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Editorial.....

It is heartening to note that our journal is able to sustain the enthusiasm and covering various facets of knowledge. It is our hope that IJMER would continue to live up to its fullest expectations savoring the thoughts of the intellectuals associated with its functioning. Our progress is steady and we are in a position now to receive evaluate and publish as many articles as we can. The response from the academicians and scholars is excellent and we are proud to acknowledge this stimulating aspect.

The writers with their rich research experience in the academic fields are contributing excellently and making IJMER march to progress as envisaged. The interdisciplinary topics bring in a spirit of immense participation enabling us to understand the relations in the growing competitive world. Our endeavour will be to keep IJMER as a perfect tool in making all its participants to work to unity with their thoughts and action.

The Editor thanks one and all for their input towards the growth of the **Knowledge Based Society**. All of us together are making continues efforts to make our predictions true in making IJMER, a Journal of Repute

Dr.K.Victor Babu
Editor-in-Chief

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INSOLVENCY PROFESSIONAL AGENCIES: FRONT-LINE REGULATORS UNDER IBC

Dr. Binoy J. Kattadiyil
ICSI IIP, IPA of IBBI, New Delhi

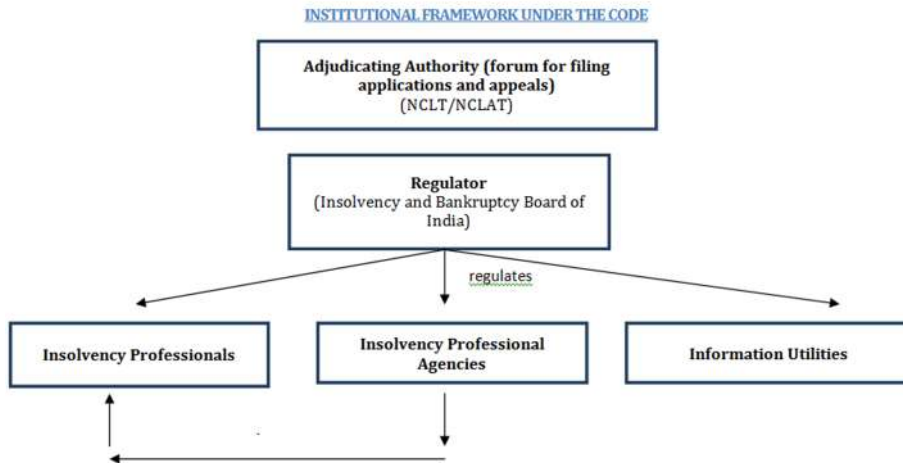
CS Nitika Manchanda
ICSI IIP, IPA of IBBI, New Delhi

“Law is the wisdom of the ages wrapped in the opinion of the moment”

The legal system of a country at a given time is not the creation of one man or of one day; it represents the cumulative fruit of the endeavour, experience, thoughtful planning and patient labour of a large number of people through generations. The roots of country's law and legal institutions lie deeply buried in the past. The truth is that the traditions of the past have made our modern legal system what it is, and still live on in it. The Law of Insolvency and Bankruptcy is not an exception to this school of thought. The concept of payment and recovery of debts was a traditional practice existed in Ancient India also. The insolvency laws are evolved since several decades, resulting in a consolidated insolvency regime named **“Insolvency and Bankruptcy Code, 2016”**. After several rounds of teething troubles the law is still evolving, taking into the spirit of best practices from precedents and global legislations.

The entire structure of Insolvency resolution lies on following 4 pillars:

- ✚ **INSOLVENCY AND BANKRUPTCY BOARD OF INDIA**
- ✚ **THE BANKRUPTCY AND INSOLVENCY ADJUDICATOR**
(Adjudicating Authorities, Appellate Tribunals, Supreme Court etc.)
- ✚ **BANKRUPTCY AND INSOLVENCY INFORMATION UTILITIES**
- ✚ **INSOLVENCY PROFESSIONALS (IPS) & INSOLVENCY PROFESSIONAL AGENCIES (IPAs)**



INSOLVENCY PROFESSIONAL AGENCIES: ROLE & FUNCTIONS

Insolvency Professional Agencies (IPAs) are the entities that have been incorporated as **not for profit companies** to enrol, educate, monitor, regulate and guide the insolvency professionals. They are considered as **front line regulators** under the insolvency regime in India.

As per **Section 3(20)** of the Insolvency and Bankruptcy Code, 2016, **“Insolvency Professional Agency”** means any person registered with the Board under Section 201 as an insolvency professional agency.

Three IPAs are registered under the Insolvency & Bankruptcy Code of India at present i.e. (i) **ICSI Institute of Insolvency Professionals** (ii) **Indian Institute of Insolvency Professionals of ICAI** (iii) **Insolvency Professional Agency of Institute of Cost Accountants of India**.

The broad functions of IPAs are (i) **Regulatory functions**: drafting detailed standards and codes of conduct through bye-laws, that are made public and are binding on all members; (ii) **Executive functions** - monitoring, inspecting and investigating members on a regular basis, and gathering information on their performance, with the over arching objective of preventing frivolous behaviour and malfeasance in the conduct of IP duties; (iii) **Quasi-judicial functions** - addressing grievances of aggrieved parties, hearing complaints against members and taking suitable actions. Through these three types of functions, a clear and well-defined statutory framework enabling the IP agencies to enforce their rules on all members has been established.

More precisely, the Governing Board (Board of Directors) of the IPA constitute various committees which are responsible for carrying out the following functions:

(i) **Granting membership to individuals as Professional Members**: The IPAs grant membership to individuals who fulfil all the requirements set out in

the bye laws on payment of membership fee. On obtaining the professional membership by the IPA, the insolvency professional is required to complete 50 hrs pre-registration educational course (PREC) organised by the IPAs. On successful completion of PREC the professional member is required to get registered with the IBBI on payment of registration fee.

(ii) **Monitoring of Members:** The IPA monitors the professional activities and conduct of professional members for their adherence to the provisions of the Code, rules, regulations and guidelines, code of conduct and directions given by the Governing Board. It reviews the information and records submitted by the professional members. The policy assures that the privacy of members and further provides confidentiality of the information received from the IPs. The monitoring of members includes by way of inspection also.

(iii) **Redressal of Grievances:** The IPA redresses the complaints/grievances against the IP. In order to ensure the timely and systemic disposal of grievances, the grievance redressal policy of the Grievance Redressal Committee provides proper procedure, manner and formats for receiving, processing, redressing and disclosing grievances against IPA or any member.

(iv) **Disciplinary action against members:** The agency may initiate disciplinary proceedings by issuing show cause notice against insolvency professionals. All the Insolvency professional agencies handle the disciplinary matters through its disciplinary policy and disciplinary committee.

(v) **Professional Development:** One of the most important functions of an IPA is to develop the professional and to develop, educate and train the Insolvency Professionals who are the real backbone of this insolvency regime. The IPAs have also been entrusted with the function of providing Continuous Professional Education and development of the profession of insolvency professionals for which they take up different initiatives such as organising seminars, webinars, conferences, workshops, Pre-Registration Training Course, publications and other knowledge enhancement initiatives.

Major sources of revenue for the IPAs in India are enrolment & membership fees, fees from training programmes/seminars/workshops etc, sale of publications etc.

International Perspective

The design of insolvency regimes varies significantly across countries. The major economies of the world have all regimes to deal with the economic necessities posed by insolvencies on a domestic, and increasingly often an international scale. Many maturing economies are taking on board the need to craft new procedures to deal with novel problems. All these regimes are in constant re-examination as the practice reveals deficiencies or success stories.

It is a world known fact that the insolvency law globally is much more settled as the consolidated insolvency regime in India is only 3-4 years old and unremitting changes are being made to make it more robust. Still, India is one of those countries whose Insolvency regime is being talked in the world in the short span because of its persistence.

Let's talk about the regulating bodies of insolvency regime in other countries especially similar to Insolvency professional Agencies (IPAs) in India to under their functionality.

United Kingdom

The primary legislation governing insolvency is the Insolvency Act 1986. The regulatory bodies under this structure are:

- (i) **Secretary of State for Business, Innovation and Skills:** which has the overall responsibilities for insolvency policy in Great Britain (England, Wales and Scotland)
- (ii) **Insolvency Service:** is responsible for overseeing the insolvency regime on the Secretary of State's behalf.
- (iii) **Recognized Professional Bodies (RPBs):** the Secretary of State recognises certain independent professional bodies, called recognised professional bodies or RPBs, for the purposes of authorising their members to act as insolvency practitioners. The Insolvency Service regulates the RPBs to ensure that the members they authorise are fit to act as insolvency practitioners. The RPBs are independent bodies that make their own membership rules and regulations, but they are required to have in place rules to ensure their insolvency practitioners meet acceptable requirements as to education, practical training and experience. The commitments made by the RPBs are set down in a "Memorandum of Understanding", which records the agreement between the RPBs and the Secretary of State.

In view of that, India and UK has some similarities in the regulation structure and IPAs & RPBs working is quite akin in nature.

Major sources of revenue for the RPBs in UK are through membership fees and annual fees from various kinds of memberships like insolvency practitioners, students, firms, companies, affiliates etc, fee for conducting



insolvency examination, specialized certified courses in various domains of insolvency, through various events and workshops, sale of publications, e-learning platform.

Australia

The primary legislation governing insolvency is Corporations Act 2001. The regulatory bodies under this structure are: (i) **Australian Securities and Investments Commission** (ASIC is an independent Government body responsible for administering and enforcing the Corporations Act 2001 which governs the responsibilities of Australian companies) (ii) Professional members such as **Australian Restructuring Insolvency and Turnaround Association** (ARITA) which regulates the professional membership body to ensure that the members they authorize are fit to act as insolvency practitioners. **Major sources of revenue for the professional bodies in Australia are through membership & training, Event Management, Advertising and marketing, Sale of Precedents, Sponsorship etc.**

United States of America

In the USA, there are Chapter 7, 11 and 13 which are the equivalent to Insolvency Professionals and liquidators under Insolvency and Bankruptcy Code in India. Chapter 7 trustees oversee the liquidation/bankruptcy and Chapter 11 trustees overlook the reorganisation plan. With regard to the regulatory bodies, US bankruptcy proceedings are overseen by US Trustee Program under the department of Justice. Under the US Trustee program, Attorney general appoints an official US Trustee for each district who allots different cases to trustees in that district.

There is no concept like Insolvency Professional Agencies (IPAs) in US. All the trustees are monitored by the official US Trustee.

The US Trustee Program is a government funded body as it falls under the department of justice. Further, the program is funded by the United States Trustee System Fund which consists primarily of fees paid by parties and businesses invoking bankruptcy protection. Since it is completely under the control of Government, there is no revenue model. The major sources of funds are either from the Government or from the debtor's invoking bankruptcy.



Road Ahead

Considering the non-profit nature of IPAs and the increasing number of functions and responsibility envisaged under the Code, financial viability and sustainability in the long run is mandatory. There are 3 IPAs in Indiaas compared to much higher number in other jurisdictions. Since the law is only 3 years' old, IPAs are working rigorously to come at par with developed professional bodies across the globe. To augment the sustainability in the long run, IPAs are proactively taking initiatives for its professional members and for developing the law of Insolvency to mark a place in world of insolvency.



SUSTAINABLE DEVELOPMENT AND ROLE OF TEACHER AND EDUCATIONAL INSTITUTIONS IN SAFEGUARDING ENVIRONMENT IN N.E. INDIA

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Abstract

Through Education a society can become civilized and civilized society can play a vital role in sustainable development of any nation. Environmental education is a significant tool for better people's understanding and for motivating local peoples to cooperate and take initiatives for conservation and sustainable resource use. The increasing population and artificial lifestyle make sounding environment more critical. The main objective of an environmental education program is to assist people in developing awareness and appreciation of natural resources so that they can make formed decisions, improve responsible behavior and constrictive actions. Today the role of teachers in protecting environment and sustainable development has been increasing. Teacher can provide environmental education through its curricular activities, research, awareness program, and collaborative efforts with students, NGO's etc. This paper mainly discusses the initiatives taken by teacher in environmental development in the areas of making healthy environment and conservation of resources

Keywords: Sustainable Development, Objective of the Study, Role of Educational Institutions, Teachers, Suggestions Etc.

Introduction

Human's overzealous attempts to develop the world around them have set in motion the process of its destruction. Today, we hear of environmental problems such as pollution, acid rain, ozone depletion and the greenhouse effect. Though we cannot undo the damage that we have already done, we can prevent it from becoming worse. It is our duty to protect and preserve the environment, and thus, Earth. Forests are the vital natural resources which make a vital segment of the biosphere environment. Forests play an important role in maintaining global ecosystem in different levels. The world is facing many hindrances related to environment. On one hand world is developing at alarming rate while on the other hand the destruction of natural resources is going on. Therefore, world's present development path is not

sustainable. The ever increasing needs of growing population and human-dominated world are ignoring the Earth's essential life-support systems. The human society is facing severe environmental issues like climate change, greenhouse effect, energy crisis, pollution of air, water, soil, etc. The ever increasing population and luxuries lifestyles are increasing the severity of the environmental problems. The increasing population and changing lifestyles are making the environmental problems more critical and vulnerable. Educational institutions and role of teachers can be the best way to solve this situation. Education plays a vital role in sustainable development of any country. Environmental education program is to assist people in developing awareness and appreciation of natural resources so that they can make formed decisions, improve responsible behavior and constrictive actions and to improve people understands for motivating local communities to take initiatives for conservation and sustainable resource use. The main objective of an environmental education program is to assist people in developing awareness and appreciation of natural resources so that they can make formed decisions, improve responsible behavior and constrictive actions. The role of educational institutions is important for environmental sustainability.

Teachers are playing a vital role in conserving environment and sustainable development. Teacher can provide environmental education through its curricular activities, research, awareness program and collaborative efforts with students, student union; NGO's working in those areas. Teacher can make trained manpower and knowledgeable experiences to solve critical environmental problems. Through educational institution they can also act as a good networking system and data collector.

Objectives:

1. To analyze Sustainable Development and the role of teachers in Conserving or safeguarding Environment in N.E. India.
2. To analyze active participation of educational institutions in improving human capacity in environmental awareness, protection and problem-solving.
3. To analyze role of teachers in improving human capacity in environmental awareness, protection and problem-solving.

Methodology:

Both primary and secondary sources of data have been used for the present study. The present study is based mainly on secondary data available in books and journals, relevant books, published and unpublished research papers and different websites have been reviewed. And primary data are collected through observation, to some extend through discussion with local people social organization of nearby areas of a few forests.



Main discussion –

1. What Is Environmental Safeguarding?

One of the major concerns mankind is facing today is of environment. Environmental safeguarding or conservation" is a broad term for the goal of making life more sustainable for our Earth. Ultimately, people need to help the planet survive naturally and with no negative impact from the human race. By keeping or protecting the earth safe, pure, and healthy is simply called conservation.

Environmental conservation means different types because it is a topic with board areas to cover. Environmental conservation includes taking care of all that means the air, water and the earth's atmosphere, animal and plant life, humans and cultural development etc. It indicates a lot of interests with human rights, because keeping under privileged populations healthy and thriving has a lot to do with preserving the earth.

What is mean by Sustainable Development

Sustainable development is relatively a modern concept about the conservation of environment and it has been promoted since 20-30 years ago as an effective means to control the degradation of human and environmental systems. In a very simple word sustainable development is a development strategy that focuses on meeting the demands and needs of present-day citizens without harming or compromising the future generation ability to meet theirs and it concentrates on aspects of the economy, society and environment in order to achieve its goals. The economic, social, and environmental concerns of sustainable development and policy formation should be equally represented and balanced.

Forest and major sanctuary in N.E. India:

The north-eastern part of India is the kingdom of verity of flora and fauna. It is known for its diverse and most extensive lush forest cover. Forests of this region are unique structurally and species composition but It has been one of the major regions facing severe deforestation. Arunachal Pradesh one of the state of this region occupies a significant place as a crucible for the evolution of flora in north-east region. The Brahmaputra valley is between eastern Himalaya in the north, Garo, Khasi, Jaintia, Cachar, Barail hills ranges in the south. The Khasi-Jaintia hills function as a corridor of the south-east Asia

North East India shouldn't be ignored as a faraway region from India but it should be taken as one of the best regions for wildlife tours in India as well as entire world. There are mentioned some of the best national parks and wildlife sanctuaries of North East India.

Some of the Best National Parks and Wildlife Sanctuaries in North East India -

1. Kanchendzonga National Park, Sikkim
2. Kaziranga National Park, Assam
3. Dibru-Saikhowa National Park, Assam
4. Manas National Park, Assam
5. Nameri National Park, Assam
6. Orang National Park, Assam
7. Balphakram National Park, Meghalaya
8. Nokrek National Park, Meghalaya
9. Namdhapa National Park, Arunachal Pradesh
10. Keibul Lamjao National Park, Manipur
11. Shirui National Park, Manipur
12. Murlen National Park, Mizoram
13. Phawngpui National Park, Mizoram
14. Ntangki National Park, Nagaland
15. Trishna Wildlife Sanctuary, Tripura

2. Role of Educational Institutions and Teachers:

Environmental sustainability and safeguard of forest is becoming an increasingly important concern for the world, the role of teacher and various educational institutions in relation to environmental sustainability initiatives is being more and more prevalent. One of the major roles of colleges and universities is to educate people, members of society so that they must be actively instrumental in the sustainability of forest movement or forest conservation. Every university has its unique nature and has its own traditions, cultural area. These educational institutes are familiar with their surrounding environment. They can apply their knowledge and trained man power to find out problems and issues concerned at the local level, national and global community. Universities can exchange the information by establishing a good regional information network among them so that these can promote good neighborly relations and respect for human rights. Universities can lead in promoting environmental awareness among the people of the country or beyond the country. They have a right and a responsible duty for the country to indicate where problems exist and they should look into the matter for find and create tools to solve those.

Educational institutions can help to establish the forest conservation and sustainable development through following aspects:

A. Awareness & Teaching programmes:

Educational institutions can help to establish the forest conservation and sustainable development through **awareness & teaching programs**. The framework of the curricula should cover the necessary information regarding environmental issues so that students get knowledge of all the skills and information related to environment. The curriculum should be made as like as that motivate the students to participate and solve the environmental problems. The formal and non-formal education is also one of the important part of environmental education. In the field of Environmental Education (EE) researches have shown that teaching and learning outside the classroom as a extracurricular activities or non-formal educational activities provides opportunities to improve environmental awareness and environmental responsibility. Which all in turn increase in environmental motivation to take responsible to environmental safeguards. The students have the greatest potential to aware the parents and people about the present status of environment through street plays, rallies, exhibitions.

Honorable Supreme Court of India made directives that Environmental Studies has become compulsory for all faculties at undergraduate degree level in India. For environmental awareness the teaching programme includes research projects, lecture series; documentary shows, celebration of environmental days, seminars and conferences etc.

B. Research:

Research is part and partial of higher education. It is an investigative process of getting new information and looking for new ideas for the development of man and the society. Research is also one of the most powerful instruments known for environmental development all over the world. For the propagation of a healthy environment, sustainability of renewable resources, conservation of non-renewable resources for the mankind research is very useful. Scientific Research has the potential to influence governmental development that would prepare man for a sustainable life Not only higher educational institution but different National level Research Institutes in India like UGC, IIT, DRDO, etc. are working to conserving environment.

C. Outreach:

Outreach program is to create enduring partnerships between academic institutions and communities to build capacity to solve a solution of the problem in society and also to enhance the research and teaching capacity of participating higher education institutions. Such activities by colleges and universities play an significant role in shaping communities development. Today's students have been identified as the most environmentally conscious

generation for decision makers in business, government and communities. Higher educational institutes as well as NGO's can jointly work in environmental protection and awareness and the success of India's environmental programmed mostly depends on the awareness and consciousness of people.

3. Role of Teachers:

There is no controversy that our teachers are outstanding and are able to glorify all the national, religious, economic, educational, health and cultural fields in the society. Hence, they should be actively take part in the implementation of environmental education programs. They can follow the ideology, values, and culture of a nation, state and its people. Teachers are identified as most important agents of change in society, playing an important role in improving human capacity in environmental awareness, protection or conservation. Teachers acquire the knowledge, skills, on environmental awareness in order to include this in their teaching programme. Through education teachers implement the element of environmental awareness in the society. The teachers can impart the following to their students in the school -

- To turn off and unplug computer and other electronic devices.
- To encourage the parents and relatives to change the light bulbs to energy efficient ones.
- To recycle papers or reuse bottles, plastics and to plant trees.

1.1 ECO-CLUBS IN SCHOOLS:

Through the scheme of Eco-clubs as a non-formal pro-active system of environmental education is the best way to school children by involving them in various environmental activities. An Eco-club may be set up in a school, colleges or in higher education institutions for the conservation and protection of the environment. Financial support should be given by the government to every Eco-Club in this regard.

