AIMS INSTITUTES
Peenya, Bangalore

AIMS Journal of Research

ISSN 2321 - 8487
Volume 17, Issue 1, March 2022

A PREMIER INSTITUTE FOR HIGHER EDUCATION IN INDIA

AIMS
Journal of Research

ISSN 2321 – 8487 *Volume 17, Issue 1, March 2022*

Publisher
AIMS Publications

Frequency
Bi-Annual

Cover Design
Mr. Sajjad Shah *(AIMS Institutes)*

Editor-in-Chief

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AIMS

Journal of Research

Volume 17, Issue 1
March, 2022

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ISSN 2321 – 8487

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About ACR

Aims Journal of Research is a bi-annual journal brought out by the AIMS Centre for Research (ACR) since its inception i.e. 2005. The journal is published in March and September every year. ACR is one of the vibrant focused centres of AIMS Institutes. To promote research culture and to encourage high quality research activities amongst the faculty and students' fraternity are among the major objectives of ACR. The journal is addressed to corporate, researchers, faculty in the departments of Management, Commerce, Information Technology

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Impact of Corporate Social Responsibility, in the times of COVID-19 Pandemic - A study of Selected Indian Multinational Software Companies

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Key Words:
COVID 19 Pandemic, CSR, outbreak, Accountability, Multinational Companies Philanthropy, Sustainability, Stakeholders.

Abstract :

The Coronavirus (COVID-19) pandemic, has created major disruptions in the economy and the life of the businesses, whether or not they are able to continue their operations. These disruptions are creating a wide range of impacts on companies & many of them are struggling financially. Through growing awareness about Corporate social responsibility among stakeholders, achieving social goals is as vital as delivering investor worth & profitability. CSR is an idea that aims to make a business socially responsible to itself. During their CSR practices, industries are aware of the kind of impact they have on all aspects of society including trade, industry, societal and environmental. It is a way of giving back to society for the various resources, having used to run its business. This research paper, focuses on CSR initiatives undertaken by some of the Indian multinational software companies.

1. Introduction

Covid-19 has been considered a global pandemic by the WHO. The contagious disease tremendously disrupted socio economic life of the people in the planet. Social distancing played a pivotal role in mitigating the spread of this deadly infection. The government of India & state governments announced lockdown throughout the country in march 2020, in order to promote social distancing, which basically directed the public to maintain distance both physically & socially. Extended lockdown worsened economic troubles. Heavy population & lack of awareness among the people added more problems.

Here comes the importance of Corporate Social Responsibility, which played a crucial role in the times of pandemic, when people are trying their level best to get through the challenging times.

Concept of Corporate Social Responsibility

There is no single universally accepted definition of CSR. Each definition explains the impact of business have on society and societal expectations. Though CSR roots lies in philanthropic activities like donations, charity, relief work etc. The concept of CSR has evolved and now companies covers all the related concepts such as corporate citizenship, philanthropy, shared value, corporate sustainability and business responsibility.

The world business council for sustainable development defines Corporate Social Responsibility as "the continuing commitment by business to contribute to the economic development, while improving the quality of life of the workforce and their families as well as the community and society at large.

The 2% CSR clause

According to Section135 of companies rules (CSR) 2014 & Schedule VII of companies Act 2013. Every company with the net worth of Rs.500 crore or more or turnover of Rs.1,000 crore or more or net profit of Rs.5 crore or more, during the immediate preceding year, must have a CSR committee & spend 2% of average net profit earned during three immediate preceding financial years to CSR activities.

Areas of CSR spending

In the present era of Covid-19 pandemic, the

government of India is inspiring companies to provide social support. As per circular of ministry of corporate affairs on March 2020, all expenditures incurred on activities related to Covid-19, would be added as permissible avenues for CSR expenditure. Funds may be spent for various activities related to Covid-19, under the following items of Schedule VII of the Act.

- Eradicating extreme hunger & poverty.
- Promoting education.
- Combating human immune deficiency virus, acquired immune deficiency syndrome & other diseases.
- Ensuring environmental sustainability.
- Employment enhancing vocational skills, social business projects.
- Contributing to prime minister National relief fund or any other fund set up by the central government or state government for social & economic development.
- Relief funds for the welfare of the scheduled caste, the scheduled tribes, other backward classes, minorities & women & other matters as may be prescribed.

1. Review of literature

The review of literature throws on emerging trends & similar studies in the area of Corporate social responsibility.

1. Corey & Deitch 2011, Catastrophes such as epidemics impact the labour market & the upstream & downstream of the industrial chain. Therefore the loss of employees & customers are important factors affecting the recovery of enterprise.
2. Basker & Miranda (2014), use census data from US and find that the survival conditions of enterprises are directly proportional to the material losses as a result of catastrophic shocks such as floods & earthquakes.
3. Prashant pareek (2017), in their paper entitled “a study on CSR historical background and impact on organisations & society”, concluded that as per companies act 2013, spending on CSR exercises for a specific class of associations for performing socially mindful exercises.
4. Stuart et al 2020, CSR disclosure refers to the concept, strategy and methods by which enterprises fulfil their CSR, the direct & indirect impacts and the achievements & deficiencies caused by their business activities in the economic, environmental & social fields. In other words, it involves the display & reporting of information.

Statement of the problem

Business & society are interrelated and organizations can 'not work in isolation. The business organizations are expected to operate in the best interest of the society and have a sense of obligation towards solving the problems of the society. The present scenario is the testing time to the business houses to fight against the deadly Covid-19, the global pandemic and to support the governments in order to maintain sustainable development.

Objectives of the study

1. To analyse the impact of corporate social responsibility in the times of COVID-19 pandemic.
2. To identify the areas of CSR practices adopted by the companies, during this period.
3. To analyse the funds donated to PM Care's fund, by the private & public sector undertakings & others.

Collection of data

Secondary data has been used, mainly from articles published in the journals & Newspapers, researches carried out in the past, text books, websites of the companies etc.

Scope of the study

The present study examines the contributions made for CSR activities and amount donated to PM Cares fund by four major Indian multinational software companies, in the times of COVID-19 pandemic.

Limitations of the study

1. The study period is limited to only the time of ongoing Covid-19 pandemic.
2. The study has been restricted to some selected software multinational companies. The findings of the study may not exactly reflect the other companies current position.

Corporate social responsibility activities undertaken by most respected Indian software multinational companies, in the times of Covid-19.

1. Infosys Limited.

Infosys Limited is an Indian multinational information technology company that provides business consulting, information technology & outsourcing services. Infosys is the second largest Indian IT company after Tata Consultancy Services.

Infosys foundation commits INR 100 crore towards COVID-19 pandemic, relief efforts. A contribution of 50 crore from this sum has been made to Prime Minister Cares fund. The fund is in addition to the annual spending Rs.360 crore for CSR activities. This sum will primarily be utilised across three broad areas of support that the foundation has prioritised.

The following are the areas of CSR practices adopted by the company, during the period of Covid-19.

a. To expand hospital capacity for treatment and enable hospital stays for Covid-19 patients across India, especially those who are belonging to the economically weaker section of the society.
b. To provide ventilators, testing kits & personal protective equipment (PPE) like masks & other protective gear for frontline healthcare workers.
c. To ensure better access to food and nutrition for the underprivileged section of the society.

