposed budget 2020 there has been need to reduce the impact of the imposition on the multi-layered companies, the domestic companies will be eligible for setting-off the received dividend vis-à-vis the paid out dividend (Anil Agrawal,2020)



Source: Startupindia

Some of the other measures taken across globe to reduce the effect of post COVID -19 pandemic are as follows:

- Many businesses across Japan have lost more than half of their annual sales. Hence, Government of Japan has backed zero-interest unsecured loans for these businesses
- United States have reduced overhead expenses and have granted a three-month extension on tax payments
- Bahrain has waived three-month rent for tenants in state-owned properties.
- South Korea have reduced corporate income taxes of up to 60%

Venture capital firm post COVID -19

COVID-19 crisis has proved to be a unique one till date since it not only caused turbulence to global health hazard but impacted Economic, political and social environment .The pandemic has hit the Venture capital's landscape to many folds.It has not only increased the economic and investment uncertainties for VC investors but there has been disruption on investors assessing portfolio venture prospects(e.g., Chemmanur et al., 2011; Rosenbusch et al., 2013). It is observed that venture-backed companies are concentrating and shifting their focus on their survival rather than seeking new opportunities (Rob Carlson and Jake Funk, Sidley Austin LLP, 2020).As per the report, VC's investment pace was 71% of their normal expected activity and expects that the investment will grow by 81% for rest of the year. The extent of the decline, is however not certain as compared to the dotcom bust of 2001 and 2002, when investment declined by more than 50% and the financial crisis, when investment declined by 30% in 2009.VC firms expects the investment terms to get simplified post COVID-19 (GGKS ,2020).More staggered financing is observed post COVID-19 Crisis .Due to COVID-19 few companies and their investors accepted financing at premoney valuations that render pre existing equity at mere cents on the dollar of their prior value.

FINDINGS

- While the pandemic affect have almost minimised, It is observed that India VC capital 2021 remained robust with effective deal flow, continued thrust in industries such as consumer technology, fintech etc .
- Average deal size has reduced but there is increase in the various investment activities especially in the tech, edtech, gaming, foodtech and entertainment industry.
- Silicon Valley is acting as guidelines for all the Asian countries to look out for growth. The risk taking ability, acceptance of global talents, openness to ideas are have helped the silicon valley to reach its level (Francis C.C. Koh , Winston T.H. Koh ,2002)
- Most of the Asian countries especially Singapore has entered a new level of economic growth and development. It is successfully replicating the Silicon Valley's success for developing its nation. The Silicon Valley has well exhibited that thoughtful policies and support by the government on venture capital industry can give rise to heathy ecosystem for innovation and entrepreneurship, which in turn will pay create employment in the ecosystem. (Francis C.C. Koh, Winston T.H. Koh, 2002).
- Initiatives are taken by the Indian Government for increasing the private equity investments and venture capital funds in the nation by reducing the Multi-layered structure for dividend,close monitoring the adverse impact on the Infrastructure Investments Trusts (InvITs) and Real Estate Investment Trusts (REITs) prospectus, Exemption for the sovereign funds etc
- All the startups In India whose revenue is more than 100 Cr. will earn a deduction of 100% of their earned profits for a time period of 3 consecutive years from the total of 10 years from the date and year of the incorporation of the company.
- Start-ups are facing 53% slower fundraising with an unresponsive lead investor

SUGGESTIONS

- By taking prudent measures on amending the policies and framework, the government should try to ease the problems faced by the private equity investors and venture capital funds provider and attract them to invest more in the country.
- With decreased investments in seed-stage ventures. It is observed that crowdfunding and ICOs have low transaction cost due to digitalization. Hence, they seem to be an attractive for seed ventures (e.g., Block et

al., 2020; Fisch, 2019). Therefore, VCs' lower investments could partially reflect seed-stage ventures relying more heavily on digital finance instruments.

- Investors are ever demanding. Hence, they might ask risk mitigation strategy in the extraordinary event like COVID-19 from the VC Firms. While startups have always been digital innate as compared to large organizations. Hence, instances of moving away from digital strategy for growth firms is common.
- Most of the smaller firms aims at growth metrics rather than long-term robustness of processes. The VC firms should adopt technologies such as RPA, AI and digital decisions for combating the pandemic effect. Post COVID-19, Hybrid model adopted by VC Firms can be effectively used post wherein working from home and partly meeting clients physically can be used.
- Fiscal relief wrt dividend paid to VC funds should be provided in order to promote and develop venture capital business
- The role and functions of venture capital association should be strengthened.

CONCLUSION

In the unprecedented time, economists and consultants have referred Covid-19 as the "black swan". It has overshadowed 2008 financial crisis and the 2001 dot com bubble. Inspite of lot of challenges including reduced Average deal size, decline in profitability, Venture Capital in India remained robust with effective deal flow, continued thrust in industries such as consumer technology, fintech etc. Adopting new age technology in VC firm will certainly boost the venture capital business. Government is taking initiatives to empower venture capital post COVID-19 in order to build a strong progressive ecosystem.

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Innovative Banking Technologies in India: Customers Perception

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ABSTRACT

Banking Industry is one of the key industries for the country's long run growth and development. During the past decade innovative technologies has been becoming an integral part in banking business. With the employment of ATMs, credit cards, debit cards, mobile banking, online banking and other innovative technologies the banking industry of India has been speeding up its growth at lower risk. It allows the people to interact with the banks from any geographical location without visiting the respective bank branch. In the present paper a primary level study is conducted consisting of 40 randomly selected respondents. Respondents were personally interviewed with the help of questionnaire on the use of different innovative technologies adopted by the banks.

Keywords: Bank, Industry, Innovative, Technology

INTRODUCTION

Banking Industry is the sole industry that deals with money and credit. It accepts people's deposits and makes availability of funds to the one who is in need of it and also it helps in the movement of money from a one particular place to another. Banking industry has been serving its people through different channels since the time of its origin. Banking operations has been transformed into new dimension with the application of information technology. After the nationalization of the banks in 1969, the banking industry of India has adopted numerous innovations and diversifications in its functioning. At present, banking industry in India is building its banking services and operations with the use of modern updated computers and communication technology. These new innovative technologies have made the banking service easily available within any geographical boundary. The industry has been continuously absorbing the updated innovative technologies to devise new products and services for its customers. The society of India along with the trade and commerce has transferred into an electronic world since after the digital revolution. The survival of today's business mainly the banking business depends on the use of modern innovative electronic technologies. The banking industry has redefined the new frontiers in banking with the growth of modern technologies. Banking innovative technologies of India includes Electronic banking (E- banking), Credit cards, Debit cards, Internet banking, Mobile banking etc. Availability of these innovative technologies in the banking system has helped the Indian banks in overcoming the hindrances in fund transfer and avoids the holding of cash in hand. Innovative technologies help the banking industry to speed up the banking operation, attract more customers and provide efficiency in delivering mass service. Although the banking industry has been growing in a new dimension with the continuous introduction of innovative technologies but it has been observed that new technologies has occupied only the younger generations mainly the educated one as compared to the older persons. In the present study an attempt has been made to study the perception of people regarding the innovative technologies adopted by the bank.

OBJECTIVE

The present paper aims to study the innovative technologies adopted by the Indian banks and to analyze the customer's perception and their use of the innovative technologies.

METHODOLOGY

For the present study both primary and secondary data source has been used. A sample of 40 customers belonging to different age groups having bank account were randomly selected and interviewed from Panitola Development Block of Assam. Secondary data's are used from research papers, journals, government official websites and RBI bulletin for the purpose study. Collected data's are analyzed with the help of tables, diagrams and graphs.

REVIEW OF LITERATURE

K. Anitha, S. Saranya, S. Vasantha,(2013), in their research article **"An Exploratory Study on Usage of Technology in Banking Sector"** mentioned that advancing technology has made the banking sector a successful one in the modern days. Innovations of ATMs, credit cards, mobile banking, tele-banking and internet banking have made the transaction easier and quick in modern times. The study suggested awareness of technologies among people should by adopted for its effective implementation and wide coverage

V. T. Khanna, N. Gupta, (2015), made a descriptive study on **"Customer's Perception about Banks Technology for Innovative delivery Channels of Public Sector Banks of India".** In their study they have found that acceptability of banking technologies highly depends on demographic profile. Newer technologies have helped the customers in different aspects. To them it has made the banking service delivery system easier and user friendly. They have mentioned that the reliability of the technological service is less in case of public sector banks as compared to the private banks.

Y.V. Rao and S. R. Budde, (2015) conducted a primary level study consisting of 200 sample respondents on **"Banking Technology Innovations in India: Enhancing customer value and satisfaction".** In the study they have highlighted that the banks have gain competitive advantages by adopting technological innovations in customer service process. Technological advance has brought the banking system into the door step of the customers. Findings of their study says that younger generations are more satisfied with the innovative technology of banks and constantly uses it as compared to the older people.

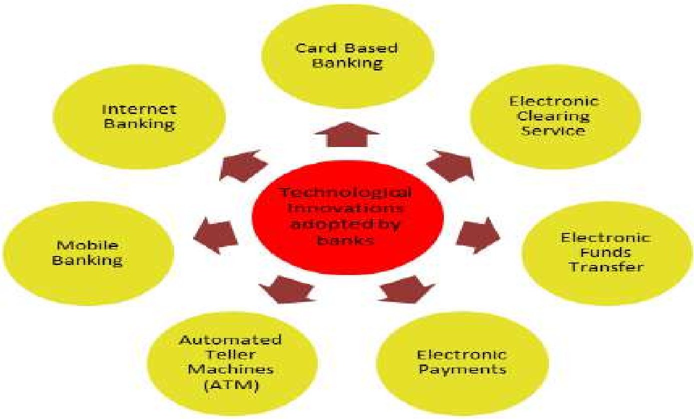
A. Raj, B. N. Rao, in their case study **"A Study on Role of Technology in Banking Sector" (2018)** observed that technological innovation is playing an important role in providing better banking services to its customers. Their study reflects that people prefer using different technological services provided by the banks such as ATMs, internet banking, mobile banking for daily purpose. To them banking operation has become easier after the introduction of technological facilities in the industry

M. Ayachit, in their study **"ICT Innovation in Indian Banking Sector: Trends and Challenges"** mentioned that with the continuous innovation in banking technologies in India the virtual banking system has become a reality. It shows that new technologies are highly accepted and recommended by the educated urban youths. The study is limited to only few selected banks of India and the conclusions are drawn on the basis of it.

ANALYSIS AND INTERPRETATIONS:

1.1. Technological Innovations adopted by banks

Electronic banking commonly known as E-banking is an innovative technology adopted by modern banks of India where a customer can perform his banking transactions electronically without visiting a bank branch. Electronic banking in India was for the first time used by ICICI Bank in 1997, since then most of the other banks both government as well as private starts providing the E-banking service. It allows customers to interact with banks through different innovative channels such as internet banking, telebanking, phone banking, on-line banking, ATMs etc.



Electronic Clearing Service (ECS): This facility is used to receive and make current payments. It is of two types: Credit Clearing and Debit Clearing. Credit clearing is a process where an individual or business house makes payment from its bank account directly to the beneficiary's bank account. Debit clearing on the other hand helps in making periodic payments like telephone bills, electricity bills, installments, insurance premium etc.

Electronic Fund Transfer (EFT): It helps to speed up the movement of funds from one account to another through electronic media

Electronic Payments: Electronic Payments are effected through e-cheque, credit cards, debit cards and smart cards. This new innovative technology of banking industry is making the cash as well as non-cash payments easier and efficient.

Automated Teller Machines (ATMs): Introduction of ATM cards by the banking industry have made the banking service easily available to its customers without any difficulty. ATMs are an electronic device that helps the customers of banks to perform banking activities without visiting bank offices and interacting with human service providers.

Mobile Banking: Mobile banking is one of the recently innovated technologies by the modern banks. Mobile banking channels operates through the tele-banking executives of the or through Interactive Voice Response System. Mobile banking service is provided to the bank accounted holders and also to the credit account holders.

Internet Banking: Internet banking service helps a customer holding a bank account by providing transaction on internet through the bank website. It is also called as virtual banking where a customer is informed about the products and services provided by the bank through the computers. With the modern internet banking system a person can deposit cheque or withdraw cash and request for an account by sitting at home without visiting bank branch.

Card Delivery System: Card based delivery system provides banking services through different cards such as credit card, debit card, smart card and virtual card.

a. **Credit Card:** Another innovative technological service provided by the modern banks is credit cards, which enables the card holders to purchase goods as well services and make payments latter through the agency that has issued the card. In India credit cards are introduced by Andhra Bank & Central Bank for the first time in 1981.

b. **Debit Card:** Debit card is one of the popular innovative instruments used by modern banks. It helps the debit card holders to access funds in their respective bank accounts. It also helps to obtain goods and services and pay for it directly from the bank account. This new innovative technology helps to avoid risk of carrying cash without any transaction cost.

c. **Smart card:** Smart card is an updated plastic card similar to credit and debit card. It is also known as Chip Card since it carries a magnetic strip which is enclosed with a computer microchip. Smart cards are pre-paid card or pay-before card which is designed to perform activities in a wider range.

d. **Virtual Card:** Virtual cards are designed by the banks mainly for those card holders who do not want others to know their credit card numbers in the merchant website from the fear of unauthorized card use. Virtual cards are introduced in India for the first time by the HDFC Bank.

1.2. Customers Perception on Innovative Technologies adopted by the banks

Table1: Percentage Distribution of People regarding awareness of technological services provided by banks.

Respondents	Frequency	Percentage	Mean
Fully aware	13	32.5%	13.33
Had an idea about the service	17	42.5%	
No idea	10	25%	
Total	40	100%	

Source: Field Survey

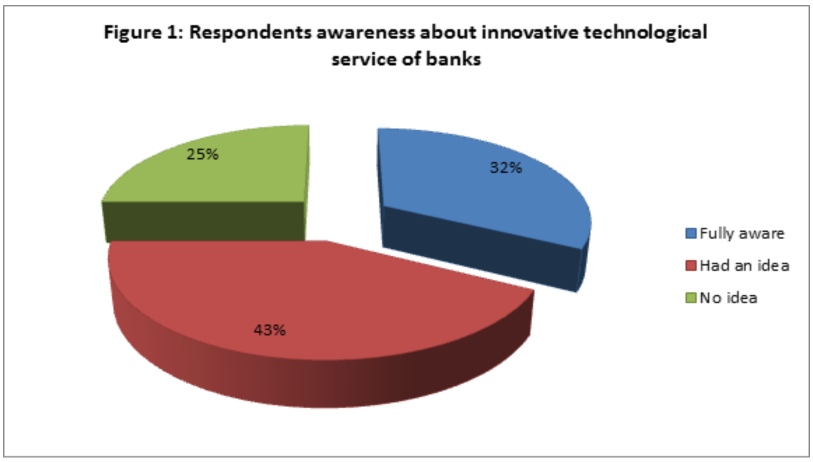
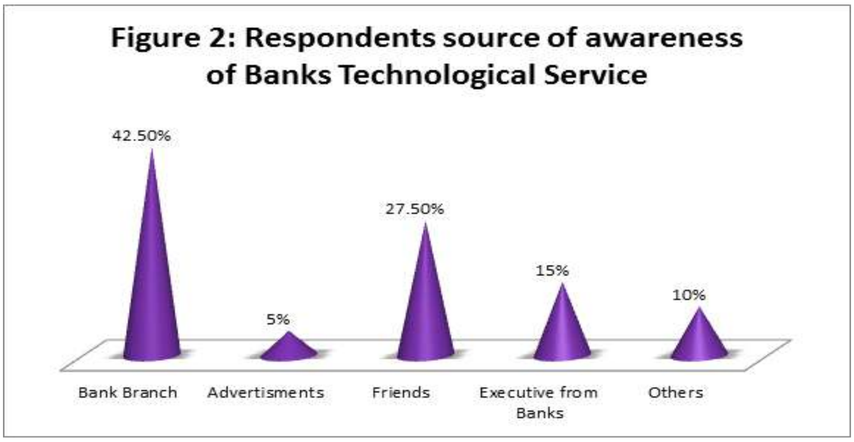


Table1 and Figure 1 above show that out of the 40 respondents, 25% of the respondents have no idea about the innovative technological service adopted by the banks. 32% of the respondents opined that they are fully aware of all the innovative measures undertaken by the banks and 43% of them informed of having an idea only about the technological banking service.

Table 2: Percentage Distribution of respondents about the source of awareness of the Technological Service of Banks

Respondents	Frequency	Percentage
Bank branch	17	42.5%
Advertisements	2	5%
Friends	11	27.5%
Executive from Banks	6	15%
Others	4	10%
Total	40	100%

Source: Field Survey

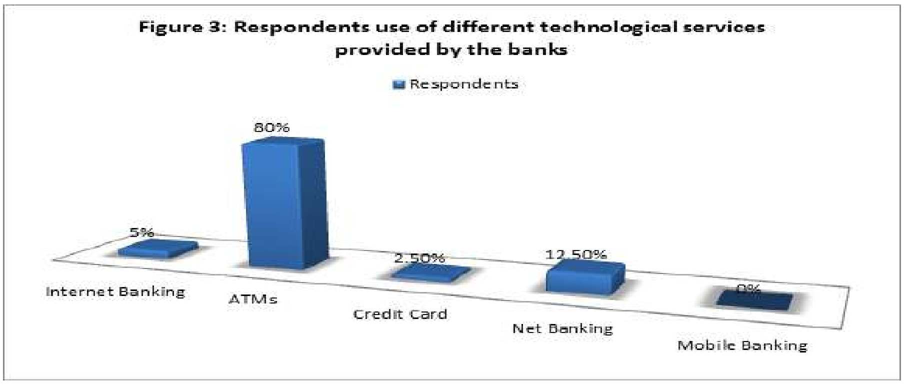


The table 2 and figure 2 above depicts the respondent’s source of awareness of technological service provided by the banks. 42.5% of respondents responded that they got to know about the technologies from the bank branch itself. 5% of them responded that they have learned about the banking service from different advertisements. 27.50% of them stated that they have known about the technology provided by the bank from their friends. 15% and 10% of the respondents are awarded about the banking technology from the executives and other sources such as relatives.

Table3: Percentage Distribution of respondents regarding frequent usage of technology

Respondents	Frequency	Percentage
Internet Banking	2	5%
ATMs	32	80%
Credit Card	1	2.5%
Net Banking	5	12.5%
Mobile Banking	0	0%
Total	40	100%

Source: Field Survey



During the survey 80% of the respondents responded of using ATMs facility provided by the bank for day to day transactions. 12.50% responded of using Net banking and 5% responded of using internet banking to meet their financial needs. Only 2.50% are aware of credits cards and responded of using it for financial transactions. While none of the respondents during the survey responded of using mobile banking facility. It was observed that people do not use mobile banking facility for banking purpose.

Table 4: Percentage Distribution of Respondents regarding the use of branch banking

Use of Branch Bank (per month)	Frequency	Percentage
0 times	15	37.5%
1-4 times	13	32.5%
5-8 times	9	22.5%
9- 12 times	3	7.5%
Above 12 times	0	0
Total	40	100%

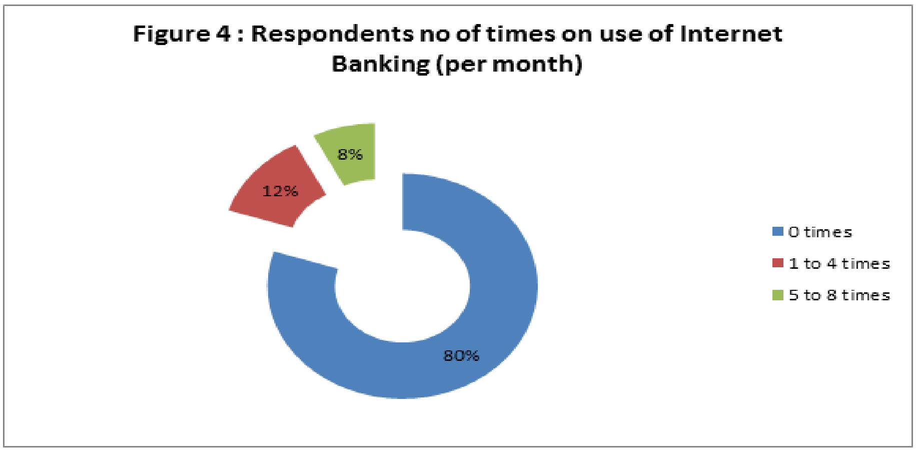
Source: Field Survey

In was observed during the field survey that maximum amount (37.5%) of respondents do not visit to bank branch even in a month for banking purpose. They responded that without going to the branch they fulfill their financial needs by adopting the innovative technological facilities provided by the banks. 32.5% responded of visiting bank branch for 1 to 4 times in a month and 22.5% responded of visiting bank branch for 5 to 8 times in a month for banking purpose.

Table 5: Percentage Distribution of Respondents regarding the number of times of use of internet banking

Use of Branch Bank (per month)	Frequency	Percentage
0 times	32	80%
1-4 times	5	12.5%
5-8 times	3	7.5%
9- 12 times	0	0%
Above 12 times	0	0%
Total	40	100%

Source: Field Survey



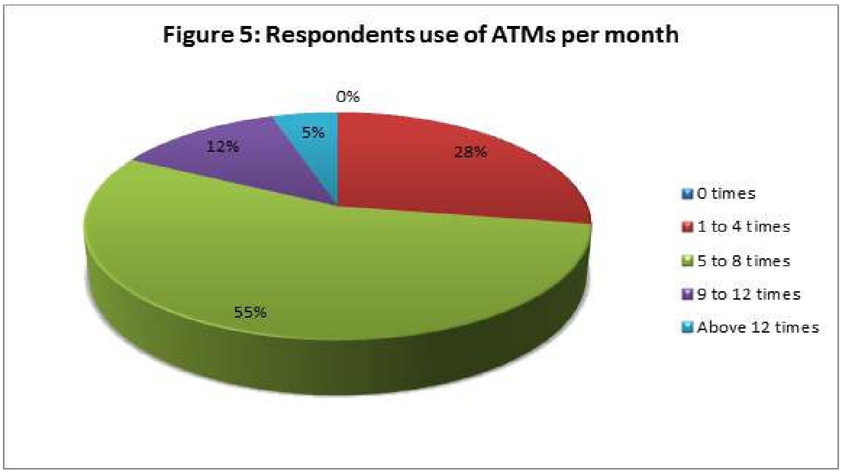
The table 5 and figure 3 above shows that 80% of the respondents do not used the internet banking facilities provided by the banks. The main reason for not using the internet facilities provided by the banks is that they do not properly know the use of it for banking purpose. 12.5% of the respondents that in a month they sometimes use internet banking facility for 1 to 4 times. While only 7.5% of the respondents responded of using internet banking for 5 to 8 times in a month. The respondents opined that they use internet banking mainly for online transactions, bill payments etc.

Table 6: Percentage Distribution of Respondents regarding the use of ATM facilities

Use of ATMs (per month)	Frequency	Percentage
0 times	0	0%
1-4 times	11	27.5%
5-8 times	22	55%
9- 12 times	5	12.5%

Above 12 times	2	5%
Total	40	100%

Source: Field Survey

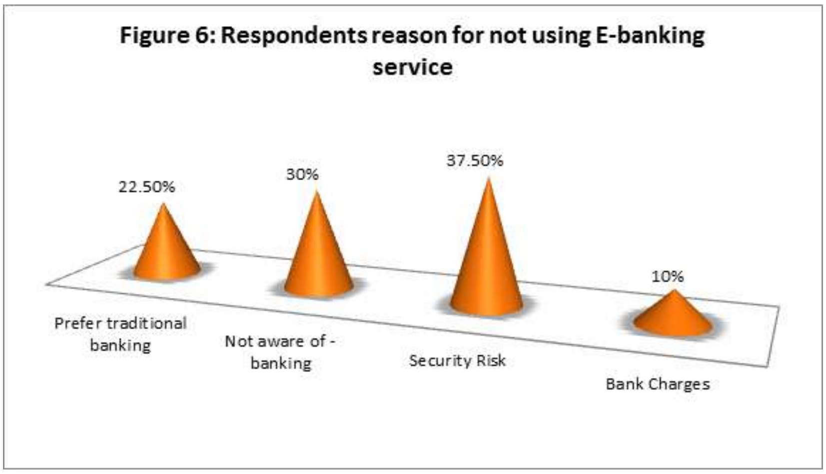


It was seen that all the 40 respondents of the study adopts the ATM facilities provided by the banking institutions. 55% of respondents responded that minimum 5 to 8 times they visit ATMs for transaction. 5% of them responded that they visit ATMs above 12 times in a month to meet the financial needs.

Table7: Percentage Distribution of respondents for not using E-banking service provided by the banks

Reason against E-banking Services	Frequency	Percentage
Prefer traditional banking	9	22.5%
Not fully aware about E-banking	12	30%
Security risk	15	37.5%
Bank charges	4	10%
Total	40	100%

Source: Field Survey



It was observed from the study that 37.50% of respondents do not prefer to use E-banking facility of the bank because of security risk. 30% of them responded of not using E-banking facility of the bank because they informed that they were not fully aware of it. 22.50% responded that they prefer traditional banking (i.e. visiting bank branches for depositing and withdrawing purpose) than the modern technological facilities provided by the banks.10% opined that bank charges higher interest for using technological services.

CONCLUSIONS

Banking institutions are an integral part of an economy. It aims at providing adequate financial service to its customers. From the study it can be concluded that continuous innovative technologies adopted by the banking industry has made the availability of money easier. It was observed that people prefer to use innovative technologies such as ATMs, debit cards, credit cards, internet banking etc. for transaction purpose rather than visiting bank branches again and again. Although the innovative technology has made banking easier but it was known from the study that the new technology is being adopted only on a smaller section of the society. Lack of technological awareness act as hindrance in the path of advancement of rural areas. Proper policies should be undertaken to spread knowledge and use of banking technological advancement among the people for its fuller utilization.

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Impact of Green Human Resource Management on Work-Life Balance and Employee Health in the Automobile Industry

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ABSTRACT
In the present circumstance, there is increasing care inside business networks particularly in the automobile business at the centrality of making steps towards ecological cordialness and getting exceptional situation control techniques. Green HRM becomes one of the main procedures for the prominent vehicle industries wherein Human Resource Departments have a colossal obligation to take the steps toward work environment natural neighbourliness'. The fundamental goal of such assessment is to check Green Human Resource Management and its impact on the balance between fun and serious activities and workers Health in Automobile Industry. This look practices in why and how Green Human Resource Management rehearses are conveyed out through various associations. Furthermore, this assessment additionally assesses poor people and high-quality influences of green-HRM on personnel fitness and their dedication within the associations.

Keywords: Employee, GHRM, Organization, Work-life, Goal

INTRODUCTION
As of now, the Green HRM has become one of the popular techniques in the car venture. Furthermore, its prominence is expanding alongside the advancement of time. Moreover, the term plays a secured part as a thrilling issue in different past studies works for the explanation that care on control and acceptable improvement has been gradually growing little by little worldwide. Today the element Green HRM comprises of care toward biological and neighborliness endeavours, as well as representing the social and moreover saving success of each the business alongside the employees internal an extra great prospect.

Marhatta and Adhikari, (2013) proclaimed that the use of GHRM procedures to foster the sensible utilization of sources interior institutions and, all of the extra for the maximum element propels the intentions in condition reasonability".

Mathapati (2013) expressed that GHRM is a successful strategy in making an inexperienced team of laborers that comprehend, recognizes, and practice green undertakings and proceeds up to its inexperienced locations at some stage in the HRM cycle of joining up, securing, planning, reviewing, making, and pushing the office human resources.

Opatha and Arulrajah (2014) explained that Green Human Resource Management recommends those procedures, practices, plans, or systems that make individuals of the association educated and green for the addition of the individual, society, conventional natural surroundings, and the business.

Wehrmeyer (1996) stated that Green HRM assets suggest making use of every worker touch straightforwardly/interface toward boost viable practices and augmentation laborer care and responsibilities at the troubles of reasonability. It comprises of challenging situation pleasant HR assignments bringing approximately extra outstanding efficiencies, pass on down costs and higher worker dedication and redesign which subsequently, help institutions with lowering worker carbon impressions with the guide of utilizing any similarity to computerized reporting, vehicle portable sharing, artworks sharing, somewhat planning and virtual gatherings, reusing, working from home, net getting ready, power talented workplace areas, etc. In this unpractised world, the unpractised HR or person's control paintings have viability at its center as a quality of its relative control and capacity control middle and institutions attract with the general public with the guide of utilizing changing their arrangements to it. Organizations, clients, and authoritative workers all land up ruining show disdain toward of companions along with personnel and financial backers.

The above-expressed assertion announced that GHRM is one of the interesting issues today as this term is created through the green development that happened worldwide.

The possibility of GHRM is all around the world popular and the significance of GHRM varies from one individual to another. The method for the most part endeavors to save energy or decrease the degree of contamination that is been happened by the enterprises and general living propensities. The principal objective of this procedure is to limit the negative impacts of the utilization of energy and the degree of contamination in the climate.

Tolerating and executing GHRM inside the association will support the fruitful development of the association in this changing world furthermore, it additionally helps the world alongside the business or association to battle against the worldwide temperature alteration issue. Besides, GHRM helps the association in accomplishing its general objective dedicatedly, also, the procedure will go about as a practical objective to accomplish the ideal target and advance the brand for every single association.

LITERATURE REVIEW

Mampra (2013) expressed that Green HRM implementation of HRM methods to enable the legitimate use of sources internal enterprise endeavors and lift the intention in environmentalism which moreover enables up laborer soul and fulfilments. Others paint Green HRM in view of the usage of HRM plans, strategies of understanding, and practices to support viable utilization of enterprise sources and frustrate any untoward harmonizing from biological issues in affiliations (Zoogah, 2011).

Mandip (2012) said that green tasks internal HRM from a few parts of greater good-sized tasks of organization social commitment. Green HR essentially contains critical added substances to be unique circumstances pleasing HR sharpens and the protection of records capital. Inside an affiliation, a human guide and its structures are the essential established requests of any business venture, be it a money-associated commercial endeavor or sensible commercial undertaking. They are those at the cost of orchestrating and executing the one's eco-obliging procedures to make an inexperienced climate. The battle that without empowering humanitarian aid and executing plausible techniques, transforming into harmless to the ecosystem could be a difficult one to isolate. In spite of the truth that an enormous diploma of present composing deals with the subject of Green HRM, there is nevertheless unclearness associated with the convincing execution of unpractised HR control preparations in institutions spherical the globe to attain general in experienced company culture. This article gets a handle on how organizations are taking errands to guide circumstance control software through developing human aid preparations and discover different strategies drawn in with unpractised HRM principally dependent on enduring composing withinside the zone. Additionally, they forge ahead to checking at the composition at the HR parts of GHRM, which works within spotting how businesses nowadays make human and tactics for gaining ground nearer to ecological amicability. The research moreover hopes to give smoothed out ability on a few normal GHRM strategies and attempts to advise few inexperienced tasks for HR.

Lado and Wilson's (1994) argued HRM system is a relationship of undeniable however interrelated activities, limits, and habits that plans to draw in, make, and hold up an organization's HR. Industries via the method of a method for and huge kind out HR rehearses into systems which are dependable with their way of presence and undertaking procedure Boselie et al., 2001.

Bishop, and Govindarajulu, (2009) expressed that green task included in the HRM declaration region lump of organization social obligation regarding the extended take. Today, ventures are carrying out and consolidating inexperienced tasks in their arrangement with the help of their HR. Chiefs ensure that their HR is the use of inexperienced human asset practices unseemly way. As an addendum to the declaration, a few creators have energized that its miles basic to improve loads of specialized and control aptitudes among all individuals of the affiliation preserving in musings the final intend to execute a successful company inexperienced control system in associations (Unnikrishnan and Hegde, 2007).

Sathyapriya, Kanimozhi, and Adhilakshmi (2014) declared that enterprises over the field are uniting and advancing with withinside the route of realizing GHRM practices to boom top fingers the various company world. Finish appointment and systematization of GHRM in business enterprise isn't generally abnormal but calls for a modified technique closer to the advanced HR sharpen on a section of each the control and further delegates all of the while. A vital component for HR environmental officers may need to be to lead directors as quite far as growing-complete personnel co-challenge closer to realizing herbal preparations which imply HR wishes to keep up with allies and make designs of issue solvers inclined to act to extrude the existing standard. There are different problems diagnosed with GHRM so it will be taken into consideration via the method of a method for HR workplace earlier than realizing inexperienced projects and, every single one of them may beknow as of now not contained inside a singular document.

Deshwal (2015) stated that elevating 'eco-business visionaries' to beautify industries objects in expansion to organizations with powerful utilization of current monetary, human and regular assets. Engage the agents for commitment and hobby withinside the social and herbal tasks. Green thought plans and trouble capturing circles should be created through advisor incorporation and participation. Associations will make inexperienced paintings surroundings that are evidently delicate, and efficient, and socially reliable. Green utilizing penchants like flexi-hours, carpooling, detached or set apart down transportation passes, thus forth must be introduced. Plan of telecommunicating or e-compositions to diminish visit and outpouring, advancing unpractised printing with the guide of utilizing decreasing paper and toner use and embracing '3R' strategy of 'Reduce Recycle-Reuse' assets, developing centre social events as Low carbon-chief (counting CEO and Board) for inexperienced tasks give 'unpractised informant' help-strains however this the organizations executing worker wellbeing programs.

Wagner (2012) examined that GHRM and whether or not its execution on the legitimate stage is potentially going to pressure EMS utilization. The longitudinal research discovered that personnel who're glad about the herbal processes in their affiliation efficaciously pressure key joining of socially associated problems, for instance, work-presence change, and wellness and prosperity programs. The inclusion of HR withinside the inexperienced HRM execution method is essential, considering its assist via beneficial worker institutions. By using extraordinary forms of passed-on dispatch, (for instance, coordinate/underhanded, verbal, and print), HRM can honestly exhibit to staff how the association is likely to herbal problems and concerns. As needs are, there might be a more prominent vital chance that faculty will clearly show reinforce for the establishment’s natural or surely socially cognizant drives, with dread for the earth moreover greater liable to come to be avital notion to them.

Ones and Dilchert (2012) investigated that with a particular stop aim to do that it’s miles critical to acknowledge what its miles suggested while we speak approximately worker in experienced rehearses. First thing, it's miles essential to work the differences between socially solid and natural outcomes. Legitimate social errands are done to improve the wellbeing and strength of workers, progressing diverse range and distinctly including to social issues, despite the fact that natural undertakings intend to enhance an affiliation's viability and evidently associated results. It is critical to acknowledge what recognizes these thoughts, since it enables researchers to represent specific worker behaviour forms (i.e., unpractised), and pick the fitting instrumentality (GHRM) to convince, set up, and compensate worker painting surroundings rehearses.