1.2 Contributions of Teachers in Sensitizing the Community:

To make people in the society to be aware is the main aim of the environmental education. Along with these knowledgeable and positive attitudes towards protection of environment and solving environmental problems, to participate in the activities undertaken for the protection of environment are also come under the objective of environment education. The teachers often conduct various programmed for the sensitization of environment protection among all people. Various civil society and community service camps for environment preservation are arranged by the teachers and students

for the benefit of society. For example: Clean village, Clean city etc. Hence, the environment awareness should be initiated by the teachers from primary to higher education to the public.

1.3 By Teaching Environmental Education & Conservation:

Environmental Education is a powerful sensitization tool for the conservation of Environment and natural resources. The emphasis should be on sensitizing the student community through in transmitting the requisite knowledge and skills essential to restore the environment. The teachers, students who have been playing a significant role in encouraging and enhancing people's, parents participation in activities like conservation, protection and management of the environment, essential for achieving sustainable development.

Environmental awareness is an approach to learning by conscious mind and the teachers who can play a fundamental role for improving the consciousness of the people. The environmental damage has been already inflicted due to on-going population explosion, rapid growth of urbanization and industrialization, increasing needs of energy etc. Proper implementation of environmental management and conservation programmes mainly depends on education, awareness of people raising and training in the relevant areas, public cooperation. The key of protecting the environment for the present and future generations also rests with human beings alone and the conservation of the environment is related to the individual efforts to save and protect the environment. The students acquire knowledge and skills from teachers to solve the environmental problems and issues. It is very important to organize and conduct the educational programs on environmental issues, problems for the conservation and protection of the environment.

Suggestion of Primary Actions:

The following suggestions can play a major role in dissemination of knowledge, skills and values regarding environment, among teachers and through them to sensitize our present and future generations. Indeed environmental education as a hands-on extra -curricular activity rather than an academic classroom subject is arousing growing enthusiasm across the country.

- The problem of environment destruction is a serious one in now a day and needs to be addressed at the local, national and international levels so that people could achieve a good quality of life on earth for all living beings, it is essential to spread awareness about and educate humankind for sustainable development and environmental problems.

- Teachers are potential change agents and are capable of generating a workforce of enlightened, skilled and motivated learners. They can aware the citizens with the ability and values to protect the natural environment using formal and non-formal channels of education, through awareness camp etc. It is more essential that teachers themselves need to be trained and equipped with the required knowledge, skills and values to execute such a change.
- Universities and schools have to play an important role to translate the objectives and recommendations of the various commissions and committees into practice for achieving environmental literacy and awareness among learners (Kumar, 1986).
- Research activities in the field of environmental education may be enhanced by providing attractive incentives.
- Environmental Education should be introduced as a voluntary, extra-curricular activity to arouse the interest and awareness of students.
- Technological development and media should be employed to create environmental awareness among the teaching community as well as among common people. A system of the conventional and open and distance learning systems should be started in buffer zone to meet this challenge.
- User friendly, multi-media course on environment problems can be prepared, particularly for the rural-agro based communities in India.
- Collaborative ventures could be created between the teachers and community through the agencies of schools, colleges, universities and other institutions. A good will collaboration of civil society, social workers, legal experts could include campaigns on environment awareness, tree plantations, Waste management or also in developing instructional materials may safeguard the greenery of nature and can execute sustainable development.
- Electronic and computer networks could be employed to connect globally and acquire information and expertise on latest developments in the area of environment education and training.

Conclusion

Both the higher and primary education and teacher have the significant role to deal with various environmental issues. They may use their working institutional infrastructure, expertise and own experience in a positive way to achieve forest conservation and sustainable development and they can also teach people to understand the value of nature In the collaborative work with Government, NGOs and social institution, education institutes can help to spread the message at grass root level of the society and put pressure on the



stakeholders. In this regard higher education and civil society can play a crucial role in forest conservation and sustainable development.

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AN ESSAY ON CHALLENGES OF LIVING IN A GLOBAL SOCIETY

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Introduction

As the 20th century draws to a close, we are becoming aware of a significant metamorphosis in human society. For as long as humans have possessed this world, it has been inconceivable to depict comprehensive systems of social relationships that incorporate every person. We have not had worldwide associations only recently—these have been developing for quite a long time—however, the clear blueprint of a global society.

While early periods of globalisation achieved the physical unification of the world, later stages have changed the world into a single global system. We have a worldwide monetary framework, with production and the markets facilitated on a world scale; components of a global culture and overall systems of communication; and globally energetic political thoughts and the likelihood of composed political activities. The rise of global society is, however, assailed by inconsistencies. Indeed, one of the vital routes through which we can recognise a global society is by the expansion of worldwide crises. It is our normal experience of crucial unsettling influences, and the need to shape basic reactions, that is serving to bring worldwide society into being. These emergencies are experienced at each level of social relations. The essay focuses on the main characteristics of the global society and its influence, particularly on our daily life.

Global Society

The philosophies of liberalism and Marxism both have their origins in an edified universalism that anticipated the eventual rise of a cosmopolitan world society. In a global society, the transnational social bonds and all universally held ideas of peace, equity, freedom, and equality characterise the state of human existence. Fukuyama recognises the “triumph” of liberalism over the world as the beginning of another period of “perpetual peace” (1989). Meanwhile, Wallerstein speaks of the contemporary time not as the triumph of capitalism but rather as an age of crisis that will get its awoken liberation on a global scale (1991). Progressivism and Marxism are increasingly insufficient advisers for the complex, global social and structural planning connected with recent periods of globalisation. Globalisation ought to reflect upon, represent,

and improve the contemporary worldwide condition. This includes the potential directions of social change realised by globalisation in modern society.

Globalisation alludes to the variety of linkages and interrelationships that rise above the countries, states, and societies that make up the modern world framework. It characterises a procedure through which events, agreements, choices, and activities in one region of the world can come to have significant results for people and communities in very far-off parts of the globe. Transnational systems, social developments, and connections are broad in practically all zones of human activity, from the scholastic to the sexual. Moreover, the presence of global frameworks of exchange, finance, and production ties together in extremely complicated ways the prosperity and destiny of family units, communities, and countries over the globe. In any case, the idea of globalisation explains something substantially more significant about cutting-edge social presence than the straightforward truth of developing interconnectedness between country and states. The key features of global society are described in the following sections.

Global Civilization

Howard Perlmutter (1991) presents a dynamic argument for considering globalisation as the harbinger of the first real global civilisation. His record of globalisation and where it is leading recognises the developing escalation of worldwide interconnectedness and the rising foundation of a world society. Rather than conceiving of humanity as organised vertically into discrete nation-state units, this “world society” perspective considers humanity as a single, universal “group of destiny” (p. 897). As Modelski (1972) observes, today’s extensive patterns of global interaction and global awareness, combined with the deepening of universal values (e.g., environmentalism, human rights, survival), point to “the truth of world society” (p. 227). The mind-boggling web of transnational ties, which join communities, family units, and individuals transversely over national breaking points, undermines the image of mankind as kept inside constrained national social orders and, rather, reinforces to some degree a different picture, in which humankind is imagined as being created equitably into different, all-encompassing, and vulnerable gatherings or structures of social correspondence. This image of a world society suggests that the “boundaries of states would be hidden from view” (Burton, 1972, p. 43).

Globalisation universalises many aspects of present-day social life. It recognises a crucial “similarity” to the surface appearance and establishments of modern social life across the globe (e.g., city life, religion, the presence of human rights, bureaucratisation, and so on). Meanwhile, globalisation makes new types of global, local, and transnational groups or associations that unite individuals crosswise over regional limits (e.g., the transnational enterprise,

universal trade unions. transnational class developments). Globalisation encourages an expanding convergence of power, learning, data, wealth, and decision-making. By compacting time and space, globalisation causes the juxtaposition of diverse human civilisations, lifestyles, and social practices. This both strengthens social and cultural biases and limits them, all the while making “shared” societies and social spaces in which there is an advancing “hybridisation” of thoughts, values, learning, and institutions (e.g., the blending of cooking styles, New Age ways of life, structural planning, publicising pictures, and so forth; (Perlmutter, 1991; Jameson, 1991).

A World Capitalist Society

Neo-Marxists would consider Perlmutter’s record to some degree unsophisticated, since it neglects to perceive the worldwide structural forces made by procedures of globalisation. With the incorporation of the previously shared economies of Eastern Europe and the former Soviet Union into the world economy, the capitalism’s grasp on the world now seems firmer than ever. In this manner, instead of speaking to the present age as the unfolding of a global civilisation, it may be more precise to portray it as the last consolidation of a capitalist world society. Regardless of the presence of fragmentation, the nature of worldwide markets and the worldwide versatility of capital guarantees that few states or social groups can quit this capitalist world political economy. With this has come an expanding penetration and solidification of capitalist social relations on a worldwide scale.

Multicentric World

Rosenau (1980) portrays worldwide society as a multi-centric world and a world of a) transnational associations, (e.g., Greenpeace, transnational banks, the Catholic Church); b) transnational issues (e.g., pollution, medications, ethnicity, money crises); c) transnational occasions (e.g, live telecasts from Baghdad and Riyadh during the Gulf War of 1991); d) transnational groups, in view of religion (e.g., Islam, Catholicism), learning (e.g., scholarly systems), ways of life (e.g., “earthy” people), society (e.g., the craftsmanship world), and so forth; and e) transnational structures (e.g., those of invention, money, and information).

A Global Society of States

According to Gilpin (1981), globalisation has been dependent upon vital political elements, the geometry of worldwide power relations, and the ideological inclinations of the most powerful states. This is a convenient contention, since the relative decay of the United States, the failure of worldwide ideological risk to unite the most capable industrialist states, and the



global resurgence of patriotic and protectionist political powers suggest the end of “the golden era” of globalisation. Likewise, for realists, globalisation does not prefigure the rise of a world society. Despite what might be expected, the world is still best portrayed as a society of states.

How Living in a Global Society Influences My Life

As the engine of development, globalisation causes many changes that shape modern societies. It is a procedure that contains many contradicting inclinations. However, we cannot scrutinise globalisation totally, nor can we stop it. We cannot disregard its conceivably negative impacts, including the development of social unevenness and ecological and money-related risks. Globalisation shows distinctive impacts that persist among diverse societies in the world. As nations globalise, they benefit from access to a more extensive assortment of products and services, lower costs, more and better-paying employment, enhanced well-being, and higher general expectations for everyday comforts.

Communication

Computer-mediated communication has turned into a part of our everyday life. It assumes an essential role as a correspondence channel for many kinds of businesses and as a stage for social collaboration. It incorporates email, videoconferencing, sound, text chatting, texting, and blogs. It enables users to choose from a wide range of professional work. Information and communication technology development reinforces civil society through the participation of citizens and has a tendency to enhance personal satisfaction and quality of life.

Supremacy

States no longer have a monopoly of power over their citizens; the development of new Centers of open power above and beneath state, together with the rise of private powers, from multinational corporations to NGOs (e.g., Amnesty International), have disintegrated the power of the state. Due to transnational social developments and organisations, citizens’ devotions and personalities are no longer characterised solely by nationality or participation in their country or state.

Availability of Foreign Goods

Globalisation prompts expanded access to different products, administrations, innovations, and technologies. Through pooling information and trading more merchandise and services, local economies grow and benefit from mechanical and therapeutic improvements, even in nonessential

products; for example, someone in New Zealand can drink Italian wine and eat French cheese while playing videogames on a Chinese console. Worldwide trade can permit the best of all worlds through specialisation and expanding different points of interest that include quality or proficiency. Consolidating these contentions, those in favor of globalisation suggest that a more extensive array of items, administrations, advances, prescriptions, and learning will become accessible and that these improvements may reach even larger client bases. This implies more offers and trading, higher GDP development rates, and the strengthening of more people and political frameworks through the securing of extra assets and capital. These advantages of globalisation are seen as utilitarian, giving the best conceivable advantages to the largest number of individuals.

Conclusion

To sum up, the expression “global society” alludes to a society that is being built in advanced times, in which each resident of the world has a decent life in the same manner as every other. The key features of global society include global civilisation, world capitalist society, and the multicentric world. In the global society, the dynamics of universalisation versus particularisation, homogenisation versus differentiation, integration versus fragmentation, centralisation versus decentralisation, and juxtaposition versus syncretisation directly and indirectly influence life.

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WOMEN ENTREPRENEUR: A CASE STUDY WITH SPECIAL REFERENCE TO LANJA TEHSIL RATNAGIRI DISTRICT, MAHARASHTRA

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Abstract

Entrepreneurship is defined as the process of designing, launching and running a new business and entrepreneur is a person who organizes and manages any enterprise, especially a business usually with considerable initiative and risk. In earlier times the term “Entrepreneur” was reserved for men. Women became more involved in the business world when the idea of women in business became tolerable to the general public. Women Entrepreneurship is considered as an important tool in eradicating poverty and unemployment. Female entrepreneurship also ensures economic growth and wealth of a country. Women entrepreneurs are gaining momentum all over the world, but on the other hand facing a number of challenges. This research focuses on the study of strengths, weaknesses, opportunities and challenges faced by women entrepreneurs in Lanja Tehsil.

Key Words: Entrepreneurship, Women Entrepreneur, Economic Development, Rural

Introduction

Women Entrepreneurs can be seen everywhere in the startup-up ecosystem of India. Women too are seen leaving their high-profile jobs as well as some stepping out of the four walls of their homes and joining the pool of Entrepreneurship in India. Women entrepreneurs are not sufficiently represented among the business community in India. Most women opt for household management after wedding and earning responsibilities are left to the men. In recent days, there has been a shift in this attitude due to urbanization and women empowerment

According to the Sixth Economic Census released by the Ministry of Statistics and Programme Implementation, out of the total 58.5 million entrepreneurs in India 14 percent are women entrepreneurs that is nearly 8.05 million. The



average employment opportunities generated in women-owned enterprises is only 1.67 people per business.

The term entrepreneurship defines as the process of setting up of business to earn profits with his innovativeness and ideas to run an enterprise solely and also liable bare risk. Entrepreneur is a person who turns the innovative ideas into a business. The risks and uncertainties occurring from the business is solely bear by the entrepreneur. An entrepreneur must possess the qualities of decision making, risk taking, innovation and leader.

Rural entrepreneurship can be defined as the business activities carried out in the rural areas. The rural entrepreneurship makes optimum utilization of resources available at rural level and all the business activities are performed in rural area.

The Government of India (GOI2006) has defined women entrepreneur as “an enterprise owned and controlled by a women having a minimum financial interest of 51 per cent of the capital and giving at least 51 per cent of the employment generated in the enterprise to women.” Women entrepreneurs are also one of the emerging factors influencing the economic development and women empowerment. The significance of women entrepreneurs in rural area is negligible. On the other hand the rate of women entrepreneurs in urban areas is considerably rising. . Hence there is a need to study the opportunities for women entrepreneur in current era and to create awareness about the significance of entrepreneurship as a career for women in rural area for the development of rural economy. Keeping in view the importance of the project deliberate attempt is made to study the business run by the women entrepreneurs in the rural area with reference to Lanja tehsil of Ratnagiri district.

Lanja is located at 16.85°N 73.55°E. It has an average altitude of 166 metres (544 feet). It's a Taluka head in Ratnagiri district. National highway popularly known as Mumbai-Goa Highway passes through it. Nearest rail head is Adavali on konkan railway which is around 15 km away. The population of Lanja taluka as per 2011 census was 106,986 in total including 49985 male populations and 57,001 female populations. The prime occupation of the people living here is agriculture.

Literature Review:

Garima Mishra and Dr. U. V. Kiran (9th September 2014) “Rural Women Entrepreneurs: Concerns & Importance”, International Journal of Science and Research (IJSR) Volume 3 Issue ISSN (Online) Impact Factor (2012): 3.358. In their research study they studied the problems faced by the rural women entrepreneurs and recommended that the entrepreneurship is the effective tool

for women empowerment. They further suggested that motivating women for starting own business will strengthen the national economy. Lack of skilled labour is the obstacle faced by rural women for operating the business which can be overcome by organizing training programmes for improving skills.

G S N G Rama Mohan Rao (May2016) “Status Of Women Entrepreneurship in India”, International Journal of Multidisciplinary Educational Research Volume 5, Issue 5(2) ISSN: 2277-7881; Impact Factor –3.318. This study explained the shifting trend of women entrepreneurship from kitchen activities of 3P’s (Pickle, Powder and Pappad) to modern entrepreneurship of 3E’s (Energy, Electronics and Engineering). He also studied the challenges faced by the women entrepreneurs in India. The study explains the initiatives taken by the Government of India to promote the businesses owned by the women entrepreneurs.

N. K. Susruthan and Dr. A. Jency Priyadharshany (2018) “Role of Women Entrepreneurship”, International Journal of Pure and Applied Mathematics Volume 120 No. 5 ISSN: 1314-3395 (on-line version) studied the role and contribution of women entrepreneur in the society , challenges faced by the women entrepreneurs, status of women entrepreneur in India. The major findings of the study revealed that the contribution of women entrepreneur is increasing day by day. On the other hand the women entrepreneurs are facing the challenges from the male dominating society in the present era of globalization.

Objectives:

- To study the strengths, weaknesses, opportunities and challenges faced by the women entrepreneurs in LanjaTehsil
- To study the factors inspiring the woman for own business in Lanja Tehsil.
- To study the trend of development of women entrepreneur in Lanja Tehsil

Hypothesis:

- The factors positively influencing women for business can motivate them to establish their own business.
- Development of women entrepreneurs can lead to generate employment opportunities.

Research methodology:

- ❖ The case study conducted is of descriptive nature, describing the existing businesses of Women Entrepreneur in Lanja Tehsil.

- ❖ The primary data is collected with the help of structured questionnaire, personal interview of 50 women entrepreneurs randomly selected.
- ❖ The secondary data is collected from various publications of Government, the previous research work, records maintained by the respondent and the books related to the objectives and subject of the study.

Study Area:

The present study is confined to Lanja Tehsil of Ratnagiri district, Maharashtra. The case study was performed for the year 2018-19.

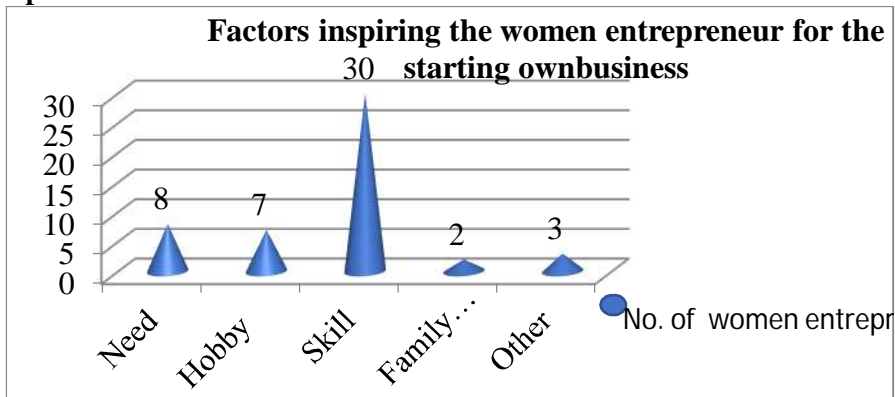
Analysis of data:

The study revealed that skill among the women in Lanja tehsil is the prominent factor which induced them to establish own business. The other reasons for inspiring the women to start own business includes need, hobby and family business. The processed data revealed the following figures:

Table No. 1: Factors inspiring the women entrepreneur for the starting the business

Need	Hobby	Skill	Family business	Other
08	07	30	02	03

Graph No. 1



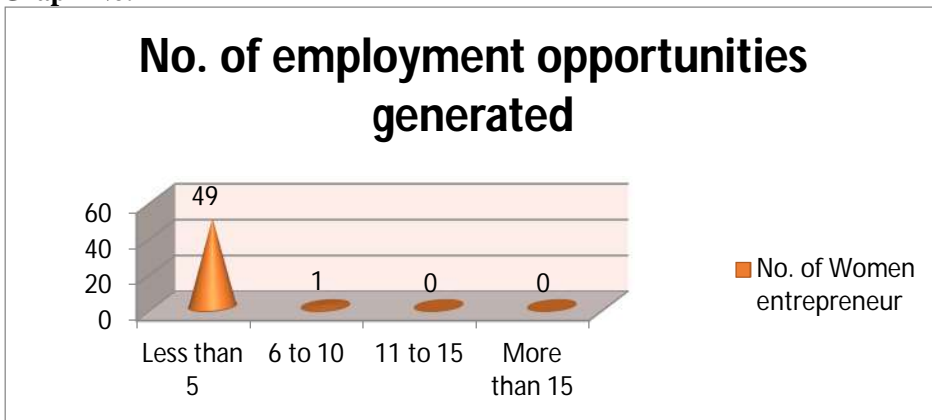
The businesses owned by women in Lanja tehsil has helped in generating employment opportunities. The local people residing nearby the business premises have been benefited by the business in terms of income generation.

The processed data given below reflects the number of employment generated by the businesses owned by women entrepreneur.