2. Wipro Limited:

Wipro limited is an Indian MNC that provides information technology consulting & business process services. Wipro Limited, Wipro Enterprises Limited & Azim Premji Foundation, have together committed Rs.1125 crore towards tackling the unprecedented health & humanitarian crisis arising from the covid-19. Of the 1125 crore Wipro Limited commitment is Rs.100 crore, Wipro Enterprises Limited is Rs.25 crore, that of the Azim Premji Foundation is Rs.1,000 crore. These sums are in addition of Rs.181 crore for the annual CSR activities of Wipro and usual philanthropic spending's of the Azim Premji foundation.

The areas of CSR spending are;

a. Immediate humanitarian aid and augmentation of healthcare capacity, including containing the covid-19 outbreak & treating those affected by it.
b. Expert team of 1,600 persons in collaboration with many of its over 350 strong civil society partners, who have a deep presence across the country. These efforts will fully leverage the technology expertise & infrastructure development.

3. Tata Consultancy Services:

Tata Consultancy Services most often referred as TCS in India & around the globe, is our nation's largest software & IT service company. It has been a consistent top ranker not only in the subcontinent but globally, with it's location, independent software that is proving to be all the more relevant in COVID-19 pandemic times. In FY 2019-20, alone TCS spent a whopping of Rs.600 crore on CSR.

The technology giant ranked overall best managed technology company in finance, according to Asia's best companies survey. It also walked away with top honours for best environmental stewardship & most committed to social causes. The second spot in Asia for corporate Governance and the third for best managed company in India.

Areas of CSR practices:

a. Community development programmes include health & wellness.
b. Bio-diversity & skill development apart from STEM education.
c. Other activities including disaster management. The company contributed to PM cares fund, it qualifies as CSR expenditure under item No.VIII of schedule VII of the companies Act 2013.

4. HCL technologies:

It is an Indian multinational information technology (IT) services & consulting company headquartered in Noida, Utter Pradesh. It emerged as an independent company in 1991, when HCL entered into software business. The company has office in 32 countries. It was formerly called as Hindustan computers Ltd., In the FY 2019-20, the company spent 175 cr. for CSR activities, as per section 135 of the companies Act 2013.

CSR practices of HCL:

a. To create a better planet with all people achieving peace & prosperity is at the heart & culture of HCL during this COVID-19 pandemic period.
b. Its special initiatives are HCL foundation tie up with government hospitals and supplied needful materials & given financial supports.
c. The power of one programme allowed employees across the countries to operate & live in contribute to local societies, extending their value & goodwill with a meaningful impact. The soul of HCL's Corporate social responsibility is still defined by its passionate 'Power of one', which constitutes the HCL employee volunteers & contributors who offer their personal time & commitment towards social upliftment.

Some of the key facts & figures of the selected companies, as on March 2020.

Key Facts	Infosys	Wipro	TCS	HCL
Type of company	Public	Public	Public	Public
Founded in	07-07-1981	29-12-1945	1-4 -1968	11-8-1976
Founders	N.R.Narayana Murthy & other six partners.	Md.Premji	Jem setji Tata	Shiva Nadar
Products & Services	IT Services & IT consultancy	IT services, Consulting, Others.	IT Services, IT consultancy.	IT Services, and IT consultancy.
Key people	Nandan Nelakeni (Chair man), Salil parekh (MD & CEO)	Rishad Premji (ChairMan), Thierry Delaporte (CEO).	Natarajan Chandrasekaran (ChairMan), Rajesh Gopinath (MD & CEO)	Roshini Nadar Malhotra (Chair Man).
Head quarters	Bengaluru, Karnataka.	Bengaluru, Karnataka.	Mumbai, Maharashtra.	Noida, Utter Pradesh.
Profit after tax	Rs.16,639 cr	Rs.9,722 cr	Rs.32,340 cr.	Rs.11,057 cr.
CSR Spendings	Rs.360 cr.	Rs.181 cr.	Rs.600 cr.	Rs.175 cr.
No. of Employees	2,42,371.	1,75,000	4,69,261.	1,59,000.

As on May 19th 2020, generous donations from private sector & public sector undertakings, various trusts & individuals helped the PM Cares fund Rs.10,606 crore. The government is yet to publish the data on corpus could be much larger than this. Rupees 1,500 crore donated by Tata trusts & Rs.1,125 crore from Azim Premzi foundation stands out among all these donations.

Details of Contribution to PM's Cares Fund

Contributions to PM Cares	Amount in Rs. Crore.	%
Private companies	5,565	52.47
Private companies employees	25	0.24
Public companies	3,249	30.63
Public companies employees	1,192	11.24
Political contributions/MP funds	412	3.88
Individuals	107	1.00
Other contributions	40	0.38
Foreign entities	16	0.15
Total	10,606	100.00

Analysis & Interpretation of data:

The CSR spending's of the above mentioned major software companies in India, reveals that Tata Groups donated to PM Cares Rs.1,500 crore & Wipro Ltd., Rs.1125 crore, in addition to the annual spending's on CSR activities.

Fobes magazine said, Richest person not only in India but also in Asia is Mukesh Ambani (net worth $84.5 Billion), spent on CSR activities Rs.1022 cr. & undertaken some of the healthcare activities during Covid-19 period, and also donated Rs.500 crore to the PM Cares fund. Second richest person in India is Gautam Adani, the chairman of Adani group, having net worth of $50.5 Billion. The company has donated Rs.100 cr. to PM cares & spent Rs.15 cr. for other healthcare activities. The company headquartered at Ahmedabad, Gujarat. The third richest person is Shiva Nadar, the chairman of HCC technologies, headquartered at Noida, Utter Pradesh. The company has spent Rs.175 cr. for CSR activities, for the year 2019-20. In spite of all these contributions made by top richest persons in India, Tata Groups stands first by generously donating Rs.1,500 crore & Wipro ltd., stands second for its contribution to the PM cares of Rs.1,125 cr. and additional RS.181 for annual CSR activities of Wipro, and the usual philanthropic activities of the Azim Premzi foundation.

The ongoing Covid-19 crisis calls for entire nation to fight as one collective force. Hundreds of companies contributed to the PM Cares fund in this hour of India's battle against Covid-19. Numerous companies extended support to the state governments& central governments and fellow citizens, in these testing times. Overall CSR funds collected in India in FY 2019-20, is Rs.17,500 crore. Governments can make use of this fund productively for social & economic development of under privileged people in the society.

Data on PM Cares (Prime Minister citizens assistance & relief in emergency situations),

compiled by Times of India, publicly available sources show that, while contributions from the private sector & it's employees account for 53% , the public sector undertakings & it's employees for 42% and the rest 5% are from politicians, celebrities, common citizens of India & foreign entities. This data shows that the significant role of private sector & public sector companies contributions for the overall development of the country.

Findings & suggestions of the study:

Findings:

- All these companies have always supported the needs of the country in different situations & they will continue to work with governments, Non-profit & healthcare institutions in their fight against this global Pandemic.
- All the efforts of these companies will be targeted towards ensuring that the relief material reaches the people, who need it the most. People who cannot afford treatment, healthcare personnel, or daily wage workers, whose livelihood has been severely impacted.
- Modern global society has not confronted a crisis of this magnitude & type. The above said reputed companies in India, believe that they must all work together to deal with the crisis & minimise its human impact. Particularly on the disadvantaged section of the society but also learn from these extraordinary times, to develop a more resilient global community based on justice, equity, humanity & ecological sustainability. They are completely committed to the quest & wish everyone all safety.