Chaudhary, R. (2019) suggested an exceptionally low phase of execution of various GHRM rehearses withinside the tested vehicle associations. Among the 5 GHRM rehearses, the common rating for handiest inexperienced schooling and improvement and inexperienced worker association might need to attain 3. The least rankings had been observed for inexperienced overall performance control and inexperienced reimbursement and prizes. Further, every one of the 5 GHRM rehearses had been observed to seriously be expecting the errand-related and intentional worker inexperienced practices.

Vasa, S. R., and Thatta, S. (2018) discovered that 24 hours contributions activities withinside the gift age, which has left us with smaller than usual private space. At the surrender of the day, we perceive that we've matched up the lick existing apart from everything else, however, misplaced plenty withinside the wrangle, regardless of whether or not it’s miles of harmony mind, muddled, strained, and shabby out our prosperity. The accentuation on enhancing painting's existence stability for personnel the utilization of Green HR rehearses appears to be encouraging for each the workforce and managers at no excessive expenses, rather it lessens functional expenses. Associations can really paintings in the bearing of chalking out a substantial and suitable arrangement of development for paintings' existence stability in the request that personnel doesn’t get fatigued at works of art. This might now no longer handily lessen whittling down rates; it's going to assist moderate issues of truancy and assist in creating inspired personnel who can basically enhance productivity.

Marshal, V., and Schrader, U. (2011) examined that Green HRM can meet its complete capacity simplest with the guide of using thinking about the personnel of their twofold capacity as producers and customers. Employees study extraordinary sorts of behaviour now no longer completely in the working environment, but additionally in personal existence. Since equal collaborations among running existence and personal existence happen, an "inexperienced paintings-existence stability idea" is prescribed to work with earth’s wonderful conduct in each existence domain. The idea gives possibilities now no longer simplest for the climate, but additionally for the association and its personnel with the guide of utilizing expanding, for instance, artistic creations inspiration and cycle maintenance.

Iddagoda et al., (2021) observed and identified the frequently utilized thought of "green" works of art existence stability, showing the utilization of greenwashing rehearses identified with this thought. Furthermore, this paper added to the improvement of a composition’s existence stability size instrument. The characterized experimental research has moreover demonstrated the relationship between paintings-existence stability and generally speaking execution at canvases. This review has additionally proven how important worker commitment is in intervening in this relationship. Representatives and their strategy for compositions is an essential detail of an association's working. Subsequently, the impacts of this perception are useful for organizations in displaying the way to offer the right circumstances to streamline the general exhibition of workers. Besides, it implies that paintings-existence stability is the riding pressure in the back of worker commitment. It is a vital aspect in working with powerful paintings and worker overall execution. In synopsis, the personality of greenwashing works of art's existence stability adds to higher know-how of the personality of this thought. This and the advanced device offer the theoretical structure that adds to the improvement of suitable paintings-existence stability control rehearses. Furthermore, exact studies offer more profound expertise of artistic creations' existence stability systems in organizations and consequently perform a vital position withinside the enterprise climate.

CONCLUSION

The effect of day-to-day habits of our life conditions causes the lot of consumption of natural resources which leads to unwanted weather change. This particular technique promotes and helps people as well as industries to become more environmentally friendly. The concern of economically unbalanced issues influenced people across the globe to focus on green practices. Today, the organization starts moving forward to achieve its desired objectives by implementing GHRM practices. The organization having the green touch in its HRM practices is turning to be a power of natural manageability by accepting eco-accommodating practices and arrangements. This GHRM has become such a big technique that helps the organization to get sustainable support for overall growth and promotion. Additionally, this exercise helps the industry to promote employee branding or to keep personnel for new employment than discharging and enlisting new candidates. The extent of the research has been investigated during discussions with HR personnel and the business personnel within the automobile component who are dedicated to the audit's end purpose.

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A Study on Awareness of Disaster Management among School Teachers in Nazira Sub-Division of Sibsagar District of Assam

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ABSTRACT
Day by day we come to know different types of disasters at various parts of the world. The school going students spend most of the time in school. Teachers are expected to have equipped to face the challenges of disasters in school. The study explores the awareness of school teachers on disaster management. The study conducted on government and private school teacher's of Nazira sub- division of Sibsagar district of Assam. The sample selected for the study is a total number of 114 primary school teachers which have been selected from government and Private schools through a purposive random sampling. The tool used for the study is School Teachers Disaster Management Awareness Inventory/ questionnaire developed by the researcher. The tool is a 'YES' or 'NO' question which consisted 25 questions. The statistical techniques used for analysing the date are mean, standard deviation and t-test. The result showed primary school teachers are not well aware about disaster management. The result also showed that there is difference in disaster management awareness based on gender and level of classes teaching. It is also revealed that no difference is found based on type of management and years of teaching experience.

Keywords: Disaster, Management, Teacher, School, Nazira, Sibsagar, Assam.

INTRODUCTION

Disasters are on rise, at global as well as in India. The loss of life and property due to disasters has increased substantially during last two decades. People are now at risk from disasters. Flood, earthquake, terrorist attack, fire and road accidents has created concern across the country for preparedness. There is urgent need to adopt multidimensional, multi-disciplinary and multi-sectoral approach to reduce the losses. Preparing one for managing disasters can reduce the fear, anxiety, and losses that disasters cause. This is disaster management which is a multi-disciplinary area in which a wide range of issues that range from forecasting, warning, evacuation, search, and rescue, relief. Reconstruction and rehabilitation are included. Disaster management includes activities in the pre-disaster, during disaster and post-disaster plans. These activities ensure the combined role of administrators, scientists, planners, volunteers and communities. Disaster management is everyone's responsibility. Students are the becoming youth. It is high time to educate the students about disasters and its management. Most of the disaster prone countries initiated disaster education programmes, considering the major disasters on their land in their curriculum. The results support the worlds science based development and emphasizes that education and training in disaster awareness in formal education is very important. One of the major responsibilities of teachers is to give training, practice of mock drill and counselling to students as a part of disaster management. For effectively managing disasters awareness of disasters is very essential.

Government of India in its twelfth five year plan document, have emphasized the need to enhance knowledge, skill and values to reduce the impact of disasters on the education sector. To build in a culture of safety and resilience at all levels in the education sector, there is a need to carry out a large number of initiatives.

SIGNIFICANCE OF THE STUDY

The awareness and the skill of teachers to practice disaster management activities are highly important in relation to ensure the safety and security of school students. The children attending the school (age-group of 6 to 17 years) spend about 30% of their time in schools in most of the countries. Student's involvement in sports and other extracurricular activities in school causes to greater risk of injuries and medical emergencies (Sapien & Allen 2001). It is gauged that more than 2.6 million schoolchildren across the world are prone to sports and other recreation-related injuries annually. The school going children are prone to many disasters in India in many though the intensity varies according to nature and type of calamities and disasters in relation to certain geographical areas. The scenario necessitates that teachers must be aware and skilled to assume the responsibility for competently managing the risk of disasters in school whenever the need arises. For effectively managing disasters awareness of disasters is very essential. Therefore, the researcher attempts to study the awareness of Disaster Management among primary school teachers of Nazira Sub-division of Sibsagar district of Assam. The study found that primary school teachers are not well aware about disaster management.

A BRIEF DESCRIPTION OF THE STUDY AREA

Nazira sub-division is located on the bank of the river Dikhow. Nazira sub-division is one of the three sub-division of Sibsagar district. This sub-division is bounded in the north by the Sibsagar sub-division, in the east Charaideo district, in the south Nagaland and in the west Sibsagar sub-division. The area of Nazira sub-division is not very large. The total geographical area is 347.70 sq. km. The total population of the Nazira sub-division is 197,618 according to the census 2011. Nazira is famous for Oil and Natural Gas Corporation (ONGC). The main office of ONGC is situated in Nazira town. There are approximate 348 primary schools in Nazira sub-division.

REVIEW OF RELATED LITERATURE

Ganpatrao (2014) found that only 7.22% teachers have good knowledge regarding disaster management while 82.96% have average knowledge and 4.26% poor knowledge. It is also showed that increase in teaching does not influence the knowledge of disaster management. It was revealed that age and previous training in disaster management and First Aid influence the knowledge regarding disaster management. It also showed that there is significant association with gender among teachers as females are comparatively more knowledgeable than males.

Vijaya (2014) found that the awareness about disaster management among teachers of higher education is not satisfactory as it needs improvement in knowledge and practice. The result also showed that there is no significant difference among the male and female teachers in the awareness disaster management.

Sharma, Mallaiah, Kadalur & Verma, (2016) found that 46.9% teachers have average knowledge regarding disaster management and 60.6% of teachers have a positive attitude towards emergency management of dental trauma care. There is significant difference in the attitude of school teachers based on term of service and exposure to traumatic dental injury in school while no significant difference was found in knowledge.

Chandukutty, Peedikayil, Premkumar, Narasimhan, & Jose (2017) found that knowledge of emergency management of dental trauma among the school teachers was significantly very low level. It is revealed that 90.1% school teachers showed awareness of dental traumatic accidents regarding the upper front teeth while only 23.4% expressed correctly regarding management of traumatic tooth fracture. It is also found that 46.5% of teachers have adequate knowledge about the re-implantation of avulsed permanent teeth and only 14.2% teachers showed correct knowledge regarding setting up storage medium for avulsed teeth.

Aseel Wahid (2012) found that there is significant difference in the awareness of disaster management among B.Ed trainees based on gender and locale as the male B.Ed trainees have higher level of awareness of disaster management than female B.Ed students. It is also found that there is no significant difference in awareness of disaster management among B.Ed trainees from arts and science subjects.

OBJECTIVES OF THE STUDY

iii) To find out the difference in awareness of disaster management among male and female primary school teachers of Nazira sub division of Sibsagar district of Assam.

iv) To find out the difference in awareness of disaster management among government and private primary school teachers.

v) To find out the difference in awareness of disaster management among primary school teachers with more than 5 years of work experience and lesser than 5 years of work experience

HYPOTHESES

Ho 1: There is no significant difference in awareness of disaster management among male and female school teachers.

Ho2: There is no significant difference in awareness of disaster management among government and private school teachers

Ho3: There is no significant difference in awareness of disaster management among school teachers with more than 10 years of work experience and lesser than 10 years of work experience

METHODOLOGY

The study was conducted through a survey method. The population of the study is all the primary school teachers' o Nazira sub division of Sibsagar District.

SAMPLE

The sample selected for the study is a total number of 114 primary school teachers which have been selected from government and Private schools through a purposive sampling.

TOOLS USED

The tool used for the study is School Teachers Disaster Management Awareness Inventory/Questionnaire developed by the researcher. The tool is a 'YES' or 'NO' question Inventory which consisted 25 questions from five dimensions i.e. General Disaster Management Awareness, Mitigation, Preparedness, First Aid and Governmental policies and programmes on disaster management. The range of the score is 0-25 as each YES and NO gets 1 and 0 respectively in positive questions and vice versa in negative questions.

Statistical Technique used:

The statistical techniques used for analysing the date are mean, standard deviation and t-test.

RESULT AND DISCUSSION:

In the present study the investigator analysed and interpreted the data objectives wise in the following way.

Table-1 Comparison of awareness of disaster management among male and female Prrimary school teachers

Group	N	Mean	S.D	T -Value	Table value	Level of Significance
Male	53	14.28	3.96	2.21	1.96	Significance at 0.05 level
Female	61	12.55	4.34			

Source: Field Survey

From the above table it is found that the mean and standard deviation awareness of disaster management among male and female primary school teachers are 14.28, 3.96 and 12.55, 4.34 respectively. The calculated t-value is 2.21 which are greater than the table value (1.96) at 0.05 levels. There is significant difference in awareness of disaster management among male and female primary school teachers as male school teachers have higher level of awareness of disaster management than their female counterpart. Hence the null hypothesis which stated there is no significant difference in awareness of disaster management among male and female primary school teachers is rejected.

Table-2 Comparison of awareness of disaster management among government and private primary school teachers

Group	N	Mean	S.D	T-value	Table value	Level of Significance
Government school Teachers	54	13.67	3.98	1.03	1.96	Not Significant
Private School Teachers	60	12.93	3.67			

Source: Field survey

From the above table it is shows that the mean and standard deviation awareness of disaster management among government and private primary school teachers are 13.67, 3.98 and 12.93, 3.67 respectively. The calculated t-value is 1.03 which is lesser than the table value at 0.05 levels. There is no significant difference in awareness of disaster management among government and private primary school teachers. Hence the null hypothesis which stated there is no significant difference in awareness of disaster management among male and female primary school teachers is accepted.

Table-3 Comparison of awareness of disaster management among teachers with more than 5 Years and lesser than 5 years of work experience

Group	N	Mean	S.D	T-value	Table value	Level of Significance
School teachers with more than 5 years of work experience	44	13.43	4.02	1.74	1.96	Not Significant
School teachers with lesser than 5 years of work experience	70	12.18	3.51			

Source: Field Survey

From the above table, it is shows that the mean and standard deviation awareness of disaster management among school teachers with more than 5 years of work experience and lesser than 5 years of work experience are 13.43, 4.02 and 12.18, 3.51 respectively. The calculated t-value is 1.74 which is lesser than the table value at 0.05 levels. There is no significant difference in awareness of disaster management among school teachers with more than 5 years of work experience and lesser than 5 years of work experience. Hence the null hypothesis which stated there is no significant difference in awareness of disaster management among primary school teachers with more than 5 years of work experience and lesser than 5 years of work experience is accepted.

The awareness of disaster management among primary school teachers is not satisfactory as teachers are not properly aware of many dimensions of disaster management. Most of the teachers are not aware of governmental policies and programmes on disaster management in school. The awareness level is low in disaster preparedness and mitigation or risk reduction. Most of the teacher didn't read the school safety manual prepared by national and state level disaster management authorities. Many teachers didn't visit the website of state disaster management authority which whenever it is necessary even a single time. There is a satisfactory awareness only in First Aid in schools. The finding that, primary school teachers are not well aware about disaster management.

FINDINGS

The major findings of the study are as follows-

1. Primary school teachers of the area are not well aware about disaster management.
2. Male school teachers have higher level of awareness of disaster management than their female teachers.
3. No differences exist in awareness of disaster management based on the type of school.
4. No significant difference in awareness of disaster management among primary school teachers with more than 5 years of work experience and lesser than 5 years of work experience.
5. There is a satisfactory awareness only in First Aid in schools.

SUGGESTIONS

1. Periodical mock drill and evacuation drill should be exercised in all the schools in collaboration with concerned authorities such as police, fire brigade etc.
2. Families should inform their children about disasters, give responsibility to all the members of the house for what needs to be done before the disaster, and to conduct a small drill during and after the disaster.
3. Capacity building is one of the World Health Organization (WHO) strategies for improving disaster preparedness. Indian Red Cross is universally recognized institution for capacity building of the communities. School authorities should collaborate with such agencies to raise awareness among the school teachers and students and every teacher must undergo such training.
4. Subject of disaster management should be included in the curriculum of the standard 5^{th} to 10^{th} standard.
5. No disaster plan was available in surveyed primary schools. School authorities, therefore should take initiative and sensitize the school community (Students, teaching and non-teaching staff, management staff and parents) regarding disaster preparedness and management. Therefore, it is strongly recommended that each school must prepare their own school disaster management plan. The school disaster management plan should consists the following components namely viz. School disaster management committee, safety assessment, evacuation map, formation and training of disaster management team and establishment of task force.

CONCLUSION

Thus, the study found that primary school teachers are not well aware about disaster management. The inadequacy in attaining proper awareness and knowledge of disaster management of school teachers severely affect the safety and security conditions of school students as students spend most of the time in school. Many schools and school going children in India are prone to natural calamities and disasters. Teachers need to update their knowledge regarding disaster management both in disaster preparedness and risk reduction by linking with the latest guidelines given by national and state level disaster management bodies. If teachers are well aware of disaster management, it can be greatly benefited to school and society regarding safety and security of students.

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Modelling the Purchasing Intention towards Eco-Friendly Product

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ABSTRACT
Consumers in today's world are increasingly environmentally conscious, and they prefer to purchase products that have less negative effects on the environment. Green marketing and eco-logical marketing have gained traction as a result of rising customer demand for green products. Several research studies have proposed a variety of reasons to justify purchasing green products. However, in most cross-sectional research, the consumer's perception of green products is impacted by numerous factors, and its value varies with demography.

The present research is an academic effort to better understand how people buy green products. Furthermore, further study is needed to investigate the link between customers' attitudes toward green products and their perceived social norms and consumption effectiveness. As a result, the purpose of this study is to use literature to investigate the link between these elements and buying intention, and to reflect it in the form of a conceptual framework, whose validity and reliability may be validated empirically in future studies..

Keywords: Attitude towards Green Product, Perceived Social Influence, Perceived Consumption Effectiveness and Buying Intention

1. INTRODUCTION

Green marketing is one of the newest and most popular research subjects, and different academics have proposed several concepts on green marketing and customer impression. It is vital to effectively develop and produce environmentally friendly items or services in order to lessen the environmental impact of industrial activities and promote cleaner production. The notion of selling eco-friendly green products items eventually became known as "Green Marketing." As a result, contemporary marketing trends must be evaluated and analysed on a regular basis to see how buyers' behaviour is changing, and businesses must adjust their offerings appropriately to meet the expectation of the buyers. In this juncture, marketing is crucial, since marketing is connecting with customers to improve their knowledge of environmental sustainability and educating them about the benefits of environmentally friendly products and services. Further such marketing practices may help in creating a green market for environmentally friendly products and services (Rex and Baumann, 2007).

In academics and marketing point of view sustainable development becomes one of the important studies. (Wang and Wu, 2016) as a result of the acknowledged contemporary environmental concerns. (Zhang et al., 2020) Part of its significance comes from the requirement of forming a long-term production-consumption interaction. (Aragao et al., 2020) A large number of companies, as well as governments, have taken the lead in creating alternatives to manufacturing which reduce the negative environmental consequences. This has given impetus to develop eco-friendly products and emergence of green marketing. (Costa et al., 2020; Dangelico and Pontrandolfo, 2010) Green marketing encompasses a wide variety of actions, including packaging changes, product modification, manufacturing process modifications, and advertising modifications. Green marketing focuses on meeting consumer requirements and wants while causing no or minimal environmental impact. Consumption behaviour literature refers to green items as those that are produced with using less natural resources, have a lower environmental effect, and generate less waste. (Policarpo and Aguiar, 2020)

2. THEORETICAL BACKGROUND

2.1. Theory of Planned Behaviour (TPB)

According to the “Theory of Planned Behaviour” (TPB), customers' buying intentions may be explained by examining the factors that can affect them, based on human perceptions of the probable implications of a particular purchase. (Ajzen, 2015) According to Parkinson et al., (2018) the theory of planned behaviour is “one of the most used in the consumer behaviour field to understand which factors can influence consumer’s behaviour towards sustainability.” “Theory of planned behaviour” is one of the important model which guides the consumer’s buying action. “The theory of planned behaviour” postulates, the buying intention is the main predictor of actual buying behaviour, and is influenced by three important independent factors like attitude towards behaviour, perceived social norms, and perceived behavioural control. The application of the “theory of planned behaviour” is very much helpful for predicting the non-volition behaviour of human being. The background of development of this model is based on the findings of some of the research studies (Sheppard, B.H.; Hartwick, J.; Warshaw, P.R., 1988) that due to circumstantial limitation, the buying intentions does not lead to actual behaviour. That motivates the Ajzen to introduce "the theory of planned behaviour" (TPB) which it is an extension of "theory of reasoned action" (TRA) by adding "perceived behavioural control" constructs upon it. The gist of the "theory of planned behaviour" is; until and unless the individuals behavioural intention is not formulated, the buying intention has lesser influence on performing an actual behaviour.

2. 2. Pro-Environmental Reasoned Action (PERA) Model

Pro-Environmental Reasoned Action (PERA) model was developed by Persada, S. F.(2016) that is an extension of theory of reasoned action model (TRA). The TRA model was developed by Ajzen and Fishbein to describe the probability that a person's actions will result in a given outcome. In greater detail, two important elements, namely attitude and subjective norm, predict the intention outcome. The PERA model is an extension of TRA along with two additional factors as "perceived authority support" (PAS) and "perceived environmental concern" (PEC). These two constructs were developed by Persada, S. F.(2016) and found that both the constructs have positive influence on behavioural intention.

3. REVIEW OF EARLIER STUDIES

This section of the study gives a brief narration of various research carried out by the several researcher in the field of green marketing. The attempt of the researcher is to describe the research work in a systematic literature review (SLR) format.

Authors (Year)	Objectives of the Study	Methodology Adopted	Findings of the study	Limitations of the study
Bhatia, M., & Jain, A. (2013)	To understand the preference of consumer towards green marketing practices and towards green product	The responses were gathered using a standardised questionnaire from 106 consumers. Further their response were analysed with multiple regression	As a result of regression analysis, we could see that consumer persuading to buy and prefer green products over conventional ones was positively influenced by awareness of green products and practises, as well as the perception of the importance of marketing businesses towards green marketing.	The study's generalisation is restricted because it only looked at a small geographic area, and small sample. The study have not adopted psychographic segmentation analysis to better understand consumer green values and preferences.
Kripa, N. S., & Vinod, L. (2021)	The study aimed to analyze customer attitudes and perceptions regarding eco-friendly products and to identify the societal barrier to the adoption of environmentally friendly items	The research was carried out applying a quantitative technique of analysis. The research was carried out in Kerala, India, among social media users aged 18 to 65, and questionnaires were distributed online to 252 respondents. The data were analysed using cross tabulation and chi-square test.	The finding or the study stated that Customers are well-informed about environmentally friendly products and pleased with their use. They are aware of the negative impacts of using conventional products and the positive effects of switching to environmentally friendly alternatives. Despite knowing about eco-friendly items, consumer don't buy green products as they perceive the green products are more costlier and high price product hence high price appears to be social barrier	The study had limitation relating to methodology, sampling procedure and demography. There was need for more investigation into the study's many elements, including consumer environmental knowledge, which was omitted or overlooked in this work.

Authors (Year)	Objectives of the Study	Methodology Adopted	Findings of the study	Limitations of the study
Anitha, M. P., & Vijai, C. (2021)	The study was to investigate the perception of the consumer towards green marketing and green product	The researcher has selected Convenient Sampling Method for data collection in Bangalore. there were a total of 520 customers who took part in the survey. To obtain the information, the researcher made use of a Google form. In order to do the analysis, descriptive statistical methods including percentages, means, chi-square tests, and t-tests were adopted.	The study found that there is a growing green marketing consciousness among customers, and consumers understand the significance of safeguarding the environment through product choice, while businesses are increasingly considering the environmental effect of their actions. Another most important conclusion was that gender, occupation, or level of knowledge had no meaningful association with buying of green product.	The study has failed to address several dimensions to understand the consumer perception towards green product. However the study is not free from methodological and sample limitations.
Yan, H., & Chai, H. (2021)	The aim of the study was to study the buying intention towards green service product	The study has administered a structured questionnaire to collect the response of 200 consumers. The hypothesised relationships among the constructs were studied through partial lease square (PLS) algorithm.	The results showed “environmental concern and perceived consumer effectiveness as having a substantial positive influence on personal norm and behavioural intention.” The association between personal norm and customers' behavioural intentions was negatively attenuated by the perceived price as an external expense. Publicity and government policy moderated the relationship between personal norms and consumer behavioural intentions.	The study have failed to include more cross section to understand the consumer buying intention towards green product. However the study is not free from methodological and sample limitations.
Midilli, f., & tolunay, a. K. (2021)	The purpose of this study was to investigate into the impact of social influence and collective self-esteem on Turkish consumers' intentions to buy green products.	The study has collected data from 370 respondents from a structured questionnaire. The data were analysed by adopting EFA, CFA and SEM analysis	The findings of the study explored that consumers' green product purchase intentions are positively influenced by collective self-esteem and social influence, and “that the relationship between collective self-esteem and social influence on green product purchase intention is partially mediated by attitude toward green products.”	The study could have taken more cross section to understand the consumer buying intention towards green product.

Authors (Year)	Objectives of the Study	Methodology Adopted	Findings of the study	Limitations of the study
Swadia, B. U.(2021)	The purpose of this study was to investigate customer attitudes about green products.	The responses of these 1000 customers were analysed using ANOVA and Chi-Square methods to determine the respondents' attitudes about green products.	This research contributed to the field of green marketing and green consumption theory and practise. It made a point about the difficulties that arise from the behavioural impacts of green consumption. Traditional individual behaviour modification approaches must be abandoned in order to achieve the needed rate of pro-environmental behaviour.	The study had limitation relating to sampling procedure and demography.
Riskos, K., et.al., (2021)	The purpose of the study was to investigate how positive attitude of the consumer influences their actual buying behaviour	The study has collected data from 571 respondents from a structured questionnaire. The data were analysed by multiple mediation model using partial least square algorithm.	The findings revealed the critical significance of eco-label authenticity in influencing attitudes toward green product buying and eco-label involvement. Furthermore, the notions of attitude toward green product purchasing and eco-label involvement were highlighted as important mediators of this model.	The robustness of the research is limited to adoption of convenience sampling procedure and focused the respondents belonged to urban area only.

4. RESEARCH QUESTION

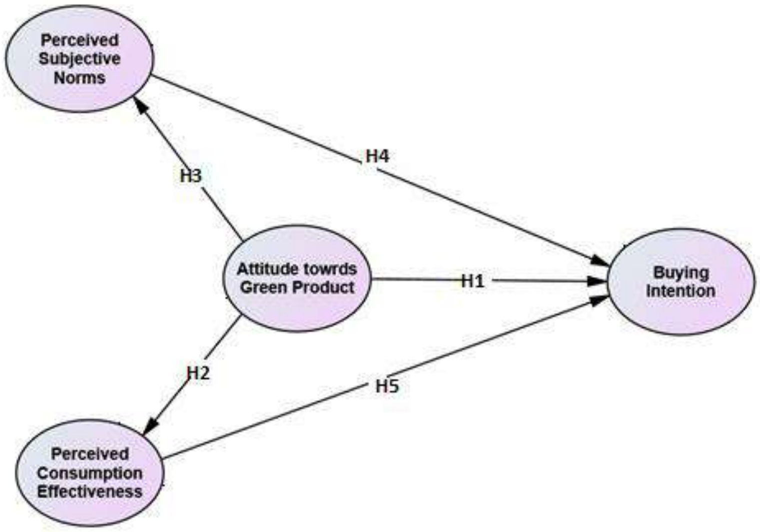
After identifying the above limitation of earlier studies, research gaps the current section of the study is a humble attempt to propose the research problem upon which the novelty of the research lies.

1. Is the attitude towards the green product significantly influences their buying intention?
2. Is there any significant relationship exists between the perceived social norms and buying intention in the context of green product?
3. Does the perceived consumption effectiveness significantly influence the buying intention towards green product?
4. Does the attitude towards green product influences perceived social norm?
5. Does the attitude towards green product influences perceived consumer effectiveness?

5. Conceptual Framework and Hypothesis Development

The proposed conceptual model is based on the “Theory of planned behaviour” stated by Ajzen, and “Pro-Environmental Reasoned Action” model developed by Persada, S. F.(in this model the exogenous variables are "Attitude towards green product, Perceived subjective norms, Perceived consumption effectiveness”. The endogenous variable is “Buying intention”. The endogenous variable is influenced by exogenous variables. Moreover, such a relation between the exogenous and endogenous variable helps to understand the buying behaviour towards green product.

Figure No:-1. The Proposed Research Model



Source: Authors own analysis

5.1. Buying Intention (BI):
Buying intention towards green product refers to a consumer's willingness to buy green products for the sake of the environment, and such a consumer's willingness contains a reason to buy green product (Dagher and Itani, 2014). Intentions drive behaviour, which is a very specific action that a person will engage in when faced with a consumption situation.

5.2. Attitude towards Green Product (AGP):
The phenomena of attitude have long been stressed as a crucial precondition of behavioural intention. Attitudes can influence a consumer's appraisal of a product's features, enhancing or lessening individual interest and affecting overall sentiments about whether to buy it or not. To Fishbein and Ajzen (1975), “attitude as a learned predisposition to respond in a consistently favourable or unfavourable manner with respect to a given object” Furthermore, this behavioural phenomena indicates what customers like and dislike in general and in context of product or service purchasing decisions. The intention to buy ecological product is significantly influenced by the attitude and the buying experience, further the buying experience is shaped by the consumer’s perceived social norms and its consumption effectiveness. Hence from the above study it is evident that Attitude is a strong predictor of purchase intent, which is supported by both theoretical and empirical research. As a result, it suggests that there is a directional relationship between attitude and intention to buy green products. In light of the above discussion, the following hypotheses were proposed:

H1: Consumer’s attitude towards green product positively influences their buying intention

H2: Consumer’s attitude towards green product positively associated with their perceived consumption effectiveness

H3: Consumer’s attitude towards green product positively associated with their perceived subjective norms

5.3. Perceived Subjective Norms (PSN):
Normative beliefs are the main predictors of subjective norms (Ajzen, 2015) In most cases, the acts or responses of family, friends, advisors, or other experts play a significant role in determining consumers buying decision (Davies et al., 2002). The acceptance, advise, or recommendations of referents, on the other hand, might interfere with or modify an individual's behavioural cognitions (Arvola et al., 2008). In contrast, Paul et al. (2016) found that consumers' intentions to make decisions to buy green product were unaffected by subjective norm. This study suggests the following hypothesis based on the the empirical findings presented above:

H4: Perceived subjective norms have positive effect on buying intention for green product

5.4. Perceived Consumption Effectiveness (PCE): The purchasing of green products has been connected to consumers' belief in their potential to successfully tackle environmental concerns (Samdahl and Robertson, 1989). Several academics research has identified perceived consumption effectiveness as a significant predictor of green purchase behaviour (Dagher, G.K., Itani, O., 2014). The term "perceived consumer effectiveness" refers to people's perceptions of how much their activities can help solve environmental problems (Ellen et al.

1991). According to Jaiswal, D., & Kant, R. (2018) "the phenomenon of perceived consumption effectiveness was also interpreted in terms of behavioural control and internal locus of control, and self-efficacy in the ecological consumer research" Perceived consumption effectiveness is a measure that assesses an individual's subjective evaluation of his or her ability to contribute to the solution of societal environmental problems, and it is closely linked to self-evaluation in the context of ecological issues (Kim and Choi,2005). Given the preceding discussion, this study is sincere attempt to see the effect of perceived consumption effectiveness on buying intention. The hypothesized relations among the constructs are as follows:

H5: Perceived consumption effectiveness have positive impact on buying intention for green product

6. CONCLUSION

Following a comprehensive assessment of the literature, the study was effective in identifying the important factors of purchase intention towards green products. Attitude toward green products, perceived subjective norms, and perceived consumption effectiveness are the primary factors of purchase intention for green products. A conceptual framework was used to demonstrate the link between these constructs. Furthermore, the suggested conceptual model is based on Ajzen's "Theory of planned behaviour" and Persada, S. F.'s "Pro-Environmental Reasoned Action" model. The current study presents five primary hypotheses, whose validity and reliability will be empirically investigated, based on the existing literature and findings of previous investigations.

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Challenges to Teaching and Learning during the Covid-19 Pandemic

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ABSTRACT
In the contemporary world, the life of people is moving very fast in achieving their goals. In this process of development, the environment is being degraded in a very bad manner. However, none of the nation has come up with special laws and provisions to protect the environment. In the whole set up , it was found that due to killing of animals and bird species and consuming these raw creatures, the Corona Virus has spread among citizens in China and later on from China in the whole world. This contagious disease has killed many people and has impacted the life of human beings adversely. Now to control this situation, the governments of many of the nations have called out for 'lockdown', where there is closure of all the organisations and institutions (only the necessary ones will remain open). Due to this situation, the life of people has come to a halt. They are experiencing different situations staying at home, both personally and professionally. The present paper analyses the challenges faced by the teaching fraternity in online v/s traditional classroom teaching during the pandemic situation. Traditional classroom teaching is the unit where the teacher teaches and delivers the lecture face-to-face. Here the students are able to interact with the teacher immediately in the class in front of other students. At the same time, online teaching is bound to be associated with the device, wherein the students cannot express themselves with their doubts or queries to the teacher in a personal manner. Distance sometimes restricts the attachment one needs to be felt in the entire teaching process. This attachment is missed not only by the students, but also the teachers. It is found in the study that in spite of major technological revolution, beginning in the 21st century, traditional classroom teaching methods retain their own standard in higher education systems in India.

Keywords: Pandemic, Online teaching, traditional teaching, ICT, satisfaction, learning techniques

1) INTRODUCTION

Higher education status of India is marked at third position in the world, next to the United States and China. University Grants Commission (UGC) is the main governing body that sets the guidelines for functioning of Higher Education in the country. It also helps in coordination between the centre and state. When it comes to checking the radiation of Higher Education, UGC has established 15 autonomous institutes to take care of the matter.

The higher education institutes in India have increased from 2001 to 2011, where nearly 20000 colleges are established all over the nation. as of 2020 for my India is counting nearly thousand universities of which 50 central universities of 403 state universities, 125 deemed universities, 334 private universities, 7 Institute under state legislation at and 155 institutes of national importance which include IIMs, AIIMS, IITs, IIITs, IISERs and NITs are present.

Distance education council is taking care after distance learning and open education. The most popular University providing distance learning is Indira Gandhi National Open University (IGNOU), where around 3.5 million students across the globe have enrolled themselves.

The market of higher education in India is taken by online modes. Physical classroom teaching also has its own relevance. The problem lies in the fact that both online education and traditional education are competing with each other. Nowadays online coaching or tutoring has become a trend. While many Educational Institutes are going the viral route, there are still many institutes who still realise the benefit of maintaining classroom teaching. Research has proved that classroom teaching not only impacts students but also the teachers.

2) REVIEW OF LITERATURE

The origins of the distance education can be linked to the correspondence study in the United States which has been in existence since the 18^{th} century .The correspondence study was carried on with the aid of print media.This type of education began growing and spreading to other countries of Europe such as France, Great Britain and Germany in the era of the mid 19^{th} century. Distance education gradually and crucially changed with the assistance of the upcoming media related technologies as well as various systems of educational distribution .Great Britain's open university first presented distance education .With the help of this kind of education, students could avail a college degree. New technologies were utilised by the university to spread education to the pupils.