Table No. 2: Number of employment generated by women entrepreneur in Lanja Tehsil

Less than 5	6-10	11-15	More than 15
49	01	Nil	Nil

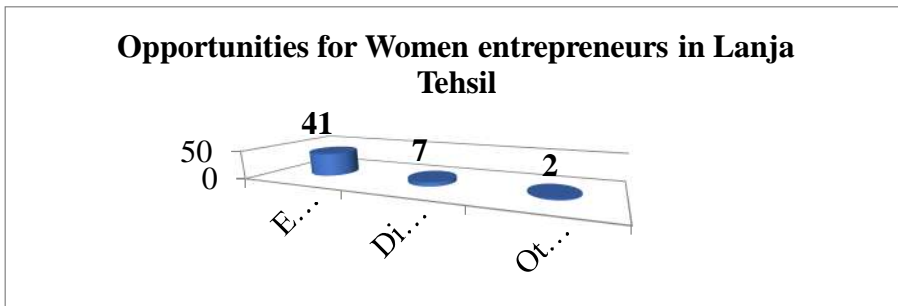
Graph No. 2



Women entrepreneurs have vast opportunities in entrepreneurship career in rural areas. All sectors viz., manufacturing and processing, trading and service giving concerns provides vast scope for women to establish own business. Women can invest in micro, small or medium size business at rural level keeping in view the obstacles of capital requirement and geographical limitations. The present case study has collected the following responses regarding the opportunities for women entrepreneurs in their respective business in Lanja tehsil.

Table No. 3: Opportunities for Women entrepreneur in Lanja Tehsil

Expansion	Diversification	Other
41	07	02



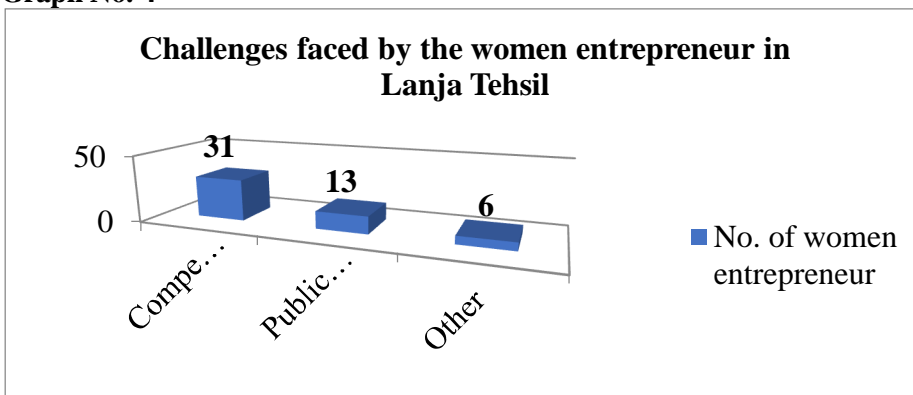
Each coin has two sides, similarly along with opportunities one entrepreneur has to face challenges also.

The challenges faced by female entrepreneur are far varied from those challenges faced by a male entrepreneur. The prime challenge faced by female entrepreneurs in rural area is the cut throat competition in male dominating society, which is followed by family responsibilities, lack of education, lack of finance, Lack of moral support and lack of mobility. The present case study focused the challenges faced by the women entrepreneurs in Lanaj tehsil which revealed the following facts and figures:

Table No. 4: Challenges faced by the women entrepreneur

Competition	Public relations	Other
31	13	06

Graph No. 4



Conclusions:

The findings of present case study are as follows:

- It is seen that Skill is the dominant factor inspiring the women entrepreneur for starting the business
- There is a lack of awareness about the government schemes and subsidies for women entrepreneur
- Development in the business of women entrepreneur has generated employment opportunities
- The women entrepreneurs faces weaknesses such as family responsibilities, insufficient skilled staff
- Women entrepreneurs have the opportunities of expansion and diversification of their business
- Women entrepreneurs face the challenge of Competition, public relation and male dominant society
- The annual turnover is Less than Rs. 100000/-. It is seen that the business of women entrepreneurs in the rural area indicates slow development trend.

Recommendations:

- Motivate the women for own business.
- Organising training programmes for the women entrepreneurs for their empowerment.
- Guidance to the women entrepreneurs regarding the schemes of government and various financial institutions.
- Expanding the business and generating more employment opportunities.

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SIGNIFICANCE OF LIFE SKILLS FOR SUSTAINABLE DEVELOPMENT OF PROSPECTIVE TEACHERS

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Abstract

Sustainable development for a prospective teacher is a very necessary part of teacher's training program because it helps them to integrate the newest findings about what works for students. The prospective teachers shall get knowledge of different work skills by life skills training program which can improve their performance at internship program and later on work place. The present paper focuses on the significance of life skills education and the benefits of imparting life skills in the teacher training programme

Keywords: Sustainable Development, Life Skills and Prospective teachers

Introduction

Education is a never ending process which doesn't stop after degree and starting a career. Education and individual can constantly improve their skills and become more professional at their jobs. Education is important but education to support and live life better is more important. It has been feel that life skill education bridges the gap between basic functioning and capabilities. In the current age of advancements, endless opportunities and challenges the need of life skills training in schools and colleges has further increased. Children today are mould to achieve materialistic success and fame this very idea is what besmirching the character and integrity of students as a reserved. We have a huge list of cold and conservative youngsters that do not have basic qualities like gratitude and empathy. Students should be taught the value of maintaining a balance between materialistic success and profound in peace. But before giving life skill education to our students and adolescence it is necessary to give the life skill education to the prospective teachers. The teachers get knowledge of different work skills by life skill training program which can improve their performance at workplace and making good interpersonal relation with their students and also for their sustainable development.

Literature Review

Kendra Dippy, Sosina Bezu, Are Knudsen, Sandra Halvorsen (2018) - Life skills in non-formal contexts for adolescent girls in developing countries. This study has three overall research objectives. First, we are interested in knowing more about the landscape of life skills programming: What non-formal life skills programs are being implemented in developing countries that benefit adolescent girls? Whom do these programs serve? What teaching methods do they use? Second, we are interested in the design of these programs: What do these programs teach and why, and how does political, social, and economic context potentially shape the content of programs? Third, we are interested in the intended outcomes of life skills programs: How are life skills programs intended to help girls confront specific life challenges.

Parvin Abbasi, Mehnoosh Timareh, Arash Ziapour , Fateme Dehgan, Vahid Yazdani (2018)- The effect of life skills training on reducing high risk behaviours among high school students in Kermenshah, North west of Iran.` In a quasi-experimental study, the statistical population included Mullah Sadra boy high school students in the academic year of 2017 2018. In this research ,the sampling was done in two stages :first ,to identify the individuals with high-risk behaviour questionnaire ,was used and 30 students who have high-risk behaviour and willing to participate were selected and randomly assigned to intervention group(n=150) and control group (n=15). The education intervention consisted of 12 sessions (each session was 60-120 minutes). The Life Skills questionnaire was completed by two groups before, after and one month after intervention; and data were analyzed using SPSS software version 23.0. According the results, Educational intervention had a positive impact on reducing of high-risk behaviours in boy high school students.

Prashant Thote (2015) - An Analysis of Attitude of Secondary School Teachers towards In- Service Training Programme of Life Skill Education in Central India.

The study was carried out to facilitate the physical, mental and emotional well-being of individuals. “Central Board of Secondary includes life skill education in curriculum since 2009 and teachers were new to this concept to acquaint them with the concept author conducted in-serving training programmer in private English Medium School”. The Present study was conducted to find out teachers attitude towards Life skill education. A Study of Attitude of Teachers towards In-services Training Programmers of Life Skill Education was dealt. The sample included 100 primary school teachers of Central India selected randomly, “The attitude of secondary school teachers towards different aspects



of in-service training programmers” self-made tool was used for the collection of required data. 't-test' technique was adopted for data analysis. It is concluded that there is no significant difference between Rural and Urban, Male and Female and Teaching Experience (1-10 and 11-20+) teachers attitude towards in-service training programs of Life Skill Education.

Pujjar, L.L. (2014) Impact of Intervention on Life Skill Development among Adolescent Girls of Karnataka.

With the background the following study was conducted to study the impact of intervention on life skills development among rural adolescent girls from Dharwad taluk of Karnataka state. There is a need to focus on physiological, emotional and socio-cultural dimensions of the adolescents. Moreover, the greater need is to equip adolescents with life skills, so that they can cope with the challenges and pressures. The population of the study consisted of adolescent girls studying in 8th and 9th standards. The total strength of adolescent girls from both the high school was 328, out of which 120 adolescent girls in the age range of 13-15 years were randomly selected from 8th standard (60 numbers) and 9th standard (60 numbers) from both the villages and were assessed for five life skills namely, problem solving, creative thinking, critical thinking, coping with stress and empathy by using self-administered checklist as a method of data collection. The study concludes that the intervention on life skill education is helpful for the rural adolescent girls to take positive actions and improving their coping skills of stress and problem solving ability.

Sustainable Development

It means development of knowledge, skills and values required to accomplish needs of present generation without compromising the ability of future generation to gratify their needs. (Veena Kumari Shakya - 2k16).

Education for Sustainable Development (E.S.D.) was a United Nations program that defined as education that encourages changes in knowledge, skills, values and attitudes to enable a more sustainable and just society for all. ESD aims to empower and equip current and future generations to meet their needs using a balanced and integrated approach to the economic, social and environmental dimensions of sustainable development. ESD is the term most used in internationally and by United Nations. The United Nations Decade of Education for sustainable development 2005-2014 requests that sustainable development issues should be incorporated into education in a holistic and Trans disciplinary manner. This involves the embedding of Sustainable development competencies into existing education programmes.



* Agenda 21 was the first international document that identified education as an essential tool for achieving sustainable development at a global level and highlighted areas of action for education.

Prospective Teachers

Teacher candidates who are enrolled in a teacher education program such as B.Ed. , D.El.Ed. and are there in final year of education are called prospective teachers.

According to N.C.T.E. (National Council of Teacher's Education 1998), teacher education is a professional training programme for the development of teacher as a person and as an agent of social change. So, teacher's education for all stages of school education is the most crucial point for the improvement of quality of school education. However, during the admission of teacher education certain points are overlooked like communication skills, general awareness of the self and the world, a positive outlook of life and maintain good human relation etc.

Life skills have been defined by WHO as -

"Ability and positive behaviour that enable individuals to deal effectively with the demands and challenges of everyday life."

Practising life skills lead to qualities such as self-esteem, sociability and tolerance, competences to take action and generate change and the capability to have the freedom to decide what to do and what to not. Life skills are associated with managing and living a better quality of life.

LIFE SKILLS which are essential for the sustainable development of prospective teachers are:-

Communication Skills

Teaching is all about communication- listening, speaking, reading, presenting and writing. Teachers who hone their communication skills are prepared to instruct, advice and mentor students entrusted in their care. Additionally, teachers must communicate well to effectively collaborate with colleagues and update administrators on student's progress. Teachers must be skilled at listening to their students as well as explaining things very clearly and effectively. Teachers need clarity of thought to present the material. Communications includes transforming the boring phenomenon into interesting and have good communication skills.



Leadership Skills

Teachers have various levels of school leadership qualities. Some are learned and some are part of their personality. A Great teacher possesses a combination of leadership qualities that are respected by the students, parents, peers, and the community. They can accomplish important tasks because of this connection they have with their profession and people they touch through it.

Thinking Skills

Critical thinking is very important in life. It helps you to think creatively i.e. - "outside the box". It is the ability to analyze the way you think and present evidence/proof for your ideas, rather than simply accepting your personal reasoning as sufficient proof. You can gain numerous benefits from mastering critical thinking skills, such as better control of your own learning and empathy for other points of view. Critical thinking is, in short, self-directed, self-controlled and self-monitored thinking. It is very important in the new knowledge economy. The global knowledge economy is driven by information and technology. One has to be able to deal with challenges quickly and effectively. So, good critical thinking is very important in the fast changing workplace.

Personal Skills

Personal skills are soft skills- intangible qualities or traits that enhance our interactions. These are abilities we are born with, natural talent and things that we develop through our experiences and deliberate practices. The aim of personal skill activities is to reflect on each skill and competence and be aware of each component and processes that occurs in the intrapersonal dimensions and to develop an independent identity which is aligned with the personal abilities.

The major seven personal skills are as follows -

- Resilience
- Responsibility
- Engagement
- Motivation
- Inquisitiveness
- Self-discipline
- Self-reflection
- Confidence

Decision Making Skills

The three most important criteria for good decision making are values, experience and common sense.



Values- What your students' value determines their behaviour? Their beliefs produce feelings and feeling lead to behaviour.

Experience- We all learn to make decisions through experiences. Time will tell if a decision was good or bad.

Common Sense- What you know, is a key component in choosing one path versus another. Use what you know to help you make the best decision.

There have been many researches carried out to emphasise the importance of life skill education in development of students and teachers.

Conclusion

- The life skills are important to improve teachers perceived work environment and teachers self-efficacy.
- Prospective teachers can include knowledge and practice of life skills in their internship programme.
- With the help of life skills prospective teachers present themselves as a person having effective skills before their student.
- Life skills provide the knowledge of class management for the teacher trainees.
- Making good interpersonal relations is very important part of any profession.
- Life skill education helps the teacher in learning to develop good relations with other people.
- So this research is an attempt to find the importance of life skills for sustainable development of prospective teacher.

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FEMALE MATERIALIZATION: SEPARATING “SEX” FROM THE “OBJECT”

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Abstract

In the context of objectification, little attention has been paid to the perception neuroscience of how the human brain perceives women bodies and objectifies them. Various studies point to how external cues such as rituals and attire could play a key role in encouraging objectification, dehumanization and the denial of authority. Reviewing new experimental findings across several areas of research, it seems that common threads run through issues of community, religion, customs, sexual objectification, body perception, dehumanization, and assault. Collating findings from several different lines of research, this article reviews additional evidence from cognitive and neural dynamics of person perception (body and face perception processes) that predict downstream social behaviour. Specifically, new findings demonstrate cognitive processing of sexualized female bodies as object-like, a crucial aspect of dehumanized percept devoid of agency and personhood. Sexual violence is a consequence of a dehumanized perception of female bodies that aggressors acquire through their exposure and interpretation of objectified body images. Integrating these findings and identifying triggers for sexual violence may help develop remedial measures and inform law enforcement processes and policy makers alike.

Keywords: Objectification, Object Perception, Dehumanization, Sexual Violence

Kanyadaan : A Situational & Social Irony

Marriage: an institution that is universal and defines human society, saving it from promiscuity and randomness. Its definition and importance as a practical and logical set-up to function as a seed of family is undeniable. These aspects of marriage are absolute, but what poses itself as a question is its setting in the Hindu society and culture, and its undisputed continuance.

Hindu marriage, with its rituals and ceremonies of the Vedic age, was relevant in the social circumstances of those times. Girls were married off before attaining puberty, and hence the ritual “Kanyadaan”. The responsibility of a girl was completely transferred to the family she was married into. A couple used to

have many children. Hence, there was a social, moral, and economic balance within families, coupled with an emotional sensitivity that was of give and take. Daughter-in-law for a daughter.

We proudly glorify Vedic times and practices, but when it comes to marriage, rather than just glorifying, we are keeping the system intact. Vedic practices have this unfortunate fact associated with them, we forgot the good ones and kept the ones that are redundant.

Vedic practices have this unfortunate fact associated with them, we forgot the good ones and kept the ones that are redundant.

Marriage seems to be a customary and typical matter, other than being the very purpose of life. People write a lot about it, read a lot about it, think of it at various levels – social, economic, cultural, religious, but I find very few instances where people question its setting in the Hindu society. **Denying it, and thoughts of changing it, are awfully rare.**

Hindu marriage, its rituals and ceremonies, are debatable for various reasons but in this article I would be taking a key ritual – “Kanyadaan” and citing my apprehensions about it. As I mentioned earlier, Kanyadaan as a ritual was justified in the times when girls were married off at a very young age. She was gifted away by the father and he was considered to be free of all the sins, of the present life and those of the earlier ones. Fine. A condition to justify the pain of separation.

Logic? The groom was considered Vishnu and the girl the prime offering that can be made to God. Objectifying women has not been rare, and making her a gift is nothing to be surprised of as well. But what surprises me is the fact that this ritual is still in practice, unquestioned.

Changing times, unchanging rituals

Times have changed. The No-son norm is not uncommon. As feminists, we are liberal, talking of family planning, equality, rights of girls to food, clothes, education to share in property, everything! At the same time we are radical, taking of males to be the source of trouble, patriarchy to be the root of evils. But how frequently do we talk of establishing the balance? How frequently do we target the fundamental cause of inequality? That is marriage in the Hindu setting, in particular, the rituals that in the present world serve no practical purpose but have a strong moral and emotional element still attached to them.

The role of girls has changed tremendously. Household chores and child-rearing are no more their only duties.

The role of girls has changed tremendously. Household chores and child-rearing are no more their only duties. They are getting educated, contributing to family finances, taking care of their parents. Then what is the logic behind still

continuing with the rituals like Kanyadaan? I strongly believe, and urge every girl who finds herself out of her traditional roles, who sees herself at par with males, that she must question these rituals, Kanyadaan in particular.

Because, this is the ritual that leads to patriarchy, defines patrician residence, reduces a girl to the status of a gift, which no longer belongs to the owner. There is a strong need to say no to its practice.

Many girls say no to such rituals during their wedding have given the society reasons of not doing so.

What difference does it make?

Women are anyway going to fulfil all their duties as daughters. But that is the question in the first place! If it does not make any difference than why to practice?

The families won't agree!

A fair enough reason. Women do not want to do anything that disturbs their family. But looking at the larger picture presents us with something entirely different. Parents and families earlier were not happy with their girls moving out of the town for education or job. But now they are. **Earlier they could not even think of questioning dowry. But now they do.**

A bit far into history, abolishing sati system, widow remarriage etc. could not be even thought of as socially possible. Now they are considered as social evils, something we even imagine the existence of. But they were socially accepted practices earlier. People questioned them, worked relentlessly so that they could be undone. Similar is the case now. There is some initial resistance that society presents and that has to be overcome. What it needs is courage and a heartfelt desire.

What is wrong with these rituals?

There are women who prove that the change in their position in society is in turn helping the society itself to change for better. An equitable and fair society is desired and required. **Questioning and shunning these rituals** will serve a very strong purpose of taking away the religious and moral sanctions that come in the way of providing ourselves with the social settings that we know are logical and justified.

- I talked with my parents about changing these rules for myself and I was not surprised to see that they completely agreed with my reasons. In fact, they were happy to find out that I feel the same about these rituals as they do. They too find them redundant, serving no purpose.
- I talked with my parents about changing these rules for myself and I was not surprised to see that they completely agreed with my reasons.
- I talked with guys about how they feel about questioning and changing these norms. Again, I was not surprised to find out that they were very positive and find these rituals superfluous and unnecessary. They were happy to

accept that they have no particular desire to engage in these rituals while marrying the girl they'll be sharing their life with.

The soul purpose of this article is to urge every girl to marry on her own terms, in a way that suits her logic and presents her with the most graceful way to enter into this relationship which is the single-most perfect synonym of equality.

Female, Feminism, Fertile & other F-Words : Objectification

Objectification of women is a common practice that prevails in society across various institutions, beliefs and even cultural norms. The family is, in fact, the first place where this starts. Family is an institution of primary socialisation and this institution promotes blatant sexualisation and objectification of women. The ways in which women are treated as mere commodities within the family are discussed below.

Starting from the time they are born, women are thought of as liabilities to family members. In most cases, parents start saving funds for their daughters' weddings. However, whenever a son is born into the family, parents focus on saving funds for his education and career. From the very beginning, gendered norms and practices are imbibed and propagated. Little girls are monitored for their movements and behaviour much more than the boys are.

Since their childhood days, girls are made to believe that they are 'fragile' and that they must keep themselves covered in order to 'protect their honour'. There are many instances of women being instructed to wear clothes that cover their bodies when the male members of the family are at home. This is a method of moral policing with respect to the female body. Such a forced practice is a result of sexualising women's bodies. It is not the woman that is to be blamed for wearing what she wants – rather it is the people who cannot stop sexualising her body, even if they are her own family members.

A common and problematic practice within the family, especially during weddings, is the taunting and teasing of women. This cultural practice, which most families proudly propagate, qualifies as harassment of women with regard to their independence and sexual preferences. One very common example lies in the Hindi phrase “saaliadhigharwaalihotihain”. This means that a man's sister-in-law is his “half-wife”.

Starting from the time they are born, women are thought of as liabilities to family members.

This not only implies that the sister-in-law (the woman in question) is being thought of as a commodity for sexual bait, without her consent, but it also promotes the notions of adultery and incest. According to the defenders of this cultural practice, it is 'joke' that is to be dismissed. However, what one does not understand while promoting such practices is that these stem from the

objectification of women and result in the same, further aggravating it. It, therefore, culminates into a vicious cycle.