Suggestions:

- The people in India live through an unexpected time with the fast spread of the COVID-19 pandemic that is full of fear and uncertainties. At this crucial time, all the private sector & public sector undertakings, celebrities, employees, politicians and others must contribute with or without CSR regulations.
- While the global impact of the COVID-19 pandemic is evolving day by day. Corporate social responsibility has made huge impact and all of the organizations, companies & NGO's must come together to save the people and make the earth more beautiful to live in.
- At this testing time, firm should not only contribute financial support, but also look into sustainable development of all the stakeholders such as employees, customers, shareholders and society as a whole.
- There is an ample number of opportunities to take research works on firms contributions to the COVID-19 and CSR as a strong tool to deal with the critical disaster & fight against global pandemic.

Conclusion:

Business organisations in India, are realising the needs of the society & engaging various social & environmental activities. The need of the society & engaging various social & environmental activities. The need of the hour is to formulate the effective CSR policy to fulfil the goals of the business - sustained environmental, social & economic growth. From the above findings, it can be concluded that most of the companies played pivotal role to establish the relationship between organisations & society to fight against deadly global pandemic of Covid-19. Companies are striving to the benefits of the society
in every manner.

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Soilless Cultivation – A Renaissance in Agriculture

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Key Words:
Soilless cultivation, Aquaponics, Hydroponics, Aeroponics, Recent trends in agriculture.

Abstract :

Agriculture is the process or science of growing crops and raising livestock for the welfare of human consumption. Agricultural processes mainly depend on soil. But due to the increasing population most of the agricultural lands are converted in to the constructions. This urges us to find out new technologies in agriculture where soil is not an essential component- soilless cultivation. The invention of Hydroponics and Aeroponics become a boon in this front There are a lot of researchers studied the fros and cons of these techniques. Studies proved that these recent trends in agriculture are effective, easy, economical as well increases yield qualitatively and quantitatively. In this article I have summarized various studies related to Aguaponics, Hydroponics and Aeroponics.

1. Introduction

India is the agricultural land where most of the people involved agriculture for their income. It is the source of our nutrients . but the increasing population become a threat for agricultural land which has been converted into residential and industrial places. This leads to the new inventions in agricultural / farming methods . The soil less cultivation is the renaissance in the field of agriculture . Hydroponics and Aeroponics becomes the new hope for new generation farmers.

Hydroponics is the process of growing plants in aqueous solution with mineral nutrients. The roots are supported with inert medium such as perlite, gravel or cocopeat etc. Fish excrement, Duck manure, Chemical fertilizers, or artificial nutrient solutions are used as nutrient solutions. Tomatoes, Peppers, Cucumbers, Strawberries, Cannabis, and Arabidopsis thaliana are the commonly grown plants by hydroponics. Decreased usage of water is the most important advantage of hydroponics

Aeroponics is the process of growing plants in an air or mist environment without the use of soil or an aggregate medium . Aeroponic differs cultivation from hydroponics, aquaponics, and in-vitro plant tissue culture. Aeroponics is considered as a type of hydroponics, since water is used in aeroponics to transmit nutrients.

Aquaponics is the process of growing fish and plants utilizing the waste from one to feed other.Soil based agriculture is now facing various challenges such as urbanization, natural disaster, climate change, indiscriminate use of chemicals and pesticides which is depleting the land fertility and Currently soil less cultivation is gaining popularity all over the world because of efficient resources management and quality food production.

In vitro propagation of potato (*Solanum tuberosum l.*G. Hussey and N. J. Stacey were propagated Potato shoots in vitro by placing nodes from sprouted tubers on Murashige and Skoog type medium without hormones. The vigour of growth and the rate of node production increased with both length and temperature over the ranges 8-24 h and 15-25 °C respectively and obtained propagation rates of up to × 10 per month. In vitro plantlets spontaneously formed roots either in agar or liquid cultures. They left the plantlets in the culture jars for 3-4 months eventually senesced and formed small tubers in 16 and 24 h day-lengths. They found that in a day- length of 8 h vegetative growth continued by branching and no tubers were formed.

Measurement of short-term nutrient uptake rates in cranberry by Aeroponics.

P. Barak,et al examined whether nutrient uptake rates could be calculated for aeroponic systems by using

different concentrations and volumes of input and efflux solutions. The study was done in cranberry plants (*Vaccinium macrocarpon* Ait. cv. Stevens) with nutrient solutions containing various concentrations of ammonium-N and isotopically labeled nitrate-N. Validation of uptake rates was sought by evaluating charge balance of the solutions and total ion uptake (including proton efflux) and comparison with N-isotope measurements. The results show that charge balance requirements were acceptably satisfied for individual solution analyses and for total ion uptake when proton efflux was included. Relative rates of nitrate/ammonium uptake determined by isotopic techniques. Additional information like evidence of diurnal variation in nutrient uptake, correlation between ammonium uptake and proton efflux, and the relationship between ion concentration and uptake were obtained from this experimental technique. They concluded that use of aeroponic systems for non-destructive measurement of water and ion uptake rates for numerous other species and nutrients appears promising.

Physiological and molecular responses of aeroponically grown tomato plants to phosphorus deficiency.

Bid dinger, E.J. et al studied the physiological changes of aeroponically grown tomato plants in phosphate starvation condition. The roots were sprayed with nutrient solution having different phosphate concentration. This study revealed that decreased Phosphate concentration in the nutrient solution resulted in reduced biomass production and concentration of nutrients in roots and shoot tissues.They also found out phosphate deficient plants had a higher concentration of Calcium in roots and Magnesium in shoots and even after 3 weeks of phosphate starvation, expression of the Pi starvation-induced gene, TPS11, persisted. Accumulation of transcripts was also observed in stem and petioles which suggest a global role for TPS11 during Pi starvation response of tomatoes.

Aeroponics – a production system and research tool.

Aeroponics is the technique involves spraying plant roots with a fine mist of a complete nutrient solution. C.B. Christie and M.A. Nichols of Massey University have used aeroponics for both plant research and for crop production, and have developed systems for growing vegetable crops eg. Tomatoes, cucumbers, potatoes and herbs, and flower crops *Lisianthus* and *Zantedeschia*. They proved Aeroponic techniques have also been used as a research tool to examine gas levels in the root zone, crop nutrition and root growth.

Dong Chil Chang, et al conducted research in retard potato (*Solanum tuberosum L*. cvs Superior, Atlantic, and Jasim) shoot growth by nutrient interruption and thereby induce tuber formation in an aeroponic cultivation system. After 25 days of growth a 10-day nutrient interruption was carried out on the potato plants. At the end of the this study they found increased root activity and stolon anthocyanin but decreased photosynthesis ,transpiration rates, nutrient uptake in leaves, shoot growth and tuber growth when compared with the control plants. They also recognized the increased tuber numbers in cv Superior and did not different with the control plants in cvs Atlantic and Jasim by nutrient interruptions. These results also suggest that for minimizing the tuber production, nutrient interruptions should be conducted after sufficient haulm development. From their study they concluded this technique may be used to induce significant tuberization, particularly in late-season cultivars such as Jasim under hydroponic conditions.

Abdul lateef , et al considered that cultivating in vitro seed potatoes in aeroponics will produce more high quality Minitubers and also will increase the yield . They aimed to investigate the effect of plant density on minituber production by aeroponics. An eighteen sections of Styrodur sheets was used for cultivation and Nutrient solution was sprayed by fog nozzles every 5 min for 20 s. They studied the Morphological parameters such as leaf number and stem length and minitubers larger than 20 mm were removed weekly in a total of eight harvests and Number of mini tubers and total yield were recorded at every harvest. The results were documented as highest number of mini tubers per plant was obtained in case of 25 plants per m^2 with 40.82 in total, regarding tubers larger than 20 mm with 32.2. The yield per m^2 was not affected by the plant density.