In the 1960s, open and distance education entered India. 34 various universities in India provided numerous courses with the aid of distance education facilities , in the year 1980.In 1982, Indira Gandhi National Open University which is also called IGNOU was first started in Andhra Pradesh. Later on , amidst 1980s to 1990s, IGNOU was established in other states of India such as Maharashtra ,Rajasthan, Madhya Pradesh, Bihar and Uttar Pradesh. Over 2,00,000 pupils had taken admission for open and distance education in 1995 .Moreover, some students also signed up for higher education.(Shaikh Farhat Fatma, 2013,Joe Pulichino, 2005).

The framework of open and distance education given by the UK is adhered to by several universities that provide this kind of education .Cooperation , coordination and communication by the universities is undertaken with the medium of DEC or Distance Education Council that was established in the year 1992. Management of the quality, coordination as well as promotion is the responsibility of the Distance Education Council.

Open and Distance education has got a boost due to various reasons like privatisation, economic aspects ,liberalisation as well as the rise of Information and Communications Technology. However ,the Government is to be alleged for the scarcity of monetary assistance. Moreover ,by increasing the fees, procedures are devised to include the non -public sectors. (Singh N.K and Kawatra P.S,2006) (Jyoti K , Bhatnagar V , Singh G and Kumar. G, 2019)

Traditional classroom education has its own pros and cons. Traditional classroom learning provides face to face communication opportunities, personal touch , quick response from the mentor as well as the students ,creation of student –teacher rapport, encouragement to the pupils and improvement in social , emotional and psychological behaviour among the students. However, it also has its cons such as spatial and temporal restrictions , higher expenses and it is teacher –centric . Similarly,E-learning also has its own set of advantages as well as disadvantages .It has the advantage of being student-centered . (Volery and Lord 2000,Swan et al 2000;Govindswamy 2001,Sun et al 2008 ;Alias et al 2012; Selim 2007;Lieblein 2000;Lee-Post and Holsapple 2006). It does not have temporal and spatial restraints .It is cheap as compared to traditional classroom learning .It can reach the masses from remote areas of the country to the international levels. Thus ,it can penetrate everywhere across the globe. Limitless availability of knowledge via the internet as well as storage, reusage and unlimited distribution of knowledge is also a plus point in this case. Nonetheless , it also has its own set of cons like lack of personal and emotional touch, technical issues in internet connection and late responses on the part of teachers as well as students .Many students and teachers who are not familiar with technology and internet can face difficulty in operating E-learning systems thus creating agitation, nervousness and bewilderment .(sources: J.Leon Zhao, Dongsong Zhang, Jay F ,Nunamaker.Jr, Lina Zhou 2004).

Scholars have begun researching and discussing extensively on e-learning systems as it is developing rapidly all over the world .It is being studied under various frameworks and viewpoints.(Loh et.al.2016; Goul, Demirkan and Gros 2010;Weng 2015);Soon et al 2001, Bhuasiri et al, 2012, Sela and Sivan 2009.)

Bhattacherjee, 2001, Renzi 2014,Klobas , McGill,Chiu, Chiu and Chang 2007,and Limayem and Cheung ,2008 opine that the e –learning systems will thrive if it is used extensively and incessantly in the current scenario and in future . As per Chiu et al, 2005, the extent to which users use the e-learning systems shall determine its success. Therefore, the researchers have studied the aspect of incessant usage of e-learning systems and even other issues that impact the continuation of e-learning.

3) OBJECTIVES OF THE STUDY

The main objective of the present research paper is to find out the significant difference between the traditional classroom teaching and online teaching and find out the relevance of them in the present day.

4) METHODOLOGY OF THE STUDY

In the present study both primary and secondary data are used. Secondary data has been obtained from various magazines, journals and online publications. EBooks are also used to gain the inside of the subject. Simultaneously, statistical records from the UGC website have been obtained for making the relevant mention in the paper. At the same time primary data has been collected from structured questionnaires, which was devised as per the objectives. The questionnaire was framed on the basis of agreeability using Likert in of testing. This questionnaire was circulated digitally to around 92 respondents who were particularly the teachers of degree colleges in Mumbai. The data from Google form was analysed on the basis of the responses gathered from the participants to fulfil the objectives. The obtained data was analysed in an exploratory and descriptive manner by presenting the results in the tabular manner.

5) HYPOTHESIS OF THE STUDY

The study tests that there is no difference between online teaching and traditional classroom teaching in higher education in India and that online education holds superior position as compared to traditional classroom teaching.

6) STATISTICAL ANALYSIS

A. Students' Achievements

Data was analyzed by MS Excel. The mean of total scores of students perception on the online and traditional modes of teaching and learning was carried out using ranking and mean score were calculated. The mean scores of each pair of E-Learning and traditional class, as well as p-value were computed by T-test, summarized in Table 1 and Table 2, respectively.

Table 1 - T-Test Two-Sample Assuming Unequal Variances

Statistics	Learning Process	
	E-Learning	***Traditional learning***
Means	80.54	81.41
Observations	33	24
Hypothesized Mean Difference	0	
df	54	
P(T<=t) two-tail	0.60	

The effect of mean scores of all experiments were not significant at 0.05 (95% confidence interval) (p-value = 0.60, 0.18 are greater than 0.05). The hypothesis was accepted. There is significant difference between online teaching and traditional classroom teaching in higher education in India. Moreover, the statistics revealed that mean scores of both of experiments under the traditional learning are higher than mean scores produced by E-Learning.

Using experimental methodology, the researcher compared the mean scores of two types of perceptions on online and traditional teaching in classroom. The dependent measure was total scores that were used to compare the students' perception of the groups.. It was found that the differences of mean scores of E-Learning and traditional group were higher (diff = 0.9 and 4.7) among the students.

7) RESEARCH FINDINGS

It was found that the results are based on the opinion of a total of 92 participants, out of which 49 males and 43 females have responded. Nearly 18.48 percent of the participants belong to the age group of less than 30 years, 33.70 percent in the age group of 31 to 40 years, 32.61 percent in the age group of 41 to 50 years and 15.22 percent above 50 years of age. While analysing the present status of occupation, it was found that nearly 10.87 percent of the participants are working as associates and 63.04 percent as assistant professors.

Sr. No	Statement	Strongly Agree	Agree	Neutral	Degree	Strongly Disagree
1	Online Teaching is much more convenient than traditional classroom teaching	14	24	26	22	6
	Percentage	**15.2**	**26.1**	**28.3**	**23.9**	**6.52**
2	Online Teaching is made out of choice by teachers	12	34	18	23	5
	Percentage	**13**	**37**	**19.6**	**25**	**5.43**
3	I am very familiar with online teaching	19	27	24	20	2
	Percentage	**20.7**	**29.3**	**26.1**	**21.7**	**2.17**
4	Online Teaching is less time consuming than Traditional Teaching	15	34	19	17	7
	Percentage	**16.3**	**37**	**20.7**	**18.5**	**7.61**
5	Online Teaching is very creative than Traditional Teaching	26	23	14	22	7
	Percentage	**28.3**	**25**	**15.2**	**23.9**	**7.61**
6	Students are more comfortable in Online Learning than Traditional Classroom Learning	11	15	30	24	12
	Percentage	**12**	**16.3**	**32.6**	**26.1**	**13**

7	Attendance is more in Online Classes than Traditional Classrooms	19	19	18	18	18
	Percentage	**20.7**	**20.7**	**19.6**	**19.6**	**19.6**
8	Technically, students are much superior than teachers	22	31	29	6	4
	Percentage	**23.9**	**33.7**	**31.5**	**6.52**	**4.35**
9	Doubt clearance becomes easier in Online Teaching than Traditional Teaching	10	17	29	21	15
	Percentage	**10.9**	**18.5**	**31.5**	**22.8**	**16.3**
10	Delivery of lectures via Online Teaching is better than Traditional Teaching	13	21	19	29	10
	Percentage	**14.1**	**22.8**	**20.7**	**31.5**	**10.9**
11	Students keep continuous pace in Online Teaching than Traditional Teaching	10	23	24	24	11
	Percentage	**10.9**	**25**	**26.1**	**26.1**	**12**
12	Only response per row) [Online teaching is cost efficient	28	36	15	10	3
	Percentage	**30.4**	**39.1**	**16.3**	**10.9**	**3.26**
13	Online Teaching creates physical health issues to the teachers	17	30	24	13	8
	Percentage	**18.5**	**32.6**	**26.1**	**14.1**	**8.7**
14	Focus of teachers and students can be distracted in Online Teaching	26	42	11	8	5
	Percentage	**28.3**	**45.7**	**12**	**8.7**	**5.43**
15	Online teaching should completely replace traditional teaching	7	15	21	15	34
	Percentage	**7.61**	**16.3**	**22.8**	**16.3**	**37**
16	Online Teaching is difficult to enforce in rural areas	44	26	13	3	6
	Percentage	**47.8**	**28.3**	**14.1**	**3.26**	**6.52**

8) OBSERVATIONS

Along with conducting a survey it was found out that traditional classroom teaching is much better than online teaching through the personal telephonic interview with the respondents. The following are the main benefits of traditional classroom teaching according to the respondents.

1. Promotes collaborative learning - collaborative learning enables the learners to focus on how to learn or graft particular topics. In this manner they also get encouragement and are able to adopt the same technique of learning.
2. Enhance critical thinking skills - live discussions and physical classroom studies advances critical thinking skills of the learners. Unless and until personal attachments are done, such skill development would not be possible.
3. improves social skills - whenever one comes face to face, not only knowledge of the person develops but it also helps in developing the interpersonal communication which is a very significant aspect of social skills.
4. builds organisational skills - In this competitive world not only knowledge is required but personal skills and talents towards his profession also count a lot. Traditional classroom training encourages this aspect.

There are other significant aspects that show the dominance of traditional classroom teaching over online teaching. Some noteworthy among those are that traditional classroom teaching helps the students remain attentive, teaching style can be modified according to the students' issues and traditional classroom teaching develops important personality and career building skills.

9) CONCLUSION

From the above analysis, it could be seen that these days online forces have become extremely popular, as more and more institutes and companies are offering courses online. However, it is found that there was a group of people consciously staying away from such materials, mostly due to misconception. At the same time, despite the rising popularity of the online courses, traditional classroom training is fighting back and trying to adopt newer means of retaining learner's interest. There are always two sides of the coin. For some teachers online teaching is more appropriate during this pandemic situation, though they prefer traditional classroom teaching in the normal course. In the end, it is expected that the lacunas of the online mode of teaching should be dealt with effectively, so that in any such kind of situation (including natural or manmade calamities in future) the educational flow should not come to a halt.

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Study of Multiple Intelligences of X Standard Students of CBSE School in Relation to Educational and Occupational Background of their Parents

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ABSTRACT
The purpose of this study is to investigate Multiple Intelligences of class X students of CBSE Schools in relation to Educational and Occupational background of their parents. The Survey Method has been applied for the present study. The sample consists of 310 students of class X from selected CBSE schools of Bagalkot district in Karnataka. Multiple Intelligences tool developed by Y. N. Sridhar was used to collect the data. The collected data was analyzed by using independent sample test with the help of SPSS package. The study revealed that Matriculation, Graduate and Postgraduate and above Family background students of CBSE school differ significantly in their Multiple Intelligences and also the Working Professional, Businessman and Farmer Family background students of CBSE school differ significantly in their Multiple Intelligences.

Keywords: Multiple Intelligence, CBSE, Matriculate, Graduate, Post Graduate, Professional, Farmer and Businessmen.

INTRODUCTION
No two students are same in studies and come from different backgrounds but all the children are born with unique intelligence or competences or skills to learn and apply in their day to day activities. Gardner emphasized, every individual possess seven intelligences that differ among people, further develops and grows differently contingent upo

n the hereditary traits or environmental experiences. In 1983 **Gardner** named these varied types of intelligence as, "linguistic intelligence", "logical/mathematical intelligence", "spatial intelligence", "musical intelligence", "bodily/kinesthetic intelligence", "interpersonal intelligence", "and "intrapersonal intelligence". Later in 1999 Gardner added two more types of intelligence, namely "naturalist Intelligence" and "existential Intelligence" which children use in order to understand concepts and solve problems. The ultimate goal of education is to facilitate students to learn and grow according to their area of interest, competencies and help them achieve better results irrespective of their gender, locality or type of the family. The present research is an effort to study Multiple Intelligences of X standard students of CBSE Schools in relation to Gender, Locality and Type of Family back ground.

REVIEW OF RELATED LITERATURE
The study also made review of related literature survey. It was observed that researchers showed their interest in Multiple Intelligence. To name few, Younas, Subhani and Chauhan (2009) (English Language Learning: A Role of Multiple Intelligence) found multiple intelligence based teaching at the primary level to be very useful in teaching and learning of English. **Abraham** (2009) carried out study on the effectiveness of multiple intelligence models for learning English at secondary level and reported that no significant differences in experiment and control by their gender, income and qualification. **Leo and Venkatesh (2009)** studied the relation in multiple intelligences and academic achievement in Biology in students of eleventh class and revealed that significant difference in gender, medium, locality and academic achievement of students. **Shanthy and Amaladoss (2009)**made relational to investigated the relation in "multiple intelligence" and achievement in physics in college students and found significant difference in gender, medium of instruction, locality and achievement in physics. **Rashmi (2017)** studied the effectiveness of instructional strategy based on "multiple intelligence theory" on physical science achievement and scientific attitude in secondary school students and found no interaction effect of gender and scientific attitude on achievement in Physical science of students. **Ms. Naval Geeta** (2017) conducted a study on " A Study of Multiple Intelligences of Secondary School Students of Jodhpur City of Rajasthan State " found that there is no significant difference between the multiple Intelligences with locality and type of the family.

From the above review, it is observed that studies are reported related to Multiple Intelligence of school students. In the present study attempt has been made to investigate the Multiple Intelligence of X standard CBSE students of Bagalokot District of Karnataka in relation to selected variable namely parents educational backgournd like Matriculation, Graduate parents, Post Graduate and Occupational background like working professional, Farmer and Businessman. The study investigated whether these background variable influence on Multiple Intelligences of X standard students.

STATEMENT OF PROBLEM:

The study of Multiple Intelligences of class X students of CBSE schools in relation to the Educational and Occupational background of their parents. The study investigated whether Educational and Occupational back ground of respondents Parents influence on Multiple Intelligences of students.

OBJECTIVE OF THE STUDY

The main objectives of the study are

1. To find out the influence of Educational background of Parents on Multiple Intelligences of X standard students of CBSE School.
2. To find out the influence of Occupational background of Parents on Multiple Intelligences of X standard students of CBSE School.

HYPOTHESES OF THE STUDY

1. There is no significant difference among Matriculate, Graduate and Postgraduate and above Family background students of CBSE schools with respect to their Eight Intelligences categorized under Multiple Intelligences.
2. There is no significant difference among Working Professional, Businessman and Farmer Family background students of CBSE schools with respect to their Eight Intelligences categorized under Multiple Intelligences.

METHOD

Investigator has used the Survey Method for the present study. The study considered Multiple Intelligences as main variable and Educational and Occupational background of parents were background variable. The study investigated influence of these background variable on Multiple Intelligences of students.

SAMPLE

The population of the study class X CBSE school students of Bagalkot district in Karnataka. The sample consists of 310 students from selected CBSE schools.

TOOL USED

Multiple Intelligence tool developed by Y.N. Sridhar was used, it is a 5-point rating scale for the measurement of multiple intelligences.

STATISTICAL TECHNIQUE USED

One Way ANOVA and Tukey Post hoc test was used for analysis of the data. SPSS package was used for data analysis.

DELIMITATION OF THE STUDY

1. The present study is confined only to the class X students studying in private CBSE schools. Students of ICSE and State board were excluded from the sample.
2. The present study is confined only to the class X students studying in Bagalkot district of Karnataka.

INTERPRETATION OF DATA

Hypothesis 1: There is no significant difference among Matriculate, Graduate and Postgraduate and above Family background students of CBSE schools with respect to their Eight Intelligences categorized under Multiple Intelligences.

Table: Results of One Way ANOVA between Matriculation, Graduate and Post Graduate and above family background students with respect to their eight Multiple Intelligences

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	5832.853	2	2916.427	3.618	.028 ($p < .05$)
Within Groups	247488.002	307	806.150		
Total	253320.855	309			

From the above ANOVA table it is evident that the obtained p value is .028 and F value is 3.618 with 2 and 307 degree of freedom. Here p value is less ($p < .05$) than .05 level of significance.

Hence, the null hypothesis is rejected and alternative hypothesis is accepted. Therefore, it indicate that Matriculation, Graduate and Postgraduate and above Family background students of CBSE school differ significantly in their Multiple Intelligences at .05 level of significance, $F(2, 307) = 3.618$; $p<.05$.

It means, there is significant influence of Educational Background of family on their Multiple Intelligence scores of students of CBSE School. Further multiple comparisons are performed using Tukey post hoc test procedure to find out the mean difference and reported in the table.

Table: Results of Post hoc test among Matriculation, Graduate and Post Graduate and above family background students with respect to their eight Multiple Intelligences

Educational Background of Parent	N	Mean	SD	Educational Background of Parent	
				Graduation	Post-Graduation
Matriculation	74	290.8378	27.95497	.724 (p > .05)	.213 (p > .05)
Graduation	64	287.1250	26.66637		.035 (p< .05)
Post-Graduation	172	297.4826	29.18392		

From the above table, it is evident that, the obtained *p* value for difference in the Multiple Intelligences scores of students of Matriculation and Graduate family background is higher than (*p* =.724) .05 level of significance.

The obtained p value for difference in the Multiple Intelligences scores of students of Matriculation and Post Graduate and above family background is higher than (*p* =.213) .05 level of significance. Whereas difference in the Multiple Intelligences scores of students of Graduate and Post Graduate and above family background is less than (*p* =.035) .05 level of significance.

Hence, it can be concluded that Graduate and Post Graduate and above family background students of CBSE school differ significantly in their Multiple Intelligences. Whereas Matriculation and Graduate and Matriculation and Post Graduate and above family background students of CBSE school do not differ significantly in their Multiple Intelligences.

Hypothesis 2: There is no significant difference among Working Professional, Businessman and Farmer Family background students of CBSE schools with respect to their Eight Intelligences categorized under Multiple Intelligences.

Table: Results of One Way ANOVA Test between Working Professional, Businessman and Farmer Family background students with respect to Multiple Intelligences

	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	10823.861	2	5411.930	6.851	.001 (p < .05)
Within Groups	242496.994	307	789.892		
Total	253320.855	309			

From the above ANOVA table it is evident that the obtained p value is .001and F value is 6.851with 2 and 307 degree of freedom. Here p value is less ($p < .05$) than .05 level of significance.

Hence, the null hypothesis is accepted and alternative hypothesis is rejected. Therefore, it indicate that Working Professional, Businessman and Farmer Family background students of CBSE school differ significantly in their Multiple Intelligences at .05 level of significance, $F(2, 307) = 6.851$; $p<.05$.

It means, there is significant influence of Occupational Background of Family on Multiple Intelligence scores of students of CBSE School. Further multiple comparisons are performed using Tukey post hoc test procedure to find out the mean difference and reported in the table.

Table: Results of Post hoc test among Working Professional, Businessman and Farmer Family background students with respect to eight Multiple Intelligences

Occupational Background of Family	N	Mean	SD	Occupational Background of Family	
				Businessman	Farmer
Working Professional	149	298.7181	27.31475	.429 (p > .05)	.001 (p > .05)
Businessman	82	293.9146	25.26902		.076 (p < .05)
Farmer	79	298.7181	27.31475		

From the above table, it is evident that, the obtained *p* value for difference in the Multiple Intelligences scores of students of Working Professional and Businessman family background is higher than (*p* =.429) .05 level of significance.

The obtained p value for difference in the Multiple Intelligences scores of students of Working Professional and Farmer family background is less than (*p* =.001) .05 level of significance. Whereas the p value for difference in the Multiple Intelligences scores of students of Businessman and Farmer family background is higher than (*p* =.076) .05 level of significance.

Hence, it can be conclude that Working Professional and Farmer family background students of CBSE School differ significantly in their Multiple Intelligences. Whereas Working Professional and Businessman and Businessman and Farmer family background students of CBSE school do not differ significantly in their Multiple Intelligences.

DISCUSSION AND CONCLUSION

The study investigated the Multiple Intelligences of X standard students related to Educational and Occupational background of parents. The analysis and findings of the study reveals that Graduate and Post Graduate and above family background students of CBSE school differ significantly in their Multiple Intelligences. Whereas Matriculation and Graduate and Matriculation and Post Graduate and above family background students of CBSE school do not differ significantly in their Multiple Intelligences. Further it can be concluded that Working Professional and Farmer family background students of CBSE School differ significantly in their Multiple Intelligences. Whereas Working Professional and Businessman and Businessman and Farmer family background students of CBSE school do not differ significantly in their Multiple Intelligences.

Thus, the study found that there is significant influence of Educational and Occupational background of parents on Multiple Intelligences of class X students of CBSE schools. The results indicate that schools need to initiate and focus on developing and conducting differentiated activities which are helpful to increase the Multiple Intelligences of X standard students considering their parents background also as one of the factors affecting their performance.

EUCATIONAL IMPLICATIONS

1. Teachers can plan their lessons to create interest among students.
2. The findings of the present study guide students in building their carrier according to their area of interest.
3. The results of the present study help in setting up proper curriculum and activity for the students .
4. The findings of the present study helps teachers to make their teaching more effective and student centric by considering their parental background.
5. It also helps Teachers plan differentiated instructions to meet specific needs of the students.

SUGGESTIONS FOR FURTHER RESEARCH

Following are the suggestions for the future research.

1. This research can be done at primary and middle school students.
2. This research can also be done for State board and ICSE students.
3. Comparison between students studying in government and private schools can be done.
4. This research can be done based on each different intelligences also.
5. The present study was conducted for Bagalkot district in Karnataka. Similar studies can be undertaken for other districts of Karnataka and other states of India too.

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A Critical Evaluation of the Aptness of Prenuptial Agreements in India

Sapna Bansal and Shakshi Rathi

ABSTRACT

Pre-nuptial agreements that provide for financial consequences of divorce are readily accepted in western countries, but the situation is different in India because they have neither been declared as legal or illegal, hence elevates the issue of determining the actual status of these agreements in the context of Indian society. The existing laws are insufficient to provide for the rightful maintenance and matrimonial property which spouses are entitled to get after divorce and considering the changing nature of marriage, there is a need of finding out the solution to the challenges which occur at the time of division of spousal property. In the light of the judicial developments that has taken place in the field of prenuptial agreements, this study deals with the analysis of those developments along with the data collected on the need of enforceability of prenuptial agreements in India. This paper is an attempt to find an answer whether prenuptial agreements will ever help in solving the problem of settlement of spousal property and explore the possibility of bringing a law on prenuptial agreements and find the circumstances when can such agreements be given validity.

Keywords: Divorce, Distribution of Matrimonial Property, Maintenance, Prenuptial Agreements, Settlement of spousal property.

INTRODUCTION

Prenuptial agreement is an official document signed by two people before they get married that says what will happen to their possessions and/or children if they divorce (Cambridge dictionary). The purpose of a prenuptial agreement is to set out a roadmap, which specifies a fair and equitable way of disbursing the couple's assets and debts, including property and future earnings, on the off chance the marriage collapses. Western countries have readily accepted pre-nuptial agreements and these agreements are becoming common throughout the world, because of the potential life security it brings. Therefore, the Indian couples have also started looking ahead of their traditional notions and beliefs, to imbibe this development within their culture. Since marriage is viewed as a spiritual relationship between spouses and not recognised as a contractual relation, therefore, currently prenuptial arrangements are neither lawful nor binding under matrimonial laws.

In addition, there is the reluctance of the Indian legislature as well as of judiciary to give a proper legal status to such agreements (Paras Ahuja and Nishtha Ojha, 2020). There arises a doubt regarding the actual status of such agreements in India because no specific law as such exists, that either gives recognition to such agreements or specifically prohibits it (Rishabh Tiwari, 2018).

It is important to note that due to changes in many aspects of Indian life and society such as the internet, smartphones and increased knowledge and awareness about life and rights, financial independence of Indian women and globalisation; the rates of divorce in India have started increasing and there is a shift in the Indian society from traditionalism to modernism. Thus, prenuptial agreements are attracting the couples of new generations, who look forward to securing their interests in the property and seek to put forward such a deal as would be beneficial for each of them in case their marital tie comes to an end in future. Moreover, other factors like increasing burden on courts, turmoil of prolonged and costly litigation in divorce, protection of interest in one's assets and existing uncertainties under personal laws w.r.t the amount of alimony and distribution of spousal property; are contributing to the increasing demand for prenuptial agreements, so that people can have the autonomy to decide the economic consequences beforehand in case divorce takes place in future and to explore easy ways to avoid the acrimonies of divorce.

In India, the main impediment that is preventing the legislature from giving recognition to the prenuptial agreements in legal terms, is that the marriage is considered as a sacrament, which contemplates marital relationship as an indissoluble union between the spouses and that if spouses enter into such agreements which contemplates future divorce, it will further result in undermining the trust, ideals and commitment of couples in their marital relationship (Devanshi Saxena and Surbhi Lal, 2014). Therefore, currently in case such agreements are made they are not treated as illegal per se, but are treated as ordinary agreements and have as much sanctity as any other contract, "*oral or written*", under the provisions of Indian Contract Act,1872 (hereinafter called as ICA) (Girija Gadre, 2014).

However, Muslims are legally allowed to sign certain agreements such as "*Muta and Mahr agreements*" before or during the course of marriage and the parties are required to abide by the conditions that they have defined

(Nanda Chiranjeevi Rao, 2013). Nonetheless, all the terms and conditions of the these agreements are held valid, provided it does not lead to violation of any provision of Muslim as well as general laws or be detrimental to public policy, and so it can be said that even though no specific mention of prenuptial agreements is made under their personal law but marital agreement entered between Muslim couples before marriage, such as *Nikahnama* is a form of prenuptial agreement which is still recognised and supported by the members of Muslim community and Courts as well (Mousami Panda, 2018). Therefore, prenuptial agreements are not an alien concept in India, they have been existing in India in some form or the other.

Prenuptial agreements – a document to address the key issues relating to economic aspects of divorce

Divorce process in India is a costly and time taking process. Due to the increasing complexity and huge backlog of cases, the Courts usually take years to pass a final decree. One of the most controversial facets of a divorce is its financial implications, which relates to the disposal/distribution of "spousal property" i.e., how assets shall be distributed between the married couples (Flavia Agnes, 1992).

In India, however, the wife remains in essence economically reliant upon her husband and the "*separate property regime*" has further contributed to the persistence of the subordination of the economic rights of wife (Jhuma Sen, 2009). Indian women have exceptionally restricted access to property on breakup or divorce, irrespective of whether their contribution in the purchase of spousal property is physical or financial.

It is very complicated to determine the share that the spouses will be entitled to get in the property, owing to the reality that considering the contribution towards the buying of that property. It is said that the contribution made by a housewife by her corporeal efforts is almost equal to the contributions which are made by the husband economically. Indian courts seldom reflect about the quantification of a housewife's contribution in the family. The law also fails to take regard of the contributions whether financial or non-financial towards procurement of assets which are rendered by such a spouse who lacks designation to the property, which often acts as a discrimination and goes against the interests of a woman who does not have title to the matrimonial home and any other properties.

A woman can anytime be driven out of the matrimonial home because she doesn't have any right of either ownership or possession over the home even if she had put all her efforts in creating and maintaining that home. A research undertaken and released by Majlis reveals that the most urgent requirement for the women was "shelter" and confirmed the devastating consequences of the "separate property regime" for women (Flavia Agens, 1992).

Due to the inadequacy in the terms of laws regulating spousal property, it becomes difficult for the court to determine what is separate property and what is marital property, and whether separate property regime should be applied or community regime will be better.

In the context of the above discussion, legalising prenuptial agreements may seem to be necessary to provide a more equal and fair legal structure that will give protection to the rights of divorced women. It shall be beneficial for the court to give enforcement to such pre-nuptial agreement wherein between the parties, a stipulation has already been made upon the alternative regime for settlement of property. As a result, prenuptial agreements should view marriage as a relationship between partners who are equal which recognise economic as well as non-economic contributions made by husband and wife both towards their marriage, the family and procurement of property.

Judicial Analysis of the validity of prenuptial agreements in India

Indian Judiciary has declared vast number of prenuptial agreements as unenforceable under Section 23 of the ICA,1872 as being in contradiction with the personal law and opposed to public policy. Therefore, the researchers attempt to review the important cases of prenuptial agreements in India in the context of two main religious communities i.e those relevant to Hindu personal law, accompanied by cases concerning Mohammedan personal law, in an effort to recognize potential trends of practice by the courts.

Judicial position on prenuptial agreements under Hindu law

In Sribataha Barik v. Musamat Padma (1969), a pre-nuptial agreement obliging the husband to reside with his wife at the wife's parental home and providing a condition which states that in the event of husband not fulfilling such obligation, the wife will be entitled to live separately and claim maintenance from him, will be void on grounds of defeating the notion of public policy in Hindu Law.

In Bai Appibai v. Khimji Cooverji (1936), it was held that prenuptial agreements which entitle the wife to seek maintenance from husband are valid in cases where the husband has either shown misconduct or treated the wife with cruelty or refused to maintain her, or such causes which make it justified for the wife to compulsorily reside separately from him, so in such cases, the wife will be allowed to seek maintenance from husband on proven grounds of cruelty or desertion.

In Sunita Devendra Deshprabhu v. Sitadevi Deshprabhu (2016), both the parties before their marriage entered into a prenuptial agreement, which showed that the parties had agreed upon the regime of separation of assets. It was also contended that there were no pre-existing rights in view of the prenuptial agreement (Amrita Ghosh and Pratyusha Kar, 2019). Hence, in this case, the Court gave weight to the Prenuptial agreement while passing judgement on a dispute regarding separation of assets among the parties, however, there was no discussion on validity of the prenuptial agreement in the judgement.

Judicial perspectives on prenuptial agreements in Muslim marriages- Since amongst Muslims, the marriage is considered as a civil contract therefore, an assumption can be made that prenuptial agreements can be adopted without much difficulty. Hence, a brief analysis of the cases where the court has delivered its judgement with respect to prenuptial agreements entered between Muslim couples will also help us to comprehend the path that has been developed to assess the status of such agreements.

In Bai Fatma v. Ali Mahomed Aiyab(1912), it was held that any prenuptial agreement arrived at between husband and wife that not only provides for but encourages future separation of spouses is against the public policy under Sec 23 of ICA,1872 and shall be rendered void. It makes no difference that the contracting parties are Mohammedans and Courts were allowed to place reliance upon English Law for public policy view in matters of marriage and separation.

In Khatun Bibi v. Rajjab (1926), it was held that a prenuptial agreement signed between spouses which emphasises upon wife’s liberty to stay permanently at her parent’s house after marriage and restriction on husband to reside permanently during the entirety of marriage at his wife’s parents house is invalid under Muslim Law and defeats the public policy.

In Mst. Jani and Ors. v. Mohd. Khan (1970), breach of conditions in an agreement that is violative of public policy, can’t operate as divorce and would not lead to a dissolution of marriage between the couple.

In Buffatan Bibi v. Sheikh Abdul Salim (1950), it was held by HC that a “Kabinamma” signed between parties, where the husband the husband would be obliged to pay his wife maintenance so long as she lived in her father's place and also conferred upon the wife the right to divorce herself in case the spouse refuses to provide her maintenance for a specified amount of time is not contradictory to public policy and is admissible under Islamic rule as valid and binding.

In Saifuddin Sekh vs. Soneka Bibi (1955), the ruling was clearly focused on the idea that an agreement that seeks to preserve stability and domestic harmony cannot be disregarded as null and contradictory to public policy. Therefore, Court held that a prenuptial agreement in the form of kabinamma giving the plaintiff the right to seek divorce and live apart from the defendant and other co-wives in case they choose to live together was legal and enforceable, and not contrary to public policy under Sec 23, ICA.

Thus, all the cases discussed above make it very clear that public policy concerns as regards the validity of prenuptial agreements are not restricted in their scope and have also been preferred by Hindu couples. Although such agreements are valid under Muslim Law, but still the Courts can interfere with these agreements on the grounds of public policy concerns. The inclination of courts in cases discussed above, clearly illustrates its motive behind negating those prenuptial agreements which particularly appear to motivate a separation in the relationship of couples.

On a brief note, it can be said that from a study of the cases referred above, the justification behind applying public policy concerns in declaring prenuptial agreements as invalid has evidently been considered on two reasons: -

a. Prenuptial agreements which lays down provisions which are against rights and entitlements provided under personal laws of the Hindus and Muslims and their customs and traditions, have held as invalid on public policy concerns; and

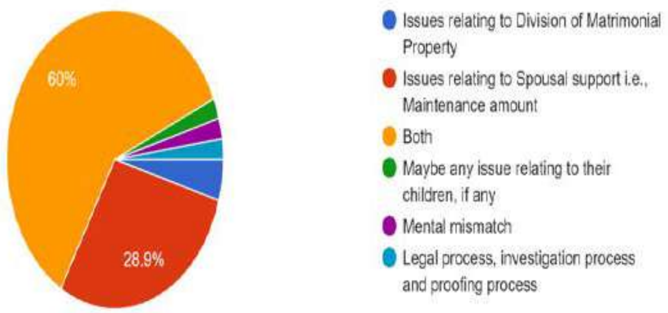
b. Prenuptial agreements containing such terms and conditions which can stimulate separation between the married couple in future through divorce are also considered as opposing public policy (Amrita Ghosh and Pratyusha Kar, 2019).

DATA ANALYSIS

The researchers have conducted an online survey through a list of questionnaires consisting of close-ended and open-ended questions. The targeted focused group was experts in the field of law i.e., legal practitioners so that they could share their views drawn from their experience while practicing in legal field. 45 legal practitioners filled the questionnaire and contributed towards research.

The survey covered a broad range of issues related to the general acceptability of prenuptial agreements, experience of legal practitioners who have drafted prenuptial agreements, their usefulness in resolving the key economic aspects of divorce including property distribution and awarding spousal support after divorce. The observations shed light on the level of awareness and acceptance of the evolving concept of prenuptial agreements in India and to assess the needs and benefits of making such agreements as legally binding on the parties who have signed it and to ascertain the interest and ability of legal practitioners to make changes in the system.

Figure 1



As shown in figure 1, when the legal practitioners were asked as to what are the issues which are mostly encountered by the clients during divorce proceedings, 28.9% answered in favour of issues relating to spousal support or maintenance amount and 60% were of the view that they are mix of both relating to division of matrimonial property and maintenance amount. Though there are issues relating to children also but in those cases too, maintenance and other financial support issues are involved. So basically financial support in any sense remains the core issue.