Apart from these, there is yet another problematic practice that lecherously objectifies the women in the family, at times, even without their own awareness of the same. In many of the porn sites, it is common to come across videos named “**bhabi sex video**”, “**sexy bhabi**”, etc. These videos portray actual as well as imaginary sexual relations between a sister-in-law and a brother-in-law. Viewing such videos and gaining pleasure from them not only makes one think of their sister-in-law as a sexualised and pleasurable object, but also portrays adulterous and incestuous relations.

With respect to the religious practices during weddings, there are norms that essentially originate from objectifying women as liable commodities. In fact, what is more disturbing is the fact that, with the changing times, certain norms are being challenged by people, whereas some others norms that are equally harmful, are being promoted as being romantic and beautiful. Such are the cases of dowry and kanyadaan. Of late, there have been many arguments that state that dowry actually objectifies men by putting price tags on them, instead of promoting women as the centre of transaction.

However, while drawing up arguments, one must definitely not forget the reason behind asking for dowry. Women are very much the epicentre of the transaction that entails threat, abuse, third-degree torture and even murder. There are instances of the groom's family asking for higher dowry, owing to high educational degrees and career-related success. The entire system of dowry is based on the woman being objectified in terms of being ‘perfect’ and agreeing to do the household chores for her husband. The dowry is generally stated as a price for the ‘maintenance’ of the bride, after marriage.

Although many are protesting against **dowry**, the idea of **Kanyadaan** or **Kanakanjali** has not been contested against – as being a ritual that objectifies women. During a wedding ceremony, kanyadaan is a ritual that is performed by the father of the bride, wherein he ‘hands over’ his daughter to the groom. This practice stems from the idea that the woman is an object that is controlled by her initial family and is later handed over to another family. A woman's decision to marry is completely her own call and nobody has to hand her over to somebody else. She is not a mere commodity to be handed over from one institution to another, to be controlled by the patriarchal society.

During a wedding ceremony, kanyadaan is a ritual that is performed by the father of the bride, wherein he ‘hands over’ his daughter to the groom.

In a traditional arranged marriage setting, the groom, along with his primary family members, goes from one house to another, in search of the ‘perfect bride’. This is similar to the method in which one generally hops from one retail outlet to another, in search of the perfect dress, t-shirt or shoes. This signifies

that women are considered as objects for sale by their own family members. During this selection process, the groom's family mostly shows concerns about the societal standards of morality possessed by the woman under scrutiny. This is a method of dominating and controlling the life of the woman.

Another vital factor that magnifies the practice of objectifying women within the family is marital rape. The acknowledgement that a woman has the ultimate right to her own body and that nobody else can violate her personal boundaries does not seem to exist in our society. A married woman is considered to be a puppet in the hands of her husband. Her right over her own body ceases to exist. The notions of consent and coercion amalgamate into one massive courtyard of misconception, arising from masculine ego. The traditional institution of marriage seems to be the key to flashing unending masculine power and objectifying women to such an extent that only makes them look like sex slaves for their husbands. Moreover, even the highest court of law in the country fails to acknowledge marital rape as a crime, stating that acknowledging the same will lead to a breakage in the institution! The institution of marriage clearly rests on patriarchy, of which the objectification of women in the family is an integral part.

Objectification of women within the family has become so commonplace that acts of everyday casual sexism do not intersect the radar of offensive behaviour. For example, people who stand up against gendered practices and discrimination provide their explanations on the basis of the derived identity of women. Although there are many people who mean well, they do not understand the manner in which regular sexism works. Protesting against gender-based violence by stating that the women being abused are sisters, mothers, daughters and wives only objectifies them even more. Such a standpoint dissolves the independent identity of a woman, reducing her only to be known as somebody's somebody.

Women have been objectified in every stratum of society starting with the family. With such patriarchal notions and practices, imbibed from the beginning of one's life, the society cannot progress much in terms of 'morality' in its actual sense

Marriage : A Right to "RAPE" legally

Marital rape has been widely debated in India. India unlike other developed nations has yet to criminalize marital rape. Activists and Indian media endorse the opinion that India's patriarchal society makes it necessary and imperative that marital rape should be criminalized. On the other hand, a more orthodox view remains that marital rape cannot be criminalized because of the sacred nature of marriage in Hinduism and how criminalizing marital rape would destabilize the institution of marriage.



Other than the reasons endorsed by the government, there are numerous causes that can be attributed to the existence of marital rape in India. The primary cause being the position of women in Indian society.

Marriage is viewed as a sacrament in Hinduism with the wife being viewed as under the possession of the husband. This has been used as a defence by the legislature against the criminalization of marital rape. When the matter is further analysed, it can be concluded that the issue goes much deeper.

Due to the archaic rule that marital rape is not easily recognised as an offence, it is assumed by the law that, marriage refers to the wife giving consent to all the “matrimonial obligations” including sexual intercourse. Even though India as a nation is based on the theory of equity, it still has not recognised the right a woman has in controlling marital intercourse as a component of equality. As the nation lacks any sort of legal provisions regarding marital rape, the victims’ only resort is to go to court. Courts have various methods to identify marital rape and have given strict punishments but due to the lack of legal provisions, they are bound and hence cannot describe “forceful intercourse by a man upon his wife” as marital rape. Hence, the Judiciary is not enough and it requires the help of the legislature. The laws have to adapt to the changing reality of society. The government presented the case to Delhi High Court and stated two reasons against the criminalization of marital rape.

- First, that marital rape cannot be criminalized because marriage is sacred and the criminalization of this act in the Indian context would lead to the destabilization of society.
- Secondly, it should not be criminalized because of the huge number of fraudulent cases that may be filed against husbands.

It is necessary to debase the assumptions on the part of the government and other Orthodox institutions. One cannot claim marriage as a sacrament and remain ambivalent about such a heinous crime perpetrated against a married woman. Numerous laws protect married women from domestic violence. If acts like the Domestic Violence Act of 2005 do not affect marriage as an institution then it is hypocritical to not treat marital rape as a form of domestic violence. Secondly, all crimes see a number of fraudulent cases being filed but this defense is only used when it comes to gendered laws that specifically concern women.

The causes behind a crime of this sort can be traced back to the social position given to women in Indian society. Historically, Indian women have been considered to be owned by their fathers and later their husbands. Hence, rape can, to a certain extent, be equated to a crime against property. This is why in the ancient times the penalty against rape also involved paying compensation to the victim’s father or husband. Since the wife is considered chattel of the husband and a man cannot commit a crime against his own property, the



question of marital rape doesn't arise at all. Hence, the fact that males have to establish ownership over a woman after marriage makes a married woman more susceptible to being exploited by her husband. It is even evident in Hindu Law and Muslim Personal Law that a woman is treated as inferior to a man. Her existence stems from her relation to a man; her father or husband. Hence, she cannot say that a man who has "ownership" over her has violated her or committed a crime against her.

The Indian government has argued that marital rape cannot be criminalized because what might seem like rape to the wife may not be rape in the eyes of others. This statement hints at how regressive Indian society is and has become a standard defense in rape cases. Rape is only about the victim and his or her consent. The crime is committed when the woman feels violated. That is the only standard that must be looked at. Social perception of the incident or the woman's behaviour can play no role here. Hence, it doesn't matter whether there is a disparity between the views of the wife and others. This cannot be a yardstick to deny her justice and say that what happened to her was not rape.

Allowing spousal rape and not criminalizing it, effectively means that human dignity can be accorded lesser value in the case of a woman when she is married. It is inherently wrong and problematic to assure dignity and sexual autonomy to the husband and not the wife. The argument that the act cannot be criminalized to protect the stability of the institution of marriage is base and illogical. Only when two partners are given equal rights over their bodies can the "sacred" institution of marriage thrive.

End Note : Subjugation to Leaders

In conclusion, the history of the social oppression & objectification of women is vast and diverse and unfortunately still persists. The inclusive movements have been of various kinds and have evolved through time. But unfortunately this seems like a problem which will still take time to be weeded out. In India, the women's reservation bill is still to be passed after years of wait and debate. Society in India has to stop misconstruing culture with religion and enforcing ancient ideas on modern day women. Men and women alike, need to understand what equal rights stand for, not just politically or economically; there is a need to socially brain wash patriarchal ideas away. We may have given our women the right to vote and own property, but those were the building blocks for something more monumental, which is now not just a gender right anymore. This issue was always a humanitarian issue, not one of a gender fighting for rights against the other. Now, more men have finally realized this and have become active feminists themselves, to break gender roles for men and women alike. This needs to be taken more seriously and needs to be redefined into a possible fourth wave of feminism to take up this issue of providing basic human rights and needs to half of the world's population.



But in spite of all the darkness, we will end in a positive overdue. In recent times, back in West Bengal, a group of women, gracefully chanted the scriptures in Bengali amid some of Tagore's most melodious songs. Their only motto—reintroduce the culture and heritage of India to the younger generation sans the orthodoxy, ambiguity or inequality. The knowledge in their scriptures cannot stay hidden behind an ancient language. The couples of this generation are asking questions about what and why they do in rituals. And, it is the responsibility of the priests to help them understand. That's exactly what they are doing,”

So the moral of life is,

“Fear is freedom! Subjugation is liberation! Contradiction is truth! These are the truths of this world! Surrender to those truths, you pigs who fawn over clothing!”

Satsuki Kiryuuin

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A STUDY TO ASSESS THE EFFECT OF INFORMATION BUNDLE ON ANXIETY LEVEL OF NURSING STUDENTS REGARDING FIRST AID MANAGEMENT OF SPINAL CORD INJURY

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Abstract

Introduction WHO recognizes spinal cord injury as a major musculoskeletal condition that presents a serious disease burden. Spinal injuries can be extremely critical, so it is vital to know what to do first at the scene of an accident. It is incredibly important to keep the spine in line if suspected spin injury and prevent additional damage. **Aim of this study** is to evaluate the effect of information bundle on level of anxiety among nursing students. **Convenient sampling technique** was used to collect data from 37 nursing students. **Findings** reveals that, the calculated t value (4.95) of anxiety level is more than the table value at (0.05) level of significance. Therefore, the research hypothesis is accepted.

Key Words : Anxiety Level, Information Bundle, First Aid Management, Spinal Cord Injury.

Introduction

According to WHO, every year around the world, between 250000 and 500000 people suffer a spinal cord injury (SCI), While in road accidents, the greatest risk is spinal cord damage. Spinal cord injury is always a medical emergency as it could lead to chronic painful conditions, permanent paralysis or even death. As per WHO, it as a major musculoskeletal condition which leads serious problem. Outcome of a spinal cord injury depends upon the accuracy, adequacy, and speed of first aid management, diagnosis, and treatment within the first few hours. Traumatic spinal injuries predominantly involve young males. Household falls are the most common cause of traumatic spinal injuries.

The common causes of injury to the spinal cord in India are road traffic accidents; fall from trees, buildings or at the construction sites, railway accidents, sports injuries, gunshot wounds, etc.

Lack of knowledge can lead to anxiety, which will ultimately affect the patient care during emergency. First aid management can prevent many long-term disability and help in early recovery.

Objectives:

- To assess the level of anxiety among nursing students on first aid management of spinal cord injury.
- To assess the effect of information bundle on anxiety level of nursing students on first aid management of spinal cord injury.

Material and Method:

Approach – Experimental

Design- Two group pretest posttest

Setting- College of nursing, Mumbai

Sampling technique- Convenient sampling

Inclusion Criteria

- RGNM First year students

Exclusion criteria

- Students who are absent on the day of data collection.
- Students who are not willing to participate.

Variables

- ✕ Dependent variables - Anxiety level of students
- ✕ Independent variable - Information bundle on first aid management of spinal cord injury

Tool

Part I: Demographic data

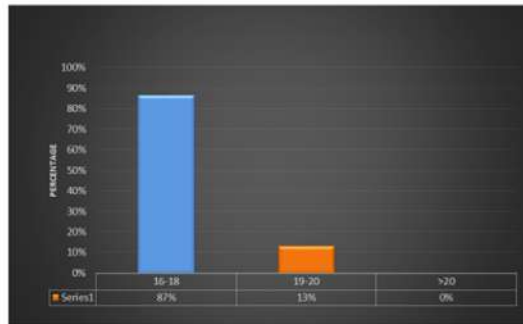
Part II: Hamilton anxiety scale (HAM-A)

Result:

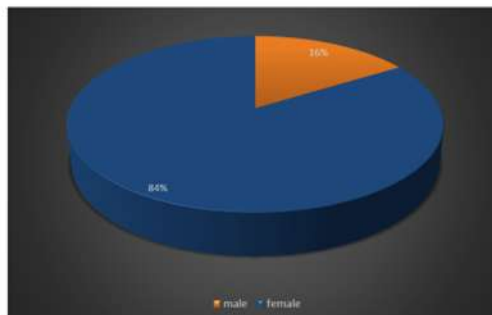
The findings of the study revealed that statistically significant reduction in anxiety from pretest to posttest implementation of information bundle. The majority of nursing students had mild anxiety. Only 14% students demonstrated severe anxiety during pre-test whereas none of them was found with severe anxiety in post-test that indicates that the knowledge helps in reducing anxiety level. Overall it shows that the information bundle have positive effects on the anxiety level of nursing students while performing first aid management on a victim with spinal cord injury

There are some graphs given below to represent result:

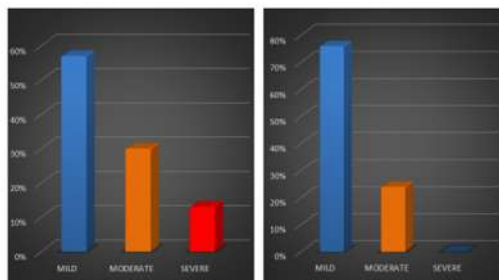
AGE IN YEARS



SEX



Pre-test & post-test Anxiety level



Conclusion:

- The results concluded that, the calculated t value (4.95) of anxiety level is more than the table value at (0.05) level of significance. Therefore, the null hypothesis is rejected and research hypothesis is accepted.
- Hence, it is proven that the information bundle is effective in reducing anxiety level of nursing students while providing first aid management to spinal cord injury victim.

Recommendation:

- Similar study can be done with a larger sample for generalization of the findings.
- Similar study can be conducted in different settings.
- A study can be done to increase awareness about first aid management on spinal cord injury.

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A STUDY ON FACTORS AFFECTING CONSUMER BEHAVIOR TOWARDS BRANDED CLOTHES WITH SPECIAL REFERENCE TO DELHI

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Abstract

Purpose – Branded clothes are becoming a status symbol. Consumers from rural areas are also craving for branded products and so as for branded clothes. It has become a duty of firms to aware the consumer and satisfy them regarding their brand so that they can achieve competitive advantage in their field. Purchase behavior of consumer also plays important part in this process. The objective behind this study was to identify various factors regarding Brand Awareness, Brand Satisfaction and Brand Purchase Behavior of Consumer in respect of branded clothes.

Research Methodology – Descriptive methodology was followed under the study. A survey was organized in Delhi among one hundred consumers to identify their behavior regarding branded clothes.

Findings – After analyzing the data, it was found that Brand Recognition and Brand Insight are main factor in respect of Brand Awareness among consumers. Appreciation factors, Brand Benefits and Durability factors affect the Brand Satisfaction among consumers of branded clothes. It was also found that consumer Brand Purchase Behavior regarding branded clothes is affected by Qualitative and Innovative Measures. It is suggested on the basis of study that firms which are doing business in branded clothes should make efforts to aware consumers about their brand and must satisfy their needs regarding brand. Firms are also suggested that they should have the knowledge of consumer purchase behavior so that efforts for the same can be initiated to increase the publicity of the brand they are engaged in.

Paper Type – Empirical Research Study

Key Words: Consumer Behavior, Brand Awareness, Brand Satisfaction, Brand Purchase Behavior.

Introduction

Brand refers to a name and a symbol for identification of particular product. It specifically helps in creating a positive image in the mind of consumers which



is different from rivalry available in market. It also helps enterprises to create their loyal customer group and retain their shares in related market. Loyal customers are real value of the enterprise. They purchases repeatedly and also recommend the brand to other. Brand also shows superiority of a country which is having many global brands. People in today's era are craving for branded products and branded clothes are one of them. Brand is becoming a fashion statement as well as status symbol. On the other hand, it is believed that branded clothes are of good quality. It was revealed in a study that self-image or the product image congruity was related to a consumer's behavior to a particular brand. Grant and Graeme (2005) examined consumer behavior as complex area. They added that marketers need to try to find out their real customer and it is need of hour to identify each and every fact which customer wants in the products. They should find as much as they can about who are their customers so that they can identify their needs, how they behave, what factors they consider to make a decision to buy and what processes they follow when selecting a product or service they are looking for. In UK Trademarks Act (1994), it is specified that a brand is any symbol which is capable of being represented graphically and contains differentiation of goods or services of one enterprise in comparison to another. Branding was mainly introduced to differentiate similar products and clothing is one of these products.

Literature Review

Various studies were conducted regarding consumer behavior towards branded products. Freeride Media LLC (1998) conducted a study on shopping habits and it was identified that approximately twenty five per cent of the participants were likely to impulse-buy clothes and accessories. Venkatesh (2011) has studied on effect of branding on marketing of banking services in India. This research was related to services brand industry, the banking industry provides methodology to measure brand equity in customer as well as employee. It was found that at the time of building a service brand, firms must focus on both the internal and the external brand so that employees feel a strong attachment towards brand along with a strong customer base. It was suggested that brand's relationship can be strengthen by ensuring customer loyalty. Bahl (2012) have done a study on Brand Awareness and Perception of Rural and Urban Consumers towards Celebrity Endorsement. The main objective of the study was to highlight the brand awareness and consumer perception towards quality of those products which are being endorsed by the celebrities around the urban and rural consumers in Punjab. It was found that most of the respondents were aware about products which were being endorsed by celebrities. Ali (2012) has made a study on customer's satisfaction and brand awareness: a case study of Bulsho cooperative. The main objective of the research was to find out the ways to



create an awareness of Bulsho cooperative, its brand image and brand identity so that their brand can be strengthen and they get competitive advantage over other similar brands in their field. The result of the study found that management should take initiative to so that brand can be strengthen and brand image can be easily identifiable in mind of customer as compare to competitor's product. Advertisement campaign should be conduct with proper communication so that customers can be satisfied by this brand. Gustavo (2010) have made contribution on effects of in-store promotions on brand awareness. In this study effect of in-store promotions on brand awareness in a real shopping environment was investigated by using three types of promotions activities: POP Display, Premium Promotion and Sampling. Gupta and Jain (2014) examined a study of consumer behavior towards branded food products in urban and rural areas in India. The three main objectives of the study was to examine the behavior of consumers regarding branded food products, to extract factors affecting choice of consumers regarding food brands and overall awareness was examined regarding available brands in market. It was found that eighty four percent respondents had favorable behavior regarding branded food products. Consumers preferred products which were of good quality, satisfying needs and had a reasonable rate. Consumer behavior was influenced by advertisement and available substitutes. It was also stated that more than ninety percent respondents were aware about available brands in market. Laddha (2015) again focused on rural consumer buying behavior and brand awareness of durable products. The objective behind conducting the study was prediction of rural consumer buying behavior so that demand can be predicted. It was found that awareness about product and brand has significant impact towards consumer behavior. But rural consumers were not loyal towards specific brand. It was suggested that various effective market strategies should be adopted so that it can be strengthen in competitive market. Jonathan et al (2015) also conducted a study on the effects of second screen use on sponsor brand awareness: a dual coding theory perspective. The objective of the study was to investigate how simultaneous use of electronic devices such as personal computers, tablets and smart phones impacts the sponsors that received brand integration during the broadcasts. It was found that the brand recognition and recall were decreased by second screen activity regarding consumer's experience of all devices. Jumiati & Suki (2015) have studied on young consumers' insights on brand equity: effects of brand association, brand loyalty, brand awareness and brand image. The objective of the study was to identify impact of brand association, loyalty, awareness and image on brand equity among young consumers. The result of the study identified that brand awareness effect brand equity. This awareness regarding brand came from social media. It was said with the help of social

media the young consumers can easily identify brand characteristics as compare to competitors.

Objectives of the Study

1. To identify the factors affecting brand awareness for branded clothes among consumers.
2. To identify the factors affecting brand satisfaction among consumers.
3. To examines the factors affecting brand purchase behavior of the consumer in respect of branded clothes.

Hypothesis of the Study

1. There is no significant inter-relationship between factors affecting brand awareness for branded clothes among consumers.
2. There is no significant inter-relationship between factors affecting brand satisfaction among consumers.
3. There is no significant inter-relationship between factors affecting brand purchase behavior of the consumer in respect of branded clothes.

Data Collection and Methodology

Data was collected from primary source. For the fulfillment of objectives, a sample of 100 participants from Delhi was chosen to fill the questionnaire. The questionnaire was divided into three parts headed by Brand Awareness, Brand Satisfaction and Brand Purchase Behavior towards branded clothes. Among this sample, 50 respondents were male and 50 were female. Descriptive methodology was followed in the study. All the participants were using some kind of branded clothes. Their consuming behavior was analyzed towards branded clothes.