Soilless cultivation in food production

Kiran lakkireddy et al studied about the Role of Hydroponics and Aeroponics in Commercial Food Production and stated that these technologies play a very crucial role in 21st century in commercial food production. Plant roots are suspended above a reservoir of nutrient solution or inside a channel connected to a reservoir. The use of sprayers, nebulizers, foggers to create a fine mist of solution of

deliver nutrients to plants roots become the main principle and the plants were grown in optimum temperature, pH, required aeration and nutrients. The oxygen in the nutrient medium enhances the roots to absorb the nutrients easily and quickly which induces rapid growth, inhibits algal growth and therefore resulting in high yields.

Growth and tuberization of hydroponically grown potatoes

Chang, D.C.et al published a comparative study report in the journal of **Potato Research.** In their study three hydroponic systems like aeroponics, aero hydroponics, and deep-water culturing were compared for the production of potato (*Solanum tuberosum*) seed tubers. Aero hydroponics was designed in such a way that it improve the root contact with nutrient solution in the lower part of the beds. They observed first tuberization in aeroponics on 26–30 in Superior cultivars and 43–53 days in Atlantic cultivars after transplanting. Tuberization in aero hydroponics and deep-water culture system occurred about 3–4 and 6–8 days later, respectively. They noticed that more number of tubers produced in the deep-water culture system,but the total tuber weight per plant was the least in this system. From their study it was concluded that deep-water culture system could be used to produce many small tubers (1–5 g) for plant propagation and the production of large tubers of above 5 g weight may favor use of either aeroponics or aero hydroponics.

Asian leafy vegetables and herbs cultivated in substrate culture and aeroponics in green house.

M. Bohme, et al investigated the intensive cultivation systems and their effects on Asian leafy vegetables and herbs having culinary, nutritional and medicinal importance. Clones of water spinach (*Ipomoea aquatic*) and Asian herbs of *Lamiaceae* family were cultivated in hydroponics and Thai Basil (*Ocimum basilicum*), Holy Basil (*Ocimum sanctum*), Perilla or Beefsteak Plant (*Perilla frutescens*) and Vietnamese Balm (*Elsholtzia ciliate*) in aeroponics. The main objective of this experiment was to evaluate the cultivation systems for these special vegetable and herbs in response to harvestable biomass production and nutritional value. The main evaluations were done in leaf area and number of shoots as well as the biomass production .The nutritional value was determined by measuring the nitrate, vitamin C, carotene and essential oil content in these herbs. They used 2 plant densities like10 x 10cm and 20 x 21 cm and the quality of all plants was better in case of 20 x 20 cm plant density in cultivation than at 10 x 10 cm .The highest yield was obtained for the highest density with 100 plants per m^2. They proved that the length of the stems and the leafy area were highly influenced by plant's density . By this study they found that the vitamin C content was highest in all herbs cultivated in aeroponics whereas the essential content oil was highest in Holy Basil and Perilla and carotene content in water spinach cultivated was the highest in substrate-culture.

Assessment of total phenolic and flavonoid content, antioxidant properties, and yield of aeroponically and conventionally grown leafy vegetables and fruit crops.

Suman Chandra, **et al** undertaken a comparative study of total Phenolic and Flavonoid Content, Antioxidant Properties, and Yield of Aeroponically and Conventionally Grown Leafy Vegetables such as basil, chard, parsley, and red kale) and fruit crops like bell pepper, cherry tomatoes, cucumber, and squash. These vegetables and fruits were grown in aeroponic growing systems (AG) and in the field (FG). An average increase of about 19%, 8%, 65%, 21%, 53%, 35%, 7%, and 50% in the yield was recorded for basil, chard, red kale, parsley, bell pepper,cherry tomatoes, cucumber, and squash, respectively, when grown in aeroponic systems, compared to that grown in the soil. They evaluated the Antioxidant properties of AG and FG crops by using 2,2-diphenyl-1-picrylhydrazyl (DDPH) and cellular antioxidant (CAA) assays. In general, the study showed that the plants grown in the aeroponic system had a higher yield and comparable phenolic, flavonoids, and antioxidant properties as compared to those grown in the soil.

Marwa M. Ali et al compared hydroponic and aeroponic systems for lettuce production. The main objective for their research is to study the effect of aeration on preventing the root problems by comparing the hydroponic system with aeration to the aeroponic system. Their study proved that the root length, fresh and dry mass of root and shoot, the nutrient uptake values, (nitrogen, phosphorus, potassium, calcium and magnesium) of aeroponics were increased over the hydroponics. They also found out that the average nitrate -protein ratio was 1.91 and 4.16%, for aeroponic and hydroponic system, and the average water use efficiency was 4.75 and 2.93 kg m^{-3} for hydroponic and aeroponic system, respectively.

During 2013 and 2014, **A K Srivastava**,et al of Central Potato Research Station, Shillong evaluated the performance of three potato (Solanum tuberosum L.) varieties, viz. Kufri Megha, Kufri Himalini and Kufri Himsona in an aeroponics system installed under net cum polyhouse. in this study ,all 3 varieties exhibited more than 90% survival with root initiation within 4-5 days of transplanting. They found out Kufri Megha started tuber initiation within a month in both the years where as tuber initiation was late in Kufri Himalini and Kufri Himsona exhibited delayed tuber initiation at 69 to 75 days after transplanting in both the years.. There was a significant reduction in per plant yield in both Kufri Himalini (162 g to 102 g) and Kufri Himsona (138 g to 39.25 g) accompanied by reduction in number of tubers/plant (38 to 27 tubers in Kufri Himalini and 29 to 11 tubers in Kufri Himsona).

Comparison of unconventional farming with conventional farming.

Ali Alshrouf compared Hydroponics, Aeroponic and Aquaponic with Conventional Farming. The high demand on water and soil for conventional farming and food supply forced agriculturalists to invent new trends and innovative ways of agricultural techniques. This urge resulted in the art of hydroponics and aeroponics. In his study he has explained the way of cultivation in these technologies. He has proven that commercial-scale hydroponic, aeroponics and aquaponics production has the potential positive role in the sustainable food security. These trendy farming systems could be one sustainable alternative method as it needs less water, less fertilizer and less space which will increase the yield per unit area. The main advantage is the conservation of water and less or no use of chemical fertilizers which are hazardous to the mankind.

Comparison of hydrophonics with aeroponic

Nabeel Mohammed studied the advantages and disadvantages of hydroponics and aeroponics by growing lettuce. He used different Growing Mediums like Rockwool, Peat foam & BVB Sublime Plug and different Cultivars: Butterhaead, Red & Green Leaf & Oak Leaf. He noticed Tip burn with the symptoms of browning of the edges and tips of the leaves in both systems &cultivars under supplemental winter lighting. in his subsequent cultivation he prevented this by Increasing ventilation and air movement around the plants, Altering the nitrogen and potassium balance to increase calcium uptake, Calcium levels in the nutrient solution must be high enough during the growing season , Use low temperature and low light with the formation of lettuce head. He also stated that the initial cost of building an Aeroponics system is higher than the initial cost required building a Hydroponics system. In his study he found out the difference in yield also. In Aeroponics – Butter head Lettuce produces 360 heads/cycle 12 cycles per year this will produce 4320 heads per year and in Hydroponics for the same conditions will provide you with 1980 heads per year. He tabulated his results as follows.