Figure 2

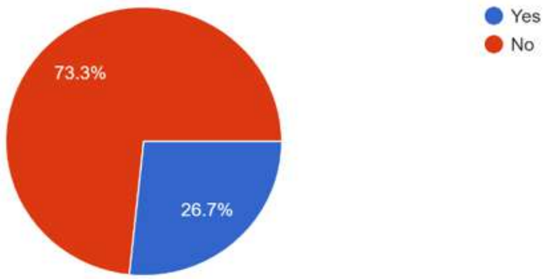


Figure 2 is the answer to the question when asked whether the legal practitioners ever drafted any prenuptial agreement. 73.3% didn't draft such agreements but 26.7% accepted that they had drafted such agreements.

Figure-3

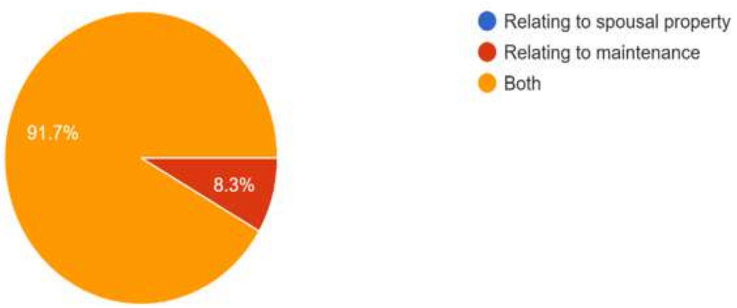


Figure -4

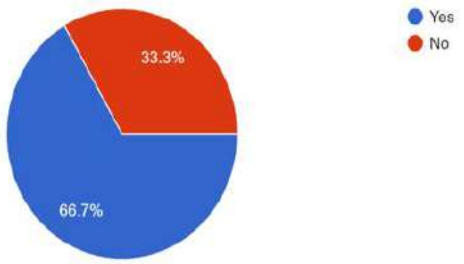


Figure -5

Figure -6

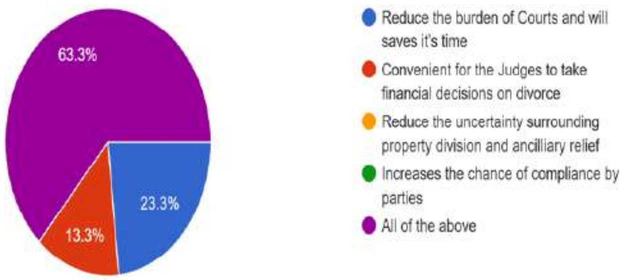
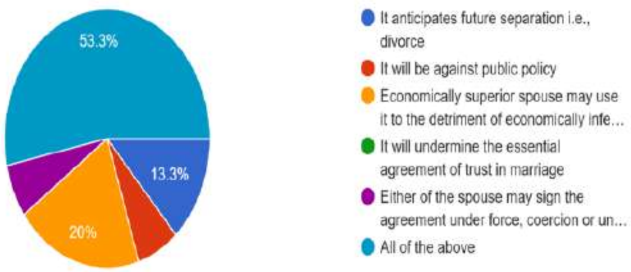


Figure -7



The findings of the researcher can be summarised as following: -

a. The legislative safeguards in the event of divorce are not sufficient to provide adequate safeguards to the divorcing spouses in the matter of spousal property settlement and grant of maintenance because of which majority of the legal practitioners (60%), have observed from their practical experience that the divorcing couples usually face post-divorce trauma of a prolonged litigation in the sense that the matter goes on getting adjourned by the Court until they reach any consensus with respect to settlement of spousal property and alimony.

b. Out of the 45 respondents, only 12 respondents (26.7%) have drafted a prenuptial agreement, of which majority of them around 11 respondents (90.9%) have drafted both property related and maintenance related prenuptial agreement which shows that prenuptial agreement is not an alien concept in India and there are spouses who tend to sign these agreements because they want to be certain of the financial consequences that they may have to face in case divorce takes place in future.

c. Out of the 45 respondents, majority of them (66.7%) [including a majority of respondents (23.33%) who have drafted prenuptial agreements previously] were in favour of introduction of a separate legal framework in India that could deal exclusively with the regulation of prenuptial agreements in these matters. The data also suggests that majority of them (56.7%) believe that if these agreements are made binding in India on those spouses who sign it, under the protection of a legal framework then it will have various benefits to the spouses, such as- reduction in the cost, complexity and length of divorce proceedings; encourage marital stability; transparency in full and final disclosure of assets; and will protect them against accumulated debts of the future spouses. However, maximum legal practitioners (63.3%) also believe that law making prenuptial agreements as binding on the spouses will be beneficial not only for the spouses who sign such agreements but it will also be advantageous for the Court in dealing with the issues surrounding the distribution of property and grant of maintenance to the spouses, adequately and can in turn reduce the pendency of the large number of cases in the courts.

d. However, the fact that out of the 45 respondents, a minority of 33.3% were not in favour of introduction of a law on prenuptial agreements in India because majority of them (53.3%) believed that such agreements if made binding will have severe impacts such as - anticipation of future divorce; contradiction of public policy; misuse of the agreement by an economically superior spouse; agreement may be signed under fraud, undue influence, coercion, duress etc; and that it will undermine the essential agreement of trust in marriage. Therefore, this suggests that if the legislature provides for adequate safeguards while making a law on prenuptial agreements against these negative elements, such as preserving the equality in bargaining powers of spouses, independent legal advice to the spouses before signing the agreement, etc., then prenuptial agreements can prevent the misuse of such agreements, and at the same time will protect the spouses against abuse of marital relationship.

CONCLUSION AND SUGGESTION

After having examined the empirical data collected by researcher in this study, and considering the opinion of the majority of them (66.7%) [including a majority of respondents (23.33%) who have drafted prenuptial agreements previously], prenuptial agreements is the need of the hour and they should be made legally enforceable because within the current circumstances to some extent, these agreements are scrutinised only under the provisions of Indian Contract Act, 1872 (which deals with commercial contracts). But, unlike commercial partnerships, it is not that easy to do future mapping in marital relationships as there may be certain circumstances that may arise in future out of unforeseen mishaps, or there may come along with time certain unexplored paths, and new possibilities which can make the spouses bound to rethink about their plans as after all they are envisaging the end of their marriage even before it has begun and endeavouring to be arranging to choose on a connection which has not even started. Consequently, it is advisable to treat both commercial and marital agreements differently under separate laws.

However, the researcher would advice that prenuptial agreements should be made enforceable in India, only where it relates to distribution of spousal property, because data analyzed above shows that 67.8% respondents have during their course of practice observed that divorcing spouses mostly face issues during divorce procedures relating to the division of matrimonial property which is mainly due to the silence of current provisions in family law in this regard, therefore, the researcher would suggest that just like other countries, in India also, a specific legal statute must be made for the enforcement of prenuptial agreement with proper legal safeguards so that it can serve as a good way of allowing couples to decide privately about the economic aspects in case divorce takes place between them in future, as it would help the parties to the marriage to outline their own agreed terms to an alternative system for distribution of property.

It can also be deduced that the bifurcating decisions of the Courts in matter of prenuptial agreements indicate that there is no hard and fast rule for determining the public policy grounds on which prenuptial agreements can be upheld or declared void, but it is mainly due to the absence of any legislative guidance that Court finds it problematic to decide upon prenuptial agreements, but had there been a law in this regard which did not affect the personal law and did not violate the basic principles of public interest and welfare, then such a legislation would have in general protected the interest of all those parties who admire signing a prenuptial agreement.

Keeping in mind that India is a pluralistic society and each community is governed by its own personal law, it will not be easy to make a sudden introduction of such agreements in the personal laws, as change in matrimonial laws will further require change in subsequent laws such as the law of succession, guardianship law, etc. It is on this basis, that researcher would like to propose the following suggestion for the purpose of giving legal enforcement to such agreements: -

a. Without touching the personal laws of the parties, a prenuptial agreement can be made legally binding under the secular law i.e., Special Marriage Act, 1954, provided that it is submitted along with other necessary documents as required under the Act for the declaration of marriage and then duly, registered with the Registrar; or

b. However, adoption of a comprehensive separate legal framework drawn from the positive aspects of law in this matter from the law existing in countries of USA, Australia and England will be more effective and it can be made applicable to spouses who are registered under the Special Marriage Act, 1954.

REFERENCE

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Cryptocurrency- A Digital Revolution

Bhawana Singla

ABSTRACT

A cryptocurrency or crypto is a virtual currency secured by cryptography. It is designed to work as a medium of exchange, where individual ownership records are stored in a computerised database.

Cryptocurrencies uses blockchain technology, which is used to keep an online ledger of all the transactions that have ever been conducted, thus providing a data structure for this ledger that is quite secure and is shared and agreed upon by the entire network of an individual node, or computer maintaining a copy of the ledger.

There is a need of recognize the rise in popularity of cryptocurrency and then introduce safeguard, measures and regulatory structure by which people do not feel that they should have something to fall back on.

This paper highlights the increasing significance of Cryptocurrencies across the world and why India needs to accept it in order to go hand in hand with the world in the upcoming phase of digital revolution.

Keywords: Cryptocurrency, Investor, Bitcoin, Blockchain

INTRODUCTION | WHAT IS CRYPTOCURRENCY

In the early stages of the human, there was a barter system of exchange which later on diminished due to its inherent flaws in it, and from then many types of research has been made to make Digital money and slowly the paper and coin currency have been introduced and got popular all around the world.

Today in the modern economy, we have real money in paper and coins form and also the Digital money in the form of electronic wallets, debit and credit cards, etc. which are controlled by central or common authorities.

A cryptocurrency is a form of payment that can circulate without the need for a central monetary authority such as a government or bank. It's a peer-to-peer system that can enable anyone anywhere to send and receive payments. Cryptocurrency is stored in digital wallets. Cryptocurrencies, also known as Digital Currency or Virtual Currency

Cryptocurrency is a digital currency that can be used to buy goods and services, but uses an online ledger with strong cryptography to secure online transactions.

How Cryptocurrency works

1. It mainly works on the principles of cryptography (a method of protecting information and communications through the use of codes so that only those for whom the information is intended can read and process it.) The word' crypt' means 'hidden' and the 'graphy' means 'writing.'
2. Cryptography uses similar concept of digital currency but in a decentralized manner which means it can't be governed by any central authority and transaction processing will not be done by any server.
3. It does not involve in the duplication of the transactions and nor involve counterfeit/fake currency.
4. Cryptocurrency use Distributed ledger system (DLS), It's also known as block-chain analysis that records transactions that cannot be altered, deleted, or destroyed. They are known as blocks that link and secure each type of cryptocurrency.
5. There is a single network called mining (a process by which the cryptocurrency is validated) in which all the funds are kept.

How Cryptocurrency is purchased?

In order to purchase a cryptocurrency, investor must open a digital wallet. This is the place where investor can use his currency and can purchase or sell goods or services.

Forms of Cryptocurrency

There are so many forms of cryptocurrency in the market such as **Libra, Bitcoin, Ethereum, Litecoin, and Ripple**, but **"Bitcoin"** is one of the most famous cryptocurrencies founded by Mr. Satoshi Nakamoto in the year of 2009. Whenever the term cryptocurrency is used, Bitcoin comes first. The original and first form of cryptocurrency was Bitcoins, after which other forms like; Ethereum, Litecoin, Dark coin, dash, and more were brought-

Bitcoin first hit the market in 2009 and has been running the business world ever since. There was a drastic rise in bitcoin value that it went from $1000 to over $19,000 in 2017 alone. This is the first and most popular of all forms of cryptocurrency.

Ethereum is another form of cryptocurrency that kick-started in 2015. Its uniqueness is that it allows for smart contracts and decentralized Applications (dApps) usage without any defect or scam. The Ethereum platform has a native cryptocurrency, known as Ether or ETH. Ethereum is a blockchain technology platform that supports a wide range of decentralized applications (dApps), including cryptocurrencies. The ETH coin is commonly called Ethereum, although the difference is that Ethereum is a blockchain-powered platform and ether is its cryptocurrency.

Litecoin is another form of cryptocurrency started in 2011after two years of bitcoin and Initially, it was a strong competitor to Bitcoin Litecoin differs from Bitcoin in various aspects like faster block generation rate and use of Scrypt as a proof-of-work (PoW) scheme. Bitcoin might be better if investor want more value per coin, while Litecoin might be better if investor want more coins at a lesser value.

The most common way of earning money from cryptocurrencies is buying coins such as Bitcoin, Litecoin, Ethereum, Ripple, and more and wait until their value rises. Once their market prices rise, they sell at a profit.

USES OF CRYPTOCURRENCY

1. For purchase of products and services which accept cryptocurrencies for transactions.
2. For Money Transfers without any charges
3. For getting paid in cryptocurrency
4. For investment opportunities

Advantages of Cryptocurrency

1. **Cost effective-** As compared to our conventional currencies, the transactions of cryptocurrency are quicker, safer as well as cost-effective.
2. **Check on Corruption-** The technology that is used in cryptocurrencies is fully encrypted, which makes the personal data of its users unknown. and It also protects the investor from cybercrime, fraud along with maintaining privacy.
3. **Low Transaction Fees-** As miners of cryptocurrency are rewarded some amount of cryptocurrency from the network itself. So, there is no fees or little fees for core of transactions.
4. **Easy Accessibility-** As investor can only access his own part of the cryptocurrency via a digital key.
5. **Cross Order Accessibility-** Cryptocurrency is used as a Free flow and Global reach.
6. **No Fraud-** The Counterfeiting or duplication of Cryptocurrency is very tough.so chances of fraud is nil.
7. **Financial Soundness-** Cryptocurrency can be used as an important technology to strengthen the financial system.
8. **Backbone for Economy -** It's helpful for those country that has a weak economy.
9. **User Wallet-** Modern cryptocurrency systems come with a user "wallet" or account address which is accessible only by a public key and private key. The private key is only known to the owner of the wallet.
10. **Easy Funds Transfer-** fund transfer between two parties will be easy without the need of third party like credit/debit cards or banks.
11. **Cheaper-** It is a cheaper alternative compared to other online transactions.
12. **Time Effective-** Cryptocurrencies saves money and substantial time of both the remitter and the receiver, as it is conducted entirely on the Internet,
13. **Lower Entry Barriers-** Cryptocurrencies has lowers entry barriers, investor are free to join, high on usability and the investor do not require any disclosure or proof for income, address or identity.

Disadvantages of Cryptocurrency

1. **Money Laundering-** As the transactions are anonymous, some persons may use cryptocurrencies for illegal activities like selling drugs, weapons, and child pornography etc.

2. **Regulatory Bypass-** It makes harder for RBI as well as the government to manage the monetary policy as there is no central agency for regulating the transactions of Cryptocurrency.
3. **Malware Threats-** Transaction of cryptocurrency can be done only through the internet. So uneducated people and people who do not have proper internet facilities will not be able to take advantage of it.
4. **Market Volatility-** As the rates of Cryptocurrency are very unstable, which causes huge losses or benefits in a very short time. Due to this, speculation or betting can also be promoted.
5. **Risk in Security-** Cryptocurrency use prove to be a threat to official currency and monetary systems.
6. **Tax Evasion-** Due to hidden nature of cryptocurrency transactions it makes easy for people to focus on illegal activities such as money laundering, tax-evasion and even terror-financing.
7. Payments are not irreversible

Cryptocurrency in India

Mr. Arun Jaitley, Former Finance Minister said in the budget speech of 2018 that the government doesn't consider cryptocurrencies as a legal tender (form of payment recognized by a government, used to pay debts or financial obligations, such as tax payments).

In 2018, RBI banned all the functions and entities which is related to the sale and purchase of cryptocurrencies. In July 2019, the Inter-ministerial panel recommends complete ban on all cryptocurrencies. and also said to implement new rules to fines and punishments for violation of its.

As per the Cryptocurrency and Regulation of the official Digital Currency Bill, 2021, the Indian Government wants to create an official digital currency to be issued by the reserve banks of India and it also prohibits all the other private cryptocurrencies in India.

How is cryptocurrency used in India?
Some of the top crypto exchanges in India are — WazirX, CoinDCX, Coinswitch Kuber and Unocoin— In order to use cryptocurrency users, have to sign up with their KYC credentials, download the app, and buy cryptocurrency. These exchanges help users to monitor the value of their cryptocurrency and also helps them to buy or sell it.

How can one buy crypto in India?
To buy cryptocurrency in India, an investor first needs to create an online storage option for the crypto (like Bitcoin), through a third party, along with finding a crypto exchange. In the exchange, the investor will have to create an exchange account via an exchange service.

Indian cryptocurrency
Name of India-based cryptocurrency exchange is CoinSwitch Kuber which has added five crypto coins, namely MANA, SAND, GALA, REQ and COTI.

Best cryptocurrency in India
Bitcoin is the most popular cryptocurrency in India. This is popular because it is the longest living cryptocurrency, highly valued, similar to gold. Promoters even call Bitcoin the 'gold standard' of cryptocurrencies.

Bitcoin price in INR: ₹47,11,887

Issues associated with banning decentralised Cryptocurrencies

- **Intended Ban:** The blanket ban is the essence of the Cryptocurrency and Regulation of Official Digital Currency Bill, 2021. It intends to ban all private cryptocurrencies in India. Cryptocurrencies categorising as public or private is inaccurate as the cryptocurrencies are decentralised but not private. Decentralised cryptocurrencies like bitcoin can't be controlled by any entity, private or public.
- **Exodus**: Cryptocurrencies ban likely to result in a brain drain of both talent and business from India, similar to what happened after the RBI's 2018 ban. Due to this blockchain experts moved to countries where crypto was regulated, such as Switzerland, Singapore, Estonia and the US. Due to blanket ban, blockchain innovation and its uses in governance, data economy and energy, will come to a halt in India.
- **Withdrawal of Transformative Technology**: A ban will deprive India, its entrepreneurs and citizens of a transformative technology that is being rapidly adopted across the world.

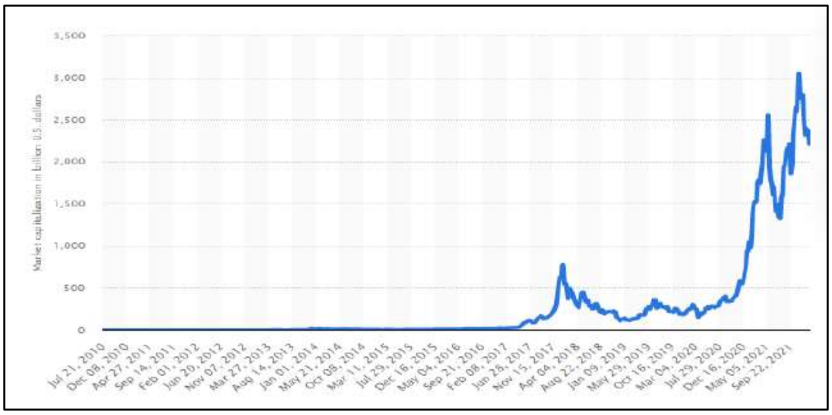
- **An Unproductive Effort:** Ban will encourage illegal activities like selling drugs, weapons, and child pornography, etc.
- **Impracticable**: A ban is impracticable as any person can purchase cryptocurrency over the internet.
- **Contradictory Policies:** Ban on cryptocurrency is inconsistent with the Draft National Strategy on Blockchain, 2021 of the Ministry of Electronics and IT, which proclaim blockchain technology as transparent, secure and efficient technology.

FUTURE OF CRYPTOCURRENCY

- If work is done to overcome the shortcomings of cryptocurrency, then it can be taken over by banking sector.
- As people are investing in cryptocurrencies to become rich and not for the intended purpose of easier money transactions -As a result, it may disappear after some time.
- Due to Blockchain technology –As every transaction is connected – Steps can be taken to check on money laundering by implementing it in the banking sector.

WAY FORWARD

- **Regulation is the Solution**: Regulation is needed to prevent serious problems, to ensure that cryptocurrencies are not misused and to protect genuine investors from excessive market volatility and possible scams. The regulation needs to be clear, transparent, logical and has vision of what it seeks to achieve.
- **Clarity on Cryptocurrency definition**: A legal and regulatory framework must first define cryptocurrencies as securities or other financial instruments under the relevant national laws and identify the regulatory authority in charge.
- **Strong KYC Norms**: Instead of a complete prohibition on cryptocurrencies, the government shall rather regulate the trading of cryptocurrencies by including strict KYC norms, reporting and taxability.
- **Ensuring Transparency**: For ensuring transparency, information availability and consumer protection it may take into consideration record keeping, inspections, independent audits, investor grievance redressal and dispute resolution.
- **Igniting the Entrepreneurial Wave**: Cryptocurrencies and Blockchain technology can reignite the entrepreneurial wave in India's startup ecosystem and create job opportunities across different levels, from blockchain developers to designers, project managers, business analysts, promoters and marketers.



Cryptocurrency market capitalization trend (Source- www.statista.com)

CONCLUSION

Despite all the risks, the encrypted technology in cryptocurrency can prove to be an asset for the financial marketplace. Most countries are opting for a regulation on cryptocurrency rather than banning it.

If India also regulates these cryptocurrencies and invest in DLS technology then it will prove to be good for the future. A "Digital Rupee" (INR) perhaps could be the future/ solution.

With the creation of Bitcoin in 2008 till present date, cryptocurrencies have gained much significance all around the world. The gains made by this sector since the onset of Covid-19 pandemic in January 2020 are outstanding; the "Cryptomarket" grew by over 500%.

However, in the 2018-19 budget speech, the Finance Minister announced that the government does not consider cryptocurrencies as legal tender.

Considering the fact India was a late adopter in all the previous phases of the digital revolution – when semiconductors, the internet and smartphones made their mark, there is a need for a change in the thoughts and acceptance for these virtual currencies as they mark India's first step towards entering the new phase of digital revolution.

There is a need of recognize the rise in popularity of cryptocurrency and then introduce safeguard, measures and regulatory structure by which people do not feel that they should have something to fall back on.

It is time for India to shift from the mainstream payment systems and become one of the most active participants of the upcoming digital revolution.

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Retail Entrepreneurship Development in India: With Special Emphasis on Big Bazaar

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ABSTRACT
Retail industry is currently the booming sector of the Indian economy. This trend is expected to continue for at least the next two-three decades, attracting huge attention from all quarters of the economy—entrepreneurs, business heads, investors as well as real estate owners and builders. Retail sector is also expected to create huge employment as it will expand across the country at a massive scale. Slowly and steadily retail has witnessed considerable growth while a new form of organized retail sector has emerged within the retail industry. With such developments in the retail it is important to look at the labour market in this sector. Since this is a hugely under-researched area, the study attempts to firstly understand and conceptualize labour as it is perceived by both unorganized and organized forms of retailing. In addition the study looks at the labour management practices, the labour problems, as well as the problems faced by the employees in organized vs. unorganized retailing in India. The rationale of the study is twofold: First, to examine the nature of changes in the retail sector taking place due to organized form of retailing and implications of shift to this new form of retailing. Secondly, this area has remained largely an unexplored part of research till date specially in the Indian context.

Keywords: Labour Management, Unorganised and unorganised retail.

INTRODUCTION
Its potential in stimulating entrepreneurial skills and knowledge. Study has found that India is dominated by huge unorganized retail sector. Now, even the organized sector is gradually increasing its share in retail sector. Big Bazaar is the largest retail brand in our country. It is employing the youth in thousands in different cities all around the country. It also pays taxes which is abundantly lacking in unorganized sector. After applying many matrices on Big Bazaar the study found that, it is at a growing stage. It is at a stage where it is increasing as well as diversifying its operations. It has launched many attracting schemes to catch customers at a large scale. Study also finds out that indeed the Big Bazaar is a biggest outlet in a country, but it has some limitations also. Abundantly boosting online stores are the biggest threat to retail sector entrepreneurship in India. Because, increasing purchases from online stores seem easier to customers rather than going to retail stores. Small and medium-sized enterprises (SMEs) account for 60 to 70 per cent of jobs in countries, Throughout they also account for a disproportionately large share of new jobs. Some evidence points also to the importance of age, rather than size, in job creation: young firms generate more than their share of employment.

An Overview of Indian Retail Industry
Retail has played a major role world over in increasing productivity across a wide range of consumer goods and services .The impact can be best seen in countries like United States of America (U.S.A)., United Kingdom (U.K)., Mexico, Thailand and more recently China. Retail is one of the largest industries in the world. It is the second-largest industry in the United States both in number of establishments and number of employees. The retail industry employs more than 22 million Americans and generates more than $3 trillion in retail sale annually. Wal-Mart is the world's largest retailer. It is also the world's largest employer with over 1million associates. Wal-Mart has become the most successful retail brand in the world due its claimed ability to leverage size, market clout, and efficiency to create market dominance (CII Report, 2006).

OBJECTIVES OF THE STUDY
- To study the importance of Retail Entrepreneurship in India.
- To study the performance of Big Bazaar.
- To study the role of Big Bazaar in retail entrepreneurship development.
- To study the different policies adopted by Big Bazaar in order to attract customers.

Salient Features of Indian Organized Retail
Retail market in India is expected to grow from US $350 billion to US $427 billion by 2010. Retail has traditionally been a major sector in India employing millions of people. Retailing currently contributes 10% of India's GDP and 6-7% of employment. The popular traditional form of retail has been the so-called 'unorganized' form of retailing mostly represented by small family-owned stores, selling one particular

category of product, e.g Kirana shops, drug stores, located in the market place or residential areas, road-side stalls, hand-cart and pavement vendors etc. However with the opening up of the Indian economy since 1991 retail sector has gradually undergone considerable changes in its form. Though earlier mainly represented by the low-cost 'mom-and-pop' store format, retail today is emerging has a huge "industry". The major shift has been the emergence of an organized sector within the retail industry.

In common parlance organized sector usually denotes unionization. However, in the Indian context organized sector is differentiated from unorganized sector in terms of employment status. The former offers regular contractual hired employment along with social security benefits and hence implies better service conditions for its employees as opposed to their counterparts in the unorganized sector. Retail in India used to fall largely into the unorganized category. However, recently there has been the emergence of organized sector within retail.

Though organized retail currently forms a very miniscule proportion of the entire retail sector in India (around 3%), by 2010 it is expected to be expanding at a considerable rate (compound annual growth of 40%). According to a report released by FICCI (Federation of Indian Chambers of Commerce and Industry), the organized retail is likely to increase its share to over 20% by 2010. Organized retail occupied a space of 1 million sq. ft. In 2002, which shot up to nearly 14 million sq. ft. by 2007 and in 2008 the figure is expected to be 16 million sq.ft. India Retail Report, 2007 forecasts that 2.2 million jobs will be created in this new retail sector by 2010.

Many Indian entrepreneurs have taken a keen interest in retailing over the last decade and have successfully established organized retail chains, notable among which are headed by the Future (Pantaloons) group, the Rahejas, the Piramals, the Tatas, the RPG group, Subhiksha etc. Reliance, one of the latest notable entrants in the retail sector, which had initially opened stores in Hyderabad and now has over 450 stores across India, has ambitious plans of expanding in this sector. Along with these domestic developments, there has been a simultaneous attention being given to the Indian retail market by international retail giants, mainly because of the sheer size of the market. The most important development in this context has been the tie up of Walmart, America's largest retail chain with Bharti, the Indian telecom giant which is likely to be concretized in June, 2009. India, today, is one of the most attractive destinations for retail investment by the global retail giants. This has led to a controversy regarding whether Indian retail should be opened up to foreign companies and its likely effects on local economy. However, whether it is through the local companies or global ones, the fact remains that the overall move is towards expanding the organized retail sector in India. The rapidly increasingly number of shopping malls especially in the metropolises like Mumbai, Delhi, Kolkata, Chennai, for example, bears a clear testimony to this fact. However, in the next five years a huge number of shopping malls are likely to emerge even in the medium and even small cities (i.e. Tier II and Tier III cities) though mall culture is not much in vogue in the small cities till date.

According to A.T. Kearney Report, 2007 India is one of the most sought-after destinations for organized retailing for the global retailers. Currently it tops the list of countries in terms of Global Retail Development Index, 2007 prepared by AT Kearney. In terms of level or stage of development Indian retail sector can be divided into a few zones. A survey conducted and documented in the Jones Lang LaSalle Meghraj report entitled "The Geography of Opportunity - The India 50" (June, 2007) has also identified 50 Indian cities which are the potential beneficiary of the organised retail boom. These have been divided into five categories:

a. **Maturing**– Delhi, National Capital Region (NCR), Mumbai belong in this category and these markets are seeing saturation. However large one-stop malls having retail, entertainment, food and hospitality would have demand, along with hypermarkets, and malls

b. **Transitional**– These include cities like Bangalore, Kolkata, Hyderabad, Pune, Chennai and Ahmedabad. By 2008, they would account for one-third of total market due to their large corporate sectors, high level of economic activity, above-average income and large middle class.

c. **High-Growth**– These are the 'next' retail destinations of Chandigarh, Jaipur, Ludhiana, Lucknow, Kochi, Surat and Vadodara.

d. **Emerging**– They include cities which are tourist oriented, and have setup infrastructure for IT companies like Nagpur, Indore, Nasik, Bhubaneshwar, Vizag, Coimbatore, Mangalore, Mysore, Thiruvananthapuram, Amritsar, Agra and Goa. e. **Nascent**– These offer the first-mover advantage as the income levels and corporate activities are limited. The cities are Patna, Bhopal, Meerut, Asansol, Varanasi, Kolhapur and Sonepat. The top 15 cities in the list will contribute more than 80 per cent of the total national retail business by 2008

Reasons for Retail Sector Boom in India

The most important factors responsible for retail sector development in India are liberalization of the economy, upward mobility of middle class, shifting consumer demands, and expansion of ICTs. Liberalization of the economy since the 1990s is definitely the single-most important factor leading to a shift towards a new organized form of retailing. Organized retailing is expected to bring about positive employment impact in terms of quantity (more jobs will be created) and quality (security of job, benefits etc. will be better). Since the liberalization of the economy there has been a visible impact on the income level of the middle class, which as a whole is upwardly mobile, with a huge disposable income in hand. Along with this there has a change in the spending habits with more focus on improving the quality of life through increasing consumption of high end products, which previously the middle class refrained from using

Government Amendments In Retail Sector

The Government of India has allowed 51 per cent FDI in Multi-Brand Retail Trading (MBRT) and 100 per cent in Single-Brand Retail Trading (SBRT). According to the extant policy, foreign retailers investing more than 51 per cent can open outlets across the country on the condition that 30 per cent of their sourced sales would come from small to medium-sized domestic enterprises. Further, global chains will now need to invest only 50 per cent of the initial compulsory investment of US$ 100 million in setting up cold storages and warehouses in India. Foreign chains have been given the green signal to set up stores in cities with a population of less than one million. Earlier, supermarkets could only commence their operations in 53 cities, the ones with a population of more than a million.

SWOT Analysis: Big Bazaar

STRENGTHS

- High brand equity enjoyed by Big Bazaar.
- Everyday low prices, which attract customers.
- Huge investment capacity.
- It offers a family shopping experience, where entire family can visit together.
- Available facilities such as online booking and delivery of goods.

Launched Big-Bazaar a hypermarket with over 1, 70,000 products as the first offering in value retailing segment. Products are cheaper than the market price by as much as 5 to 60%.

Apparels are cheaper by 25 to 60% while the price difference on the other products varies between 5 to 20%.

WEAKNESSES

- General perception: Low price = Low quality‟.
- Overcrowded during offers.
- Long lines at billing counters which are time consuming.
- Limited only to value offering low price products, branded products are still missing from Big Bazaar‟s line of products

OPPORTUNITIES

- Huge potential rural market to be tapped.
- Cosmetics industry is not yet covered fully.

THREATS

- Competition from other value retail chains such as Reliance, Bharti etc.
- Unorganized retail also appears to be a threat to Big Bazaar‟s business. A large population still prefers to visit local convenient stores for daily purchases.
- Changing Government policies.
- International players are looking to invest in India.

PEST ANALYSIS

PEST Analysis generally scans the subject by four aspects i.e. Political, Economical, Socio-Cultural and Technological aspect. Every aspect seems favorable to Big Bazaar. Political stability, growing economy, favorable changing population demographics and technologically booming industry seems to take retail industry of India beyond par within a short span of time. Developing economy and a huge chunk of young population i.e. currently 35% are the two strengths for Big Bazaar. Huge working force acts as an easily available human resource as well as customers for Big Bazaar. Increasing efficiency in Supply Chain Management and Customer Relationship Management due to technological advancement in IT sector helps Big Bazaar to fulfill the needs of customers in time and with greater satisfaction. But, there is a big threat i.e. the advantages that the Big Bazaar is enjoying, they are same for its competitors also like Reliance, Aditya Birla Group and Bharti etc.

POLITICAL

- Government is stable.
- Government policy towards investment is liberal (49%).
- Labour law & Restriction for MNC"s.
- Properties of taking over properties and real estate.
- Problems of getting subsidy from local tax and on different taxes like Land, Water etc.
- A stable government at the centre facilitates speedy economic recovery and creates an encouraging investment climate.

ECONOMICAL

- Economy is growing (7.2%).
- Almost Recovered from Recession.
- India one of the fastest growing economies.
- Retail industry to grow with an increase in income of people.
- Increase in percentage of service contribution to GDP.
- Stable even during recession & Growth stage: High revenue but high expenditure on promotion.

Socio-Cultural

- Increase in nuclear families.
- People prefer to shop in local store with reasonable price.
- Increase in working women proposition.
- Life style changes gradually.
- Shift in product and service preferences.
- Increase in young population (currently 35%).

Technological

- Rapid expansion of IT sector.
- Technological development for faster service.
- Better application of IT in the modern retail industry, like in Supply Chain Management, Store Management and Customer Relationship Management.
- Electronic billing.
- Use Enterprise Resource Planning Module for handling inventory and finance.

Future Scenario of Big Bazaar Big Bazaar is planning to exceed its hypermarkets over five hundred in the country by the end of 2017. It has also a plan to increase its annual turnover to twenty thousand crores by 2017. It is also looking at smaller cities for the expansion.

CONCLUSION

It can be concluded that indeed Big Bazaar is progressing, it is accomplishing its goals with a clear vision and mission gradually. It has achieved high brand equity, highly discounted products and the variety of products that are available under one roof. It is also expanding its business geographically as well as in form of the product width. Big Bazaar is advancing in Supply Chain Management and Customer Relationship Management that helps it to fulfill the needs of customers in time and with greater satisfaction. It has also been very successful in making brand loyalty in the minds of people and without any doubt it has been very successful in target segmenting.