Results and Discussion

To achieve the objectives of study, factor analysis was applied on the collected data. Internal consistency was also checked with Cronbach's Alpha regarding each identified factor.

Objective 1: To identify the factors affecting brand awareness for branded clothes among consumers.

This objective was achieved after applying factor analysis. Various factors were extracted which affect brand awareness among consumers regarding branded clothes. The factors consisting similar results were grouped and named accordingly. KMO & Bartlett's test was applied to find out the sampling adequacy.

Table-1: KMO and Bartlett's Test (Brand Awareness)

KMO and Bartlett's Test		Values
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.755
Bartlett's Test of Sphericity	Approx. Chi-Square	768.150
	Df	171
	Sig.	.000

The above table identified sample adequacy which is .755, it lies in good category i.e., (0.7- 0.8). Bartlett's test examines null hypothesis at 95% level of significance. P-value is .000 which is less than 0.05 considers that Factor Analysis is valid and data can be used for further statistical analysis. The null hypothesis is rejected because $p < \alpha$ and alternate hypothesis is accepted that is there is significant inter-relationship between factors affecting brand awareness for branded clothes among consumers. Value of Chi-square is 768.150 with 171 degree of freedom is significant at 0.05.

Table-2: Factor Loading and Reliability (Brand Awareness)

Sr. No.	Name of Dimensions	Statements	Factor Loading	Cronbach's Alpha
1.	Band Recognition	I know the special utility features of the brand I am using.	.653	.788
		I am very much aware about the off-season sales offers to brand.	.686	
		Due to my previous knowledge about branded clothes I am able to differentiate the brands.	.870	
		Characteristics of the brand come to my mind quickly.	.657	
		Quickly recall the symbol or logo of this brand.	.821	
2.	Brand Insight	Different variants fulfill the needs of various group of users	.601	.659
		It fulfills my expectations	.654	
		I can distinguish one brand from other	.625	
		Physical significance of the brand makes more awareness	.663	
		My brand is fixed in my mind	.618	
3.	Brand Usage	I feel more happy on its use	.719	.768
		Appearance of the branded clothes	.615	

		affects consumer awareness		
		Brand recognition of the clothes is due to its performance.	.848	
		Brand memory has long duration due to usage	.686	
4.	Competitive Advantage	It is economical to use this clothing brand	.830	.658
		I know the manufacturer of my favorite branded clothes	.638	
		I am also aware of other brands manufactured by the manufacturer	.763	

The above table was dragged from factor analysis processed in SPSS. The objective to analyze data was to extract the various factors from statements regarding Brand Awareness. All the variables here were related to varimax rotation method and PCA (Principle Component Analysis). From the twenty items, four factors were identified which were grouped accordingly. The statements having values less than 0.6 were removed. Cronbach's Alpha test was also applied to check the internal consistency of each factor.

Objective 2: To identify the factors affecting brand satisfaction among consumers.

The second objective of the study was also achieved with factor analysis. Those factors were identified which affect brand satisfaction among consumers with respect to branded clothes. Factors were grouped according to nature. To check the sample adequacy, KMO & Bartlett's test was applied.

Table-3: KMO and Bartlett's Test (Brand Satisfaction)

KMO and Bartlett's Test		Values
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.733
Bartlett's Test of Sphericity	Approx. Chi-Square	237.717
	df	45
	Sig.	.000

This table shows sample adequacy which is .733, it comes under good category i.e., (0.7- 0.8). Bartlett's test of Sphericity checks the null hypothesis at 95% level of significance. P-value (.000 < 0.05) says that Factor Analysis is valid and further calculation of data is valid. The null hypothesis that there is no significant inter-relationship between factors affecting brand satisfaction among consumers was rejected because $p < \alpha$ and alternate hypothesis is accepted.

Approximation value of Chi-square is 237.717 with degree of freedom 45 is significant at 0.05 level of significance.

Table-4: Factor Loading and Reliability (Brand Satisfaction)

No.	Name of Dimensions	Statements	Factor Loading	Cronbach's Alpha
1.	Appreciation Factor	I am extremely happy about the decision to choose the branded clothes because of its quality and durability.	.684	.735
		The fabric of the brand is appreciable.	.868	
		Overall I am glad to buy the branded clothes because it is comfortable in use.	.758	
2.	Benefits	The brand has very low defects.	.733	.653
		The brand offers guaranteed service to me.	.692	
		The appearance of branded clothes is good.	.645	
3.	Durability Factor	I believe that it is right thing to purchase my branded clothes because of its value for money.	.779	.635
		Performance of the brand is superior.	.692	
		The brand is durable.	.658	

This table was extracted from SPSS after applying Factor Analysis. The data was analyzed to identify the factors affecting Brand Satisfaction among consumers regarding branded clothes. Three factors were identified from the ten statements. The statements having factor loading less than 0.6 were removed to make data more effective. Reliability for each factors were also checked to find out the internal consistency of the statement.

Objective 3: To examines the factors affecting purchase behavior of the consumer in respect of branded clothes.

To achieve this objective, again factor analysis and KMO & Bartlett's test was applied so that factors can be extracted from various statements which affect purchase behavior of consumer regarding branded clothes.

Table-5: KMO and Bartlett's Test (Brand Purchase Behavior)

KMO and Bartlett's Test		Values
Kaiser-Meyer-Olkin Measure of Sampling Adequacy.		.726
Bartlett's Test of Sphericity	Approx. Chi-Square	83.277
	df	15
	Sig.	.000

It is shown in above table that sample adequacy is .726, which is in good category (0.7- 0.8). Bartlett's test of Sphericity compare null hypothesis at 95% significance level. P-value is (.000 < 0.05) states that Factor Analysis is valid we can use data for further calculation. The null hypothesis is rejected because $p < \alpha$ and alternate hypothesis that there is significant inter-relationship between factors affecting purchase behavior of the consumer in respect of branded clothes is accepted. The value of Chi-square is 83.277 with 15 degree of freedom found significant at significance level of 0.05.

Table-6: Factor Loading and Reliability (Brand Purchase Behavior)

No.	Name of Dimensions	Statements	Factor Loading	Cronbach's Alpha
1.	Qualitative Measure	Price must be proportionate to the quality of product.	.657	.601
		A brand should serve the purpose for which it purchased.	.766	
		Quality of the branded clothes is a main factor of purchase for me.	.651	
		Manufacture's name and reputation regarding quality are important to me.	.697	
2.	Innovative Measure	Innovation in brand is important for purchase decision.	.718	.599
		I need innovation in every product of selected brand.	.891	

The above table shows that two factors were extracted out of six statements. These factors affect purchase behavior of consumers regarding branded clothes in market. Statements which were having factor loading values less than 0.6 were reduced. Cronbach's Alpha test of reliability was applied to find out internal consistency of statements.

Conclusion

Consumer from urban as well as rural areas prefers brand in every product. It is believed that branded products are better in qualitative aspect. Every brand is having different image so that it can be easily identified by consumers. The

same concept is applied in branded clothes. Consumers feel that branded clothes are durable. Most of the people are aware about famous brands in all sectors. This study says that although consumers are aware about the brand they use but it is duty of firms to make efforts regarding identification of their brand in consumers. These efforts will leads towards understanding consumer brand purchase behavior and satisfaction of needs of consumers regarding branded clothes. The study examined three areas of branding which affect consumer behavior towards branded clothes. These are Brand Awareness, Brand Satisfaction and Brand Purchase Behavior. The following results were identified: (i) Brand Recognition, Brand Usage, Brand Insight and Competitive Advantage are main factors due to which consumers are aware of branded clothes. (ii) Appreciation Factors, benefits and Durability Factors are those due to which consumers are satisfied with their brand of clothes. (iii) Qualitative Measures and Innovative Measures are considered as factors affecting Brand Purchase Behavior among consumers. On the basis of findings and previous literature, it is suggested to firms that proper initiative should be taken to attract and retain consumers. Awareness campaign should be organized to aware consumers. The consumer brand purchase behavior should be recognized so that their need regarding particular brand of clothing can be satisfied.

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CORONAVIRUS: A REVIEW ON AN EMERGING NEW VIRAL DISEASE IN THE VERTEBRATES

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Abstract

Viruses are responsible for a wide range of diseases both in humans and animals. Each viruses can causes specific form of clinical problems in specific host depending upon host range, level of infection and environmental condition. Viruses can cause fetal diseases by transmission through respiratory route (spread of droplets of infected person via coughs in air); faecal-oral route (faecal from infected person cause contaminate consumable products); sexual intercourse; direct contact with contaminated blood products; direct or indirect infection from infected animals (zoonotic viruses) and arthropods vectors like mosquito or tick etc. Viruses are highly tolerance according to environment, which make them to survive in any weather and they regularly circulate in invertebrate and vertebrates (mammals and birds). Due to which they are highly dangerous to livestock and humans.

Key words: Virus, Humans, Respiratory Route, Zoonotic, Livestock

Introduction

In the Wild habitat, several species of vertebrates like fishes, amphibians, snakes, bird and mammals of different classes or order serve as a natural reservoir of many new emerging zoonotic pathogens. These pathogens are dangerous for domestic animals or animal husbandry and responsible for high damage in economic sector. These pathogens have a significant impact on public health also.

Viruses are very minute microorganisms, cannot visible through naked eyes. Its size ranging from 0.02 to 0.4 micrometres in diameter, while bacterial size ranging from 0.5 to 5 micrometres. In many ways, viruses may vary among viruses and from bacteria in both structural and biological properties. Generally bacterial can survive freely in environment for long period and also replicate with our host but viruses cannot survive freely in environment for long period therefore need the host tissue or cells for replication. On the basis of genome viruses are two type's viz. DNA viruses (double stranded form) and RNA viruses (single stranded form). The viruses can be simple with non-enveloped

genome with a single protein layer (coat) and complex with enveloped protein coat. The structure of viruses may vary due to environmental resistance.

Corona refers to the characteristic appearance of surface projections (spike) that create an image of crown. Coronaviruses are large in size, covered with protective enveloped and contain positive-single stranded RNA with a spike gives crown-like appearance. The Coronaviruses genomes are the largest among all known RNA viruses.

Taxonomy

The word “coronavirus,” coined in 1968, is come from the “corona”-like or crown-like structural morphology observed in the electron microscope. Coronaviruses are complex group of fatal viruses and belonging to the order Nidovirales. Nidovirales includes three families viz. Coronaviridae, Arteriviridae, and Roniviridae. In 1975, the International Committee on the Taxonomy of Viruses was established the Coronaviridae family. In June 2005, at the 10th International Nidovirus Symposium in Colorado Springs researcher divided the Coronaviridae family into two subfamilies, the coronaviruses and the toroviruses. The Coronavirinae are subdivided into four groups, the alpha, beta, gamma and delta Coronaviruses, depend upon serology but are now divided by phylogenetic clustering. The Arteriviridae family causes infection in vertebrate (includes swine and equine) whereas the Roniviridae family causes infection in invertebrate (Enjuanes et.al., 2000). Depend upon the genetic and serological relationships; coronaviruses can be classified into four groups.

Table 1

List of coronavirus species

(As per virus taxonomy released in 2016)

Genus	Species
Alphacoronavirus	Bat coronavirus CDPHE15 Bat coronavirus HKU10 Human coronavirus 229E Human coronavirus NL63 Miniopterus bat coronavirus 1 Miniopterus bat coronavirus HKU8 Mink coronavirus Porcine epidemic diarrhoea virus Rhinolophus bat coronavirus HKU2 Scotophilus bat coronavirus 512
Betacoronavirus	Betacoronavirus 1 Hedgehog coronavirus 1 Human coronavirus HKU1 Middle East respiratory syndrome-related coronavirus Murine coronavirus Pipistrellus bat coronavirus HKU5 Rousettus bat coronavirus HKU9 Severe acute respiratory syndrome-related coronavirus

	Tylosycteris bat coronavirus HKU4
Deltacoronavirus	Bulbul coronavirus HKU11 Common moorhen coronavirus HKU21 Coronavirus HKU15 Munia coronavirus HKU13 Night heron coronavirus HKU19 Thrush coronavirus HKU12 White-eye coronavirus HKU16 Wigeon coronavirus HKU20
Gammacoronavirus	Avian coronavirus Beluga whale coronavirus SW1

Source: Justyna and Katarzyna (2018)

Coronavirus Diseases

Coronaviruses causes deadly infection in many species of animals and humans. Many investigators reported that Coronaviruses cause both acute and chronic disease in different area of animals and humans bodies like respiratory organs (lungs), enteric (digestive system), and neural network (central nervous system) and their pathogenesis varies according to general to genera. The prototype murine coronavirus strain was reported in 1949 (Cheever et.al., 1949). In 1970s researchers actively studied the molecular mechanisms of replication and pathogenesis of different Coronaviruses. Some viruses reported in animals such as porcine transmissible gastroenteritis virus, bovine coronavirus, and avian infectious bronchitis viruses; develop the importance of veterinary science due to economic value of these animals.

1. Human coronavirus.

The human coronaviruses are mainly associated with serious human diseases like multiple sclerosis, hepatitis or enteric disease in newborns (Resta et.al., 1985) but mainly in humans the coronaviruses (CoV) are mainly associated with respiratory tract related medical problems. The most dangerous human coronavirus is Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) which causes Severe Acute Respiratory Syndrome (SARS), a deadly lung related disease in humans (Osterhaus et.al., 2004). It was reported that Severe Acute Respiratory Syndrome Coronavirus (SARS-CoV) emerge from a wild animal reservoir like bats (Lau et.al.,2005) and it was primarily transmitted to humans via infected civet cats.

Tyrrell and Bynoe isolated the virus from a boy in 1965. It is estimated that there are four strains of human coronaviruses (HCoVs) circulating globally among the human. In 1960s researches identify two strain, named human coronaviruses- OC43 (HCoV-OC43) and human coronaviruses-229E (HCoV-229E) and other two were discovered recently named, human coronaviruses-NL63 (HCoV-NL63) and human coronaviruses-HKU1 (HCoV-HKU1) (Woo et.al., 2005).

Studies confirm that human coronaviruses- OC43 (HCoV-OC43) and human coronaviruses-229E (HCoV-229E) infect both lower and upper respiratory tract infections in humans (manly in children and young boy). It also causes gastrointestinal disease in children (Gerna et.al., 1984). In an Amsterdam hospital, 7-month-old child admitted suffering from bronchiolitis and conjunctivitis, Diagnostic tests reveal discovery of new stain of novel virus named human coronaviruses-NL63 by using VIDISCA method (Virus Discovery cDNA-AFLP) in 2003 (Fouchier et.al., 2004). HCoV-NL63 is a causing agent of serious respiratory symptoms, including upper respiratory infection, bronchiolitis, and pneumonia (Ebihara et.al., 2005). The human coronaviruses-HKU1 was identified in a 71 year old Chinese man patient with pneumonia, who was admitted in a Hong Kong hospital due to fever, cough and problem in respiration in 2004 (Woo et.al., 2005).

2. Murine coronavirus.

In the family of coronaviruses, mouse hepatitis virus (MHV) is one of the serious diseases casing virus which is well studied in terms of its biology and pathogenesis. Mouse hepatitis virus (MHV) contains a 32 kb long positive-sense, single-stranded RNA genome (Lee et.al. 1991). There are many strains of mouse hepatitis virus (MHV) shows different levels of virulence in rodents. (Perlman, 1998). Mouse hepatitis virus (MHV) causes several diseases, like hepatitis, enteritis, and encephalitis in all ages of rodents (Compton et.al., 1993). Some strain mouse hepatitis virus (MHV) cause enteric disease which transmitted through oral-fecal route in rodent's colonies and specially danger for immunocompromised rodents (Barthold et.al., 1993). Mouse hepatitis virus (MHV) infection of the mouse is considered as one of the best animal models for the study of demyelinating diseases humans like multiple sclerosis.

3. Porcine coronavirus.

There are several porcine coronaviruses have been reported in the past studies. Coronavirus cause disease in pigs (viral enteritis and fetal diarrhea) commonly known as porcine epidemic diarrhoea (PED). The disease characterised by watery loos motion (severe diarrhoea) and weight loss. The first case reported in 1971 in swine populations. The virus cause infection in all ages of pigs and most serious in neonatal piglets causing mortality 100% but decreases as the age increase after which causes significant economic loss. It is highly contagious infection transmits through faecal –oral route (Susanna and Chan, 2015).

The virus is responsible for transmissible gastroenteritis (TGE). Transmissible gastroenteritis virus (TGEV) was recognized in 1946 (Doyle and Hutchins, 1995). In neonates, transmissible gastroenteritis virus causes infection

in the epithelial cells of small intestine and lead to fatal gastroenteritis. Due to infection, virus in the upper respiratory tract and lungs also cause mild disease. Porcine respiratory virus (PRCoV) infects lungs epithelial cells and lead to interstitial pneumonia. Porcine respiratory virus (PRCoV) is an attenuated variant of transmissible gastroenteritis virus (TGEV). The genetic material of both Transmissible gastroenteritis virus (TGEV) and porcine respiratory virus (PRCoV) are almost 96% identical except difference in the 5 region of the spike gene, and in pathogenic outcome. (Saif, 2004).

The clinical symptoms of diseases are anorexia, vomiting, diarrhoea and dehydration. There is no specific medicine to cure such disease but early detection of disease show positive significance in treatment. Several vaccines show positive results against Transmissible gastroenteritis virus (TGEV) (Saif, 2004 and Saif, 2004).

4. Avian coronavirus.

Coronaviruses thrive well in avian species and classified in to the genera gammacoronaviruses and deltacoronaviruses. In gammacoronaviruses, the common representative is avian coronavirus. Taxonomically it is known as infectious bronchitis viruses (IBVs) due to highly contagious in chickens and also other similar viruses infect other domestic birds like turkeys (turkey coronavirus –TCoV cause enteritis infection), guinea fowls (guinea fowl coronavirus-GfCoV-)), pheasants, peafowl, and quails etc. The avian coronavirus is reported in domestic galliformes and also in non-galliformes, viz. Columbiformes, Pelecaniformes, Ciconiiformes, Psittaciformes, Anseriformes and Passeriformes (munia, bulbul, and thrush). (Woo et.al., 2012). The infection spread by aerosol and cause considerable economic loss to the poultry industry.

Viruses are reported in pheasants and turkeys, multiply or proliferate in upper tract of respiratory tissues and then infect area of bronchi and responsible for severe disease in young animals. Other Some strains of infectious bronchitis viruses (IBV) cause more systemic infections and replicate in the tissues, like the kidney (causing nephritis), the oviduct (causing decreased egg production), and the gut (Saif, 2004 and Saif, 2004).

The infectious bronchitis viruses are ubiquitous in nature found in several region of world. The infectious bronchitis viruses' strains are mainly responsible for infection in the respiratory, urogenital, and digestive tracts of domestic fowl.

The protection mechanisms against IBV induced disease in the tissue are not completely clear. Vaccines have been developed to protect against infectious bronchitis viruses (IBV) both live attenuated and inactivated. Live vaccines may be short lived protection and inactivated vaccines alone are unable

to protect chicken from disease. But the inactivated vaccines may be used with live attenuated vaccine to boost immunity of birds.

5. Feline coronavirus.

Feline coronaviruses (FCoVs) are covered by protective enveloped with a large, capped, polyadenylated RNA genome (29,190 nucleotides). There are two biotype of feline coronavirus reported known as feline infectious peritonitis virus (FIPV) and feline enteric coronavirus (FECV) (Saeed et.al., 2010). There are four subgroups of Feline coronaviruses named transmissible gastroenteritis virus (TGEV), canine coronavirus (CCV), raccoon dog coronavirus (RDCoV), and Chinese ferret badger coronavirus (CFBCoV) (Vijaykrishna et.al., 2007). The structural protein (spike, envelope, membrane, and nucleocapsid proteins) and the order of genes that encoding the viral polymerase is 5'-Pol-S-E-M-N3. The feline coronavirus genome also contains additional genes like 3a, 3b, 3c, 7a, and 7b that encode non-structural proteins. The functions of these genes are not clear (Lai et.al., 2007).

Feline coronaviruses infection is very common in cats. Feline coronaviruses are highly infectious and spread contamination by the faecal-oral way. Depend upon antigenic relationship with canine coronavirus, Feline coronaviruses strains can be grouped into serotypes I and II. Feline coronaviruses serotype I strains are totally feline (cat). They are hardly to grow in cell culture and responsible for slowly cytopathic effect. Whereas Feline coronaviruses serotype II strains develop from the recombination of Feline coronaviruses serotype I and canine coronavirus CCV. They can grow quickly than serotype I viruses and produce a lytic cytopathic effect. Feline infectious peritonitis virus proliferates primarily in pharyngeal respiratory or intestinal epithelial cells. Macrophage infection leads to spread of viruses through blood circulation (systemic), causing inflammation of the abdominal and thoracic cavities and also responsible for ocular and neurological disorders (De Groot and Horzinek 1995; Vijaykrishna et.al., 2007). Feline infectious peritonitis virus infection involves immune-mediated pathology (Hohdatsu et.al. 1998) due to which scientist has great challenge to develop vaccine against FIPV. It has been reported that after vaccination, spike protein of virus and cat with FIPV develop an early death condition caused by antibody- dependent enhancement of virus. (Saif, 2004).