Table 1 : Comparison of various factors between Aeroponics and Hydroponics

SL NO	CHARARACTERS CONSIDERED	AEROPONIC	HYDROPONIC
1	Nutrient Solution	Nutrients in mist of water droplets	Nutrients in H20 solution
2	Water Use Efficiency	Low recirculating mist of droplets	High recirculating flow of water
3	Yield	360 lettuce heads in 9 Square Meter	180 lettuce heads in 9 square Meter
4	Risk Factor	High	Medium

He also stated the future considerations regarding Development & Adaptation like Commercial Greenhouses, Rooftop & Vertical Farming and also development of automated Harvesting System.

Figure 4: Tip burn in lettuce

Figure 1: Bulbs and roots of the compared closed soilless culture systems

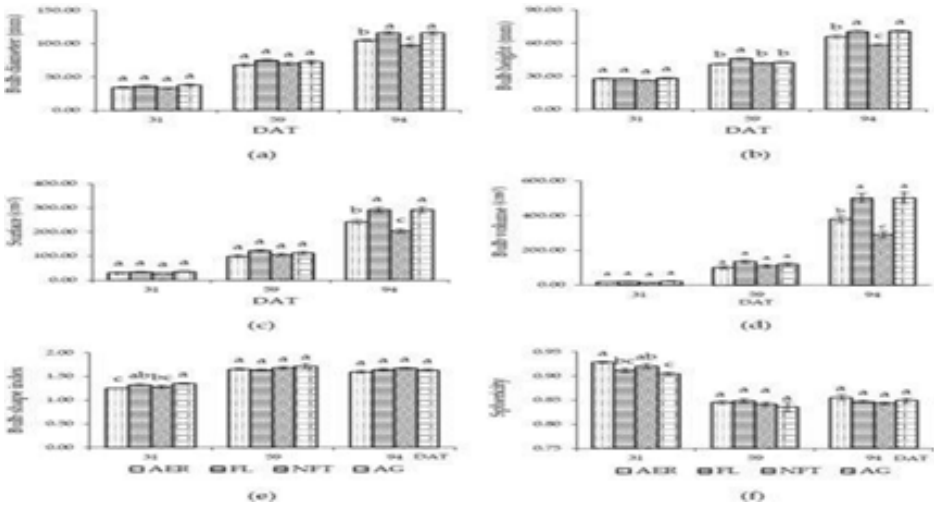

Figure 2 Impact of the CSCS on bulb characteristics: (a) the diameter (mm); (b) the bulb height (mm); (c) the surface of the bulb (cm2); (d) the volume of the bulb (cm3); (e) the bulb shape index and (f) the sphericity of the bulb during the 3 samplings (I, II, III), i.e., 31, 59, and 94 DAT. Vertical bars indicate ± standard errors of means of ten (10) measurements per replicate. Similar letters indicate non-significant differences at $p \leq 0.05$.

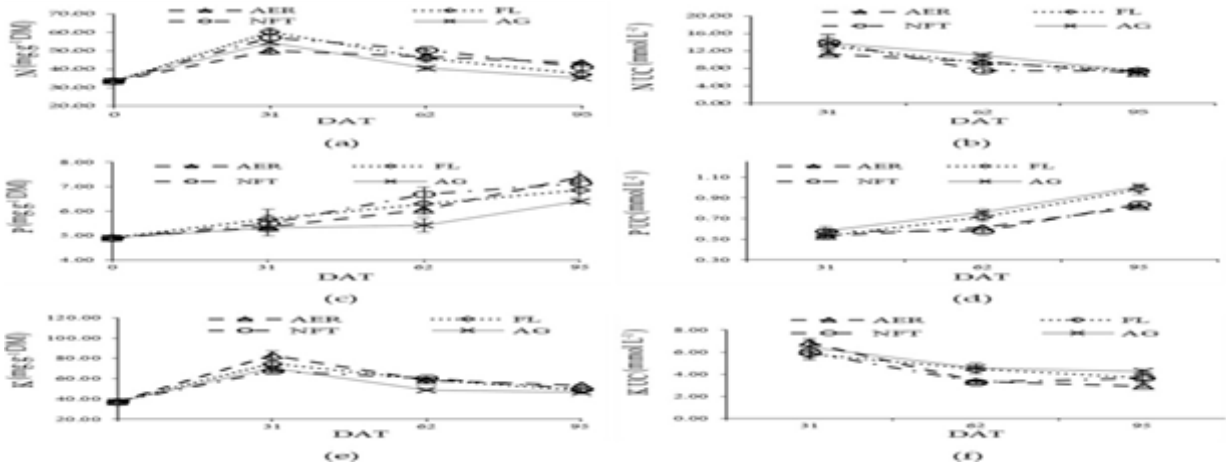

Figure 3: Impact of the different CSCS on the concentrations in the plant dry mass (DM) and on the corresponding apparent uptake concentrations (UC), i.e., mmol of the element uptake per L of water uptake of N, P, and K. Vertical bars indicate ± standard errors of means of twelve (12) samples per replicate.(CSCS –Closed Soilless Cultivation System)

Pasch, j. et al studied about cultivating Basil (*Ocimum basilicum*) with the African Catfish (*Clarias gariepinus*) effluents in Decoupled Aquaponics. They cultivated Basil in three different subsystems like a dynamic root floating (DRF) system, modified commercial aeroponics, and a floating raft system. They used aquaculture processed water of African catfish (*Clarias gariepinus*) as plant nutrition without any fertilizer. They compared 16 plant growth parameters with aeroponics and found out aeroponics is significantly better in 11 parameters when compared with the DRF, and better compared with the raft in 13 parameters. The economically important leaf (wet and dry) weight was over 40% higher in aeroponics but similar in the other two methods (DRF and raft system). The roots in the DRF grew shorter and thicker; however, this resulted in a higher root dry weight in aeroponics compared with the DRF and raft. With their results ,they concluded that aquaponic and aeroponics could become a productive and sustainable large-scale food

production system in the future with optimal fertilizer and system improvement. The raft method is ideal for domestic or semi-commercial use and can be used in areas where water is neither scarce nor expensive due to its simple construction.

Conclusion

Agriculture is the fundamental food source . Scarcity of water, encroachment of agricultural land, soil infertility due to overuse of chemical fertilizers and pesticides became a threat to the food resource and we are pushed to find an alternative way for conventional farming. The development of Hydroponics, Aquaponics and Aeroponics are the boons in this area. These techniques proven good in yield both quantitatively and qualitatively and easy to adopt even in gated communities. Just like terrace gardening, these techniques should popularize among common people. As they are costly and require proper technological knowledge , further studies / researches to be undertaken to reduce these demerits in this area .Govt should encourage the agriculturalists / researchers to develop low cost methods in these techniques and also should create awareness among formers to inculcate these methods in the available land . subsidy should be provided to those who are adopting these techniques for their initial infrastructure required for these techniques . If encouraged and adopted, these unconventional farming methods become conventional in the future.