RECOMMENDATIONS

On the basis of the study, some of the recommendations are as follows:

- It can start a concept of "HAPPY HOURS".
- It can initiate various Student Plans.
- It can look to target Rural Market.
- It needs to focus more on CRM and improve in store assistance.
- It should invest more in supply chain infrastructure.
- It should include more brands in its line of products.
- Exchange offers should be made clear as customers are not clear of how to use them.
- There should be aggressive expansion plan to open in tire II cities.
- It should start facilities like free home delivery etc.

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The Impact of Human Resource Management Practice on Organizational Performance

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ABSTRACT
Human resource management and government performance are the focus of the current investigation. Economic trends such as globalization and rising expectations from investors and customers have pushed Government institutions to constantly improve their performance by reducing costs, updating products and procedures and increasing quality in order to compete and survive in today's rapidly changing economic environment. This study will make use of a quantitative research approach. A total of 240 people took part in the research. Except for the fifth hypothesis, which claimed that "Decentralization is positively related with organizational performance," the results showed that all hypotheses were rejected. A favorable correlation between organizational effectiveness and decentralization was found.

Keywords: Training, Incentives, Selective Hiring, Job Security, Decentralization, Organizational Performance.

INTRODUCTION
HRM practices have been identified as a key instrument for improving performance. Human resource management (HRM) methods and their effects on the performance of manufacturing companies in Kosovo are discussed in this paper. Human resource management (HRM) is undervalued in our country's industrial sector, where the majority of companies run without HRM procedures. We've analyzed the practices of 100 owners and managers in this industry to discover how often they utilize them and how they affect the success of their businesses. [1]

In research done it was shown that there may be a correlation between HRM and company performance. In other words, product and service performance was boosted via training and internal career chances. According to Björkman and Xiucheng (2002), high-performance HRM systems have a favorable correlation with company performance. As a result of the interdependence between HR systems and business objectives, they have a favorable impact on both. It has been proposed that HRM may have various effects on corporate performance in different contexts. [2]

There are many elements that influence the impact of HRM systems, and it is not always clear how human resource initiatives will affect business success. Putting your faith in HRM methods as a certain way to boost a company's success is irresponsible. It is clear from the above results that more study is needed in this area. [3]

It is the goal of this research study to conduct a thorough review of the literature on HRM and its impact on corporate success. In order for a company to remain competitive in the marketplace, HRM is often required. Companies must be able to compete in order to maintain long-term success. Employees' connections are complicated. The study of how human resource management systems affect corporate performance is thus encouraged and needed. [4]

LITERATURE REVIEW
T. Masood (2010) Human Resource Management (HRM) practises, such as recruitment and selection, training and development, performance appraisal, career planning system, employee participation, and compensation system, were examined in this study to determine how these practises affected Perceived Organizational Performance (POP) and Organizational Financial Performance. Employee Performance (EP) was also examined as a possible mediator between HRM practises and Perceived Organizational Performance (POP). Based on the universalistic viewpoint, this study shows that a fixed set of best practises may produce surplus value in multiple business settings. Its findings Beer et al. (1984) used the Harvard model to guide the first domain discovery procedure. Human resources management (HRM) domains such as recruitment and selection; training and development; performance evaluation; career planning; employee involvement; and pay systems have been chosen for the research. Surveys were conducted with a group of HR professionals from five distinct industries: Banking and Insurance; Insurance; Leasing; Modaraba and Investment. A questionnaire was used to gather information on 274 HR experts from 129 different firms. Companies listed on the Karachi Stock Exchange (KSE) from 2004 to 2008 were studied for five years using secondary data from their public financial reports. It was decided to utilise demographic information such as industry type, employee life cycle stages (gender and age), education and work experience to help identify potential influencers. Gender and educational attainment

were shown to be significant in the ANOVA. Therefore, these two were employed as control variables throughout the research. Excel and SPSS were used to evaluate statistical methods such as ANOVA, Correlation, and Regression. Organizational performance and personnel performance were favourably connected with all human resource management methods, however no HRM approach had a significant impact on financial performance. [5]

Malam Salihu Sabiu (2016) Ethical climates (ECs) will be examined as a moderator between HRM practices and organizational performance in this research (OP). The finest internal resources for affecting performance in a business, according to the Resource Based View (RBV) approach, are HRM practices. Some academics practiced on their own, while others employed bundles of students to teach. Few studies have tried to examine the impact of HRM practices on organizational performance despite these investigations. Even if any have reported mixed results, a moderating variable has been offered as a possible explanation. To improve the link between HRM practices and organizational performance, this research recommends the use of ethical climates (ECs) as a possible moderator. The data were gathered from the heads of department in selected ministries of education in Nigeria using a quantitative survey approach. There were 105 questionnaires sent out, and 81 of them were returned. The data was analyzed using PLS SEM. Recruitment and selection, as well as training and development, have been demonstrated to have a major impact on the success of an organization. While the link between recruitment and selection, training and development, and OP has been shown to be moderated by ethical contexts. The report also included recommendations for further studies. [6]

Ugonna I. Aguta (2015) Managers are under growing pressure to keep up with the global market's rising level of competition as many firms throughout the world encounter performance challenges. These are the foundations on which this research aims to investigate the influence and results of HRM practises on organisational performance in North Cyprus' private sector banks (NC). Employees were surveyed in order to get information about their views on HR management techniques and their results for this study. 335 employees from two private sector banks in North Carolina were included in the study's sample size. [7]

Sunita Sharma (2017) A company's human resources are well-known for their importance. In today's environment of widespread industrialization and rising demands on organisations, employers and workers alike are concerned about improving the competitive position of their workforces. It is the goal of Human Resource Management (HRM) to capture and assess those aspects that impact the level of employee happiness and dedication to their work in the organization's internal environment. The influence of different human resource management strategies on the degree of job satisfaction among 250 workers working at various levels was examined in this study conducted in 10 small and medium-sized pharmaceutical companies in the Baddi industrial district, HP. HRM strategies such as job definition and teamwork have been highly rated, indicating they have a significant influence on employees' feelings of job satisfaction. It demonstrates that individuals have a well-defined job description that includes all of the responsibilities they undertake, and that teams of employees are encouraged to organise in order to tackle their specific problems, and that companies make an attempt to solicit input from their employees. There is little influence on work satisfaction from compensation, employee engagement, and performance evaluation. [8]

Jolantajaskiene Et Al (2015) HRM practices are examined in this paper's examination of the literature on the performance of researchers. The focus is on the particular factors that contribute to the success of researchers in higher education institutions. For the research issue to be answered, a thorough review of past studies is carried out HRM practices that impact individual research productivity and contribute to research excellence are explained in this study. HRM approaches for research-oriented work may be divided into three categories: skill-enhancing, motivation-enhancing, and opportunity-enhancing. Based on past study, results show that HRM practices may help researchers translate their personal traits into performance, which is consistent with the findings from earlier studies. Higher education institutions may put the results to good use by implementing HRM practices that improve research output. [9]

METHODOLOGY

As the best way for evaluating the influence of HRM on government institutions' performance as well as identifying factors and their associations, the present study use quantitative research methods. Primary data gathering approaches are used in this investigation. In this study, the major data gathering technique is survey, which makes use of a Liker scale to gather information. Sample methods are used to acquire primary data from the stated target group. There are a number of factors that will be taken into consideration when determining which personnel at the Ministry of Regional Municipalities and Water Resources are included in this study's target audience. All of the individuals of this demographic were given a lengthy, organized questionnaire to complete. Understanding the HRM strategies and how they affect the functioning of government institutions is critical to this study. Workers in this business can provide light on the subject and answer the study's research questions. A total of 240 people took part in the research. A total of 80% of the participants completed the survey. The non-probability sampling technique is used since the study's target population is a subset of the general public. The sampling approach is based on random sampling. Ethical considerations will be taken into account while collecting and analyzing data. In addition, the corporation delivered 300 surveys to its workers.

DATA ANALYSIS

Topics such as the impact of human resource management on the performance of private institutions are of great importance because they address the obstacles and challenges that hinder the scientific research process Firstly; this section provides an overview of the participants' backgrounds. This study's findings are based on employee survey replies.

Table 1- Reliability analysis

Items	Crohnbach's alpha (study N=130)	Number of items
Employee incentives	0.71	5
Employee Training	0.803	5
Selective Hiring (Recruitment)	0.78	5
Job Security	0.74	5
Decentralization & Self-managed teams	0.812	6
Organizational Performance	0.764	7

Table 1 shows the present study's reliability analysis. Organizational performance in government institutions was measured using five distinct HR management techniques as independent variables. When it comes to measuring employee incentives, the Crohnbach's alpha for five items = 0.71 > 0.6 was deemed to be reliable for the present research. The Crohnbach's alpha for five items was determined to be 0.803 > 0.6 in terms of staff training. As a result, the present research concluded that the five measures utilized to assess staff training were valid. For the present research, the Crohnbach's alpha for the five items used to assess selective hiring was 0.78 > 0.6, which suggests that the five items used to measure selective hiring were reliable. Job security was shown to be improved by a Crohnbach's alpha of 0.74 compared to a 0.6 this suggests that the five items used to gauge job security in this research were credible. Decentralization and self-managed terms were found to have a Crohnbach's alpha of 0.812 > 0.6, while organizational performance was found to have a Crohnbach's alpha of 0.764 > 0.6.

Table 2- Correlation analysis

HRM practices			**Organizational Performance**
Employee incentives	Pearson Correlation		.363**
	Sig. (2-tailed)		.000
Employee Training	Pearson Correlation		.406**
	Sig. (2-tailed)		.000
Selective Hiring	Pearson Correlation		.462**
(Recruitment)	Sig. (2-tailed)		.000

Job Security	Pearson Correlation		.381**
	Sig. (2-tailed)		.000
Decentralization & Self-managed teams	Pearson Correlation		.573**
	Sig. (2-tailed)		.000
Correlation is significant at the 0.01 level (2-tailed).			

Using Pearson's correlation coefficient (r), correlation is a method for determining the strength of the link between two quantitative, continuous variables. Data from Pearson's Correlation Coefficient (r) are shown in Table 2. Incentives were shown to have a substantial connection with organizational success (r=0.363) **, p.01). A substantial connection (r=0.406**, p.01) was discovered between training and organizational performance. A strong correlation (r=0.462**, p.01) was established between an organization's success and its use of selective hiring. We observed that there is a strong association between job security and organization success, as well as an even stronger correlation between decentralization and self-managed teams (r=0.573**, p.01).

Table 3- Multiple Regression

		Coefficients			
Model	**Unstandardized Coefficients**		**Standardized Coefficients**	**t**	**Sig.**
	B	Std. Error	Beta		
(Constant)	0.587	0.231		2.544	0.012
Employee incentives	- 0.085	- 0.056	0.099	1.516	0.131
Employee Training	- 0.025	- 0.062	0.028	0.403	0.688
Selective Hiring (Recruitment)	- 0.29	0.064	- 0.264	4.564	0
Job Security	- 0.061	- 0.049	0.073	1.251	0.212
Decentralization & Self-managed teams	0.324	0.048	0.401	6.781	0
a. Dependent Variable: Organizational Performance					

The total variance explained by each of the predictors. The five HRM practices were used as independent variables in the regression models, while the performance of the organization was used as a dependent variable. Incentives were shown to have little effect on organizational performance. Training does not seem to have a major impact on organizational performance, according to a study. Selective hiring has not been demonstrated to have a major impact on organizational success. Job security was determined to have no meaningful impact on organizational performance. Organizational performance may be considerably predicted by decentralization, and it has a direct positive correlation with organizational performance.

CONCLUSION

The purpose of this research was to look at the effect of HRM practices on the performance of Iraqi government institutions in the Kurdistan area. As a follow-up, it sought to identify the most important human resource management factors. A final goal of the study was to provide ideas or techniques that might improve or increase the functioning of government institutions, notably in the Kurdistan region of Iraq.

Various scholars and studies have assessed the link between HRM practices and organizational performance differently. Employees' skills, talents, attitudes, conduct, and knowledge may be affected by human resource management, which in turn affects the organization's performance. The relationship between organizational performance and human resource management is seen to be most strongly influenced by the alignment of human resource management activities such as training, evaluation, and career possibilities inside the company with the organization's overall strategy. Employees may act similarly and have the same expectations about their conduct and job if human resource management inside the organization is appropriately coordinated. Performance is not only a broad term that has been used interchangeably with efficiency, productivity, competitiveness, and effectiveness in the context of an organization. An important theoretical framework for the relationship between organizational performance and human resources management (HRM) is based on broader performance framework of the work system.

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Business Performance Improvement through Social Media

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ABSTRACT
There is a growing trend of businesses using social media platforms such as Facebook and Twitter to connect with their consumers. This is particularly true when customers can simply click to buy the things they're interested in. To that end, the purpose of this research is to provide a quick overview of the effectiveness of social media in promoting business, drawing on an examination of the relevant academic literature. As the title suggests, the primary goal of this study is to identify the numerous forms of social media that businesses use to promote themselves, as well as the value of doing so, as well as the elements that drive customers to make online purchases. Secondary sources, such as e-journals, books, and even theses, were consulted for this investigation. These secondary sources of information were scoured and analyzed in light of the study's goals and concerns. There are several social media platforms used to promote businesses, including Facebook, Flicker, Groupn, and others. Facebook, on the other hand, has dominated the competition. Aside from that, the results of this research suggest that social media is an effective tool for promoting businesses since it is widely used by people all over the globe. Additionally, social media may be used to contact clients with interactive goals including dialogue, sharing, and persuasion. By utilizing social media to promote their goods and services, the results of this research might help sellers organize their businesses more effectively.

Keywords: Business, Mobile application, performance, social media

INTRODUCTION

Many corporate leaders have placed the notion of social media (SM) at the top of their priority list. Firms, as well as consultants, are looking for methods to profitably use programmers like Wikipedia, YouTube, Facebook and Twitter (Kaplan & Heinlein 2010). Consumers have traditionally utilized the Internet to merely consume information, such as reading, watching, and purchasing goods and services. Social media has become a major factor in determining a company's reputation, revenue, and even its ability to survive. It's not uncommon for executives to scoff or disregard this kind of media because they don't understand how to utilize it, what it is, or how to learn from it (Kietzmann et al., 2011). A virtual customer environment is an online community formed around a single company, brand, or product on a social media platform such as Twitter or Facebook. (Culnan and colleagues, 2010) [1]

When it comes to online social media, anybody may connect with thousands of individuals and share their thoughts on specific items and the businesses that produce them. Consumer-to-consumer communication's influence on the market has therefore been greatly augmented. Marketing mix elements such as social media (SM) are a hybrid because in the traditional meaning, they help companies communicate with their consumers, but in the nontraditional sense, they only help customers communicate with each other directly. Content and media-based exchanges between customers are frequently out of the hands of management. It's a departure from the traditional marketing communications paradigm, where a great deal of control is in place. This means that managers should be taught the art of establishing customer conversations that are in line with the company's purpose and performance goals. [2]

LITREATURE REVIEW

Martin Smits (2013) Companies of all sizes, from start-ups to multinationals, are rapidly incorporating social media into their day-to-day operations. Social media will be examined in this study to see whether and how it affects an organization's capacity for innovation and profitability. Based on the firm's resource-based orientation, we construct a research model and two basic proposals. On SponsorPay's business performance, we look at the influence of six social media apps on six business capabilities. SponsorPay is a start-up in the online gaming advertising market, founded in 2009. We do a combination of qualitative and quantitative research, based on interviews and a survey of 60 workers. For businesses, we found that the usage of social media increased their capacities and their ability to compete. Rather than relying on a single social media tool (out of six), the impact comes from a cohesive social media ecosystem that integrates all six tools and allows internal and external business processes to work together in harmony. [3]

Keshav Reddy Karnegari (2013) These days, it's impossible to connect with others without using social media, and sharing material has never been easier. Now that social media has reached a tipping point, even the largest corporations are feeling the effects of it. In order to compete in the worldwide marketplace, firms must re-examine their present processes and develop new processes. In this article, we'll discuss how social media affects business processes and why this affects business processes in today's firms. In order to be successful, a company must have well-implemented business procedures. Several elements are taken into account while creating these business procedures. For the assumption of a mix of individuals from various fields for information exchange, social media acts as a vital and necessary aspect in developing business operations. [4]

Rana Tajvidi (2017) SMEs' usage of social media is examined in a fresh light by this research. It is the goal of this article to look at the impact of social media on the performance of a hotel chain in the United Kingdom, with a focus on marketing. Structural equation modelling was used to analyse the data in this study. 384 hotels in the United Kingdom were sent a postal survey to gather the survey data. It's clear from the data analysis that social media utilisation has a beneficial impact on business performance. Social media usage and business performance were shown to be positively and substantially mediated by marketing competences, such as branding and innovation. [5]

Peerayuthcharoensukmongkol (2017) According to this research, the intensity of social media usage for customer relationship management (CRM) and company performance satisfaction among Thai microenterprises was examined. A total of 217 small business owners across Thailand's busiest markets participated in the poll. When it came to customer satisfaction, entrepreneurs that utilized social media heavily for CRM reported better ratings on a partial least square regression analysis. For the businesses that produced more sales through social media, the positive association between CRM intensity and business success satisfaction tended to be much stronger for the entrepreneurs who demonstrated lower levels of social competence in business. For microenterprise owners, the study's major conclusions are useful in a variety of ways. It is possible that using social media for customer relationship management (CRM) operations might be vital in helping entrepreneurs with poor levels of interpersonal competence to communicate with clients and enhance customer satisfaction. This suggests that organizations that mainly target social media users should utilize social media for CRM more often. [6]

Jordi Paniagua (2014) the use of social media for communication, networking, and sharing material has become commonplace. Marketing and commercial possibilities may be found on these platforms by many firms. There is, however, a lack of understanding of the relationship between the resources created in these places and the performance of businesses. The findings of this research may benefit both managers and financial advisers. Social capital, consumers' expressed preferences, social marketing, and social corporate networking are four routes via which social media influences financial, operational, and corporate social performance. Tests reveal that tweets and likes have an impact on the value of a company's share price, but only when a certain number of followers have amassed According to our estimations, Twitter is a more effective instrument for improving company success than Facebook. [7]

METHODOLOGY

The data for this research was obtained from secondary sources. By referencing the e-journal and relevant literature, the data were gathered for the research. The internet was used to gather data and information on the subject, and the results may be seen at http://www.google.com/. Use of the University Technology Malaysia (UTM) website was used to evaluate the subscription journal Science Direct social media, social commerce, company promotion, and internet business were some of the search terms employed in the study. At the UTM library, books and theses might be found by hand as well. These secondary sources of information were examined and assessed in light of the study's goals and concerns.

DATA ANALYSIS

Various social media Used for Promoting Business

For collaborative initiatives, the creation of a virtual community, socializing networks, blogs and micro blogs, free websites and online group games, the notion of 'Social Media' brings together the 2.0 version of the World Wide Web. Kaplan and Heinlein say that in addition to being a social media tool, it is also being used in the corporate environment because of its incredible speed at which it reaches the many worlds of business, communication, economic, and social. Information can be shared instantly and cheaply through social media, making it accessible to people all over the globe.

According to Smith, the top social media platforms have a large user base, as well as a significant economic influence. The following table summarizes the findings:

Table 1: Statistics of Users Using social media per Month

No.	Type of Social Media	Number of Users (Millions/ Month)
1.	Facebook	1190
2.	Flickr	87
3.	Gmail	425
4.	Groupon	43
5.	Wordpress	66
6.	Blogspot	45
7.	Youtube	100

Smith used these facts to argue that the influence of social media on business grows as the number of users grows. It's awe-inspiring that something so tiny can have such a big impact on company promotion.

The ease with which buyers and sellers may communicate through social media, as well as the channels it opens for networking from a variety of perspectives, has contributed to the success of this business model. Increased productivity by a certain product or service provider via the use of social media According to the researcher's prior studies, different social media platforms may be utilized to promote a company. Technology has certainly a beneficial influence on the economic world's trajectory of progress. Customers now have the option of shopping for items and services on a number of social media platforms and reading reviews from other customers about those things.

The Relevance of Using social media in Promoting Business

In today's world, social media has taken off. A personal social media account is preferred by the majority of individuals, regardless of their age or life experience. People from all around the globe enjoy utilizing social media to connect with one another. There are more than a billion Facebook users in the globe. 70 percent of people in the United States, Europe, and India use social media in some way. They don't simply use social media to connect with others, but they also use it to research things and make purchases. Because of the rising popularity of social media, conventional e-commerce has given way to social commerce in the promotion of businesses. It's a smart idea to take advantage of this medium's worldwide popularity in order to grow your company and advertise your items.

Customers' trust is the most crucial factor in persuading them to buy a certain product. Customers' confidence in brands can be built via advertising, and social media is a platform that can do both: it can increase consumer trust while also reaching them quickly and cheaply. If you want to get your product in front of potential buyers, then social media is a great place to start. Among those who use social media, going viral has become popular. Most social media users prefer to spread the word about the things they care about and use the most, so it's natural for them to do the same for the things they care about and use. Other users may be enticed to try the items if they see them as having these viral properties.

The transition from conventional concepts to social commerce has intensified day by day in recent years. According to our literature review's findings, buyers are drawn to online shopping for three main reasons. As Wang as al. claim, social sellers influence is based on qualities such as popularity, honesty in business, and social influence. Those who possess these traits likely to prosper in their online businesses We can clearly observe that the majority of internet vendors are already well-known members of the community. According to Rawat & Divekar, even if merchants don't have consumers' attention in any manner, they might utilize a method in which they choose well-known people to market their goods and services. In today's world, it's normal for well-known people with large social media followings to use their influence to promote the products of other companies. With the rise of vendors who are already well-known in this so-called virtual world, the effect of social media on buyers should come as no surprise.

In addition, consumers' engagement in the product or service's evaluation is crucial. In our first aim, we found that consumers may leave comments and reviews on items and services on a number of social media platforms. This is reinforced by Dolen & Verhagen, who observed that users' participation in mentally assessing things online has been a crucial aspect that draws other customers to that specific product. They used the example of online shopping for fashion items, which has become a common hedonic for many internet users these days. Those who spoke to them said that internet retailers use positive evaluations as a way to recruit new consumers and display the joy of satisfied customers.

As a result, many goods and services today have expedited their marketing efforts by building a brand barrier by persuading buyers that they are superior to other brands that have not yet appeared online. When it comes to purchasing things through social commerce, shoppers feel that online-only companies have a higher reputation than those that are available in the physical world.

Today, the influence of social media on modern firms' business marketing may be seen at the managerial, marketing, and information technology levels. There are clear benefits for businesses in advertising their products and services to clients in socializing environments, which is why it is the most popular service on the internet. Social media facilitates informational capitalization by disseminating company information and connecting it with individuals who are likely to be interested in the goods and services they provide. Consumers and prospective customers appreciate the ability to provide feedback on a company's goods and services through social media platforms like Facebook and Twitter. People may voice their opinions in the same way they do on Facebook, where they can like, comment, and even spread the word about a company's offer. The Facebook "like," "comment," and "share" buttons do play a vital role in promoting a company.

There are three important characteristics of company marketing that are connected to social media: the diversity of social media, the significance of those social media platforms, and the reasons that entice people to buy online. All of our goals have been met, as shown by previous research has been found in the literature. Social media sites like Facebook, Blogspot, Twitter, Flickr, and Youtube are all utilised by customers all over the globe to find goods and services. It was found that Dell made 6.5 million dollars in only one week after they started using Twitter to promote their computer business, according to the study done by Yu and Wang [13]. From a well-targeted marketing campaign, the corporation used data from the profiles of users to post targeted adverts on several websites where they were able to contact potential customers. Because of the constant and thorough feedback, this firm now uses social media as a marketing medium.

CONCLUSION

Creativity and innovation flourish when entrepreneurs are at the helm of their businesses. An entrepreneur's success depends on a unique blend of innovative thinking and a proven track record of success in launching a new company Endeavour. Entrepreneurship brings fresh ideas to market via creativity and innovation. For a company to be successful and remain afloat, it must have a healthy dose of both creativity and innovation. In today's competitive market, organizations and products require a dose of imagination and innovation to avoid falling behind. McLean argues that organizations must foster creativity and innovation in entrepreneurship for a variety of reasons; including the fact that entrepreneurship is a creative Endeavour.

Economics nowadays are turbulent and aggressive, to say the least. The goal of any business is to keep customers happy and deliver products that meet or exceed their expectations, so entrepreneurs must make sure their organizations are doing just that. Most businesses need to continually enhance their products and services in order to grow and succeed. The innovative aspects should be constantly updated to meet the needs of the individual and the survival of the company. People who follow the conventional business model, which focuses only on selling, are less likely to succeed than those who follow the path of creativity and invention. A company's success is enhanced by its ability to generate new ideas via creativity and innovation. There is no longer any questioning that innovation and creativity are essential if a company is to survive and thrive in the long term.

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Oxidation of Secondary Cyclic Alcohols Using Kio_4 in Acidic Medium By Green Method

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ABSTRACT
One of the key pillars of Green Chemistry is the use of catalysts to improve yield and atom economy in chemical reactions, hence there is a continuing quest for ecologically friendly catalysts. The oxidation of secondary cyclic alcohols has been catalysed on a wide scale using environmentally harmful metals such as Cr(VI), Os(VIII), and Ru in various oxidation states. We used the comparably less expensive and less hazardous transition metal ions to explore the kinetics of oxidation of different secondary cyclic alcohols, using KIO4 in an acidic media as a green initiative.

The oxidation was evaluated under first order kinetic conditions with regard to the oxidant, and the reaction's progress was iodometrically measured. In dilute solution, the influence of ionic strength on the oxidation rate of cyclic alcohols was investigated. The thermodynamic parameters were calculated using the oxidation rate as a function of temperature. For each alcohol, the sequence of metal ion catalytic efficiencies was established, and acceptable reaction pathways were proposed.

On the basis of ring size and other structural properties of the alcohols under consideration, the oxidation rates follow the pattern Cyclo-octanol > Cyclo-pentanol > Cyclo-hexanol.

The oxidation of secondary cyclic alcohols by KIO4 in acidic medium has been successfully catalysed by transition metal ions of the first series Ni(II), Mn(II), and Co(II), and the sequences of their catalytic efficiencies have been identified. For the oxidation of secondary cyclic alcohols, Mn (II) ions appear to be the most effective catalysts.

Keywords: Potassium periodates, alcohols, oxidation, kinetics, ionic strength, thermodynamic activation parameters, activation entropy, transition metal Ion catalysts, catalytic efficiency.

INTRODUCTION
Organic oxidants have been used to study the oxidation of alcohols to the related aldehydes / ketones. Inorganic oxidants, on the other hand, are rarely utilised to oxidise alcohols.[1-7] Furthermore, there are limited reports of kinetic and thermodynamic studies of alcohol oxidation. We investigated the oxidation of fragrance alcohols in our lab using a variety of organic and inorganic oxidants [8-12].

The oxidation of the aromatic alcohols Cyclo-pentanol, Cyclo-hexanol, and Cyclo-octanol by KIO4 in an acidic media is reported in this study. With respect to the inorganic catalyst, the oxidation was carried out under first order kinetic circumstances, and the reaction's progress was observed iodometrically. The thermodynamic activation parameters were calculated from the change in reaction rate as a function of temperature and interpreted in terms of the suggested oxidation reaction mechanism.

The ring size and other structural properties of cyclic alcohols have been used to explain the sequence of oxidation rates.

One of the key pillars of Green Chemistry is the use of catalysts to improve yield and atom economy in chemical reactions, hence there is a continuing quest for ecologically friendly catalysts.

Ru(III), Os(VIII), and Cr(IV) ions, which are environmentally harmful and expensive, have been utilised extensively to catalyse organic processes. For the oxidation of secondary cyclic alcohols, we employed Mn2+, Co2+, and Ni2+ ions, which are considerably less hazardous and less expensive. Based on the Irving-Williams order of stability constants of the metal complexes generated during the oxidation reaction, the sequence of catalytic efficiencies of the transition metal ions has been calculated for each perfumery alcohol under investigation. In the presence and absence of transition metal ion catalysts, suitable reaction pathways for the oxidation of secondary cyclic alcohols have been proposed based on experimental observations. Concentrations of alcohol and oxidants, ionic strength, temperature, and catalytic metal ions have all been studied.

MATERIALS AND METHODS
S.H. Kelkar and Co., Mumbai, provided the cyclic alcohols, which were employed just as they were. Analar Grade was used for all other chemicals, reagents, and metal salts.

By iodometric titration of the unreacted KIO4 at regular time intervals during the reaction, the oxidation was examined under first order kinetic circumstances with regard to KIO4, i.e. [KIO4] [alc.]. First order plots of log(unreacted KIO4) vs time in seconds were used to calculate the first order rate constants (k).

In the range of 0.05-0.25 mol dm-3, analar K2SO4 was used to assess the effect of ionic strength () on the oxidation rate.

The reaction was carried out between 303 and 318K, and the thermodynamic activation parameters were calculated using Arrhenius plots of logk vs 1/T.

An same method was used to investigate the effect of transition metal ions on the oxidation rates of alcohols in the range [M(II)]= 2.5 to 4.5 x 10-3 mol dm-3 at 303K.

RESULTS AND DISCUSSION

Effect of alcohol and oxidant concentrations on cyclic alcohol oxidation rate

In an acidic media, KIO4 oxidised the secondary cyclic alcohols Cyclopentanol, Cyclohexanol, and Cyclooctanol to ketones. The oxidation rate rose with alcohol concentration but decreased with KIO4 concentration for all alcohols (Table 1).

In an acidic environment, KIO4 quickly converts to halic acid, HIO4, a strong acid and severe oxidant[13,14].

The hypohalite ion OI- is formed during the oxidation of alcohols.

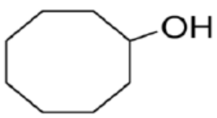
$RR'CHOH + IO_4^- + 4H^+ \qquad\qquad RR'C{=}O + OI^- + 3H_2O$

The oxidation product, ketone, was detected and validated by TLC using the 2, 4-dinitrophenyl hydrozone test.

The following was the order of the oxidation rates:

Cyclo-octanol > Cyclo-pentanol > Cyclo-hexanol octanol octanol octanol octanol octano (Table1, Figure1)

Cyclic alcohol structures:



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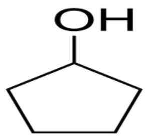

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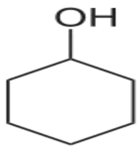

Cyclo-octanol **Cyclo-pentanol** **Cyclo-hexanol**

In cyclic alcohols, 5, 7, and 8 membered rings are more reactive and thus less stable than 6 membered rings, making them more prone to oxidation[15-18].

This explains why Cyclooctanol oxidises the fastest while Cyclohexanol oxidises the slowest.

Effect of ionic strength on cyclic alcohol oxidation rate:-

Table 2 shows the effect of ionic strength on the oxidation rate of cyclic alcohols.

The log k versus 1/2 plots were discovered to be straight lines parallel to the 1/2 axis, implying that ionic strength has no effect on the oxidation rate of alcohols in dilute solution. This finding supports the Bronsted-Bjerrum equation, logk = logk0 + 1.02 ZAZB1/2, and validates the presence of a non-ionic species (alcohol) in the oxidation reaction. It also supports the reaction mechanism proposed for the oxidation process.

The influence of temperature on the rate of oxidation of cyclic alcohols

The oxidation of cyclic alcohols was investigated at temperatures ranging from 303 to 318 degrees Celsius. The thermodynamic activation parameters were determined using the Arrhenius plots of log k vs 1/T based on the effect of temperature on reaction rate (Table 3).

The following are some key conclusions drawn from the thermodynamic study:

1) The rate of oxidation of cyclic alcohols increases as the temperature rises.

2) Because the equilibrium constant K* for the production of the activated complex from the reactants increases as the temperature rises, K* is a temperature function.

3) Negative activation entropy (S*) values suggest that the solvent molecules are reorienting around a stiff activated complex [19]. The water molecules are closely bound to the –OH bond, which is where the alcohols

are oxidised. As a result, the reaction system's vibrational and rotational motions are reduced, resulting in a drop in entropy.

4) The energy of activation (E) for a particular alcohol is constant at all temperatures, showing that the oxidation site, i.e. the -OH bond, is unaffected by temperature.

Catalytic effect of Transition metal ions on oxidation rate of cyclic alcohols

Transition metal ions have a catalytic effect on the oxidation rate of cyclic alcohols.

In an acidic solution, transition metal ions Mn(II),Co(II), and Ni(II) were employed to catalyse the oxidation of cyclic alcohols at concentrations ranging from 2.5 to 4.5 x 10-3 mol dm-3. The oxidation rates of cyclic alcohols increased with [M(II)] for each metal ion catalyst. (Figures 3a, 3b, and 3c in Table 4)

The following are the catalytic efficiencies of transition metal ions in order:

Cyclpentanol Mn(II) > Co(II) > Ni(II) (Table 4, Fig. 3a)

Cyclohexanol Mn(II) > Co(II) > Ni(II) (Table 4,Fig. 3b)

Cyclootanol Mn(II) > Co(II) > Ni(II) (Table 4,Fig. 3c)

In the presence of acid, the alcohol forms a temporary complex with the metal ion, which then interacts with KIO4 to generate the matching ketone.

i) RR'CHOH + M(II) $\longleftrightarrow$ RR'CHOH.M(II)

Complex

ii) Complex + IO_4^- + $4H^+$ $\longrightarrow$ RR'CO + OI^- + $3H_2O$ + Mn (II)

The stability of metal ions' complexes generated as transitory intermediates during the reaction is inversely proportional to their catalytic effectiveness. The charge density of the metal ions involved in the reaction determines the reaction's stability. According to the Irving–Williams order of metal ion stability constants[20,21], the stability order of the complexes of the metal ions under research should be Ni(II) > Co(II) > Mn(II), and the catalytic efficiencies of the metal ions should be Mn(II) > Co(II) > Ni (II). However, such sequences are merely rough guides to metal ion behavior[22], and a review of the literature reveals several deviations from the expected catalytic efficiency pattern.

CONCLUSIONS

1) The inorganic oxidant KIO4 was successfully employed to convert secondary cyclic alcohols to ketones. The following is the order of oxidation: cyclooctanol > cyclopentanol > cyclohexanol.
2) The oxidation of cyclic alcohols in dilute solution is unaffected by ionic strength.
3) The oxidation of cyclic alcohols results in a decrease in activation entropy.
4) To oxidise the cyclic alcohols, less dangerous and less expensive transition metal ions were utilised, and the sequence of their catalytic efficiencies was found for each alcohol under investigation.

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Table 1: Data on the rate constants of secondary cyclic alcohols oxidation by KIO4 in an acidic media.