6. Bovine coronavirus

The virus is ubiquitous in nature distributed throughout world and detected by serology test. It causes both respiratory (lung) and enteric medical complications. The enteric disease includes diarrhea young once calf and in adults cause dysentery in winter and the respiratory infections occur in all aged cattle with shipping fever. Both viruses isolated from respiratory and enteric

infection are similar. Investigation suggests that serum antibody correlates with immunity. The severe infection in cattle causes large economical loss to owner of cattle or animal husbandry industry due no vaccines available to prevent Bovine coronavirus associated medical problems in cattle. (Saif, 2004 and Saif, 2004).

Diagnosis

Primarily notice the symptoms like fever, cough and shortness of breath. After that samples are examined by serological test (presence of antibodies indicates infection), culture of sample to detect virus in it, electron microscopy to get clear structure of virus, histopathology and molecular study of organs of individual methods for the confirmation of virus infection in individuals.

Prevention

Awareness or information of virus is very important, through which any one can face the problem safely. As the vaccine is under examination and there is no such medicine to prevent infection, Isolation of an infected individual is the only signified method for restriction and spreading of viral infection among the populations.

Conclusion

Coronaviruses are very common viruses live in wild animals without affecting human population but when human come in contact of wild animals, harbour of coronavirus causes dangerous medical complication (viruses may mutate). They usually target the respiratory tract because any one who touches these animals always put their hands on their faces from where they easily reach to the respiratory route. The coronaviruses causes very severe life threatening disease in human population like Middle East Respiratory Syndrome (MERS) in Saudi Arabia or visitors to that area and Severe Acute Respiratory Syndrome (SARS) in China and travellers who travel in and from there. Coronavirus mainly transmitted through oral-faecal route; salivary route and respiratory route. Person, who living with or carrying a coronavirus infection are more dangerous for spreading infection through small droplets of saliva or sputum in and around area where they live among the population. Kissing is also a route for transmission, spread virus from person-to-person. Therefore it is necessary to make distance during interaction with animals like cats, dogs etc. and communications with human after that wash face and hands with soap thoroughly to prevent infection.

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IMPACT OF CORONA VIRUS ON ECONOMY WITH SPECIAL REFERENCE TO INDIA

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Abstract:

In wake of the novel coronavirus (Covid-19) outbreak, over 50 per cent of Indian companies see impact on their operations and nearly 80 per cent have witnessed decline in cash flows, says a survey. The pandemic has presented fresh challenges for the country's economy, causing severe disruptive impact on both demand and supply side elements which has the potential to derail the growth story, according to a poll conducted by industry body Ficci.

The country is already experiencing a significant 53 per cent of Indian businesses indicate the marked impact of the coronavirus pandemic on business operations even at early stages, Federation of Indian Chambers of Commerce and Industry (Ficci) said.

The pandemic has significantly impacted the cash flow at organisations with almost 80 per cent reporting a decrease in cash flow. Besides the direct impact on demand and supply of goods and services, businesses are also facing reduced cash flows due to slowing economic activity, which in turn is having an impact on all payments including to those for employees, interest, loan repayments and taxes.

Key words: Pandemic, Covid19, Federation and Cash flow

Introduction

The corona virus is going global, and it could bring the world economy to a standstill. An epidemic that began in the depths of China's Hubei province is spreading rapidly. There are now significant outbreaks from South Korea to Italy and Iran, and the first deaths have been reported in America. The economic fallout could include recessions in the U.S., euro-area and Japan, the slowest growth on record in China, and a total of \$2.7 trillion in lost output—equivalent to the entire GDP of the U.K. India faces a sharp decline in government revenues and economic growth for at least two quarters as the corona virus hits economic activity and a fall in investor sentiment impacts privatisation plans, government and industry sources said. Officially, the government is still sticking to the target of achieving 6-6.5% in the next financial year beginning April, while hoping that a fall in crude oil prices could help it garner more revenue and contain a fall in revenue from other sectors. But economists and bankers are turning increasingly downbeat about India's economic prospects, especially as the government is betting on filling its coffers through ill-timed asset sales.



Impact of corona virus on china:

The starting point for our analysis is what's happening in China, where automobile sales have plunged 80%, passenger traffic is down 85% from normal levels, and business surveys are touching record lows. The economy, in other words, has practically ground to a halt. Bloomberg Economics estimates that GDP growth in the first quarter of 2020 has slowed to 1.2% year on year—the weakest on record. If China doesn't get quickly back on its feet in March, even that forecast could prove optimistic.

► In 2019, China imports came in at \$2.1 trillion. From Starbucks lattes to Yum's crispy fried chicken, sales in China are a major earner for multinationals. And Chinese tourists staying home hits everyone from South Asia's beach resorts to the boutiques of Paris.

► China is the world's biggest producer of manufactured components. When Chinese factories shut down, the widgets that go into everything from Apple's iPhones to construction machinery become harder to find.

► The impact reaches small businesses too. In Hong Kong, a jewelry designer found that his automated, digitized Chinese suppliers have gone offline. They could churn out 1,000 rings in a day. His workers just spent a week hammering out a single one. "I'm back into, like, pre-historic jewelry making," he lamented.

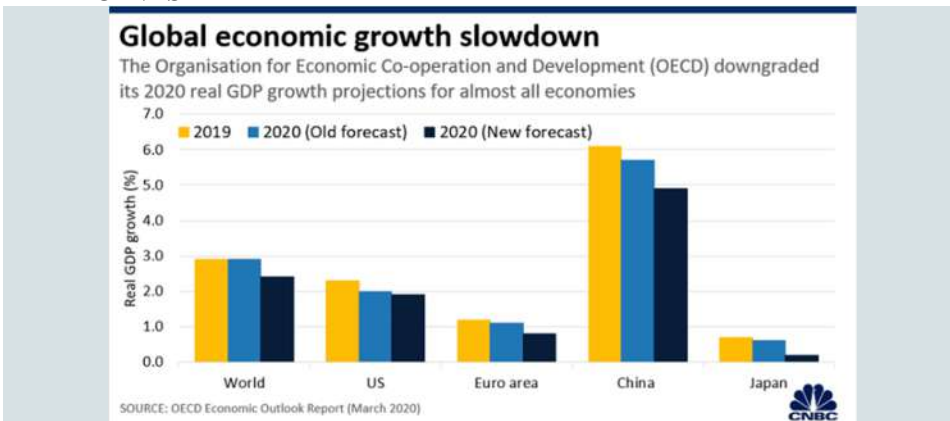
► China shocks have spread across global financial markets before, including the surprise yuan devaluation in 2015. The coronavirus is repeating the pattern, and on a larger scale, as equities plunge around the world and deliver knock-on blows to household wealth and business confidence.

If China can quickly get the outbreak under control, and the world's factory rumbles back to life in the second quarter, then the impact on the rest of the global economy could be contained. That's a real possibility. A survey by Made-in-China.com—one of the main platforms connecting Chinese suppliers and global buyers—found that by late February, 80% of manufacturing firms had resumed operations. By late April, says general manager Li Lei, production capacity should be back to normal. If that happens, a severe shock in the first half would be followed by recovery in the second. For the world as a whole, and major economies like the U.S., the impact would then be hard to see in the full-year GDP data. A month ago, an epidemic confined largely to China, with other economies suffering from knock-on effects but not their own outbreaks, seemed like a plausible base case. In early March, with more than 6,000 cases in South Korea, closing in on 4,000 in Italy, hundreds in Japan, Germany and France, and concerns mounting in the U.S., it's starting to look optimistic. It's true that no other country has anywhere near China's 80,000 reported cases—and that democratic countries might balk at the containment steps taken by China, which locked down a province of 60 million. While a less draconian approach could potentially increase the ultimate cost to public health, it could also result in a smaller short-term impact on the economy. Still, a lighting company based in China's Zhejiang province illustrates how the problem is changing shape. The firm has more or less overcome the domestic shock: All workers are now back at the factory. But now they're preparing to face a different problem: Weaker orders from overseas. To capture the economic impact of a global pandemic, we assume that all countries in our model face a severe shock—equivalent to the drop in growth China is suffering in the first quarter. If that happens, global growth for the year goes to

zero. The U.S. joins the euro-area and Japan in contraction—potentially changing the dynamic of the presidential election. China's economy expands just 3.5%—the slowest in records back to 1980, when Deng Xiaoping's reforms were just getting underway. Worldwide, lost output hits \$2.7 trillion. The OECD cut its expectation for global growth to 2.4% from 2.9%, and warned that it could fall as low as 1.5%. Goldman Sachs expects a global contraction in the first half of the year. Recent forecasts for first-quarter GDP growth in China range from 5.8% all the way down to -0.5%, underscoring the high degree of uncertainty. Policy research predating the coronavirus outbreak suggests there's a downside risk to even the most pessimistic of these forecasts. A 2006 paper by the World Bank put the potential cost of a severe flu pandemic at 4.8% of global GDP—a tailspin that would rival that seen in 2009 after the financial crisis. At the epicenter of the crisis, the People's Bank of China has so far been more measured, cutting rates by just 10 basis points, and instructing lenders to go easy on stressed business borrowers rather than adding to the problem by calling in bad loans. In neighboring Korea, the central bank has been similarly cautious—calling an emergency meeting, but failing to deliver the rate cut the markets expected. Governor Lee Ju-yeol said he saw limits to what monetary policy can do to counter the virus. The virus is at least in part a supply shock—closing factories, and forcing workers to stay at home. That's not something policy makers can do much about. Rate cuts and higher spending will help put a floor under fragile financial markets, and revive demand once the crisis is over. In the heat of the outbreak, stimulus risks stoking inflation without accelerating growth—making the problem worse, not better.

Charts showing the coronavirus impact on the global economy and markets so far (CNBC)

KEY POINTS



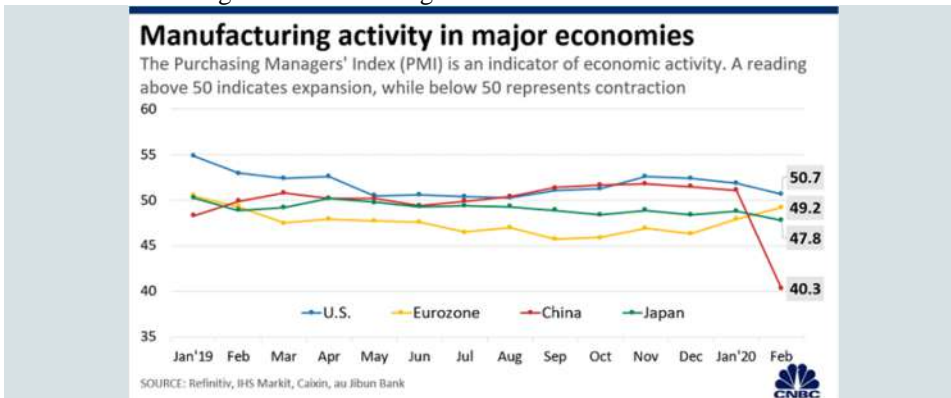
China's gross domestic product growth saw the largest downgrade in terms of magnitude, according to the report. The Asian economic giant is expected to grow by 4.9% this year, slower than the earlier forecast of 5.7%, said OECD.

Meanwhile, the global economy is expected to grow by 2.4% in 2020 — down from the 2.9% projected earlier, said the report.

Slowdown in manufacturing activity

The manufacturing sector in China has been hit hard by the virus outbreak.

The Caixin/Markit Manufacturing Purchasing Managers' Index — a survey of private companies — showed that China's factory activity contracted in February, coming in at a record-low reading of 40.3. A reading below 50 indicates contraction.



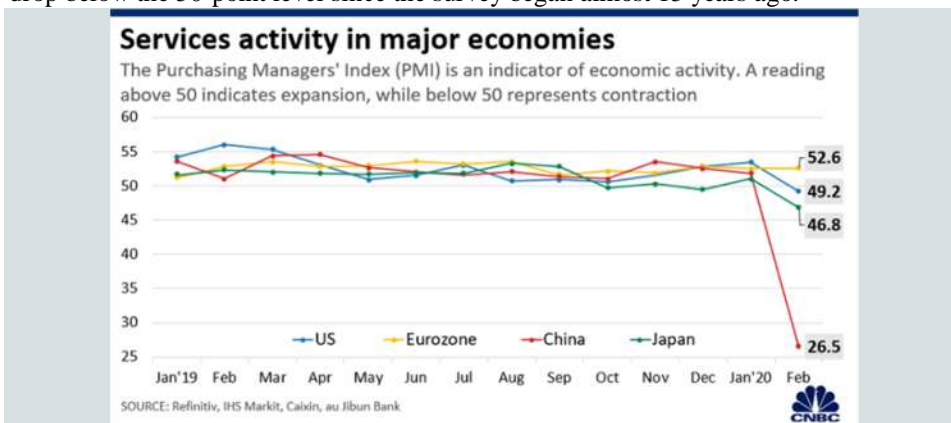
Such a slowdown in Chinese manufacturing has hurt countries with close economic links to China, many of which are Asia Pacific economies such as Vietnam, Singapore and South Korea.

Factories in China are taking longer than expected to resume operations, several analysts said. That, along with a rapid spread of COVID-19 outside China, means that global manufacturing activity could remain subdued for longer, economists said.

Services contraction

The virus outbreak in China has also hit the country's services industry as reduced consumer spending hurt retail stores, restaurants and aviation among others.

The Caixin/Markit Services PMI for China came in at just 26.5 in February, the first drop below the 50-point level since the survey began almost 15 years ago.



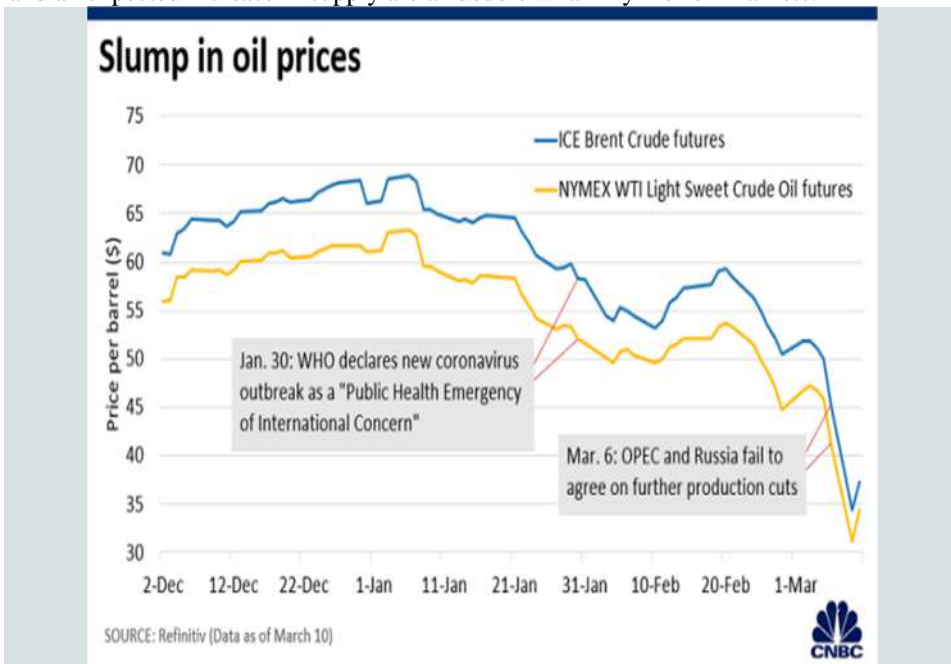
China is not the only country where the services sector has weakened. The services sector in the U.S., the world's largest consumer market, also contracted in February, according to IHS Markit, which compiles the monthly PMI data.

One reason behind the U.S. services contraction was a reduction in "new business from abroad as customers held back from placing orders amid global economic uncertainty and the coronavirus outbreak," said IHS Markit.

Declining oil prices

A reduction in global economic activity has lowered the demand for oil, taking oil prices to multi-year lows. That happened even before a disagreement on production cuts between OPEC and its allies caused the latest plunge in oil prices.

Analysts from Singaporean bank DBS said reduced oil demand from the virus outbreak and an expected increase in supply are a "double whammy" for oil markets.



China, the epicenter of the coronavirus outbreak, is the world's largest crude oil importer.

"The spread of the virus in Italy and other parts of Europe is particularly worrying and will likely dampen demand in OECD countries as well," the DBS analysts wrote in a report.

Stock market rout

Fear surrounding the impact of COVID-19 on the global economy has hurt investor sentiment and brought down stock prices in major markets.

Sell off in stock markets

Chart shows the year-to-date percentage changes in major stock indexes



Cedric Chehab, head of country risk and global strategy at Fitch Solutions, said there are three ways the coronavirus outbreak could work its way through sentiment in markets. “they have identified three channels through which the COVID-19 outbreak was going to weigh on markets so that’s the slowdown in China, the slowdown from domestic outbreaks ... and the third channel was financial markets stress,” he told CNBC’s “Street Signs Asia” this week.

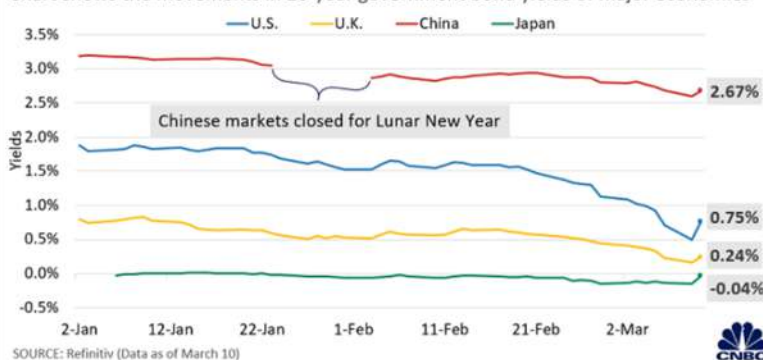
Lower bond yields

Concerns over the global spread of the new coronavirus has also driven investors to bid up bond prices, resulting in yields in major economies to inch lower. U.S. Treasuries, which are backed by the American government, are considered safe haven assets that investors tend to flee to in times of market volatility and uncertainty.

Yields on all of the U.S. Treasury contracts fell below 1% in the past week — a development not seen before. The benchmark 10-year contract also touched its historic low of around 0.3%.

Government bond yields inch lower

Chart shows the movements in 10-year government bond yields of major economies



Such compression in U.S. Treasury yields could prompt the Federal Reserve to cut interest rates once again, several analysts said. The U.S. central bank made an

emergency cut of 50 basis points last week, bringing its target funds rate to 1% to 1.25%.

“They believe that the Fed is cognizant that it has limited policy space for conventional cuts today versus past recessions, and will look to move more aggressively and ahead of market expectations to extract the maximum efficacy from its rate cuts,” strategists at Bank of Singapore wrote in a note.

Trade impact of Corona virus for India estimated at \$348 mn: UN report:

India is among the 15 most affected economies due to the coronavirus epidemic and slow down in production in China. The trade impact of the coronavirus epidemic for India is estimated to be about 348 million dollars and the country figures among the top 15 economies most affected as slowdown of manufacturing in China disrupts world trade, according to a UN report. Estimates published by United Nations Conference on Trade and Development (UNCTAD) on Wednesday said that the slowdown of manufacturing in China due to the coronavirus (COVID-19) outbreak is disrupting world trade and could result in a 50 billion dollar decrease in exports across global value chains.

The most affected sectors include precision instruments, machinery, automotive and communication equipment.

Among the most affected economies are the European Union (USD 15.6 billion), the United States (USD 5.8 billion), Japan (USD 5.2 billion), South Korea (USD 3.8 billion), Taiwan Province of China (USD 2.6 billion) and Vietnam (USD 2.3 billion).

India is among the 15 most affected economies due to the coronavirus epidemic and slow down in production in China, with a trade impact of 348 million dollars. The trade impact for India is less as compared to other economies such as EU, the US, Japan and South Korea. Trade impact for Indonesia is 312 million dollars. For India, the trade impact is estimated to be the most for the chemicals sector at 129 million dollars, textiles and apparel at 64 million dollars, automotive sector at 34 million dollars, electrical machinery at 12 million dollars, leather products at 13 million dollars, metals and metal products at 27 million dollars and wood products and furniture at 15 million dollars. Besides its worrying effects on human life, the novel strain of coronavirus (COVID-19) has the potential to significantly slowdown not only the Chinese economy but also the global economy. China has become the central manufacturing hub of many global business operations. Any disruption of China's output is expected to have repercussions elsewhere through regional and global value chains, UNCTAD said.