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A Study on the Impact of Financial Literacy on Risk Tolerance Level of Individual Investors of Kerala, India

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Key Words:
Financial Literacy, Risk Tolerance Level, Individual Investors

Abstract

Financial literacy is the combination of awareness, acquaintance, skill, attitude, and behaviour necessary to make sound financial decisions. This as a tool help investor to enhance the risk tolerance levels of individual investors. However, not everyone can afford to take a massive risk in their investments; risk tolerance levels differ from person to person. Risk tolerance refers to how much risk an investor is willing to take while making an investment decision. Investors that are financially literate can raise their risk tolerance. This paper aims at understanding the impact of financial literacy on risk tolerance levels of individual investors of Kerala.

1.Introduction

Every investment entails some level of risk. The uncertainty or potential financial loss connected with an investment choice is referred to as risk in finance. The general rule of investment is that the larger the risk, the higher the return, and the smaller the risk, the lower the return. However, not everyone can afford to take a massive risk in their investments; risk tolerance levels differ from person to person. Risk tolerance refers to how much risk an investor is willing to take while making an investment decision. Investors that are financially literate can raise their risk tolerance. Financial literacy is a tool that can be used to enhance one's risk tolerance level. Financial literacy plays a vital role in individual investment decisions. This is because financial knowledge is very crucial in today's period for investment due to the complicated nature of financial goods and the abundance of investment options. The OECD (March 2015) defined financial literacy as – "A combination of awareness, acquaintance, skill, attitude, and behaviour necessary to make sound financial decisions and ultimately achieve individual financial well-being." The increasing variety and complexity of financial goods makes making a conscious decision extremely difficult for the typical person. Financial literacy gives the typical individual the knowledge and skills they need to manage financial products and services, allowing them to have more control over their current and future financial situations. Financial literacy protects society and individuals from unscrupulous financial schemes and moneylenders' high interest rates. This paper attempts to comprehend the impact of financial literacy on individual investors' risk tolerance levels.

2. Review of Literature

A study **(Joseph & Joseph, 2020)** was conducted to ascertain mutual fund investors' risk tolerance and level of satisfaction. Investors with a moderate risk tolerance prefer mutual funds, and the most satisfying factors for investors to consider are return, marketability, and liquidity. The study found that the majority of mutual fund investors have a moderate risk tolerance and that there is a relationship between the demographic variable age and risk tolerance level. Additionally, the results indicated that there is a significant difference between mutual fund investors' risk tolerance levels and their level of satisfaction, with respondents in the high-risk category significantly differing from those in the moderate-risk category. The findings indicate that when it comes to satisfaction, respondents in the high-risk category differ significantly from those in the moderate-risk category.

A research study **(Gustafsson, 2015)** attempted to determine whether individuals differ in their financial risk tolerance as a result of their financial literacy level. The study's findings indicate that financial literacy has an increasing effect on financial risk tolerance regardless of academic background.

According to a research **(Mishra & Mishra,2014)**, older individuals are less risk-tolerant than younger individuals, men are more risk-tolerant than women, single individuals are more risk-tolerant than married individuals, being more reliant on numbers reduces risk tolerance, those employed professionally are more risk-tolerant than non-professionals, self-employed individuals are more risk-tolerant than salaried individuals, and individuals with a higher income have higher risk tolerance. Increased personal finance knowledge correlates with an increase in risk tolerance, and a higher level of economic expectation correlates with an increase in risk tolerance.

The State Audit Office of Hungary and its non-governmental partners conducted a survey in 2012–2013 **(Huzdik, Beres, & Nemeth,2014**) to assess financial literacy, financial knowledge, and risk appetite among higher education students, as well as the factors that influence them. Their findings indicate that starting a business is only a minor component of students' plans and goals, and approximately three-quarters of students are risk-averters. At the same time, it's surprising that their risk tolerance is unrelated to their level of financial and economic knowledge or to their perception of their own financial knowledge and competence. Excessive risk aversion may prevent financial opportunities from being leveraged and may act as a hindrance to the development of the national economy if it becomes widespread. This necessitates the development of young people with realistic self-perceptions, risk-taking attitudes, and entrepreneurial abilities.

Gender emerges as a significant factor in determining investors' objective knowledge, subjective knowledge, and risk-taking capacities **(Wang,2009)**. Additionally, it is the subjective knowledge of investors that mediates their objective knowledge regarding risk-taking behaviour. Male investors frequently take more risks due to the mediation effect of subjective knowledge, as they have greater subjective and objective knowledge than female investors.

Problem Statement

Each individual's risk tolerance levels naturally differ. The understand the impact of financial literacy on risk tolerance levels is the problem of the study.

Objectives

The following are the main objectives of the study:

To comprehend the risk categories of individual investors.

To analyse the impact of financial literacy on risk tolerance level of individual investors.

3. Research Methodology

The researchers employed both primary and secondary data for this study. The secondary data were gathered from a variety of sources such as articles, journals, newsprint, and books, while primary data was collected from 407 individual investors of Kerala State. Data were collected through the distribution of a standardized, closed-ended questionnaire. Descriptive statistics such as frequency distribution, mean, and visual representation, as well as Cramer's V statistic indicating the association of two attributes, were utilized for data analysis.

4. Data Analysis

The questionnaire consisted of 5 questions on Risk Tolerance. There are five options for each of these questions. A respondent's minimum score for the risk tolerance is 5 and the maximum is 25. Based on the score of the investor, he can be categorized as A risk avoider or Cautious or Somewhere in between or willing to take risk after completing adequate research or a real gambler. To decide upon which type of risk category the respondent is, the score ranging from 5 to 25 is split into 5 classes.

Table 1.1: Risk tolerance Score

Risk tolerance Score	Risk Category
5 to 8	A Risk Avoider
9 to 12	Cautious
13 to 16	Somewhere in between
17 to 20	Willing to take risk after completing adequate research
21 to 25	A real Gambler

Source: Field Survey

Table 1.2: The descriptive statistics of the variable Risk Tolerance Score

Statistic	Value
Minimum	5.0000
Maximum	24.0000
Mean	15.0538
Std Deviation	3.8587

Source: Field Survey

It is to be observed that the mean score falls in the risk category 'somewhere in between'.

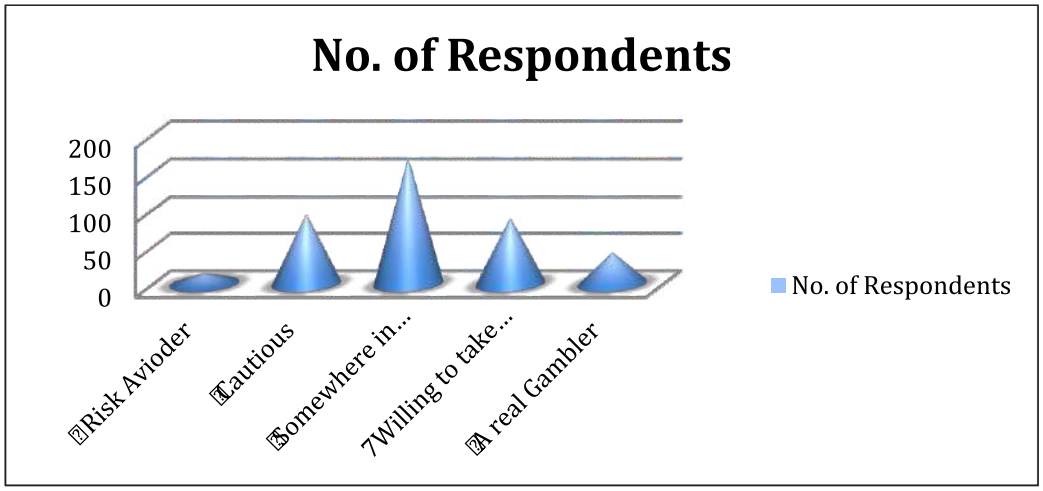
Frequency Distribution of Risk Category of Respondents

Table 1.3: Frequency Distribution of Risk Category of Respondents

Risk Category	No. of Respondents	Percentage
A Risk Avoider	14	3.4
Cautious	93	22.9
Somewhere in between	170	41.8
Willing to take risk after completing adequate research	88	21.6
A real Gambler	42	10.3

Source: Field Survey

Inference:
According to the table, there were 14 respondents who avoid risk, 93 respondents who were cautious, and 170 respondents who fall somewhere in between. These were the investors who were willing to accept a certain level of risk. The total number of respondents willing to risk was 88, while the total number of true gamblers was 42.