$[H_2SO_4]$= 0.1M mol dm^{-3} Temp.= 303K

[alc.]x10^1 mol dm^{-3}	$[KIO_4]$ x 10^3 mol dm^{-3}	Cyclopentanol k x 10^3 s^{-1}	Cyclohexanol k x 10^3 s^{-1}	Cyclooctanol k x 10^3 s^{-1}
0.25	5.00	2.57	1.07	4.11
0.50	5.00	3.31	3.30	4.39
0.63	5.00	5.41	4.08	6.19
0.75	5.00	5.61	5.12	7.83
0.88	5.00	7.65	5.89	8.09
1.00	5.00	8.45	6.25	9.51
1.00	2.50	9.10	7.77	4.98
1.00	5.00	8.32	6.85	4.68
1.00	10.00	3.78	4.01	3.58
1.00	15.00	3.02	3.64	3.22
1.00	20.00	1.47	2.30	2.19
1.00	25.00	1.35	2.11	1.22

Table 2: In an acidic media, the effect of ionic strength () on the rate of oxidation of secondary cyclic alcohols by KIO4

[alc.]=0.1 mol dm^{-3} $[H_2SO_4]$ = 2.5x10^{-2} mol dm^{-3} $[KO_4]$=2.4x10^{-3}mol dm^{-3}

K_2SO_4 μ mol dm^{-3}	Cyclopentanol k x 10^3 s^{-1}	Cyclohexanol k x 10^3 s^{-1}	Cyclooctanol k x 10^3 s^{-1}
0.00	7.67	5.35	8.98
0.05	7.70	5.40	9.02
0.10	7.66	5.38	9.14
0.15	7.86	5.65	9.08
0.20	7.55	5.40	9.14
0.25	7.80	5.75	9.24

Table 3:- In an acidic media, thermodynamic activation parameters of the oxidation of secondary cyclic alcohols by KIO4

Temp. K	k x 10^3 s^{-1}	E kJ mol^{-1}	K* x 10^{15}	ΔH* kJ mol^{-1}	ΔG* kJ mol^{-1}	ΔS* kJ K^{-1} mol^{-1}
Cyclopentanol						
303	1.12	12.24	1.04	9.72	-86.924	-0.2548
308	2.02	12.24	1.30	9.68	-87.792	-0.2536
313	2.38	12.24	1.75	9.64	-88.444	-0.2518
318	2.56	12.24	1.88	9.60	-89.675	-0.2518
Cyclohexanol						
303	1.15	13.66	1.04	11.14	-86.927	-0.2500
308	1.15	13.66	1.30	11.10	-87.795	-0.2490
313	1.82	13.66	1.75	11.06	-88.443	-0.2472
318	1.96	13.66	1.88	11.02	-89.676	-0.2473
Cyclooctanol						
303	1.05	10.88	1.04	8.36	-86.916	-0.2592
308	1.82	10.88	1.30	8.31	-87.789	-0.2580
313	2.16	10.88	1.75	8.28	-88.444	-0.2561
318	4.31	10.88	1.88	8.24	-89.665	-0.2561

Table 4 : In an acidic media, thermodynamic activation parameters of the oxidation of secondary cyclic alcohols by KIO4

[alc.]=0.1mol dm^{-3} [H_2SO_4]=0.1 mol dm^{-3} Temperature=303K

[M(II)] x 10^3 mol dm^{-3}	k x $10^3 s^{-1}$ Mn(II)	k x $10^3 s^{-1}$ Co(II)	k x $10^3 s^{-1}$ Ni(II)
Cyclopentanol			
0.00	1.05	1.05	1.05
2.50	3.04	2.25	1.97
3.50	5.22	4.33	3.04
4.50	7.56	5.97	4.57
Cyclohexanol			
0.00	1.12	1.12	1.12
2.50	2.13	2.41	1.27
3.50	5.91	4.28	3.42
5.50	7.15	6.62	5.41
Cyclooctanol			
0.00	1.15	1.15	1.15
2.50	3.78	3.41	2.39
3.50	6.05	4.98	4.05
4.50	8.54	7.57	6.48

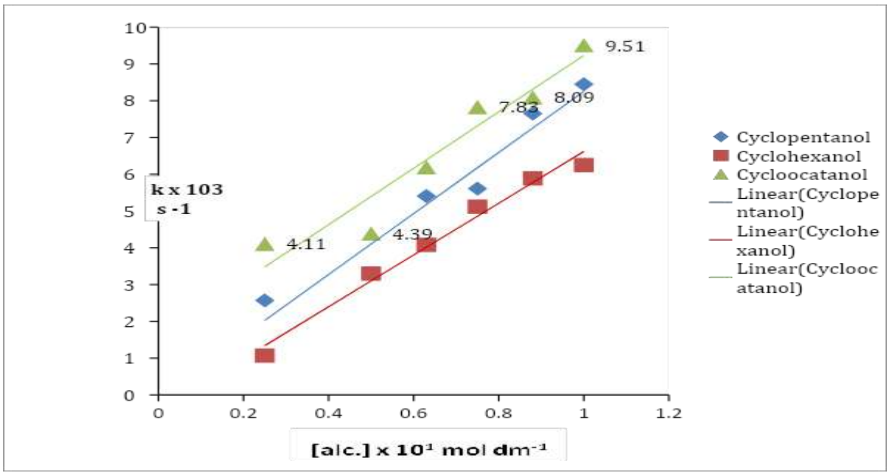

Fig 1 : Changes in the rate constant of oxidation of secondary cyclic alcohols as a function of time [Alc.]

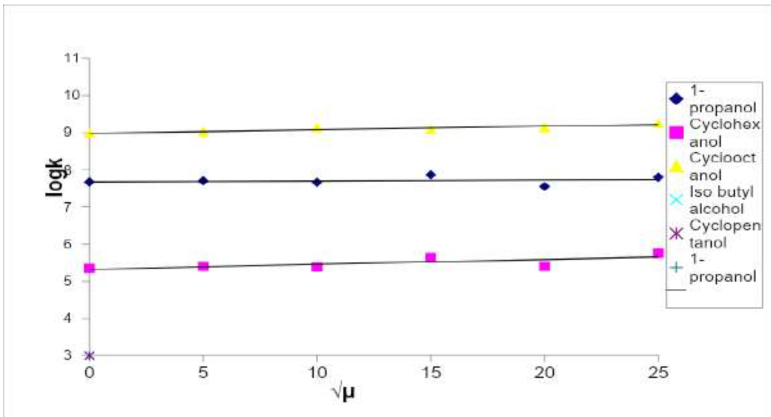

Fig2: Variations in the oxidation rate constant of secondary cyclic alcohols as a function of time

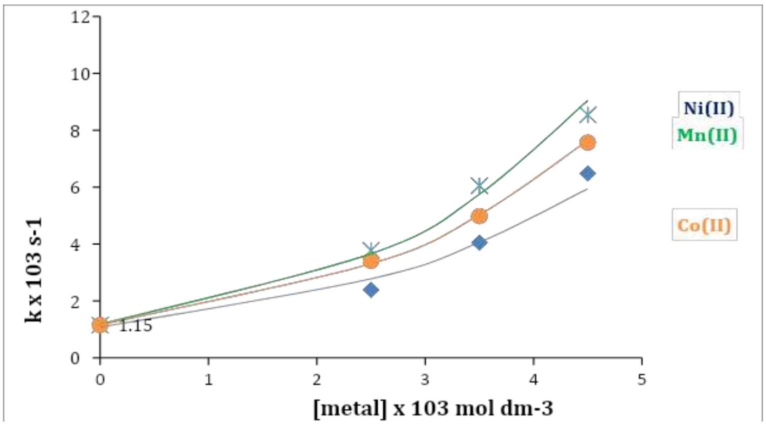

Fig 3a: Variation of rate constant of oxidation of Cyclopentanol with [M(II)] Sequence of oxidation rates: Mn(II) > Co(II) >Ni(II)

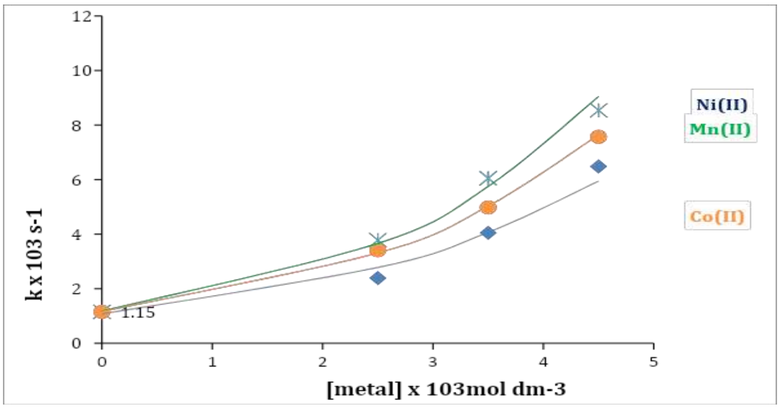

Fig.3b: Variation of the rate constant of oxidation of Cyclohexanol with [Mn(II)] Sequence of oxidation rates: Mn(II) > Co(II) >Ni(II)

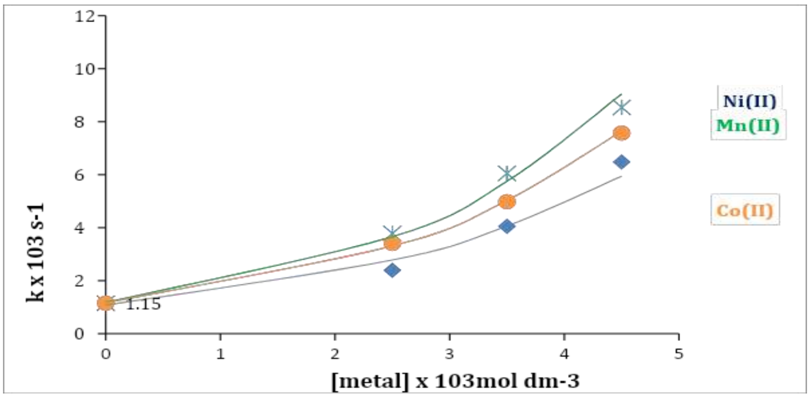

Fig.3c : Variation of the rate constant of oxidation of Cyclooctanol with [Mn(II)] Sequence of oxidation rates: Mn(II) > Co(II) >Ni(II)

Effect of Covid-19 on Socio Economics – A Review

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ABSTRACT
The goal of this piece is to survey the emerging and rapidly growing literature on the economic consequences of COVID-19 and government response, and to synthetize the insights emerging from a very large number of studies. This survey (i) provides an overview of the data sets used to measure social distancing and COVID-19 cases and deaths; (ii) reviews the literature on the determinants of compliance and effectiveness of social distancing; (iii) summarizes the literature on the socio-economic consequences of COVID- 19 and government interventions, focusing on labor, health, gender, discrimination and environmental aspects; and (iv) discusses policy proposals.

Keywords: COVID-19, coronavirus, employment, lockdowns

INTRODUCTION

The World had been gripped by a pandemic since first half of 2020. It was identified as a new coronavirus (severe acute respiratory syndrome coronavirus 2, or SARS-CoV-2), and later named as Coronavirus Disease-19 or COVID-19. While COVID-19 originated in the city of Wuhan in the Hubei province of China, it has spread rapidly across the world, resulting in a human tragedy and tremendous economic damage. By mid-June 2020, there had been over 8 million cases of COVID-19 globally, with over 436,000 deaths.

The spread of COVID-19 is expected to result in a considerable slowdown of economic activities. According to an early forecast of the International Monetary Fund (2020), the global economy would contract by about 3 percent in 2020. The contraction is expected to be of far greater magnitude than that of the 2008-2009 Global Financial Crisis. The report cites the following reasons for the updated forecast: i) greater persistence in social distancing activities; ii) lower activity during lockdowns; iii) steeper decline in productivity amongst firms which have opened up for business; and iv) greater uncertainty. The economic implications will be wide-ranging and uncertain, with different effects on the labor markets, production supply chains, financial markets, and the World economy. The negative economic effects may vary by the stringency of the social distancing measures (e.g., lockdowns and related policies), its length of implementation, and the degree of compliance. In addition, the pandemic and the government intervention may lead to mental health distress, increased economic inequality,and affect some socio-demographic groups particularly adversely.

The goal of this paper is to survey on the economic consequences of COVID-19 and government response, and to synthesize the insights emerging from a growing number of studies. It will focus on five broad areas: i) measurement of spread of COVID-19 and social distancing, ii) economic and financial impacts of COVID-19, iii) socioeconomic consequences of lockdown.

LITERATURE REVIEW

Pandemics are not new and have occurred at different stages in human history (Ferguson et al., 2020). Table 1 below provides a historical timeline of major pandemics across the World. While there have been many outbreaks and human catastrophes, there has been a notable rise in the frequency of pandemics from the year 2000 and thereafter. This is particularly due to increased emergence of viral disease amongst animals (Madhav *et al.*, 2017). Ferguson *et al.* (2020) from the Imperial College London COVID-19 Response Team claim that COVID-19 is the most serious episode since the 1918 Spanish Influenza pandemic.

BACKGROUND - HISTORY OF PANDEMICS AND ECONOMIC IMPACT

Pandemics are not new and have occurred at different stages in human history. Pandemics are expected to have a severe negative impact on economic activities, at least in the short run. According to Jonas (2013), the impact ranges from: i) avoidance reaction due to social distancing measures (e.g., individuals might forgo consumption and purchases of certain goods and services), ii) small direct costs (e.g., hospitalization and medical costs), iii) larger indirect costs (loss of labor, production), and iv) offsetting and cascading effects (disruption of services, travel and others). A number of studies tried to anticipate the economic loss from a pandemic. For example, Jonung and Roeger (2006) forecasted that a hypothetical global pandemic would lead to 1.6 percent drop in GDP for the European Union (EU) due to both demand and supply side factors.

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Table 1: Major Pandemics: Historical Timeline

Name	Time Period	Type/Pre-human Host	Estimated Death Toll
Antonine Plague	165-180	Believed to be either smallpox or measles	5 million
Japanese smallpox Epidemic	735-737	Variola major virus	1 million
Plague of Justinian	541-542	Yersinia pestis bacteria/rats, fleas	30 to 50 million
Black Death	1347-1351	Yersinia pestis bacteria/rats, fleas	200 million
New World Smallpox Outbreak	1520-onwards	Variola major virus	56 million
Great Plague of London	1665	Yersinia pestis bacteria/rats, fleas	100,000
Italian Plague	1629-1631	Yersinia pestis bacteria/rats, fleas	1 million

Source: World Economic Forum (2020)

1.1 Evolution of COVID-19

According to Zhu *et al.* (2020), the first pneumonia case was discovered on December 8, 2019in a wet market in Wuhan, the capital city of Hubei Province of China. Afterwards, several clusters of patients with pneumonia were reported throughout late December 2019. Table 2 below provides a timeline of key events, starting from January 2020.

Table 2: COVID-19 - Timeline

Date	Events
4 January 2020	WHO reports cluster of pneumonia cases in Wuhan, Hubei, China
7 January 2020	WHO identifies COVID-19
11 January 2020	China announces 1st death from COVID-19
13 January 2020	1st official case of COVID-19 reported outside China in Thailand
17 January 2020	Authorities in the Nepal, France, Australia, Malaysia, Singapore, South Korea, Vietnam and Taiwan confirm cases
21 January 2020	1st case of COVID-19 reported in the United States of America
22 January 2020	WHO finds evidence of human-to-human transmission from China
23 January 2020	China imposes lockdown in the cities of Wuhan, Xiantao and Chibi of the Hubei province
30 January 2020	WHO declares COVID-19 to be a Public Health Emergency of International Concern
2 February 2020	1st death due to COVID-19 outside of China in Philippines
9 February 2020	The death toll in China surpasses that of 2002-03 Severe Acute Respiratory Syndrome (SARS)
14 February 2020	Egypt reports 1st case of COVID-19, the 1st case in the African Continent
15 February 2020	France reports 1st death from COVID-19 outside of Asia
23 February 2020	COVID-19 cases rise in Italy -the largest outbreak outside of Asia
26 February 2020	Brazil confirms 1st case of COVID-19, the 1st case in South America
29 February 2020	1st death due to COVID-19 in the US
8 March 2020	Over 100 countries report COVID-19 cases
11 March 2020	WHO declares COVID-19 a pandemic
21 March 2020	EU suspends public deficit rules to inject fiscal stimulus across Countries
2 April 2020	Global cases of COVID-19 reach 1 million

8 April 2020	China lifts lockdown in Wuhan, 76 days after it was sealed off
15 April 2020	Global cases of COVID-19 reach 2 million
27 April 2020	Global cases of COVID-19 reach 3 million
21 May 2020	Global cases of COVID-19 surpass 5 million

Compared to previous pandemics, COVID-19 has a disproportionate impact on the elderly from a health perspective. The lockdown measures, however, are more global in scope and scale than their predecessors, and they have disrupted international supply chains as well as aggregate demand and consumption patterns. This in turn has led to heightened financial market turbulence and amplified the economic shock. Moreover, greater borrowing and higher debt levels among firms and households during this time has on the lives of people around the world.

The three key indicators are: i) the total number of tests, ii) the number of confirmed COVID-19 cases, and iii) the number of COVID-19 deaths. These numbers are provided by different local, regional and national health agencies/ministries across countries over the World. The database provides the numbers as well as visual maps of COVID-19 cases across the World. The cases are reported at the provincial level for China, at the city level for US, Australia and Canada, and at the country level for all other countries (Dong *et al.*, 2020).

Based on these figures, the Case Fatality Rate (CFR) is calculated as the number of confirmed deaths divided by the number of confirmed cases and is used to assess the mortality rate of COVID-19. Due to limited testing capacities, not all COVID-19 cases can be confirmed. Moreover, the CFR reflects the severity of the disease in a particular context at a particular point in time. Therefore, CFR changes over time and is sensitive to the location andpopulation characteristics.

2 COVID-19: Potential Economic and Financial Impacts

2.1 Plausible Mechanisms

To understand the potential negative economic impact of COVID-19, it is important tounderstand the economic transmission channels through which the shocks will adversely affect the economy. According to Carlsson-Szlezak *et al.* (2020) and Carlsson-Szlezak *et al.* (2020b), there are three main transmission channels. The first is the direct impact, which is related to the reduced consumption of goods and services. Prolonged lengths of the pandemic and the social distancing measures might reduce consumer confidence by keeping consumers at home, wary of discretionary spending and pessimistic about the long-term economic prospects. The second one is the indirect impact working through financial market shocks and their effects on the real economy. Household we alth will likely fall, savings will increase, and consumption spending will decrease further. The third consists of supply-side disruptions; as COVID-19 keeps production halted, it will negatively impact supply chains, labor demand, and employment, leading to prolonged periods of lay-offs and rising unemployment.

First, households do not get paid and hence reduce their consumption and savings levels. Thedecrease in savings reduce investment and hence ultimately diminish the capital stock. Second, households reduce their demand for imports, which in turn reduces income for the rest of the World, and hence the country's exports decrease. Third, the demand/supply shocks cause disruption in domestic and international supply chains. Fourth, all of the previous shocks and disruptions lead to a fall in output – causing reductions in the usage of the factors of production. In this case, labor is more affected than capital through reduced working hours or layoffs and hence lower earnings.

It is also important to understand the processes that generate recoveries from economic crises. There are three broad scenarios of economic recoveries. First, there is the most optimistic one labelled 'V-shaped', whereby aggregate output is displaced and quickly recovers to its pre-crisis path. Second, there is the 'U-shaped' path, whereby output drops swiftly but it does not return to its pre-crisis path. The gap between the old and new output path remains large. Third, in the case of the very grey 'L-shaped' path, output drops and growth rates continue to decline. The gap between the old and new output path continues to widen. However, the COVID-19 economic recovery is not expected to be straightforward. This is because the effects on employment due to social distancing measures/lockdowns are expected to be much larger. Moreover, even if no containment measures were implemented, a recession would occur anyway, fueled by theprecautionary and/or panic behavior of households and firms faced with the uncertainty of dealing with a pandemic along with an inadequate public health response

2.2 Macroeconomic Impacts

As COVID-19 unfolds, many researchers have been trying to think about the economic impact from a historical perspective. Theoretically, a pandemic is supposed to induce downward negative shock on the real natural interest rate. This is because investment demand decreases due to excess capital per labor unit (i.e. a scarcity of labor being utilized), while savings flows increase due to either precautionary reasons or to replace lost wealth. They find that it is primarily lockdowns, rather than COVID-19 infections, that lead to drops in consumption, employment, lower inflationary expectations, increased uncertainty, and lower mortgage payments.

Other researchers have examined the role of global supply chains. Bonadio *et al.* (2020) use a quantitative framework to simulate a global lockdown as a contraction in labor supply for 64 countries. The authors find that the average decline in real GDP constitutes a major contraction in economic activity, with a large share attributed to disruptions in global supply chains. A major impact of COVID-19 was a fall in worker productivity and a decline in labor supply which ultimately adversely affect firm revenue. The fall in revenue and the subsequent non-repayment of debt service obligations create a wave of corporate defaults, which might bring down financial intermediaries.

Using transaction-level household data, Baker *et al.* (2020a) find that households sharply increased their spending during the initial period in specific sectors such as retail and food spending. These increases, however, were followed by a decrease in overall spending. It was found that consumers tend to associate higher concerns about COVID-19 with higher inflationary expectations, a sentiment which is found to be a proxy for "pessimism" or "bad times".

The economic impact of shocks such as pandemics is usually measured with aggregate time series data, such as industrial production, GDP growth, unemployment rate, and others. On the other hand, economic shocks resulting from COVID-19 are occurring at real time.

3. SOCIO-ECONOMIC CONSEQUENCES

We now review studies documenting the socioeconomic consequences of COVID-19 and lockdowns. Social distancing and lockdown measures have been shown to affect labor markets, mental health and well-being, racial inequality and gender roles. The environmental implications, while likely to be positive, also need careful analysis.

3.1 Labor Market Outcomes

The unemployment increases observed in the India was partly driven by lockdown/social distancing policies. Accounting for cross-state variation in the timing of business closures and stay-at-home mandates find that the employment rate falls by about 2.7 percentage for lockdown period March 22. The inequality in job/income losses based on the type of job and individual characteristics. Workerswho can perform none of their tasks from home are more likely to lose their job. Younger individuals and people without a university education were significantly more likely to experience drops in their income. It was observed that occupations that have a higher share of workers working remotely were less affected by COVID-19. On the other hand, occupations with relatively more workersworking in proximity to others were more affected. It was found that the reduction in job vacancies was uniform across industries and occupations, except forthose in front line jobs, e.g. nursing, essential retail and others.

It was found that 37 percent of jobs can be feasibly performed from home, which is related to the extent that the job involves face-to-face interaction. According to Avdiu and Nayyar (2020), the job-characteristic variables of home-based work (HBW) and face-to-face (F2F) interaction differ along three main dimensions, namely: i) temporal (short run vs. medium run); ii) the primary channel of effects (supply and demand of labour); and iii) the relevant margins of adjustment (intensive vs. extensive). They argue that the supply of labor in industries with HBW capabilities and low F2F interactions (e.g. professional, scientific and technical services) might be the least affected. Nevertheless, those industries and occupations with HBW capabilities and high F2F interactions are likely to experience negative productivity shocks. For example, teachers in high schools and universities might provide lectures online through web-based applications during lockdown restrictions. This mode of teaching, however, is not as interactive as standard classroom sessions. As lockdown restrictions are lifted, industries with low HBW capabilities and low F2F interactions (e.g. manufacturing, transportation and warehousing) might be able to recover relatively quickly. The risk of infection through physical proximity can be mitigated by wearing personal protective equipment (PPE) and by taking other relevant precautionary measures. However, those industries with low HBW capabilities and high F2F interactions (e.g. accommodation and food services, arts entertainment and recreation) are likely to experience slower recoveries, as consumers might be apprehensive about patronizing them, e.g. going to cinemas and restaurants.From the firm's perspective, there are large short-term effects of temporary closures, the (perhaps permanent) loss of productive workers, and declines in job postings characterized by strong heterogeneity across industries.

Table 3: Socioeconomic Outcome of COVID-19 Lockdowns: Summary of Studies

Country	Socioeconomic domain	Socioeconomic Outcome Measure	Methodology	Author(s)
US	Labor Market	Impact of Safer-at-Home Policies on Labor Market Outcomes	Difference-in Differences	Béland *et al.*(2020)
India	Labor Market	Impact of Social Distancing Policies onLabor Market Outcomes	Difference-in Differences	Gupta *et al.* (2020)
US	Labor Market	Impact of Safer-at-Home Policies on Different Occupations	Data Analysis	Yasenov(2020)
China	Mental Health & Wellbeing	Impact of Quarantineand Attitudes Towards COVID-19 on Depressive	Quantile Regression	Lu *et al.* (2020)
UK, Italy and Sweden	Mental Health & Wellbeing	Causal Effect of Lockdown on MentalHealth	Difference-in-Differences	Tubadji *etal.* (2020)

Framing of Policies

i) the types of policy measures, ii) the determinants of government policy, iii) the lockdown measures and their associated factors, iv) the lifting of lockdowns, and v) the economic stimulus measures.To mitigate the negative effects of public health controls on the economy and to sustain and promote public welfare, governments all around the World have implemented a variety of policies in a very short time. These include fiscal, monetary, and financial policy measures. The economic measures vary across counties in breadthand scope, and they target households, firms, health systems and/or banks.

The policy most governments have implemented in response to COVID-19 is "external border restriction", i.e., the one which seeks to restrict access to entry through ports. It was found that external border restrictions have been imposed by 186 countries. Similarly, the second most common policy measure, implemented by 153 countries, is "school closures". However, in terms of policies which have implemented the greatest number of times, "obtaining or securing health resources" come first. This includes materials (e.g. face masks), personnel (e.g. doctors, nurses) and infrastructure (e.g. hospital). The third most implemented policy is "restrictionon non-essential businesses". In terms of stringency of policy enforcement, "emergency declaration" and formation of "new task force" or "administrative reconfiguration to tackle pandemic" are implemented with 100 percent stringency. Mandatory business closure and social distancing policies come second. Moreover, internal border restrictions are seen to be more costly compared to external border restriction.

Table 4: Summary Statistics of COVID-19 Government Response Dataset

Type of Policies	Cumulative Total Number of Implemented Policies	Number of Countries which have Implemented Policies	Stringency of Policy Enforcement(%)
Obtaining or Securing Health Resources	2342	148	54
Restriction of Non-Essential Businesses	1855	135	92
School Closures	1583	169	90
Quarantine/Lockdown/Stay-at-Home Measures	1102	161	87
External Border Restrictions	1064	186	83
Public Awareness Campaigns	609	137	23
Restrictions on Mass Gathering	575	159	87
Social Distancing (Voluntary)	518	127	71
Restrictions on Non-Essential			

Government Services	373	99	80
New Task Force/ Configuration of Administration to Tackle Pandemic	345	104	100
Emergency Declaration	330	114	100
Health Monitoring	318	110	71
Internal Border Restrictions	313	111	89
Health Testing	283	98	67
Curfew	172	91	95

Source: Cheng et al. (2020)

Optimal lockdown policies have been studied mostly using epidemiology- macroeconomic models, some of which are oriented around the dichotomy between the case in which the choices (and responses) are made by private agents and the case in which the choices are made by a social planner (Acemoglu *et al*. (2020), Alvarez *et al.* (2020), Berger *et al.* (2020), Bethune and Korinek (2020), Eichenbaum *et al*. (2020a)). Others add that the outcomes are dependent on the parameters of these models. The optimal policy reflects the rate of time preference, epidemiological factors, the hazard rate for a vaccine discovery, the learning effects in the health care sector, and the severity of output losses due to a lockdown (Gonzalez-Eiras and Niepelt, 2020). The intensity of the lockdown depends on the gradient of the fatality rate as a function of the infected and on the assumed value of a statistical life (VSL). The absence of testing increases the economic costs of the lockdown and shortens the duration of the optimal lockdown (Alvarez *et al*., 2020). Chang and Velasco (2020) argue that the optimality of policies depends on peoples' expectations. For instance, fiscal transfers must to large enough to induce people to stay at home to reduce the degree of contagion; otherwise they might not change their behavior, which will increase the risk of infection. Their analysis also provides a critique of the use of SIR models, as the parameters used in these models (which remain fixed in value) would shift as individuals change their behavior in response to policy. Gregory *et al.* (2020) describe the lockdown measure as a "loss of productivity", whereby relationships between employers and labors are suspended, terminated, or continued. They further explain that post COVID-19, the speed and the type (V-shaped or L-shaped) of recovery depend on at least three factors: i) the fraction of workers who, at the beginning of the lockdown, enter unemployment while maintaining a relationship with their employer, ii) the rate at which inactive relationships between employers and employees dissolve during the lockdown, and iii) the rate at which workers who, at the end of the lockdown, are not recalled by their previous employer can find a new, stable jobs elsewhere. They argue that with the 'identification problem', there will be considerable uncertainty about restarting the economy. Only comprehensive testing can help resolve this ambiguity by quickly and accurately identifying new cases so that future outbreaks could be contained by isolation and contact-tracing measures.

It is important to recognize that the economy also faces a "flatten the curve" problem. Without substantial and timely macroeconomic intervention, the output lost from the economic downturn will be greatly amplified, especially as economic agents try to protect themselves from COVID-19 by reducing consumption spending, investment spending, and engaging in lower credit transactions. Therefore, the type and level of fiscal and monetary stimulus designed to buffer the economic downturn will vary significantly across countries.

With high amounts of government debt and historically low interest levels existing in most developed countries, It was suggested a coordinated monetary and fiscal policy to tackle the COVID-19 economic fallout. It was also recommend that fiscal policy should be used to enact an emergency budget with a ceiling on the debt-to-GDP ratio. This measure would increase aggregate spending, raise the inflation rate, and reduce real interest rates. The monetary authorities would coordinate with fiscal policy authorities by adopting an above-normal inflation target. In the long run, governments would try to balance the budget, and future monetary policy would aim to bring inflation back to normal levels.

According to various authors, economies with a developed financial system should utilize credit policies. On the other hand, developing economies should engage in more transfer spending. It was to explore whether a supply shock such as COVID-19 leads to a fall in excess demand in a multi-sector economy with incomplete markets. They find that a negative supply shock can lead to overreaction in terms of falling demand, especially in cases where there is low substitutability across goods, incomplete markets, and liquidity constraints amongst consumers. They argue that the optimal policy response is to combine loosening of monetary policy with enhanced social insurance. In contrast, unconventional policies such as wage subsidies, helicopter drops of liquid assets, equity injections, and loan guarantees can keep the economy in a full- employment, high-productivity equilibrium.These policies can stop the cycle of negative feedback loops between corporate default and financial intermediary weakness, which can create a macro-economic disaster

CONCLUSION

This study delved into the research related to the economics of COVID-19 that has been released in a relatively short time. The aim is to bring coherence to the academic and policy debate and to aid further research. We first pointed out that COVID-19 cases and deaths suffer from measurement error due to many factors including testing capacity. Mobility measures using GPS coordinates from cell phones have been used extensively to measure social distancing. However, there are certain caveats that apply, particularly in terms of privacy concerns and the representativeness of data. The paper also reviewed different research related to social distancing itself, particularly in regards to its determinants, its effectiveness in mitigating the spread of COVID-19, and its compliance. Going forward, socialdistancing and its measurements will continue to play a key role in academic research and policy development.

Going forward, the policy measures related to COVID-19 will continue to be an important area of research. These measures, which have varied both in terms of scope and implementation, are expected to yield a profound economic and social impact. This study tried to bring coherence to these issues by covering different public health and economic stimulus measures as well as providing a review of the literature on policy determinants, optimal lockdown measures, factors affecting lifting of lockdown, and combinations of fiscal and monetary policy measures aimed at 'flattening the recession curve'

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Goods & Services Tax (GST): A Direct Approach to Indirect Taxation

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ABSTRACT

Purpose: To look into the acceptance and success of the GST system through summarising the different factors which impact and frames the overall GST implementation mechanisms.

Methodology / Approach: After a brief introduction of existing taxation system, the literature review has been done to analyse the experiences of researchers and scholars from India and other parts of the world. Finally, GST in Indian context have been discussed with a brief on its inception, visible benefits and roadblocks as well. The latest status of GST collection available in official records of the Government of India has also been presented and analysed in brief.

Findings: The paper brings out the fact that though GST serves the economic uniformity in the economy, but it takes time, as a lot of evolution and experience through implementation process is required. Success of the system needs the consumers ‘awareness, managerial expertise and experience of implementing government machinery for successful implementation of the GST system, which may differ for different sectors in the same economy with different degrees.

Originality / Value: With the regular evolution of the economic activities combined with adoption of different forms of administration, the taxation systems are bound to change. as the GST have been implemented in the country, it is worthwhile to discuss its benefits and possible roadblocks in the way of its successful implementation. The findings have been further analysed with the actual data of GST collections in India with future outlook.

Keywords: Goods and Services tax, Consumers' awareness, Managerial efficiency.

Paper Type: Analytical Research Paper.

□□□-□□□□□□□□□□□ (□□□□.□.□□□□) or ‘Kosh Moolo Hi Dandah’ (Part 8, Chapter 1, verse 47) i.e. **“Revenue is the Backbone of Administration” …….** (in *“Arthashastra”* by Kautilya*)*

[Kautilya in his book *“Arthashastra”,* (Art of Administration), written around 2500 years ago, discussed the ways in which the taxes may be levied by the King, as without finance, the government can't manage any of its functions from *rakshan* i.e. defence to *kalyana* i.e. welfare.]

INTRODUCTION AND MOTIVATION

A good administration can't be imagined without a stable State and the latter can't exist without its own sources of revenue. With the expansion of new age economy with global dimensions in the form of infrastructure, industrial development, agricultural production and allied industries, service sector, transportation, tourism, scientific developments, entertainment, software, defence, internet expansion, information technology (IT) etc. have also contributed much in creation and development of complex system of taxation. Taxation system should be so designed and put in place that, revenue is generated and grown regularly while parallely ensuring growth in lawful economic activities in agriculture, industries, services, innovation, research & development etc. Parallel efforts are also going on to simplify the tax system, to make them more and more transparent and taxpayers friendly with minimum scope of evasion. Of the two types of taxes, direct taxes paid to the government by the tax payers are non-transferable while indirect taxes are transferable taxes where the liability to pay can be shifted to others. i.e. final consumers. Examples of direct taxes are income tax, fringe benefit tax, corporate tax, estate duty, gift tax, wealth tax etc., whereas those of indirect taxes are excise duty, customs duty, value added tax (VAT), sales tax, entertainment tax, service tax etc. While, the Direct Taxes are determined on the principle of PAYE (Pay As You Earn) system, the Indirect Taxes treat all the end consumers with the same level.