Over the last month, China has seen a dramatic reduction in its manufacturing Purchasing Manager's Index (PMI) to 37.5, its lowest reading since 2004. This drop implies a 2 per cent reduction in output on an annual basis. This has come as a direct consequence of the spread of corona virus (COVID-19). The 2 per cent contraction in China's output has ripple effects through the global economy and thus far has caused an estimated drop of about USD 50 billion across countries,” UNCTAD said. “The most affected sectors include precision instruments, machinery, automotive and communication equipment, it added. UNCTAD said because China has become the central manufacturing hub of many global business operations, a slowdown in Chinese production has repercussions for any given country depending on how reliant its



industries are on Chinese suppliers. In addition to grave threats to human life, the coronavirus outbreak carries serious risks for the global economy, UNCTAD Secretary-General Mukhisa Kituyi said. Any slowdown in manufacturing in one part of the world will have a ripple effect in economic activity across the globe because of regional and global value chains, he said. Pamela Coke-Hamilton, who heads UNCTAD's Division on International Trade and Commodities, said for developing economies that are reliant on selling raw materials, the effects could be felt very, very intensely. Assuming that it is not mitigated in the short-term, it's likely that the overall impact on the global economy is going to be significant in terms of a negative downturn, she said. The estimated global effects of COVID-19 are subject to change depending on the containment of the virus and or changes in the sources of supply.

Meanwhile, the extent of the damage to the global economy caused by novel coronavirus COVID-19 moved further into focus as UN economists announced a likely USD 50 billion drop in worldwide manufacturing exports in February alone.

India faces revenue fall as corona virus bites economy

The company's share prices have fallen by over 27% since January while the broader NSE Nifty 50 index has fallen by nearly 20% following a panic in global markets. Another senior finance ministry official said some of the proposed share-shale plans in companies like Coal India, Steel Authority of India Ltd (SAIL), NMDC and IRCON have been deferred. The government now expects to raise about Rs 50,000 crore (\$6.75 billion) against downwardly revised target of Rs 65,000 crore for the ongoing financial year ending in March, the official said. Another senior official in the tax department said receipts have been hit due to fall in consumer demand as reflected in the lower sales of autos, passenger traffic, hotel bookings, and retail sales.

Tour operators estimate January-March quarter earnings could fall by more than 60% from a year ago as hundreds of thousands of tourists cancel travel, hitting hotels, airlines and tax collection for the federal and state governments. India attracts nearly one million foreign tourists a month, and the travel restrictions could impact for next few months. "This is the worst year for the tourism sector as bookings have been cancelled for next two-three months," said Pronab Sarkar, national president of the Indian tour operators association.

The situation in India was still far better compared to some other countries hit by global pandemic, Sarkar said. India annually earns nearly \$30 billion from foreign tourist arrivals, and the industry is worried that a global spread of the virus will harm already weakened economic growth.

Different sectors of the economy bearing the brunt of the corona virus outbreak

A report by the UN Conference on Trade and Development has forecast that the global economy may see an impact of \$1-2 trillion in 2020. How far will the virus impact the Indian economy. Here's a brief overview. The corona virus outbreak might cost the global economy \$1-2 trillion in 2020, according to the UN Conference on Trade and Development. Its potential impact on the Indian economy is not yet known, but several sectors are already feeling the pain, here's a look at the sectors most impacted by the outbreak.



Aviation

585 international flights cancelled by private carriers as on March 6. As part of its efforts to stop the spread of Covid-19, India on March 12 suspended almost all visas for a month, adding to the woes of airlines. As of March 6, Indian private carriers had cancelled 93 international flights and global airlines 492 flights, according to data shared by the government in the Lok Sabha. With the number of Covid-19 cases in India increasing two and a half times over the past week to 84, travellers might be hesitant to even fly within the country.

There will be a further demand slump in the domestic segment, at least for the next few weeks,” says Kapil Kaul, chief executive for aviation consultancy CAPA India. Indigo, India’s largest airline, has reported a 15-20% decline in daily bookings over the past few days, compared with the week-ago period, and expects its quarterly earnings to be “materially impacted”. Kaul says the impact of coronavirus on airlines will be deeper than epidemics in the past. This crisis comes at a time when airlines are also being hit by a falling rupee. Clearly, airlines have to navigate a lot of turbulence.

Hospitality

35% fall reported in restaurant business. With several companies restricting all but essential travel, business hotels in major cities could be left with a lot of empty rooms. Kapil Chopra, founder and CEO of Postcard Hotels & Resorts, says average occupancy in these hotels could fall from 70-75% to 20%, if they haven’t already, even as demand in holiday destinations continues to be strong.

As people become more cautious, restaurants have reported a decline of 30-35% in business in the past few days. And restaurants at malls have recorded a sharper drop, says Anurag Katriar, president of the National Restaurant Association of India. “Delivery segment is seeing the least impact.”

Multiplexes will also have to contend with a fall in demand. Delhi, Kerala and Jammu & Kashmir have ordered that cinemas be shut till March 31. Maharashtra has also ordered the closure of cinemas in some cities, hurting multiplex chains like PVR Cinemas and Inox Leisure Limited. Movie producers globally and in India have deferred the release of movies such as the latest James Bond franchise, No Time to Die, and Akshay Kumar’s Sooryavanshi.

Apparel

35% of apparel export orders come from Europe. Raja Shanmugam, an apparel manufacturer in Tirupur, India’s largest textile hub, is a worried man. “There is a fear psychosis because of coronavirus. If this continues for 2-3 weeks, it could be really bad for us.”

India exported over Rs 1 lakh crore of garments in 2018-19, according to the ministry of commerce. Exports bring in 60% of Indian apparel makers’s revenues. Europe alone accounts for a third of India’s garment exports. But with the region being declared the new epicentre for the disease by the World Health Organization, new orders are bound to be affected. “But it is hard to assess the outcome now. We’ll know in the next couple of weeks,” says Shanmugam, who also heads the Tirupur Exporters’ Association.

What is accentuating the apparel industry's problems is the decline in footfalls at stores, both as a result of people's reluctance to visit them and the closure of malls.

Consumer Durables and Electronics

15% decline seen in mobile shipments in Jan-March. India's consumer durables industry is heaving a sigh of relief as factories in China resume operations after Covid-19 cases taper off in the country. But as India grapples with a rising incidence of the disease, visits to stores might dwindle due to a fear of being exposed to the virus in public spaces, says Kamal Nandi, president of the Consumer Electronics and Appliance Manufacturers Association. This would hurt demand. India imports around 45% of its consumer durables from China, according to CRISIL.

Conclusion:- China's coronavirus outbreak resulted in the increase in the number of urban unemployed people by 5 million between January and February 2020. In the United States alone, the impact of coronavirus on businesses has put 14 million jobs in the leisure and hospitality sectors at risk, excluding other sectors. Pantheon Macroeconomics forecasted that in April 2020, there may be an increase of 5 million unemployed in the US. Economic turmoil associated with the coronavirus pandemic has wide-ranging and severe impacts upon financial markets, including stock, bond, and commodity (including crude oil and gold) markets. Major events included the Russia–Saudi Arabia oil price war that resulted in a collapse of crude oil prices and a stock market crash in March 2020. The pandemic has impacted the film industry. Across the world and to varying degrees, cinemas and movie theaters have been closed, festivals have been cancelled or postponed, and film releases have been moved to future dates. As cinemas and movie theaters closed, the global box office dropped by billions of dollars, while streaming became more popular and the stock of Netflix rose; the stock of film exhibitors dropped dramatically. Almost all blockbusters to be released after the March opening weekend were postponed or cancelled around the world, with film productions also halted. Massive losses in the industry have been predicted.

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PTI United Nations | Updated on March 05, 2020 Published on March 05, 2020

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IMF Calculation

OECD Economic outlook report (March 2020)

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FT-IR analysis and total antioxidant capacity of crude polysaccharide isolated from the red algae *Kappaphycus* sp.

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Abstract

Especially, marine algae have attracted interest due to the presence of a significant amount of polysaccharides, which are recognized as having a number of biological and physiological activities, including anticancer, antioxidant, antiviral and blood coagulation activities. In this present study, crude polysaccharides from *Kappaphycus* sp. were obtained through hot water extraction. The isolated crude polysaccharide from *Kappaphycus* sp. contains carbohydrates (53.01 + 0.425 %) and protein (06.23 + 0.753 %) was found. The structural feature of crude polysaccharides was studied through FT-IR analysis and total antioxidant free radical scavenging activity (74.23 + 0.17%). Crude polysaccharide demonstrates good emulsion stabilizing capacities, with various hydrophobic compounds and that it could be a potential source of natural antioxidants and emulsifiers.

Keywords: Crude polysaccharides, Antioxidant activity, emulsifying activity, FT-IR analysis and *Kappaphycus* sp.

Introduction

The sulfated polysaccharide from marine algae constitute an vital components of cell walls of species belongs to phaeophyta, rhodophyta and chlorophyta and it is usually extracted by the suitable methods followed by purification, characterization and biological studies¹. In recent years, much awareness has been concentrated on sulphated polysaccharides due to the presence of biologically active principles such as antitumor, antioxidant, anticoagulant, antiviral, inflammation, immunomodulatory, antibacterial, antiprotozoan, antilipemic from marine algae. In addition to that, the tissue engineering and regenerative medicine is an important application of the sulphated polysaccharide has become a current topic.

Sulfated polysaccharides from marine algae have received much attention due to their various biological functions used in functional food and are extensively considered by many biochemical and nutritional researchers. The polysaccharides from various bioresources including microorganisms, plants and animals have been found a wide range of applications in food, cosmetic and pharmaceutical industries due to their spectrum of biological activities and relatively low toxicity. Brown algae are a group of marine algae that contains nearly 2000 species with bioactive potential². Marine algae

consist of group of fructose-rich sulfated polysaccharides containing varying amounts of galactose, xylose, and glucuronic acid, which can be extracted from brown seaweeds like *Sargassum* sp. and *Fucus* sp.^{3,4}. The extracted polysaccharides usually found to exhibit varied biological activities including antitumor, immunomodulatory, antiviral, antithrombotic and antioxidant effects⁴⁻⁶. Antioxidants are substance which is found in marine algae that can delay or prevent oxidation of cellular oxidizable substrates⁷. Algal polysaccharides have been demonstrated to play an important role as free-radical scavengers and antioxidants for the prevention of oxidative damage in living organisms⁷⁻⁹. Algal polysaccharides are interesting as well as an important chemical compound in thickening and gelling properties. The purpose of this investigation was to obtain sulfated polysaccharides from *Kappaphycus* sp. Isolated by aqueous extraction at 90°C and evaluate their chemical and rheological properties and to test their total antioxidant potential.

MATERIALS AND METHODS

Extraction of crude polysaccharide from *Kappaphycus* sp.

Kappaphycus species were collected from the rocky seashore around Tuticorin new harbor, Gulf of Mannar, South east coast of India. Sulfated polysaccharides were extracted from the green seaweeds *Kappaphycus* sp. Followed by the method of Subash et al.¹⁰. 100 mg of dried seaweed powder was blended with three volumes of water at 90-95°C for 16 hours. The brown coloured syrup was then filtered through Whatman no. 3 filter paper, concentrated to 1/4th of the original volume, cooled and the precipitate obtained was collected by centrifugation and dehydrated with diethyl ether to get a dried material. The crude polysaccharides (10% yields) extract was used for further experimental analysis.

Estimation of total carbohydrates and protein

The total carbohydrates content was estimated by phenol sulphuric acid method proposed by Dubois et al.¹¹ and also the total protein content of the sample was estimated by Lowry et al.¹²

FT-IR spectrophotometer analysis of crude polysaccharides

IR spectroscopy of polysaccharides were tested using Perkin-Elmer FT-IR instrument which helped to analyze different sulfate, carboxyl and hydroxyl groups present in the samples¹³. One part of the extract was mixed with ninety nine parts of dried potassium bromide (KBr) separately and then compressed to prepare a salt disc of 3 mm diameter. These discs were subjected to IR-spectrophotometer and the absorption was read between 400 and 4000 cm⁻¹.

Emulsifying activities of crude polysaccharides

The ability of crude polysaccharide to stabilize the emulsions with various hydrophobic compounds was as described by Hifney et al.¹⁴. The CF aqueous solution (0.5% w/v) was mixed with each hydrophobic compound (3:2 v/v ratio) and vortexed for 2 min. After 24 h, the emulsification index (E₂₄) was determined using the following equation:

$$E_{24} = \text{Height of the emulsion layer} / \text{Total height of the mixture} \times 100$$

Where, He is the height of the emulsion layer and Ht is the total height of the mixture. The tested hydrophobic compounds included oils (Palm oil, Custor oil, Groundnut oil and Coconut oil) and hydrocarbons (Benzene and Toluene).

Determination of total antioxidant capacity (TAC)

Total antioxidant activity of algal polysaccharide was determined according to the method of Prieto et al.¹⁵. Briefly, 0.3 ml of sample was mixed with 3.0 ml reagent solution (0.6 M sulfuric acid, 28 mM sodium phosphate and 4 mM ammonium molybdate). The reaction mixture was incubated at 95°C under water bath for 90 min. Finally, the antioxidant property of the sample was measured at 695 nm. The total antioxidant activity is expressed as the number of equivalents of ascorbic acid in milligram per gram of extract.

Results**Yield of the crude extract**

Algal polysaccharide were extracted using hot water and the dry weight of the crude polysaccharides were extracted from 100 g of seaweed (Kappaphycus sp.) powder (Fig 1) was found to be 70.14 mg (Fig.2 & 2a).



Fig.1 Collection of Kappaphycus sp. from Tuticorin new harbor



Fig.2. Extraction of crude extract from Kappaphycus sp.



Fig. 2a. Fresh weight of crude extract from Kappaphycus sp.

Estimation of total carbohydrates and protein of the crude extract

The total carbohydrate present in the crude polysaccharides were estimated by phenol sulphuric acid method using glucose as standard and protein were estimated by Lowry's method using BSA as standard. The percentage of total carbohydrate was found to be $53.01 \pm 0.425\%$ and total protein was found to be $06.23 \pm 0.753\%$ in Kappaphycus sp. (Fig.3).

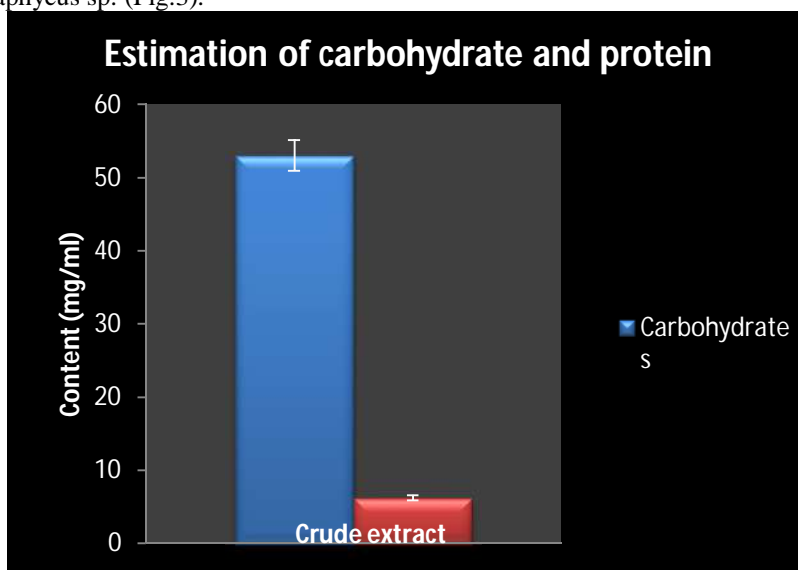


Fig. 3. Estimation of carbohydrate and protein content of crude extract
FT-IR analysis of crude polysaccharides

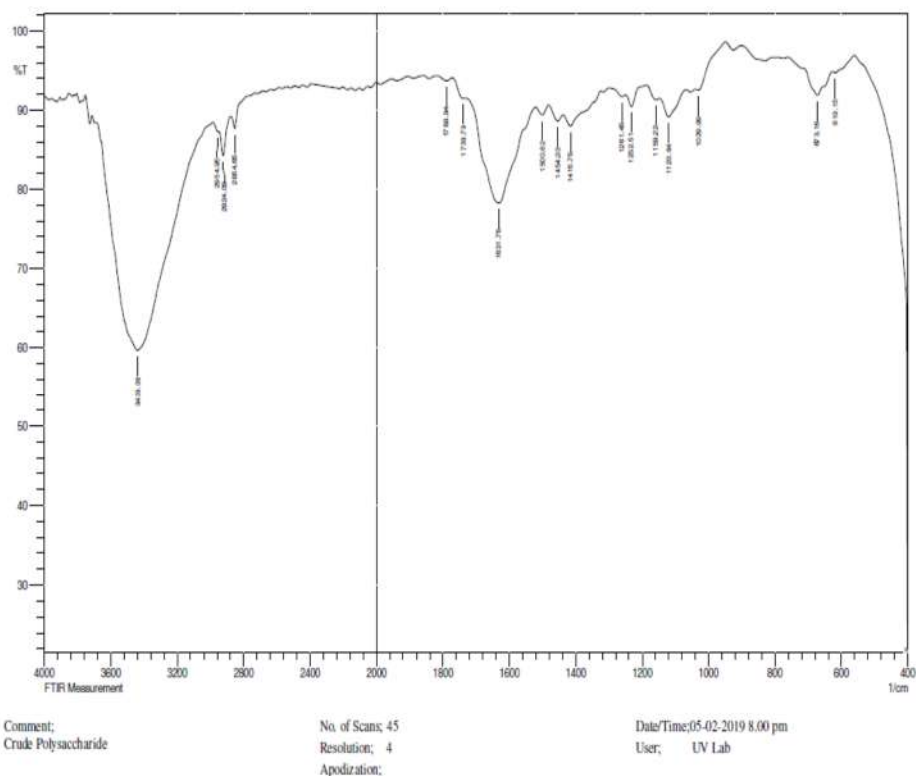


Fig. 4. FT-IR spectrum of crude polysaccharides from Kappaphycus sp.

FTIR analyses performed on crude polysaccharide and reveal the presence of bands in crude polysaccharides from Kappaphycus sp. The list of the bands present at 400-4000 cm^{-1} interval. The band between the regions 1240-1260 cm^{-1} were attributed to the S=O association stretching vibration of sulfate groups. The band 1160 and 1030 cm^{-1} was corresponds to the glycosidic linkage stretching vibration C-O-C and C-OH of aliphatic compounds. The most important bands were those found at 3439 cm^{-1} and 1631 cm^{-1} corresponding to O-H stretching vibration (alkyl group) and H-C mediums stretching vibration.

Emulsifying activities of crude polysaccharides

Emulsifying activities of crude polysaccharide from Kappaphycus sp. were examined against various oil and hydrocarbons. Crude polysaccharide showed good emulsifying activity in some oils (Fig. 7.), with emulsifying activities (E_{24}) ranging between 30% and 60%. Crude polysaccharide was able to stabilize emulsions formed by hydrocarbons with high E_{24} (57% for groundnut oil), and low E_{24} (31% for palm oil).

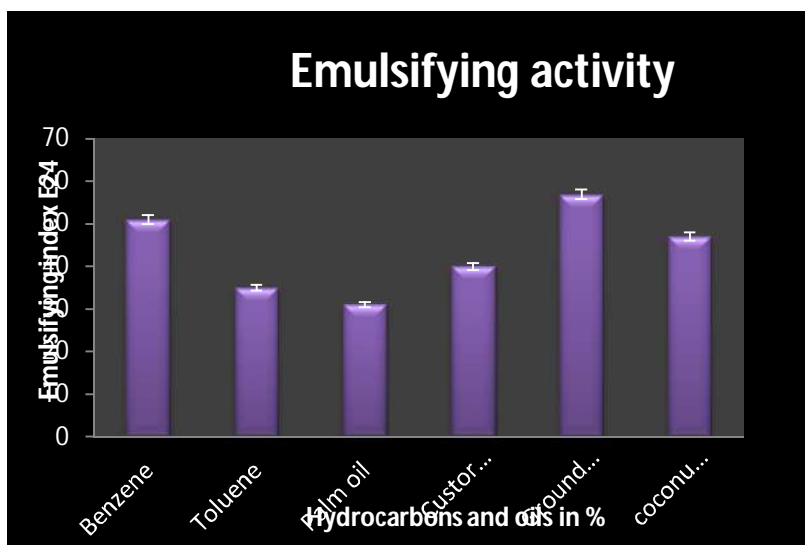


Fig. 7. Emulsification activity of crude polysaccharides from Kappaphycus sp.

Determination of total antioxidant capacity (TAC) of crude polysaccharides

The total antioxidant capacity of crude polysaccharide from Kappaphycus sp. was measured by phosphomolybdenum method. The antioxidant activities increased with increasing concentration of the sample. At the concentration of 1000 $\mu\text{g/ml}$, the polysaccharide of Kappaphycus sp. exhibited higher antioxidant activity (74.23 ± 0.17) % as compared with the standard, ascorbic acid (Fig. 8).