Financial Literacy Level and Risk Category

Hypothesis Testing

H0	The financial literacy level does not influence the risk category of investors	Reject
H1	The financial literacy level influences the risk category of investors	Accept

Table 1.4 Financial Literacy Level and Risk Category

Financial Literacy Level	Risk Category					Total
	A Risk Avoider	Cautious	Somewhere in between	Willing to take risk after completing adequate research	A Real Gambler	
Low	1	2	15	4	2	24
	4.2%	8.3%	62.5%	16.7%	8.3%	100.0%
Medium	11	73	126	57	33	300
	3.7%	24.3%	42.0%	19.0%	11.0%	100.0%
High	2	18	29	27	7	83
	2.4%	21.7%	34.9%	32.5%	8.5%	100.0%
Total	14	93	170	88	42	407
	3.4%	23.0%	41.8%	21.5%	10.3%	100.0%

Source: Field study

Organizational Culture and Knowledge Sharing – A Empirical Study of Selected Medical Hospitals in Chandigarh, India

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Key Words:
Organizational Culture, Knowledge, Hospital

Abstract

The objective of this research paper is to explore the association between organizational culture and knowledge sharing among medical institutions in Chandigarh. In present time organizational culture and knowledge sharing practices is largely indispensable resource for medical institutions. Organizational Culture and Sharing of Knowledge in medical field is essential for the future development. The goal of the study is seeing how and to what degree of extent organizational culture impacts knowledge management. A well designed questionnaire is used to collect the responses from doctors working in medical hospitals. The data was collected from two medical hospitals, which is located in Chandigarh. For the analysis and interpretation of data SPSS software is used. In find, it shows that organizational culture and knowledge sharing practices have a positive and significant relationship. In sample size, two out of four organizational culture dimensions had a favorable impact on knowledge sharing.

1.Introduction

Organizational culture and knowledge management play a vital role in the development of the organization. Organizational culture is the social and "normative glue" that interlinked an organization with corporate social responsibility and knowledge sharing practice (Kucharska & Kowalczyk, 2018). Organization culture is a type of shared beliefs, conventions, opinions, and attitudes binds a group of people together to define group and singular behaviour (Hofstede, 1994). According to Schein (1992), organizational culture, is the accumulation of shared beliefs, philosophies, conventions and norms that support individual members' and the organization's actions and behaviours, he also recognized culture as the most difficult organizational attribute to change.

Knowledge management is valuable in the field of health as it encompasses a wide range of technology, experts with varying experiences, and developments that require a portion of engrossment (Leeyer et al., 2013). Knowledge management also improves gains, patient care quality, safety, cost, effectiveness and competition in various health domains (Gider et al., 2015). Another attribute of the health sector is its strong level of knowledge, as these are specialized medical fields has a high reliance on professional knowledge (Miles, 2005). Organizational cultures have been highlighted as a leading component of knowledge management, because organizational culture is a significant differentiator for organization in achieving their objectives (Long and Fahey (2000). According to (Robert E. Quinn and Kim S. Cameron Michigan) organizational culture can be classified into four categories i.e. Clan, Adhocracy, Market, and Hierarchy.

On the basis of above mentioned background our study aims to investigate the relationship between the organizational cultural elements and knowledge sharing in select medical hospitals in Chandigarh region.

2.Literature Review

Literature reviews provide an appropriate direction to carry out the research in effective and efficient way.

Davenport & Prusk (1998) found in their research that knowledge is a dynamic amalgamation of confined encounters, ideals, relevant information, and insights that serves as a foundation for analyzing and integrating new knowledge.

Wang & Noe (2010) reveals in their research paper that knowledge sharing is a process that takes place for members of an organisation culture through formal or informal contact, networking, and documenting information through capturing and organising information.

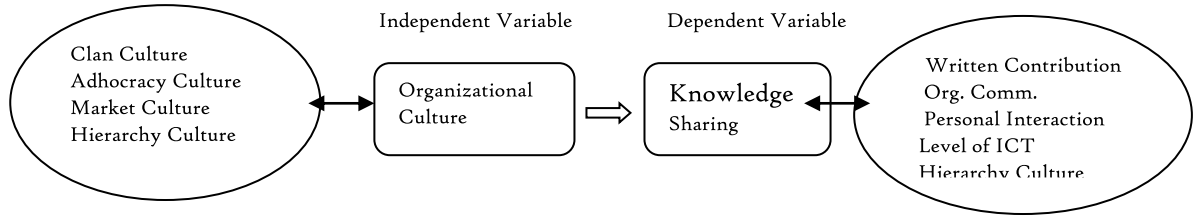
In the year 2000, Wenger and Snyder found that requisition for ICT professionals and information sharing between organizational culture and productivity is required. ICT practitioners must keep up to date with new technology. Knowledge sharing is a typical component of self-learning that aids in the growth of specialized abilities.

Hyun and Seong (2014) found in his study that the following factors affecting hospital employees' knowledge sharing intention, knowledge sharing behavior, and innovation behavior are reciprocity, behavioral control, and trust.

It is also found that employees who have a propensity for innovation and continuously educate about knowledge management based on trust.

There is a paucity of knowledge sharing studies in the health care service industry in the Chandigarh region, as evinced by the present literature, as well as an inadequacy of empirical research that studied the impact of culture components on knowledge sharing. The majority of knowledge sharing literature asserts factors are important in boosting knowledge sharing. The fundamental objective of this study is to plug a gap in the literature by describing how cultural factors enhance knowledge sharing in health care organisations in the Chandigarh region.

Conceptual framework based on literature review



3. Research Methodology

Research Methodology is the systematic and theoretical analysis of methods and tools which used in research. The key objective of the current study is to find out the relationship among organizational culture and knowledge sharing in medical hospitals.

The following research hypotheses were established based on the relationships between the variables shown in the conceptual framework. The primary concept of this study is that cultural factors affect knowledge sharing**.** Organizational culture has four main dimensions- Clan, Adhocracy, Market and Hierarchy Culture**.**

H_1 **-** There is a positive and significant relationship between organizational culture and knowledge sharing practices in selected medical hospitals in Chandigarh region.

H_2 - There is a significant impact of Clan culture on knowledge sharing in selected medical hospitals in Chandigarh region.

H_3 - There is a significant impact of Adhocracy culture on knowledge sharing in selected medical institutes in Chandigarh region.

H_4 - There is a significant impact of Market culture on knowledge sharing in selected medical hospitals in Chandigarh region

H_5 - There is a significant impact of Hierarchy culture on knowledge sharing in selected medical hospitals in Chandigarh region.