Accrual of the indirect taxation takes place in the due process of such activities like production, imports, sales, services, transportation etc. which produce those end results. In other words, taxes are generated from inception to completion of whole of the supply chain of the products and services, where the final tax burden lies on the end use consumers. Indirect taxes facilitate the following functions:

a. Helps to keep track of records on reasonable basis, as there are many check points set up in due course of business and so the records have very little chances to get arbitrary in nature.

b. In a developing economy, where proper monitoring system are still under evolving stage, business processes are easier to monitor, rather than looking for final results, which may lead to incomplete information. Certainly in such economies, the share of indirect taxes in total revenue carries majority. With the growth and development of the economy and more standardisation of business processes, direct taxes get more share as end results of goods and services are quite traceable and authentic.

c. The government, especially in underdeveloped economies can set their priorities in guiding the economy through decisions on indirect tax policy, according to socioeconomic needs in order to boost or frustrate the targeted activities. In this way, optimisation of different sectors of economy with different modes of operations at different scales can be done. The government can adopt the policies like subsidies, tax holidays etc. to facilitate the income transfer to lower strata of society in the form of commitment to provide essential services etc.

Many of the indirect taxes are meant to be unified under Goods and Services tax (GST), with an aim to simplify the indirect tax structure, promote ease of filing and paying, plug in the scopes of evasions and ultimately propel the ease of doing business with the noble aim of enhancing the ease of living.

The present paper aims to discuss the approach and concept of GST along with its ramifications and implementation challenges in India.

A BRIEF ON GST IN INDIA

After adoption of new market based economic policy by India in 1991, economic reforms have continued for two decades. Now, felt with the need of rapid economic growth of from the development stage, there is an idea of second generation economic reforms to focus on generation of more resources for social and other sectors. This is being visualised by labour law amendments and integration of taxation system. While the former is a legal matter, the latter one is our point of present discussion.

The idea to reform indirect taxation in the country by introduction of a comprehensive Goods and Service taxes (GST) in lieu of a number of Central and State level indirect taxes was recommended by *"Task force on Implementation of the Fiscal Responsibility and Budget Management Act, 2003*" giving detailed justification for introducing GST in India. Dr Kelkar, Chairman of the Task force, viewed GST as "a well-designed destination-based VAT on all goods and services" as an elegant method of "eliminating taxing consumption and distortions", and predicted GST as a "Grand Bargain" between the Union and the States. Perhaps, this was the starting point of the GST formulation in India.

The Union Budget 2007-08 for the first-time announced government's intent that India should move towards a national level GST by April 1, 2010. A roadmap to introduce GST in India. would be prepared by an Empowered Committee of State Finance Ministers (EC) with Central Government. After lot of studies and deliberation by EC, the Government of India released a Discussion Paper on GST on November 10, 2009. Ernst & Young (2009) asserted that GST will bring about a far-reaching reform for the Indian economy. This would be possible by creating a common and unified Indian market.

After going through the different indirect taxation systems of different economies around the world, idea of integrated taxation system was conceived. Again the federal structure of the Union of India was also to be kept in mind. Following duties and taxes are to be merged under GST:

a. Central level- Central Excise Duty (including Additional Excise Duty), Additional Customs Duty, Special Additional Customs Duty, Central Surcharges and Cess and Service Tax

b. State Level- Value Added Tax (VAT), Central Sales Tax, Octroi & Entry Tax, Purchase Tax, Luxury Tax, Taxes on lottery, betting and gambling and Entertainment Tax

With an ideal of "One Nation, One Tax, One market", Goods and Services Tax (GST) that was notified in 122nd Amendment Act in the Constitution of India on 1st July, 2017. With a vision of making it easier for the tax payers in paying the taxes at one point, instead of several points, and reducing the administrative burden for both assesses as well as the government, methodical & digital integration of the whole system of indirect taxation is aimed at. However, Indian experience is to be seen vis-a-vis the experience of other economies, which can be looked through the studies and papers of various scholars. Based upon the researches of various scholars from India and abroad, the conclusions reached at may provide the glimpses of the possible challenges and solutions as well. The same have been attempted in the forthcoming paragraphs under literature survey on GST.

LITERATURE SURVEY ON IMPLEMENTATION OF GST

Study on the operation of parallel economy under GST regime in Canada discussed the methods to implicate the part of the business which is not reported to the Government thus reducing the tax base (*Peter S. Spiro,1993*). This is very much relevant in India, that have been visible in large number of fake invoice cases i.e credit laundering.

Observation on the magnitude and duration on inflation in Australia's eight capital cities ensued after GST implementation suggested that its pattern was uniform throughout the country with no significant differences visible among them (*Valadkhani and Layton, 2004*). In fact, this study confirms the credentials of GST in economic unification of the country.

Managerial awareness as a part of ease of doing business is visible in the example of a large majority of small business taxpayers believed that, as a result of tax compliance requirements, their record keeping had improved and also that they had a better knowledge of their financial affairs (*Philip Lignier,2009*). This study fairly sets an example for the countries like India, where GST implementation is yet to attain maturity.

The disparities in numerous tax rules across all production sectors have led to fabrication or misrepresentation in wealth distribution, further resulting in inefficiencies in a variety of domestic production sectors, whereas, exports are well organized under a distortion-free indirect tax system in which tax provided balance, as predicted by the influence on GDP ratios and profits to the sources of production in the Indian exports economy (*Chandha, R. 2009*). The study suggested the ways in which tax reforms are implemented, affect profits and returns to capital, and also further stated that GST reforms result in higher GDP and export profits, as well as higher returns from the elements of production and economic endowment.

From the consumers' point of view, the study on the impact of GST base expansion under different scenario of rate changes and further exploring the possibility of combining this exercise with the Income Tax rate changes and evaluating the different expenditure patterns of different types of income groups of households in Australia concluded that either expanding the GST base or increasing the rate of GST, may cause a regressive taxation that may negatively affect the income position of low income households more than that of their higher income counterparts (*Ben Fillip & Matt Taylor, 2015*). This is the very feature of Indirect Taxation.

However, an analysis concluded that while people have a good comprehension of the Goods and Services Tax and are aware of its structure, they have not yet reached a satisfactory level. Most respondents had a negative opinion of the impact of GST, under a modest degree of awareness (*Mohamed et al., 2016*). The study again hints to the opinion that, with the increasing level of awareness and implementation, the acceptability of GST may increase.

A research paper on implementation of GST in Malaysia and emphasized that the government to put in more effort to ensure that consumers have a clear understanding and develop a positive perception towards GST, leading to its acceptance and better awareness among the Taxpayers in in the country (*PohJin Goh et al., 2017*). But this feature cannot be limited to any particular region or community. Spreading of awareness is key to ensuring the success of taxation reforms.

It is agreed that GST is an important enhancement and extension of the earlier tax system like value added tax and service tax. It is also confirmed that the GST single tax rate assured transparency and easiness in the equal treatment to all goods and services in existing taxation system (*Lourdunathan and Xavier, 2017*).

Post-implementation impacts of the Goods and Services Tax paint a clear image on trade, commerce, and enterprises in Uttarakhand, and that the government has made the necessary steps to address operational issues and rationalize tax rates. Utilising the data of total of 500 samples gathered from eight districts in Uttarakhand using a basic random sampling procedure for implementation analysis, simplicity and transparency analysis, sector-wise impact analysis, financial burden analysis, buying behaviour analysis, and need basis analysis were all used to examine data in this study, it was revealed that GST rates are higher in several goods and services when compared to previous tax rates. Due to operational challenges and higher GST rates in several sectors, businessmen are dissatisfied. However, if such issues are resolved, GST will have positive impact on growth of economy (*Vinay Kumar Jain and Ranjeet Mukherjee, 2019*).

The study on efficiency of Indian health care companies during the implementation of pre and post GST regime through two samples from the sector in stock markets such as BSE health care sector index and Nifty pharmaceutical index by used Runs test and Auto Correlation, concluded that the opportunity of investors increased to gain excess returns in the market during the study period (*Srinivasan, S. and Babu, M. and Hariharan C., 2019*).

In a sector specific study of Indian Auto industry, the equities listed on the Indian equity market were evaluated and compared at the situation in India before and after the GST was implemented. Using the daily closing prices of the stocks in the auto sector index in NSEE for 90 trading days to determine the level of volatility in the price behaviour of the selected equities, it was concluded that the adoption of GST in India had a detrimental influence on the returns generated by the auto sector equities (*Muthukumar, M. and Amudha, R., 2020*).

Another sector specific study in India suggests that the effects and implications of the GST on a variety of small and medium-sized (MSMEs) businesses are diverse and politically sensitive (*Chennathur Guna and Anuradha P.S, 2021*).

Aforesaid literature survey on GST shares the experiences of different economies, covering the various aspects of different sectors, which are under different stages of development. The conclusions can be briefly summarised as below:

- GST promotes the economic unification of the country or state with uniform mechanism of operations and implementations. However, its impact on costs may vary sector wise in the same economy.
- The system will get matured with the experience gained during the implementation over the time. Learning curve of the managers of the businesses, big or small, while working in the GST system will enhance the efficiency and effectiveness of the taxation system.
- Unaccounted businesses and parallel economy reduce the success rate of any tax system including GST. Innovative methods of implementation of GST system are required to look into this aspect.
- Better consumer awareness about GST operations, their impact on inflation, revenue collection and tax rates are required to create positive perceptions about the GST system to become successful and regular upgradation of the system with better chances to investors and traders.
- Implementation of GST has been affected by diverse reasons, from political to economic and commercial one, across the various sectors.

RESEARCHER’S OBSERVATIONS IN INDIAN CONTEXT

Now as the GST have been implemented in the country, it is worthwhile to discuss its benefits and possible roadblocks in the way of its successful implementation in the following paragraphs:

Benefits of implementation of GST that are being felt in India:

- GST generated one common national market to all manufacturers in India that is a boost to foreign investment and helped lots to the ‘make in India’ campaign.
- GST cured the cascading effect and the tax burden of multiple stages of supply has been removed by across goods and services which are available across the country.
- GST integrated the law related to taxes and procedures, structured, modelled and rates of taxation system and regulated them.
- GST provides more gain in the employment by leading to substantive economic growth on the better export and manufacturing activity by increasing GDP.
- Eventually, GST resolve problems in poverty eradication by generating more employment and more financial resources.
- Furthermore, effective and efficient neutralization of taxes especially for exports thereby making our products more competitive in the international market and give boost to Indian Exports.
- GST improved and created platforms for the overall investment climate in the country which will naturally benefit the development in the state governments in India.
- Finally, GST unified the SGST and IGST rates will reduce the incentive for avoidance by eliminating rate arbitrage between neighbouring States and that between intra and inter-state sales.

Issues that may create roadblocks in successful implementation of GST in India:

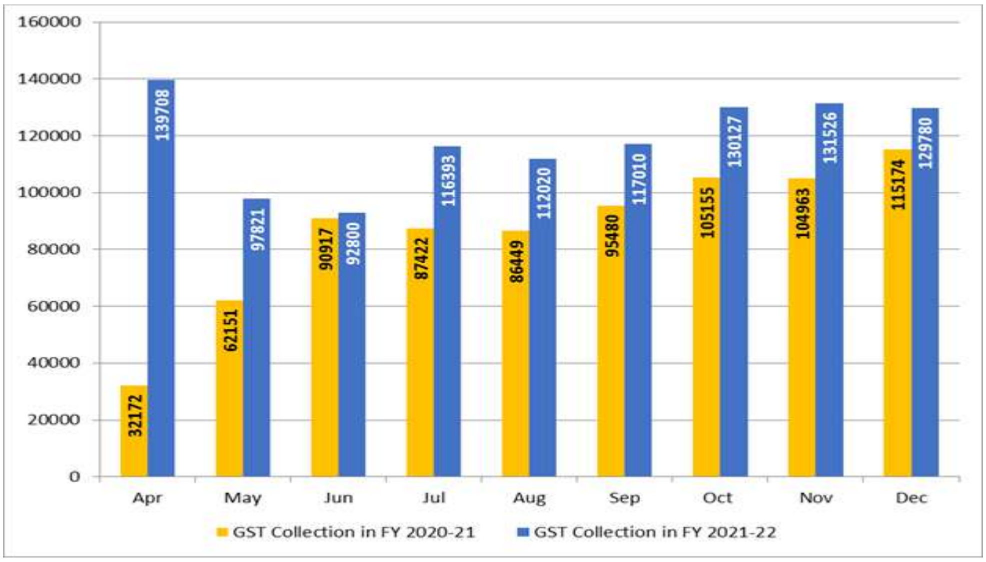
vii. Due to political compulsions of federal structure of India, the system evolved at present is rather complex which have to be eased out with the passage of time.

viii. As the system depends upon fully digitised infrastructure, it will take time to realize its full potential.

ix. The rates of taxes are still in volatile state.

Current status of GST collections in India

Following is the pictorial presentation of comparative study of GST collection in the FY 2020-21 and FY 2021-22 for the months of April to December (figures showing Rs. in crores)



(Posted On: 01 JAN 2022 1:40PM by PIB Delhi)

From the above chart, it is apparent that:

i. Definite improvement is visible in GST collection in FY 2021-22 while compared to similar period in FY 2020-21.

ii. In 2020-21, the collection was minimum in the month of April and highest in the month of December, which may largely be attributed to lockdown and volatile economic conditions during the Covid period. the trend is almost reverse in in 2021-22, where the highest collection was in the month of April and other months are still not able to catch up with that figure.

iii. However, over the period of time, stabilising trend in the revenue collections under GST is also being indicated by the aforesaid pictorial presentation, which strengthens the idea of learning curve and managerial awareness, as has been discussed in literature survey, along with familiarisation of government machinery with the optimum implementation processes, which are key to the acceptance, efficiency and effectiveness of the whole system of GST.

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East-West Encounter in R.K Narayan's the English Teacher

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ABSTARCT

R.K. Narayan emerged as one of the most important Indian English writers whose works reveal unsuspected depths. He tries to naturalize or Indianize the western novels implementing traditional linear narration with the symbolical and ethical framework of the ancient Hindu narratives.

The discipline known as oriental studies by Edward said develops a new interpretation that the west aims at probing the orient's intellectual cultural wealth. West is always viewed as rational, humane, developed and superior, the orient as underdeveloped, inferior, uniform homespun and unchanging. The portent does not have the ability to define itself, so it is the burden of the orientalist to make an objective assessment of the east. The two most easily discerned strands are the indigenous Indian traditions and the imported European conceptions. Almost every educated Indian today is the product of the conflicts and reconciliations of two cultures, although the consciousness of tension varies from individual to individual. This cultural conflict has for some reason always assumed a vital significance for the Indian novelist who writes in English. The aim of this paper is to examine the east west encounter in the novel The English Teacher by R.K Narayan.

Keywords: East-West encounter, Colonialism, Indian, roots, reality

INTRODUCTION

The definition of 'East' as well as of 'west' differs from novel to novel but each tries its own to grapple with the problem that has concerned the Indo-Anglian novelist for more than fifty years. The Indians are in search of their own true image torn between the traditional values they have absorbed from childhood and the new values their education has bestowed upon them. In the distinction between eastern and western values we step on dangerous grounds. Apart from the fact that after two centuries of proximity it has become increasingly difficult to point out the boundary between the two traditions as available as in India. Such patent oppositions tend to prove disastrous in fiction as they over simplify action and conflict. Nevertheless in spite of the constant overlapping and interchangeability of values, some kind of basic difference does exist between the two civilization. In literature each writer has to clear his own notion of what is the west and the east for him.

The phrase East-west conflict stands for the conflict between religion and rationality, tradition and modernity, spirituality and materialism, superstitions and scientific outlook, tyranny and democracy. The conflict between Innovation and tradition is a perennial theme in the novels of Indian English writings. R.K Narayan depicts the clash between deep rooted values of Indian cultures, characterized by Hindu culture, and those of the modern west in many of his novels. The west was built up by its innovativeness, sluggishness, childishness and sorcery. The west lead, the East lag. The west is the center to the rest of the world because the belief systems it engendered during the enlightenment era created permanent fissures between the orient and the occident. The British tried to make Indians cultured and civilized through English language thereby creating a power structure with English speaking people.

Being a son of upper middle class Brahmin family in Madras, Narayan found south India as a fundamental conservative Hindu society, which is vivid in most of his novels and stories with the middleclass common man as his base. The novelist makes his common man hero aware of his talents and potentialities which help him surpass his destined role in the society. Narayan in his novels subscribe to the ideas of the East enshrined in the ancient Hindu scriptures. As a product of Hindu high caste family, Narayan shares its beliefs, superstitions, traditions, customs and rituals in Indian life.

METHODOLOGY

This article relies on library study, textual discussion and analysis. It follows the descriptive and the analytical method. The English Teacher by R.K Narayan is the primary source of this paper.

DISCUSSION

The English Teacher is a retelling of Narayan and the death of his wife. It is his third novel dealing with school and college life in India. Krishnan the English teacher is a product of a system of education which makes people morons, cultural morons. Although the novel describes the life of Krishnan as a teacher in a college, the main part of the novel centers around the love between him and his wife sessile who dies of typhoid after a few years of their marriage. He then leads a life communicating with her soul. The language used in the novel by R.K

Narayan is different from a west novelist. In the novel Krishnan hates his job as an English teacher which reflects his indifference towards the west or the English.

The very instance of Krishnan's dislike for the western education system highlights the theme of east-west encounter. Krishnan is an English teacher in Albert Mission College but he does not like the western education system. In the opening chapter of the Novel we find him saying –

"But such repose was not in my nature. Perhaps because I was a poet and I was constantly nagged by the feeling that I was doing the Wrong works". (The English Teacher. p. 02)

Krishnan expresses his dislike for his job as an English teacher in Albert Mission College. He does not enjoy doing his job. He hates the way he has to act as an English teacher despite his unwillingness. His inherited culture and behavior as an Indian bridge his indifference to the western education system. He believes in social freedom and independence of mind, so is opposed to the perpetuation of the system that cripple his imagination. He studies in English Literature and admired the wonderful writers, but he does so only at the cost of his creativity. His soul revolts against the English education which lead him ultimately to resign his job to maintain the freedom of conscience.

In the same chapter later, Krishnan and the other teachers are summoned to Mr. Brown's room at the end of the day. He complains about a student of English honours who does not know that 'honours' had to be spelt with 'u'. He gives a lecture on the importance of English language and the need for preserving its purity. This instance is also a picture of the east-west encounter. English is a foreign language. The west regard the East as inferior and wants to teach them their rich language in order to educate them and to make them a better citizen.

Let us be fair, Ask Mr. Brown if he can say in any one of the two hundred Indian languages: 'The cat chases the rat'. He has spent thirty years in India. It is all irrelevant, said Gajapathy. Why should he think the responsibility for leaving is all on our side and none on his? Why does he magnify his own importance? (The English Teacher.p.6)

Though the Britishers like Mr. Brown reside in India they want their language to be used properly without harming its purity. But they never think of learning our language because they regard the East to be inferior to the west and learning is all on the side of the East and not the west. They magnify their own importance. The imposition of English language itself is an example of the power relationship between the East and the west. The disillusionment of the Indian mind during the British regime and the consequent generation of self-consciousness is evident in this particular instance. For Krishna, who studies in the English language, the English writers, poets and the Bible, and who makes a career out of the same education, do not bring him comfort, support or relief at his time of need. He realize that education and his choice of career has actually alienated him from his roots and culture – and ultimately from reality. He realizes the futility of education as this which serves keep them effectively in subjugation physically, and their approach to life and mind-set. Narayan's has interwoven the theme of roots, with the theme of reality.

Gandhian principle or Swadeshi is evident in the novel which is another point reflecting the East-West encounter in the novel. Gandhi emphasized on swadeshi goods. Krishnan's father has a steel pen with a fat green wooden handle, with which he has written for years. He has several bottles of ink-his own make from a recipe which is exclusively his and of which he is exclusively proud. He would make up the polion and other ingredients and distill and strain then filing up huge mud jugs. He fills small glass pots for use and lock up the store in an almirah. Narayan through this instance in the novel show his Indianness, one's way of producing ink without the help of western method.

Another instance of the East-West encounter is shown with the presentation of typical Indian believes and superstitions. when Susila falls ill, her mother is convinced that the evil eye has fallen on her daughter and that at the new house a malignant spirit has attacked her.

She was convinced that the evil eye had fallen on her daughter and that at the new house a malignant spirit had attacked her. She admonished me: you should never step into an unknown house in this manner. You can never be sure. How do you know what happened to the previous tenants or why they left? She went out in the evening and visited a nearby temple and prayed to the god for her daughter's recovery. She brought in regularly every evening sacred ash and vermilion and smeared it on her daughter's forehead. (The English Teacher33)

Krishna confronts the coexistence of both western and native cultural attitudes, which embody the attitudes of Indians of a newer and older generation. For example, Susila's illness is treated both by a doctor who practices Western scientific medicine, and by a Swamiji who uses mystical methods of healing. Susila's mother, summons the Swamiji representing an older generation. And in yet another instance it is notable that Krishna is ashamed that the doctor finds the Swamiji in the house, which shows that he is alienated from, and is embarrassed by, the native culture of the older generation of his own country. Both the scientific and the mystical attempts to heal fails in the event, and Susila dies. Narayan shows us the coexistence of these two systems of thought in Indian culture, but does not erect an issue of being for one and against another because, in the matter of life and death that he focuses here, the distinction between Western and Eastern thought becomes insignificant.

After Krishna gives up his job, he teaches in an experimental school for small children at a salary of 25 rupees a month.

"… not with a feeling of sacrifice for a national cause, but with a very selfish purpose" (The English Teacher.p.49)

The purpose is to find inner peace. Peace is pursued through refutation, through the refusal of western values and attitudes. Mr. Brown, the English principal of the college, cannot understand Krishna's motivation. When the latter says:

"I have no use for money" (The English Teacher.p.50).

Brown looks mystified because the refutation of the commercial motive astounds him. The rich Hindu tradition of contemplative asceticism lies behind Krishnan's desertion of western culture, with its firmness on the significance of the cultivation of the inner self.

Narayan's own tone is clearly poignant and makes gentle fun of The English Teacher, his depiction indicates that Indians interrogate the Anglo-centric critical authority and quietly usurp English literature as well as give critical perspective to it. The prestige attached to English in tertiary education is reflected in Mr. Gajapathi's effort to put all other English users in their place. As an Indian English writer Narayan defends himself. He opines:

We have fostered the language for over a century, and we are entitled to bring it in line with our own thought and idiom. Americans have adapted the English language to suit their native mood and speech without feeling apologetic, and have achieved directness and unambiguity in expression. (The English Teacher. P.197)

Narayan expresses mixed feelings about the effect of the rise of English on Indian languages, literature and cultures. In The English Teacher (1945) published before Independence, the English head teacher is eager to uphold the purity of the English language contrary to the anger of Krishna, the protagonist, who abandons his teaching career, and renounces the education.

Krishnan's mother in-law is an example of the Indian society. She is brought up in a social condition where she has to show extreme respect for son in-law. The Indian mother-in-laws are expected to be so. This shows the existing traditions in the society which is in contrast to the inherited western customs through education.

The incident of the school headmaster believing the astrologer's prediction of his death, who writes a month-to-month report of his life, gives up the hope of living and decide to hand over Krishnan the post of headmaster but the astrologer's prediction turns out to be wrong and he survives. This presents the blind believes of some Indian people on pandits without any rationality.

After the death of Susila we find Krishnan trying to contact her by calling her spirit. The conversation between Krishnan and Sushila's spirit can be regarded as an instance which is completely in contrast to the western believes. The final stage of Krishna's Journey takes him away from the Western intellectual frame of mind, which though influenced him earlier, later makes him turn towards his own native Indian spiritual practices. To reach his goal of harmonious existence, he takes up his deceased wife's physically-communicated challenge, which he receives initially through a medium, to develop his mind sufficiently to communicate with her physically, to bridge the gap between life and life-after-death. Although initially he has been bemused by his wife's devotional practices, mocking her "*Oh! Becoming a Yogi! (p.32)*. He relies on her to guide him, from beyond the grave, in his self-development.

In the novel the presence of the crown and its agent is found to some extend though not much as in other novels. In the scathing remarks Krishnan make on the principal, Mr. Brown and on the educational system, we come to know the bitterness that people have towards the British.

CONCLUSION

R.K Narayan deals with the Indian ethos in all his novels. The phrase Indian ethos stands for the characteristic spirit, moral values, ideas or beliefs of the Indian people or culture. Narayan is not a social critic and he is not interested in propagating any idea. In this particular novel he is neither criticizing the West nor appreciating the East. He is not bias regarding the East and the West. Both the West and East have their own culture and practices. He is just showing the differences between the west and the East. Narayan is not acting like a severe critic while presenting the two cultures in this novel.

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Scientific Exploration on Panchakarpam in Siddha for Rejuvenation Therapy

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ABSTRACT
The preventive and curative approaches in health care are indeed the strength of the Indian Systems of Medicine (ISM). Kayakalpa therapy is a specialized procedure practised in the form of rejuvenation recipes, dietary regimen and special health promoting right conduct and behaviour for a specific time period to promote health and longevity. Kayakalpa drugs are said to produce their beneficial effect more promptly in conditions where a suboptimal health results in premature ageing and suboptimal functioning of body. Panchakarpam is a herbal discipline of external therapy mentioned in Siddha literature under Kayakalpa drugs comprising of Curcuma zedoaria (Kasturimanjal), Piper nigrum(Milagu), Azadirachta indica seeds (Vembuvithai), Outer skin of Terminalia chebula (Kadukkai) and kernel of Emblica officinalis (Nellikai) and Cow's milk (Kaarampasu) to be applied on the scalp and hair prior to head bath and has been indicated in Siddha Materia medica to promote the tri humoural balance aiding rejuvenation and disease prevention. This present study has been aimed at scientific exploration of this unique rejuvenation procedure in disease prevention in the lime light of the modern concept of transfollicular drug delivery.

Keywords: panchakarpam1, kayakalpam2, siddha3, rejuvenation therapy4, anti-ageing5

INTRODUCTION
According to a quote from Saint Thirumoolar's emphasis about the Siddha medicine

"One that cures physical ailment is medicine

One that cures psychological ailment is medicine

One that prevents ailment is medicine

One that bestows immortality is medicine."

Kayakalpa drugs are proposed to promote tissue longevity through some more novel mechanisms like reduction of toxin or metabolic waste load within the cell through their reduced production or increased scavenging, ensuring efficient use of energy within the cell, thus requiring less substrate consumption leading to reduced energy requirement and reduced waste production, initiation of micro-repair by providing essential nutrients by participating in regeneration directly or through promotion of latent enzyme systems. The mechanism of action proposed for these herbs include suppression of free radical formation[1].

Humoural concept of Aging:
According to Siddha concept, Vata, Pitta and Kapha are the three basic constituents of living human body. A balanced state of the structure and function of these three Dosas maintains the healthy life and their imbalance is the basis of pathology. Kapha is the predominant Dosa during childhood, Pitta during the adulthood and Vata during old age. Kapha is the principal humor responsible for growth and development while Pitta is responsible for the vigour and vitality of youth. Vayu according to its fundamental properties precipitates atrophy and involution. As a function of aging, with advancing age Kapha gets gradually depleted and Vata increases spontaneously[2].

Significance of Panchakarpam in Siddha and its influence on tridhosham:
Curcuma zedoaria (*Kasturi manjal*), Piper nigrum (*Milagu*), Azadirachta indica seeds (*Vembu vithai*), Outer skin of *Terminalia chebula* (*Kadukkai*) and kernel of *Emblica officinalis* (*Nellikai*) and Cow's milk (*Kaarampasu*) and boiled well. It is to be applied externally on the head prior to head bath the result of this is said to delay the process of ageing. This procedure of preventing diseases is called as "Principles of Pancha Karpam"[1]. As the Siddha Pathology literature highlights the occurrence of diseases due to imbalance in all the three dosas, the ingredients of Panchakarpam principle has been indicated in Siddha materia medica to alleviate the vitiated doshas vatham, pitham and Kabam[3]. All these herbal ingredients have also been scientifically studied in previous works[4-7] for their effective pharmacological proterties that has been elaborated in this article.

Panchakarpam - Concept of Transfollicular drug delivery

The Siddha literature highlights the external application of powdered ingredients of Panchakarpam to exert its pharmacological anti ageing effects. This concept has been scientifically analysed and well correlated with Transfollicular drug delivery of recent times. The skin and its appendages are our protective shield against the environment and are necessary for the maintenance of homeostasis.Transdermal delivery has great potential to deliver drugs continuously into the systemic circulation, thereby circumventing first-pass metabolism. The hair follicle includes hair roots and sebaceous glands. This structure inside the skin has a certain biochemistry, metabolism, and immunology as they are enclosed by capillaries, antigen-containing cells, sebaceous glands, and stem cells in the extremity of the hair follicles. Recent studies have focused on hair follicles as a potential route for delivery of topical and systemic drugs [8][9]. The sebaceous gland serves as a potential therapeutic target site is comprised of stem cells of high proliferative capacity[10].Hair follicles are considerable weak spots in our protective sheath against certain hydrophilic drugs and may allow a fast delivery of topically applied substances due to assumed diffusion through the lipid domains of the stratum corneum (Percutaneous penetration processes). In recent years, it has been suggested that hair follicles represent important shunt routes into the skin for drugs and chemicals. Another in vitro study by Otberg et al., 2008 have shown the importance of skin appendages for skin penetration by hydrophilic compounds[11].Upon analysing the transfollicular route, it has been found that hair follicles and sebaceous glands can be specific pathways for the passage of certain molecules or formulations that enter the site of effect or blood faster than the stratum corneum[12]. Higher absorption from the follicular route is due to the presence of a dense network of hair follicles by a dense network of blood capillaries, dendritic cells and stem cells, which is very suitable for drug delivery[13].

In clinical situations, a drug is rarely applied to the skin in form of a pure chemical but, instead, is normally incorporated in a carrier system, the vehicle [14][15]. In panchakarpam the cow's milk can therefore act as a suitable lipohilic vehicle favouring easier transfollicular penetration .

Pharmacological properties of ingredients of panchakarpam

1. Kadukai (Terminalia chebula)

Terminalia chebula belongs to the family Combretaceae . They are widely distributed in in Southeast Asia and tropical regions of the world[16]. Studies to analyse the phytochemical constituents in different Terminalia species have demonstrated the presence of active constituents such as tannins, pentacyclic triterpenes and their glycoside derivatives, flavonoids and other phenolic compounds[17]. Traditional medicine texts indicate *Kadukkai* to have a rejuvenative, laxative (unripe), astringent (ripe), anthelmintic, nervine tonic, expectorant, tonic, appetite stimulant, easily assimilated, anti-septic, alterative, diuretic and carminative properties[18]. It promotes digestive power, heals wound and ulcers, cures local swellings, skin diseases, diabetes, chronic and recurrent fever, anaemia, diarrhoea dysentery, cough and dyspnoea. It dispels disease caused by vitiation of vatha, pitha and kapha and is useful in spleen enlargement, ascites, piles, hoarseness of voice, vomiting and hypertension[19]. Scientific analysis of the fruit shows the presence of tannins. Tanins act as a free radical scavenger and may prevent atherogenesis. The lateral research views emphasis antioxidant,antibacterial,antimutagenic properties of the drug[20]. *Kadukkai* promotes long life, rejuvenates and stimulates enzymatic action. Phytosterols and natural antioxidants have also been shown to be effective in reducing lipid profiles and also lessen peroxidative modification of lipoproteins and atherosclerosis. Since *kadukkai* contains high amounts of phytosterols, saponins, chebulinic acid and corilagen, it will be a promising phytomedicine for hypolipidemic activity[21]. It has been reported to promotes digestive power, heals wound and ulcers, cures local swellings, skin diseases, diabetes, chronic and recurrent fever, anaemia, diarrhoea, dysentery, cough and dyspnoea[22]. *Anwesa Bag et. al* investigated the cardioprotective activity of *Kadukkai Chooranam* and proposed that the protective effects may result from the catalytic action on LDL cholesterol for final elimination in the form of bile acids. The magnitude of *Terminalia chebula* (*Kadukkai chooranam*) for lowering cholesterol levels and decrease the cardio vascular risks[23].

2. Gooseberry seed (Emblica officinalis)

Emblica officinalis belongs to the family Grossulariaceae. The gooseberry tree grows more in southern part of India. The study shows that Emblica officinalis has the phytochemical constituents includes Alkaloids, benzenoids, flavonoids, terpenes, carbohydrates, sterols, ascorbic acid, gallic acid, emblicanin A, emblicanin B, chebulagic acid, corilagin, mucic aci*d, pedunculagin, quercetin, and kaempferol[24].* The traditional medicine text indicates gooseberry to have astringent, refrigerant, laxative, and diuretic properties[25]. Gooseberry seed improves cell migration and cell binding. It promotes, protects and extends youthful state and thus, curtailing Ageing process and also provides immunity against disease, improves mental and intellectual competence[26]. It is a potent Anti-oxidant as it is rich in Vitamin-c, Tannin and Gallic acid and also the best Rejuvenating herb[27]. Ethyl acetate extract of gooseberry was effective in decreasing the hyperglycemia-induced oxidative stress and to inhibit the production of Advanced Glycation End process. Regular intake of gooseberry causes a significant decrease in the levels of total cholesterol, triglycerides, and increases HDL which helps in treating hyperlipidemic patients[28]. The methanolic extract of gooseberry possesses potent α-amylase and α-glucosidase and to be effective in the management of non-insulin-dependent diabetes mellitus[29]. *C*orilagin in gooseberry is effective in treating atherosclerosis by inhibiting the oxidation injury and ox-LDL-induced vascular smooth muscular cell proliferation[29].

3.Neem seed (Azadirachta indica)

Azadirachta indica belongs to the family Meliaceae and is native to the Indian subcontinent and most of the contries in Africa. The Phytochemical constituent in neem species includes nimbolinin, nimbin, nimbidin, nimbidol, sodium nimbinate, gedunin, salannin, quercetin, nimbanene, 6-desacetylnimbinene, nimbandiol, nimbolide, ascorbic acid, n-hexacosanol and amino acid,7-desacetyl-7-benzoylazadiradione, 7-desacetyl-7-benzoyl- gedunin, 17-hydroxyazadiradione, nimbiol, and sitosterol[30]. The nimbidin from neem trees has anti-inflammatory response by inhibiting phagocytosis and its leaf extract has neuroprotective property and protective effect against cisplatin-induced nephrotoxicity[31]. Ethanolic extracts of flowers and seed oil were also found to have better free radical-scavenging action. In a comparative study, it was also noticed that the bark possessed complex phenolic contents than leaves with higher antioxidant activity. The methanolic extracts of neem seed possess significantly more antioxidant properties[32].

Neem seed is one of the most well known indigenous medicinal plants and has been considered as a potential source of many therapeutic effects, such as antidiabetic activity, antihyperglycemic agent, antimicrobial activity[33]. Neem root and bark extract (NRE) plays a vital role in reducing blood sugar level[34]. Neem extract shows equipotent cardioprotective activities as compared to Vitamin E[35].

4. Pepper (Piper nigrum)

Piper nigrum belongs to Piperaceae family and is a climbing vine indigenous to the Malabar Coast of India.. The Phytochemical consitituents of pepper includes Tannins, alkaloids, Cardiac glycosides and flavonoids[36]. The study shows that piperine extracts of pepper decreases liver marker enzymes activity (aspartate transaminase (AST), alanine, transaminase (ALT), and alkaline phosphatase (ALP)) in acetaminophen-challenged mice, indicating its hepatoprotective and antioxidant effects. piperine also exhibits significant anti-allergic activity[37]. Traditional medicine tests indicate pepper to have carminative, antiperiodic, rubefacient, stimulant, resolvent, antivatha, antidote properties. *P. nigrum (Piper nigrum)* has been used for medicinal purposes in many parts of the world since ancient times. Medicinal uses of *P. nigrum* include antibacterial, antifungal, antiapoptotic, antidepressant, antidiarrheal, anti-inflammatory, antimutagenic, antioxidative, antipyretic, antispasmodic, antitumor, to improve appetite and digestive power, anti-cold, anti-cough, dyspnea, for curing from throat diseases, anti-intermittent fever, anti-colic, anti-dysentery, get rid of worms and piles[38]. Pepper has a significant Hypolipidemic activity due to the presence of piperine, which reduces total plasma cholesterol, low density lipoprotein (LDL) cholesterol, very low-density lipoprotein (VLDL), the activity of 3-hydroxy 3-methyl glutaryl coenzyme A (HMG CoA) reductase in the tissues, and increases lipoprotein lipase (LPL) and plasma lecithin cholesterol acyl transferase (LCAT). Piperine prevents the accumulation of plasma lipids and lipo-proteins significantly by modulating the enzymes of lipid metabolism. Piperine extract of pepper also enhances hepatic oxidized glutathione and decreases renal glutathione concentration and renal glutathione reductase. piperine would suppress the body weight, and improve insulin and leptin sensitivity, thereby regulating obesity. piperine derivatives containing benzothiazole moiety, nine piperine analogs exhibited higher anti-diabetic activity[39]. The presence of piperine which serves additional benefit as cardio-protective agent in myocardial ischemic disease[40].

5. Kasturi manjal (Curcuma aromatica)

Curcuma aromatica belongs to the family Zingiberaceae. This species is found in the south Asian region predominantly in eastern Himalaya and especially in south India. The *Phytochemical constituents of Curcuma aromatic* includes *a*lkaloids, terpenoids, flavonoids, steroids, saponins, tannins, phenols, phytosterols, glycosides, protein amino acids, and volatile oils[41]. Curcuma species possesses a wide variety of pharmacological properties, including stimulant, carminative, anti-inflammatory, anticancerous, antiproliferative, hypocholesterolemic, antidiabetic, antihepatotoxic, antidiarrheal, carminative, diuretic, antirheumatic, hypotensive, antioxidant, antimicrobial, antiviral, insecticidal, larvicidal, antivenomous, antithrombotic and antityrosinase. Curcuma oils are also known to enhance immune function, promote blood circulation, accelerate toxin elimination, and stimulate digestion. It also promotes blood circulation and to fight various microbial infections. Internally, wild-turmeric rhizomes are used as a tonic and carminative, while externally they are applied for treating skin eruptions and infections, and to improve complexion, ease bruises, and relieve sprains and snake bites[42]. Curcumin (diferuloylmethane) is a polyphenol responsible for the yellow color of turmeric. It has antioxidant, antiinflammatory, anticarcinogenic activity[43]. Inhibition of hyperlipidemic atherosclerosis by *C. aromatica* was associated with a decrease in plasma lipids and an increase in antioxidative abilities[44]. The extract of *Curcuma aromatica* was found to be effective in inhibiting the α-Glucosidase and helps in maintaining the serum blood glucose level[45]. *Curcuma aromatic* has antithrombotic, and cardiovascular protective effects. The possible effect of curcumin is through stabilizing calcium ion homeostasis, which may play a role in the prevention of ventricular arrhythmias through the conduction pathway.Also, curcumin inhibits hERG potassium channels (causing prolongation of cardiac repolarization)[46].

CONCLUSION

There are many causes of ageing such as metabolic damage, cellular senescence, cellular death and toxic accumulation. Mitochondrial dysfunction automatically generates free radicals, highly responsible for ageing. Hence antioxidants play a predominant role in the life style disorders and prevention of premature ageing. Through this review, the Panchakarpam concept of Siddha has been elaborately and its pharamacological action has been discussed scientifically. Upon keen understanding of the traditional formulation and modern pharmacokinetics the mysteric ancient wisdom of Siddhars in perfect blending of panchakarpam principle has been unveiled. This would promote further preclinical and clinical study to substantiate the traditional Siddha kayakalpam measures.

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Training & Development- A Key to Employee Performance

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ABSTRACT
A very important and calculated tool that every organization uses to uplift the human resource and their performance is Training and development. It is believed that regularly investing in training and development brings ever- an increased competitive advantage for the companies. Due to global penetration, it has become mandatory for every service sector to keep their intellectual capital up to date and their competencies up to the mark. Organizations have been putting enormous efforts to augment the core skills, approach, and hidden talent of their workforce so that they work efficiently and bring fortune to the organizations and themselves by reaching a particular goal. Therefore, this is an attempt to show how important training and development is, and how it impacts organizations and human resources. The impact of training and development has been positive to bring up the performance of the employees, to be productive enough and increase the profitability of course. This also helps them to sustain and shine in the marketplace.

Keywords: Training and Development, Employee Performance, Learning, Human Resource Development.

INTRODUCTION
Training and development have been proven very effective practice of organizations to upgrade the workforces' skills, their abilities, and proficiency and brush up their knowledge that results in their effective performance Padhi (2003). Vemić 2007; Edralin 2004; Pareek 2000 in their study stated that any organization that needs to survive and sustains its competitive edge needs to train its human asset well so that it can be more creative, innovative, and imaginative that will perpetually upgrade its performance for the company. For the industries or companies that are in the same business, it is very difficult to be progressive and for that matter, they keep no stone unturned. Therefore, to keep on going, they need to acquire and retain their human resource in such a way that they bring profitability for them. Keeping the objective in mind, the higher authority needs to pay special attention to all the core elements of human resource management and design a training program that caters to the organizational needs as well as employee needs as a whole. All this plays a crucial role in so many areas e.g.: financial, organizational, and societal that ultimately brings up the goal of a company and its effective continuation in the market. According to Evans, Pucik, and Barsoux 2002 Globalization, changes in technology, politics, and economic fluctuations bring about extended competition for organizations, and therefore it prompts them to train their workforce and the approaches towards this being acclimation to the increments and improvement in their performance. There is existing evidence of the growth of knowledge in the business corporate world in the most recent decade and that should not be overlooked. This is growth is not only the result of improvements in technology or by a mixture of factors of production but by the increased efforts towards progress and growth of human resources.

One of the significant duties of every organization thus is to improve the job performance of its workforce and that can be achieved through continuous training and development and its execution thereafter. It is quite evident that for any organization, its human resource is an asset for its proper functioning and excelling therefore it is also important for them to rationalize what they contribute to their objectives and outcome as a method for supporting effective performance. Hence this calls for the superiors to select the material and its effective supply to the workforce according to the organizational needs. The material should be technologically based, up to date, fit for career development, and also socially proficient in their respective departments (Afshan, Sobia, Kamran, and Nasir 2012).

According to Gupta 2006, training and development is an invasive method for upgrading the skills of employees that further enhance the employee performance that has a positive impact on organizational outcomes. Also, it goes without saying that the training process varies from organization to organization and also the organizations of the same business. Quality and quantity both are big issues that every organization needs to focus on to get good results. It is seen that to get the upper hand of any organization in certain tasks and projects human resource is the key component and training becomes the fundamental instrument for its successful completion (Houger, 2006). Heathfield (2012) indicated that if an employee is given the proper and correct training and development at the right time, it can be fruitful for the organizations in terms of higher outcomes, good information, and brand reliability and commitment. Training is pivotal for any organizations' human resource development (HRD) so that all the human resource management practices are smoothly undertaken. Not every employee is experienced and opts for a job that he had undertaken already therefore to comprehend what the organizational needs are they should have pertinent skills, learning, values, and competencies and all this is brushed up with the help of training and development only.

LITERATURE REVIEW

In every human resource management field, training and development have been very important as it concentrates mostly on organizational activity intended for the betterment of employees whether individually or in groups. According to (Harrison 2005) training is famous for the other names like employee development, human resource development, and learning and development. Training has been customarily characterized as the procedure through which people change their aptitudes, learning, approaches, and performance (Robbins and DeCenzo, 1998). It brings up the environment in an organization that includes designing and backs learning exercises that get a most wanted level of execution. While we talk about development, it normally alludes to whatever an individual may need in the future e.g; effective learning, long-term growth, great grasping power. And training lays more emphasis on present work obligations, responsibilities, and development focus to forthcoming occupational duties. Nevertheless, rarely these terms have been used conversely or have been indicted by the one-word performance consulting, which underlines the result of either training and development or how people have been performing because of what knowledge they have attained (Robinson and Robinson, 1995).

Training is believed to be a learning process and individuals get the opportunities to learn new info, revise and fortify their current information and expertise. They mainly have scope to schedule and understand the new thing that can enable them to enhance their efficacy and their execution at work. With the help of successful training, very important information can be passed on that illuminate employees and develop skills, practices that can be shifted back to the working environment. According to Charnov 2000, for individuals and groups of employees training can be presented as skill development. Broadly, training is used for the introduction and education of a particular subject as a source for upgrading skill development and enhancing working environment practices.

These two procedures, Training and Development are often related. The proactive means to develop skills and ability to keep questions away from emerging, training is used. Also, training can similarly be an active tool in addressing every skill or presentation gap among the workforce. And, to have a solution to work environment issues, before they turn into a matter of concern or noticeably strong issue (Kim, 1997). Garavan, Costine, and Heraty(1995), in their research designated Development as a process, "strives to build the capacity to achieve and sustain a new desired state that benefits the organization or community and the world around them".

Development looks at the current environment, the present state, and helps people in a group, in a department, and as a major aspect of an institution recognize viable strategies for enhancing performance. In a few conditions, there may not be anything "incorrect" at present; the group or manager may be looking for approaches to continue to develop and improve existing connections and employment performance. In other situations, there may be a certain problem or issue that needs to be addressed; The purpose of the development process is to discover concepts and resolutions to the problems that can successfully restore the group to a state of high performance. Development infers making and surviving the change. (Marmer, 1999)

Training and development portray the official; progressing endeavors that organizations make to enhance the presentation and self-contentment of their workers through a range of learning methods and projects. In the contemporary working environment, the endeavors like these have brought up the long-term professional development from instructions in a very specific employee skill over time. Over the past decade; it has risen as a formal occupational function, a necessary constituent of methodology, and a recognized profession along with distinct hypotheses and methodologies. Since the number of organizations has been increasing, they may be of any sort or size have adapted "continual learning" and different characteristics of training and development as a method for encouraging employee's development and getting an exceptionally trained human resource. As Marmer 1999 indicated training broadly recognizes the skills of the human asset and aids their continuous progress and output. Also, it guarantees the long-term gain and profitability of small-scale companies, backs the consistent learning putting forward a corporate culture.

Mostly, worldwide both the terms "training" and "development" are utilized collectively to portray the general enhancement and learning of one in any organization. However, if we relate them, the terms have a critical difference of focusing on the scope of the applications. Lawfully, to be precise the training programs have objectives that are exact and quantifiable, such as how to use a specific apparatus, understanding a particular process, or playing out specific techniques with great accuracy and setting an objective, making the right decision at the right time, leadership skills are the most focused areas of developmental programs. (Jacob, Ronald L. 2003.)

Importance of Training and Development in Job Performance

Every company when hoping to propel considers Training as the main component for its human resource development. Albeit there is a huge trend of training in the world because of its huge importance, there are numerous employees which are yet hesitant to be trained. Training and development have something to offer beyond better information. It provides the additional benefit of intermingling and getting from others skills, practices, and what they have experienced so far, and accordingly it isn't rare to pick up excuses concerning why somebody has not acquired training (Choo,2007). Therefore human resource that is put on training and development perceive training of high value particularly those in administration.

According to Mondy, R.W. et al (1990) Whereas the use of training and development are so many that the functioning and skills compulsory for a company, a few regular training uses can be recognized, including technical training, sales training, administrative training, computer training, communication skills training, authoritative development, professional development, supervisory development, and administration development. Also, Adeniyi, (1995) views training as a continuous process for the employees to perform well. The training brings general development to any firm that attains it. huge payoffs to the businesses, better efficiency and productivity, skilled workforce that can work at the bad times of any company, loyal and devoted workforce, and all this can be obtained with proper training and development and its cause can't be exaggerated anymore.

Role and Impact of Training and Development on Job Performance

As indicated by the Organization for Economic Co-operation and Development (OECD) Employment Outlook 2004, policies meant for upgrading laborers', employee expertise adds to the development in business performance. Lifelong education is the most indispensable component in employment techniques. (www.oecd.org) Training makes personnel efficient enough and it is seen the ones who formerly get training tend to switch their jobs for better salaries, career progression for better employments and are more reluctant to leave on an involuntary basis. Training enables a person to find a more permanent occupation and another advantage is that laborers with not more than upper secondary education training bring technical knowledge for them hence making them a more efficient and technical hand. All in all, a great result of training is found to be remarkably lower for ladies than for menfolk (Laird 1985).

Training when taken on the previous jobs lowers the risk of being jobless for a very long time. It becomes a strong reason for organizations to hire the human resource as they already get the skilled person and does not require training him/her thus contributing to the saving. When the training gives transferable competencies the chances of landing into higher positions or promotions become higher. An employee who has been trained earlier or has expertise in a particular job has the upper hand in getting re-employed within two years over the untrained ones. This power of training is significantly impressive on account of workers with lesser informative achievement. It is also seen that the positive Training and Development is the system aimed at helping human resources to build up their specific and organizational abilities, info, and competencies. Human Resource Development mainly focuses on constructing up the utmost established staff with the goal of organizational and individual achievement which can be achieved through their work objectives in service to clients.

As specified by Daft (1983) all the laborers and workers have to be fruitful for the organizations and they need to stay focused consistently. All this can be attained through representative training and development. Employee motivation and retention is depended on how consistently an organization can create career-enhancing abilities. Most likely well trained and developed staff is proven to be an asset to the organization and with this increase the chances of expertise in completing his or her duties

CONCLUSION

Training and development are key components for any organizational survival. It is believed to enhance the employees' ability, performance to adapt to the changing environment and challenges of the organization. It keeps any organization on the go provided it identifies the need of an hour and converts that need in productive outcome by opting for training. Training and development not only enhances and brings good results for the company but also has a positive impact on the employee itself. It brings efficiency in one's skills, talent, ability, and whatnot and motivates the employees for self-work. Motivated employees thus happily work for the organization for which organizations pay them in terms of bonuses, promotions, hikes, etc. The right training is always responsible for the development of the human resource of an organization. It helps them to adjust to the testing and challenging environment, technology for better execution of tasks, increase in information and knowledge, develops inventive minds and problem-solving skills.

Many organizations which consider human resources as an asset, take training very seriously and see it as an opportunity to increase long-term profitability and that is why staff training and development is exceptionally pivotal to an organization and its effectiveness. To get high returns on investments, the workforce of a company needs to work efficiently, and therefore, every organization must invest in training and development. Training prompts in making the powerful human resource and increases in quality because of potentially low mistakes. Also, effective development programs allow the organizations to keep up a workforce that can satisfactorily supplant employees who may leave the organization or who are moved to different territories. Effective service is a result of effective staff which is a result of effective training and development. For every organization, it is imperative to treat its human resource as capital as they add treasure and worth to a company. Therefore, when an organization invests in the training of its workforce, it brings developmental changes in them, and more the workforce is highly skilled and competent enough, more can be expected from them which can later get the competitive edge for them in return. Through impactful training and development, the proficiency of an employee can be front-lined and such a skill would never disappoint.

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Market Trends in Wealth Management Industry Following Covid-19

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ABSTRACT

Wealth Management industry is extremely competitive and customers are highly demanding, as their needs constantly evolve.

The global health crisis 'Covid-19 pandemic' caused massive disruption and service delivery disconnect across the industry and the way they use to function and carry out their day today routine business. The pandemic with challenges brought array of opportunity which are clearly visible from the latest trends in the wealth management industry.

To capitalize on the market opportunity, Wealth Management firms needs to remain in pace with current trends like rapid digitization and opportunities with the use of emerging technology, demand for sustainable investment offerings.

Keywords: [Wealth management Trends, Mutual Fund, Sustainable investment, ESG, Digitization]

1. DIGITIZATION

The pandemic created an urgency to accelerate digitization efforts as with lockdown enforced, in person interaction become impossible and suddenly everyone has to shift to a virtual work environment. To face this disruption and overcome the challenges, Indian wealth management industry took the route of digital platforms to deliver their services involved in entire client lifecycle management (CLM).

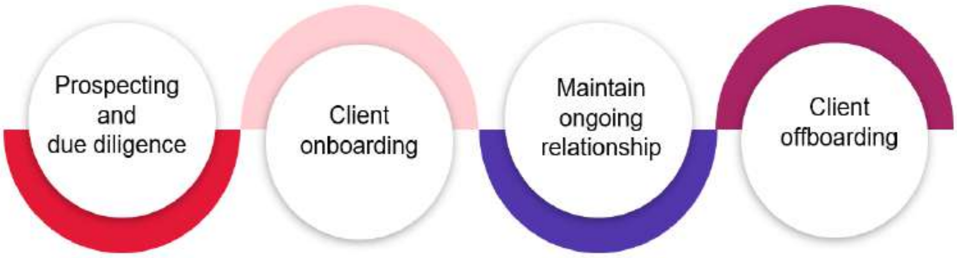
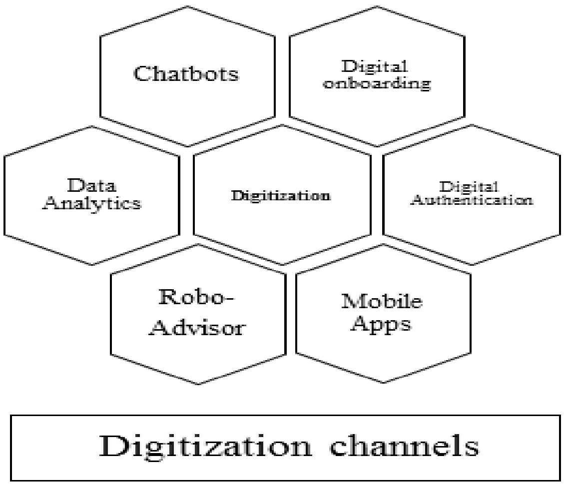


Fig: Key elements of Client Lifecycle Management (CLM)

Client onboarding has become completely digital, chatbots (via WhatsApp or inhouse) are available to quickly assist customers without waiting for customer care to answer your questions, complete investment options are available through mobile apps, so on and so forth…

The pandemic has changed the way different high net worth segments use digital tools. Less proficient with online tools than their younger counterparts, baby boomers have begun to embrace digital tools seamlessly, so are other categories of customers.



2. Personalization to the core

One size fit all may not work for all investors. With growing awareness of investors along with modern and emerging technologies available, 'Model portfolio allocation' will not be enough. Investors have their own specific requirements and financial goals, which needs specialized and personalized portfolio offerings.

To meet the extreme personalization of HNWI, technology is helping wealth managers and advisors as it is critical for customer loyalty and growth. HNWI clients expect highly personalized and best in class services at all customer touchpoints, be it personalized updates on new product offering or receiving educational market information's. Technology solutions such as data analytics tools, AI and Machine learning (ML) is empowering advisors and enabling them better and informed insights into a client's wealth universe. Technology powered tools maximizes returns during up-trending markets while minimizing losses during downturns.

Example: Tata Mutual Fund uses ML to create intelligent and personalized investment portfolios.

3. Sustainable investing

Sustainable investing, also known as socially responsible investing, is the process of incorporating environmental, social and governance (ESG) factors into investment decisions.

Sustainable investing directs investment capital to companies that seek to combat climate change, environmental destruction, while promoting corporate responsibility.

It is not new and was gaining popularity even before covid-19 specially among the millennials who prefer to invest in alignment with personal values, but the pandemic accelerated it further with rising demand in almost all investor categories, forcing wealth management firms to build capabilities to cater to the increasing demand.

To cater to this demand, many mutual funds in India has launched ESG mutual finds and has been appreciated by government of India. Below is a list of few such ESG mutual funds:

- SBI Magnum Equity ESG Fund
- Quantum India ESG Equity Fund
- Axis ESG Equity Regular Growth

4. Innovative Financial Products

Since the outbreak of COVID-19 the global asset prices have been extremely volatile and unpredictable, leading to diminishing returns for the investors.

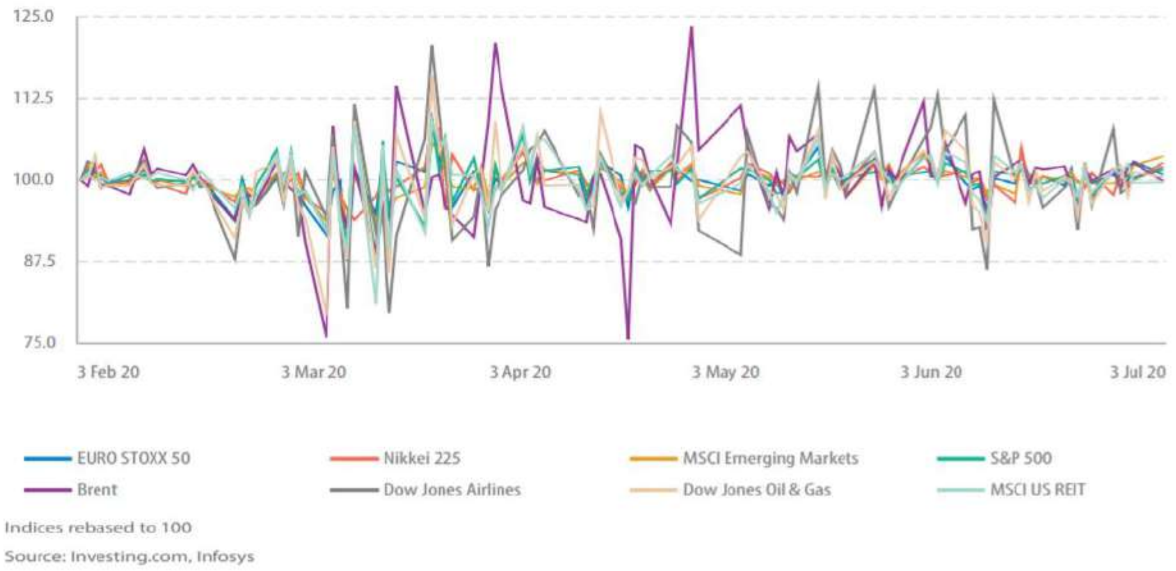


Fig. Global asset prices since outbreak of COVID-19

This has led investors to look out for alternatives to traditional wealth building mechanism such as digital art, virtual currencies like bitcoin, real estate etc. Out of this crypto bitcoin has drew the attention of wealth managers due to its increasing global acceptance by major players such as Microsoft, PayPal and BlackRock. Wealth Management firms. Wealth Management firms will have to provide their clients the option to transact and invest using crypto currencies.

Fidelity has already ventured into digital asset business by launching cryptocurrency ETFs.

NFTs (Non-Fungible Tokens) are another revolutionary trend peaking up in the investment arena which enables the tokenization of digital art, music, virtual real estate and even tweets. A large number of online marketplaces are emerging to facilitate the trading of these NFTs.

The wealth management firms are revamping their current modeling techniques and technology platforms to support these new asset classes in their offered portfolios.

5. CYBERSECURITY

With Increased digitization and remote working it has brought along the risks associated with it and cybersecurity is at top of the chart. As per a study, financial service industry is among top three industries which is impacted by cyber-attacks.

According to the survey, 92% of midsized firms and 78% of small firms say that cybersecurity is the most important factor for them. However, when it comes to wealth management firms, it is just 60%. Firms managing 28% of the HNIs have fallen prey to cyber attacks and only 60% of them have cyber security policy. (Data source: Infosys.com)

Cyber threats faced by the asset and wealth managers are around theft of client data, theft of intellectual property(IP), data loss, payment fraud, and distributed denial-of-service (DDoS) attacks.

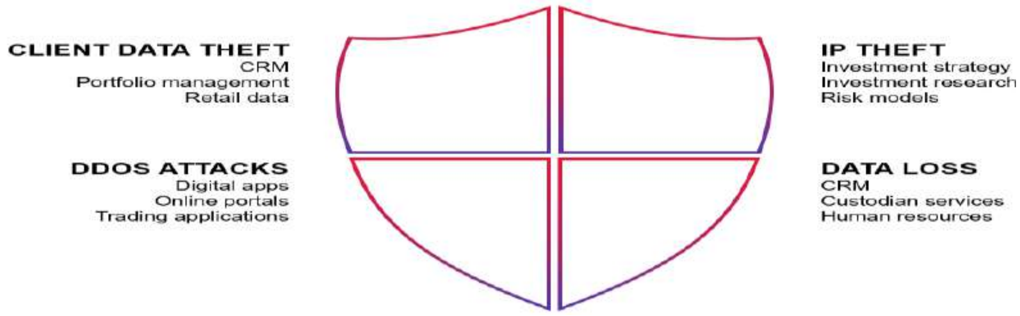


Fig: Cyber risks faced by asset and wealth managers (Source: Infosys.com)

Open APIs concepts and interfaces with third party infrastructure providers such as cloud service providers to host data and application has made firms more prone to attacks. Trading application and robo advisors are prone to IP thefts. However, on the other hand emerging technologies such as AI and machine learning are coming to rescue to build reliable defensive solutions for cybersecurity. As per research, nearly 75% of banks depend on AI to identify cybersecurity threats.

Wealth management industry is investing in building their defense against growing threat of cyber-attacks and being compliant to global cyber security regulations (example Europe's General Data Protection Regulation). Firms while doing their budget allocation now keeping cybersecurity on priority.

CONCLUSION:

The Covid 19 has brought with its massive challenges and paradigm shift the way wealth management industry use to operate. These challenges have opens door for endless possibilities and opportunities for the industry. The current trends which we are witnessing are the outcome of efforts firms are taking to address the challenges and grabbing the new opportunities lead by rapid digitization.

As rightly said by Bill Gates, "I believe that if you show people the problems and you show them the solutions they will be moved to act", this holds true for the wealth management industry as well.

Wealth management industry identified the problems and putting in place the solutions to address the problems and these trends reflects the same.

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Potential Impact of Blockchain Technology on Logistics and Transport Industry

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ABSTRACT

Blockchain technology is enlarge seen as a next-generation and innovative information technology tool for the logistics and transportation industry's long-term success. It is a cryptographic-secured electronic database system that records and distributes transactional data. The ability of logistics management determines the reliability and efficacy of inventory movement across the supply chain. In a corporation's customer support strategic approach, logistics plays a critical and crucial part. The competitor is only a click away, logistics operations have grown more difficult than ever before as a result of the rise of e-commerce. The objective of this manuscript is to assess the existing empirical evidence on blockchain technology, highlight specific economic conditions, and assess its subsequent effects on the logistics and transport industry. This paper emphasizes the critical importance of blockchain technology, which has sparked a debate in the world of technological advancement

Keywords – blockchain technology logistics and transport industry

INTRODUCTION

Blockchain is a digital database that records the chronological order of transactions between participants. Data is saved in segments that are "covalently bonded" together in a logical order. Each data packet contributed to a chain is date stamped, unique, and encrypted to prevent it from being tampered with. Because the information on a blockchain can't be hacked or fabricated, it's automatically "trusted" and recognized by everyone who has access to it. The transportation business has a long history of opposing anything but the most basic changes. Transportation firms have moved slowly if at all, to digitize operations, incorporate emerging technologies such as the cloud and the Internet of Things (IoT), or improve connection and automation in the face of security risks, logistics inefficiencies, and overall uncertainty and instability.

Inherently fragmented businesses, such as logistics, and transportation where close collaboration with several stakeholders is required, blockchain is a perfect fit. Blockchain is a decentralized ledger technology that allows businesses to perform transactions more transparently and securely, resulting in immutable transaction records, finality in tracing ownership and payment, and much better coordination and efficiency. It can implement some of the transportation industry's most vexing issues.

Many supply chain organizations are now incorporating blockchain technology into their transportation management systems (TMS), customer relationship management software (CRM), and other cloud-based platforms.

Most international and domestic organizations compete nowadays based on their digital logistics and supply chain innovation, as well as their adoption of 4th generation advanced technology. Executives must grasp the difficulties involved in logistics and supply chain management since the expenditure of distribution and transportation is a substantial component of the total cost of operations.

According to the World Economic Forum, blockchain integration can help logistics providers generate revenue by 15% by removing supply chain obstacles. Businesses may save energy/cost by utilizing blockchain technology, which uses proven decentralized applications to digitalize the entire purchasing/procurement transaction. Blockchain can improve supply chain flexibility and reliability while also minimizing documentation by alleviating inaccuracies and employee theft. Furthermore, blockchain can substantially improve supply chain management while also ensuring that transactions are secure. Blockchain is already being used by companies like Unilever, Amazon, Walmart, Nestlé, and Alibaba in their logistics and supply networks.

Blockchain technology in the logistics and transportation business is anticipated to rise from $145 million to $3.3 billion by 2023, according to a survey.

Companies using blockchain technology

Eka Software Solutions 2004	Supply chain management software built on the blockchain. Stocktaking, inventory management, invoicing visibility, threat monitoring, logistics, and stockyard management are some of its features.

Koinearth **2018**	Koinearth is a blockchain-based supply chain solution that allows governments, communities, and businesses to share assets more efficiently. Asset Module is a feature that allows you to create customized asset registries.
LYNKIT **2019**	Lynkit is the creator of an e-consignment note blockchain application. Customers, consignees, distributors, and transporters can all be onboarded to securely store and share delivery challans, e-consignment notes, and e-PODs. All collaborators can authenticate their identity by downloading papers with QR codes. It automates payments using blockchain and smart contracts technology.
TRANSO **2017**	Logistics connects shippers and carriers with a cloud-based, blockchain-based, and IoT-based platform. Its app-based platform connects shippers and truckers for on-demand freight transportation services.

LITERATURE REVIEW

Suryalakshmi, S & M., Elayaraja & Vijai, C.. (2021) The use of blockchain systems has the ability to aid in the monitoring of every item as it travels through the logistics system. Provides a record of orders, invoices, and payments, as well as digital assets like warranties and licences, in an uniform and transparent manner. The distribution industry is becoming more productive and accountable thanks to blockchain technology. The significance of blockchain in transportation, as well as its advantages and limitations, are discussed in this study.

RESEARCH METHODOLOGY

The current analysis relies heavily on secondary data. The study is an analysis of data from several websites.

Design/methodology/approach- The purpose of this article is to describe and analyse blockchain technology in order to assess its ramifications for the logistics and transportation industries.

Limitations and consequences of the research -The study establishes the framework for future research that tackles knowledge gaps and enhances the field of logistics and transportation

POSITIVE IMPACTS

Blockchain technology helps in retaining all the documents and recording the transfer of all the products throughout the shipment

The blockchain technology software can also keep track of transactions and maintain digital copies of crucial papers including purchase orders, bills of lading, and immigration documents.

Blockchain also creates a virtual connection amongst monitoring technologies and devices like sequential numbers, bar codes, and Radio Frequency Identification (RFID tags), as well as the actual object.

Application of blockchain in transport

STOCK TRACKING

With the help of blockchain technology the manufacturer or those who produce product easily track the inventory and could be used to create a system that allows different businesses to track their items down to the micro level. Several food retailing companies have teamed up with IBM to develop a blockchain-based system for tracking food goods. Walmart, Nestle, and Unilever are among the members of the partnership.

Validation of Credibility

Blockchain isn't just for corporations when it comes to logistics. It is beneficial to the final consumers.

Translucent Enhancement

Another goal of blockchain implementation in logistics is to improve production transparency. The reliability of information is a major problem in supply chains, and Provenance is working to solve it through blockchain. One of the major benefits of implementing blockchain systems for transparency is that it will boost B2B transportation awareness and visibility, as well as assist firms develop confidence. It will help cut invoice-related disputes and auditing costs while minimizing labor abuse on the ground.

Make a Community for Fair Shipping

Companies wishing to hire freight operators can utilize blockchain to create a fair economy. Transparency is essential in logistics since some commodities are transported around the globe by over two hundred distinct shipping companies, resulting in an incomprehensible number of operations. Each party will be held responsible thanks to blockchain. What this means is that containerization becomes more affordable for both small and large businesses. Because prices fluctuate based on supply and demand, businesses, particularly small businesses, will get a good deal.

Traditional vs modern technology with blockchain

Traditional	Modern technology
ethical sourcing from suppliers is in uncertainty	Ethical traceability was ensured by the supplier.
unexpected unreliable data structure and data loss due to the manufacturer's environment	Manufacturers Environmental consequences should be measured and reduced. On a unique shared ledger, all data is visible.
third party quality assurance controller infrequent	Regulators aren't needed as much. Quality control is ensured throughout the supply chain via smart contracts.
Manual transport update	real-time computerized transportation keep updating
Overstock due to inaccurate supply and demand data	Wholesalers may keep track of their inventory using real-time data.
The inevitability of product inception and authenticity is uncertain or inappropriate	The inevitability of product inception and authenticity
Minimal supply chain insight	Supply chain insight empowers informed decision making

CONCLUSION

The adoption and implementation of blockchain technology in the logistics and supply chain will result in a paradigm shift, releasing formerly untapped value.

Through the seamless flow of one single version of the information, the wider acceptance of blockchain across the spectrum would undoubtedly ease the physical flow of goods and generate more harmony within the logistics network. In short, blockchain technology has the potential to transform supply chain networks in general, as well as logistics operations in particular, by making them better, smarter, and more secure.

The logistics business, which includes freight companies, strives for complete openness in the flow of goods during delivery operations. The potential for blockchain technology to change the industry is enormous. Successful supply chain management connects internal and external activities, offering businesses a competitive advantage.

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