In this study, the deductive research technique

was used. The preliminary theory was initially formed from a review of relevant literature. The hypotheses are then derived and tested using data gathered through a questionnaire survey. Doctors were given a well-structured survey questionnaire. For collection of data two medical colleges were selected in Chandigarh region. A total of 500 questionnaires were distributed to the respondents, with 422 being returned and analysed. The questionnaire was built using a five-point Likert scale. Before finishing the questionnaire, pilot studies were done to validate the measures. To assess the link between the independent and dependent variables, multiple regressions were performed, as advised by Sekaran (2007) found that Organizational culture is independent variable and Knowledge sharing is dependent variable.

4. Data Analysis and Interpretation

The Descriptive analysis presents the profile of the respondents under the present study.

Table 1 Demographic profiles of the respondents

Gender	**Frequency**	**Percentage (%)**
Male	188	44.5%
Female	234	55.5%
N	422	100%
Age		
< 25 years	38	9%
26 - 35 years	231	54.7%
36 - 45years	122	28.9%
46 - 55yeaers	21	5%
< 55years	10	2.4%
N	422	100%
Designation		
Assistant Professor (Doctor)	210	49.8%
Associate Professor (Doctor)	146	34.6%
Professor (Doctor)	66	15.6%
N	422	100%
Years of Experience		
< 5years	195	46.2%
6 - 10 years	109	25.8%
11 - 20 years	66	15.6%
> 20 years	52	12.3%
N	422	100%
Marital Status		
Married	238	56.4%
Unmarried	184	43.6%
N	422	100%

Table 1 shows the demographics of those respondents, who took part in the study. It shows, that the male respondents are 234 out of 422 and the percentage of male respondents are 55.5% whereas there are 188 female respondents out of 422 contributing to 44.5%. In age component, 231 (54.7%) of respondents are among the age group of 26-35 years. There are 122 (28.9%) respondents are between age group of 36-25 years. Out of 422 respondents, 195 (46.2%) respondents have less than 5 years' experience, 52 (12.3%) respondents have experience more 20 years and rest of the 175(41.4%) respondents has experience amongst 6-20 years. Out of 422 respondents 238 (56.4%) are married and 184 (43.6%) are unmarried.

Descriptive Statistics

Table 2 Mean and Standard Deviation

	Mean	Standard Deviation	N
Organizational Culture	4.2781	.328	422
Knowledge Sharing	4.25	.418	422

Table 2 shows the Mean and Standard Deviation of all experimental variables for personnel aspect in the particular hospitals. It shows that respondents with SD.328 had an average score of 4.27 on organisational culture parameters. It also shows that the mean score of the knowledge sharing aspects is 4.25 with a standard deviation of 0.418. It demonstrates that the scores on organisational culture and knowledge sharing factors range from average to above average but are within the usual range.

		Organizational Culture	Knowledge Sharing
	Pearson Correlation	1	.499
Organizational Culture	Sig (two - tail)	.000	.000
	N	422	422
	Pearson Correlation		
Knowledge Sharing	Sig (two- tail)	.000	.000
	N	422	422
	Pearson Correlation	.499	1

** Correlation is significant at the 0.01 level (two - tailed).

Table 3 shows that range coefficient of correlation lies between -1 to +1. It shows positive and negative correlation. The Pearson coefficient of correlation r = .499 indicates a positive and moderate association between independent variable (organizational culture) and dependent variable (Knowledge sharing). The p = .000(<.001) reveals a significant relationship between two variables. Karl Pearson is a well-known figure in the correlation method to investigate the association between organisational culture and Knowledge Sharing. The preliminary analysis finds that no assumptions of linearity and normality test were violated, and all connections are found to be substantial at the.001 level, with the highest correlation between knowledge sharing and organisational culture ($r=0.477$, $p<0.01$). To achieve hospital standards, employees share good knowledge and work in a team-oriented manner, and there is a high correlation with organizational culture.

Hypotheses testing

Regression analysis was used to test the hypotheses. Statistical Package for Social Sciences (SPSS) was used for analysis. The association between the factors previously identified is shown in the above table. Hypotheses shows that how cultural factors influence knowledge sharing. Clan, Adhocracy, Market and Hierarchy culture are taken as independent variables and Knowledge Sharing as dependent variable.

Table 4 Multiple Regression Model Summary and Multicollinearity Diagnostics-Impact of Organizational Culture on Knowledge Sharing in Selected Medical Institutions in Chandigarh.

Independent Variable		Standardized Regression Coefficients	t-value	Sig	Tolerance value	Variance inflation factor
Constant			7.283	.000		
Market Culture		.338	6.097	.000	.554	1.805
Hierarchy Culture		.258	5.161	.000	.682	1.466
Adhocracy Culture		.030	.556	.578	.604	1.657
Multiple R	.540					
R^2	.292					
adjusted R^2	.285					
F	42.917			.000		
Sample Size	422					

In the table 4 shows the results of following independent and dependents variables:

Independent variable: Dimensions of organizational culture

Dependent variable: Knowledge Sharing

In the table 4 reveals that R^2 refers to the coefficient of determination that measures the proportion of the variance in the dependent variable that explained by the independent variables. On the other hand, multiple regression analysis and multicollinearity diagnostics for Knowledge Sharing are also shown in above table. It demonstrates that characteristics such as hierarchical culture (=0.258, $p \leq 0.01$), and market culture (=0.338, $p \leq 0.05$) are significant predictors of Knowledge sharing.

5. Results: In the sample size shows, expect two of the four dimensions of organisational culture to be a strong foundation, and knowledge to be a powerful source of competitive advantage for individuals seeking employment and for continued success in any employee's career. As a result, it is critical to work continuously to maintain a competitive level of knowledge across a wide range of fields. They are not permitted to use the organization information for their own development. It is therefore critical for a company to have an environment that encourages the creation, sharing, and application of knowledge so that every employee understands that knowledge should be created, shared, and used to create new knowledge, thereby contributing to both personal and organizational development.

The variance inflation factor (VIF) and tolerance value (TV) for the linear multiple regression model are shown in table 1.4. The VIF value, which served as a multicollinearity indicator, ranges from 1.466 to 1.805, which is much lower than the cut-off value of 10. Furthermore, the tolerance value for each independent variable is closer to one, indicating that the multiple regression models has no evidence of multicollinearity. All hypotheses are accepted.

Implication of Research

Because this research emphasises the relevance of cultural elements in flourishing knowledge sharing in chosen medical institutes in the Chandigarh region, the findings of this study have pragmatic implications for researchers in other industrialized economies. Knowledge of the dynamic interaction between cultural components and knowledge sharing would contribute in the redesign of the administrative methodology applied to improve knowledge sharing.

Conclusion and Future Research

Sharing knowledge is imperative for medical organisations in this era of growing technological innovation. The key element of the framework in which knowledge sharing takes place is organisational culture. Organizational culture influences knowledge sharing in a variety of ways: it regulates what is personal and collective knowledge; it describes the knowledge and expertise that are valuable to an organisation; it contours

communication and engagement through which organisational knowledge is shaped, dispersed, and used; it enhances scrutinising and rejecting prevailing rules; also, it identifies an organization's potential to ingest new information. It will be difficult for the hospitals to flourish in today's world of competition if there is a paucity of knowledge exchange among employees and between different divisions of the health sector. As a result, the health sector should take a more energetic approach than other sectors to strive for greater of knowledge exchange. Organizations should command a strong pre-eminence on cultural characteristics while sharing.

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