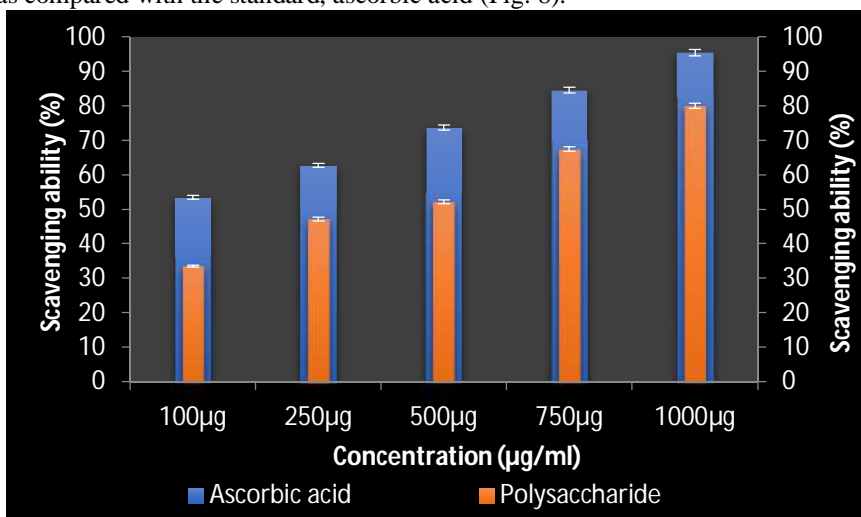


Fig. 8. Total antioxidant activity of Kappaphycus sp. extract compared with standard Ascorbic acid

Discussion

A broad series of polysaccharides from edible seaweeds have emerged as an important class of bioactive natural products, possessing many important properties of pharmacological relevance¹⁶. The yield of crude polysaccharide extracts from 100 g of the seaweed powder was found to be 7.14 g for *Kappaphycus* sp. Similarly, Souza et al.¹⁷ reported that the polysaccharide was isolated by aqueous extraction at 90°C from the red seaweed *Gracilaria birdiae* (Gb), with a yield of 27.2% of the seaweed dry weight. In addition to that, Huang et al.¹⁸ also reported the maximum yield was $9.83 \pm 0.11\%$ (SG4) in crude polysaccharide from *Sargassum glaucescens*.

In the present study the crude polysaccharides were utilized for the estimation of glucose by phenol sulphuric acid method ($53.01 \pm 0.425\%$) and protein ($06.23 \pm 0.753\%$) was estimated by Lowry's method from *Kappaphycus* sp. Likewise, Souza et al.¹⁷ also studied the maximum yield was 8.4% in sulfated polysaccharide from *Sargassum* sp and the main sugars present were galactose (65.4 mol%), 3,6-anhydrogalactose (25.1 mol%) and 6-O-methylgalactose (9.2 mol%). *Spatoglossum asperum* contained 60.9% fucose, $21.35 \pm 0.81\%$ sulfate and $4.2 \pm 0.56\%$ protein, respectively reported by Palanisamy et al.¹⁹. Seedeve et al.²⁰ also endorsed the isolated sulphated polysaccharide from *C. corticata* contains 84% of carbohydrate, 0% of protein, 19.7% of ash and 29.4% of moisture content.

In the present study, the FT-IR was studied for extracted crude polysaccharides from *Kappaphycus* sp. IR spectra of crude polysaccharides revealed characteristic adsorption bands for sulfated polysaccharides. It reveals the presence of carboxyl, hydroxyl and sulfate groups in sulfated polysaccharides of selected samples. Souza et al.¹⁷ reported sulfated polysaccharide of *Gracilaria* sp. characterized by FTIR exhibits the characteristic bands possess agarocolloids at 1375 and 770 cm^{-1} . Subsequently, the polysaccharide from *Sarcodia ceylonensis* results of FT-IR indicated that the polysaccharide contains the α -configuration of sugar units reported by Fan et al.²⁰. Subash et al.¹⁰ also reported the crude polysaccharide from *T. ornate* inferred that a signal at 1418.05 could be an indication for the presence of residue like uronic acid. In our study we observed the O-H, C-H, C=O and C-O-C stretching vibration.

The current study shows crude polysaccharide demonstrated to have high and low emulsification indexes with hydrocarbons and oils. Likewise, Souza et al.¹⁷ stated that the rheological behaviour of *Gracilaria birdiae* sulfated polysaccharide exhibits a gel-like behaviour close to the one observed in commercial agar. These results suggest that crude polysaccharide from *S. japonica* has the potential to be used as a surface-active compound, which is widely used in the following industries: oil and petroleum industries, metal treatment and processing, detergents and laundry supplies, agriculture, textile, pulp and paper processing, paints, cosmetics, pharmaceuticals, and food processing reported by Hifney et al.¹⁴.

In this study, the total antioxidant activity of crude polysaccharide was determined by phosphomolybdenum assay and compared with L-ascorbic acid (standard antioxidant). The results verified that the isolated crude polysaccharide exhibited the total antioxidant activity and the value was $74.23 \pm 0.17\%$. Palpperumal et al.²² reported that isolated the sulfated polysaccharides showed the total antioxidant activity ($79.97 \pm 0.131\%$) than L-ascorbic acid ($95.45 \pm 0.28\%$) from *Ulva* sp. Amusingly, earlier reports

that the total antioxidant activity of isolated fucoidan shows somewhat similar activity to the fucoidan isolated from *Padina tetrastomatica*, *Turbinaria conoides* and *Sargassum tenerrimum* reported by Chandini et al.²³; and Marudhupandi et al.²⁴. The antioxidant activities differed based on their sulfated content of polysaccharides that was reported by Zhang et al.²⁵.

Conclusion

Modern studies have provided substantiation that marine algal derived polysaccharides cooperate a fundamental role in human health and nutrition. Therefore, it can be recommended that due to helpful natural functions with health advantageous effects, marine algal derived polysaccharides have much potential as active ingredients for preparation of nutraceutical, cosmeceutical and pharmaceutical products.

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ECOLOGICAL SUCCESSION

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Abstract:

Ecological succession is the process of change in the species structure of an Ecological community over time. The time scale can be decades (for example, after a wildfire) or even millions of years after a mass extinction.

Key word: Succession, Ecology, Regrowth

Introduction:

Succession means one community is replaced by another community and process is continued till final stage is reached. The term succession was firstly used by Hult. He was the first to recognize that a relatively large scale of pioneer plants communities give way to a comparatively small number of relatively stable communities (climax community). It is a phenomenon or process by which an ecological community undergoes more or less orderly and predictable changes following a disturbance or the initial colonization of a new habitat, Succession may be initiated either by formation of new, unoccupied habitat, such as from a lava flow or a severe landslide, or by some form of disturbance of a community, such as from a fire, severe withdraw or logging.

Aims and objectives: This research topic with study about in ecological succession and the type of succession and the stages of succession. As anthropogenic disturbances increase, succession more relevant than ever. In this review we discuss about succession is particularly suitable to address concern about biodiversity loss, climate change, ingasive species, and an ecological restoration.

Source: We taken study materials such as magazines, books about ecological succession and the data collect from Google as reference for preparing the article.

Main theme discussion:

Ecological succession is the process of change in the species structure of an ecological community over a period of time. The time scale can be decades or

even millions of year after a mass extinction due to some disturbance. Succession may be initiated some of the disturbance lava flow or a severe landslide or by some form of disturbance by the involvement of Human like cleaning of land of forest by deforestation.

Characteristics of Ecological Succession:

- 1) There is a progressive increase in the total matter of community.
- 2) There is tendency of increased nutrient conservation as slow loss of nutrients.
- 3) Number of tropic levels increase increases.
- 4) Population of decomposer component becomes significant.
- 5) Simple food chain will be replaced by complex food chains.
- 6) The community become more heterogeneous.

Process of succession:

For Succession new sites are needed in world. Such new sites are available for colonization on:-

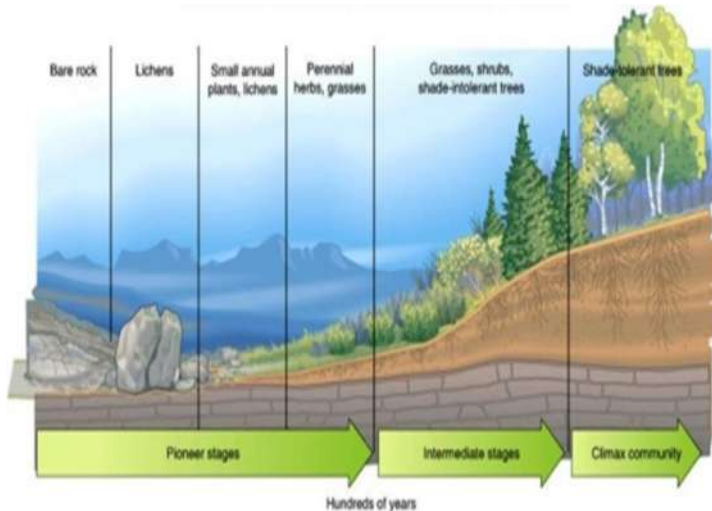
- 1) Alluvial deposits:- These include deposits of sand, gravel and silt by flowing rivers and rivulets.
- 2) New Estuarine deposits:- These are formed by the deposits of sand and silt by estuaries that extend inland from sea coast.
- 3) Sand dunes:- These are huge deposits of sand that occur along the sea shore, banks of rivers and lakes and the desert areas of the world.
- 4) Land-slips:- These sites are formed by land slide and are very good sites for succession because the soil humus and mineral nutrient and water is also available.
- 5) Screes:- These are found in cold mountainous places and rarely from good sites.
- 6) Erosion:- Bare areas are also produced by erosion and such sites are abundantly available all over world for secondary succession.
- 7) Volcanic action and fire:- These two are one of the most important creator of new land.

Stages of succession:

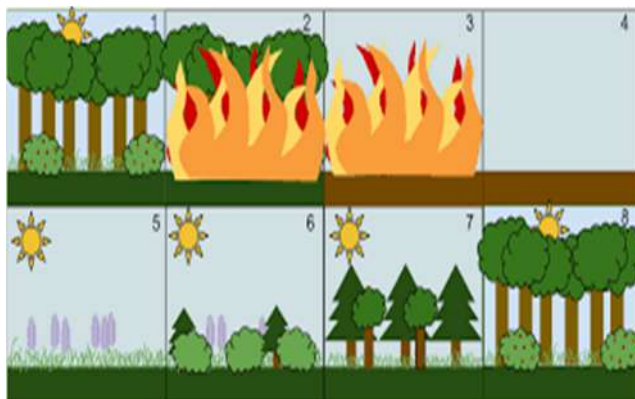
- A) Colonization: This process involves the invasion of a bare area by the seeds (seed plants) and spores (cryptogams) plants growing the neighbouring communities or from far of places through the agency of wind, water and animal. Further colonization is divide into several part:-
 - 1) Migration:- This is the arrival of reproduction bodies such as seeds, spores and propagules of plants from other places. This is done by the help of some agent like water, wind and animals.

- 2) Ecesis:- This process involves the establishment of the initial plants on a bare area i.e. the germination of the reproductive bodies and the growth of the plant to maturity.
- 3) Aggregation:-The seed germinate and the members of the species increase in number, this increase in the number of the species is called aggregation.
- Ecological succession is further divided into two main types:-

A) Primary Succession:-



B) Secondary Succession:-



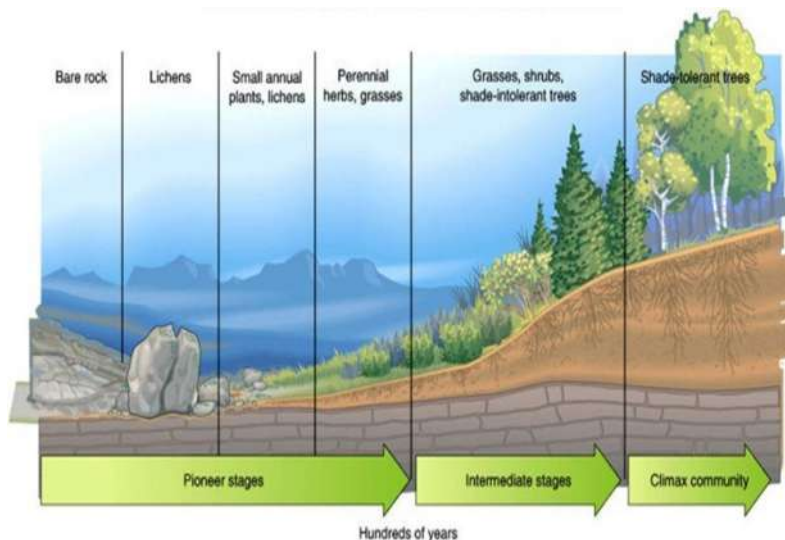
Primary Succession:

The development of an ecosystem in the area that has never had a community living with it occurs by a process called Primary Succession.

An example of an area in which a community has never lived before would be a new lava rock from a volcano that makes a new island.

Stages of primary Succession:

- 1) Soil formation:- The early colonists start building by adding humus as result of the decay of their dead bodies and make the conditions savourable for growth of other type of plants.
- 2) Rate of Succession:- With the soil still relatively poor, the number of species at first remains small, but gradually increases as the conditions of environment improve.
- 3) Divergence in the later stages of succession:- At early stages number of species will be less and uniform at later stages the habitat changes the divergence will be observed in the species.



Secondary Succession:

- ➔ Begins in a place that already has soil and was once the home of living organism.
- ➔ Occurs faster and has different pioneer species than primary succession. Example- After forest fires.
- ➔ The recovery of a damaged ecosystem in an area where the soil was left intact.

Example of secondary succession:

Amazon rain forest fire:-

- 1) The great Amazon rain forest caught fire on August 15 to August 22/2019.
- 2) According to the report of National Geography the fire was burned by humans for clearing of land of their need. Starting as many smaller

individual fires, the flame quickly spread out of control with increasing winds and drought and combined into one large fire.

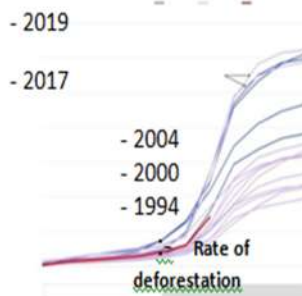
- 3) Only the arrival of the rain on 21 august cool and moist weather bought the fire to an end.
- 4) It is estimated that over 906 thousand hectors (9,060km) of forest within the Amazon biome has been lost to fire.

Affected areas of Amazon:



Rate of deforestation in amazon rain forest Effected place in amazon rain forest
Deforestation increasing:-

Deforestation increasing :-



Regrowth after fire:

Factor affecting Ecological succession:

A biotic factor:-

- 1) Topography:- Landslides and mudslides are examples of this type of factor because they cause a massive reformation of the landscape.
- 2) Soil:- Soil type, ph. and moisture affect plant they are going to arise in that area. Example- dry condition, moist soils.
- 3) Climate:- Rainfall and temperature, wind play major role in ecological succession.

Conclusion:

Succession was among the first theories advanced in ecology. Ecological Succession was first documented in the Indiana Dunes of Northeast Indiana and remains at the core of ecological science. Succession that begins in new habitats, uninfluenced by pre-existing community is called Primary Succession, whereas succession that follows disruption of a pre-existing community is called Secondary Succession.

It is observed process of change in the species structure of an ecological community over time. Within any community some species may become less abundant over some time interval or they may even vanish from the ecosystem altogether. Similarly, over some time interval, other species within the community may become more abundant, or new species may even invade into the community from adjacent ecosystem. This observed change over time in what is living in a particular ecosystem is 'Ecological Succession'.

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AFORENSIC SCIENCE AND METHODS OF CRIMINAL INVESTIGATION: AN ANALYSIS AND JUDICIAL RECOGNITION IN INDIA

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Abstract

Primarily, the administration of criminal justice system rest on police, prosecution, courts and prisons. These four organs are engaged in the crucial role of deterrence, recognition, prosecution, arbitration and penalization or punishing of offenders in society. An efficient criminal justice system guarantees a secure and peaceful society. New scientific methods must be assessed for their accuracy and reliability their limitations in criminal investigations. This article speaks about the scientific methods of criminal investigations its procedures and also critical analysis.

Keywords: Forensic Science, Criminal Justice System, Crime Investigation,

Introduction

“Today we see enormous changes being brought about by science. The whole context of life is changing. As a matter of fact, looking back at least half century with which, I have been more or less concerned and some of you also see that enormous changes have been brought about chiefly by science and technology. This pace of change is growing and I have no doubt that another fifty years hence you will see even greater changes not merely in spaces researches but something affecting human life in order to participate in this movement, you should build yourself up in the science and technology.” Pt. Jawahar Lal Nehru

The nature of law is dynamic and not static, so the law also changes when society change. The law is the cement of the society and the judiciary has the responsibility of interpreting the law for the greater good. The application of science and technology to the detection and investigation of crime and investigation of crime and administration of justice is not new to India. Inspire of this many people are not aware from the fact that science plays an important role in the identification of crime and criminals. The area of its operation is quite wide and comprehensive. In its application to the administration of law, it is known as “Forensic Science”. Earlier it was forensic medicine, which first came to the field of the science in as such as medical man’s opinion has been sought throughout the ages to find out the cause of death of a person both in

case of natural or of unnatural death. The area of forensic science is changing very fast by the new technologies and methods. Nowadays use of DNA tests, high-performance liquid chromatography, mass spectrometry, 3-D computer imaging, and other sophisticated technologies are used by scientists to reconstruct the offence and the mishap. The modern forensic

The Forensic Science is one of advanced techniques used in recognizing crimes and criminal's. It is very challenging, charming, dynamic, and exiting science. The application of advance science which embraces all institution like Chemistry, Ballistic, photography, Physics, Brain Fingerprinting, Toxicology, Narcotics, DNA Profiling, Narco-Analysis, Biology, etc in criminal law is commonly understood as the forensic science in the field of law.

The main functions of forensic science are the detection, collection, packing, transportation and analysis of physical evidence and biological material etc

Narco-Analysis Test

Narcosis is a state of stupor induced by drugs. The use of narcotics as a therapeutic aid in psychiatric is believed to have a history dating back to the use of opium for mental disorder by the early Egyptians. Earlier in the 20th Century the medical doctors started to use scopolamine together with morphine and chloroform to induce a state called '**twilight sleep**' during childbirth as these have the effect of sedative. However, scopolamine was also known to create a state of disorientation, confusion and amnesia during the period of intoxication.

During the process of Narco-Analysis test a person has no power to think due to the effect of drugs which was injected to him. His idea and experiment gained a lot of limelight and attention and therefore led the introduction of Narco-Analysis in criminal investigation

Procedure for the Narco Analysis Test

Drugs used for the tests are commonly known as Truth Serum. Generally, the drug called "Barbiturates" or "Sodium Pentothal" is used for conducting narcoanalysis test. It is also known by the name of "Penthol Sodium" or 'Thiopental' or "Thiopentone".

Important things involved in the tests are: (i) Video recording (ii) Tape recorder (iii) Disposable syringe (iv) Distilled water (v) Prescribed truth drug

Dosage of Truth Serum

- (i) The dose depends upon the suspect's sex, age, health and physical and mental dextrose on interval of 3 hours to the suspect accused.

Presence of Authorities At the time of performing test, presence of following person is necessary: (i) **Physician** (ii) **Neurologist** (iii) **Cardiologist** (iv) **Anaesthetist** (v) **Lawyer**

Precautions and Guidelines The following precautions should be taken for fruitful result of test:

- (i) The test should be conducted in a well-lit room which is otherwise quiet.
- (ii) Prior consent of the subject has to be obtained and the person subjected to the test should be given an option if he or she wishes to avail the test.
- (iii) Consent should be recorded and it should be done before a judicial magistrate.
- (iv) The physical and emotional implication along with the legal implications of the test should be explained to the subject by the lawyer accessing him or her or by the police that he or she submits himself or herself to the test voluntarily
- (v) The person subjected to the test should be made clear during the hearing that his or her statements so made shall not be a “confessional statement” to the magistrate but a statement to the police.
- (vi) The entire process should be videotaped.
- (vii) The drug should be diluted at 8.66% and should be injected showing at intervals throughout the interview.
- (viii) The drug should be administered so that a state between sleep and wakefulness is maintained.
- (ix) Caffeine should be used to prevent the subject from going into deep sleep.
- (x) The interview should not exceed one hour of time;
- (xi) The actual recording of test shall be done in the pressure of a lawyer.
- (xii) Manner of information received must be completely narrated in full medical and factual terms and must be recorded;
- (xiii) In India the test should be conducted as per norms of the NHRC of India.
- (xiv) Narco analysis cannot be conducted without the consent of the subjected and order of the court.

Guidelines for Interrogating the Suspect during Narco Analysis Test

1. The suspect is not given food 5-6 hours before preceding the test and alcohol containing food and medicine should also be avoided.
2. The suspect must always be attended by the physician/psychiatrist from the time of injection until the initial narcosis worn off.
3. Careful observation is necessary if properly administered drugs dosages caused no alarming physiological effect on pulse rate as well as respiratory rate.

Larger dosages are too dangerous it may lead to

- (i) Sedative stage
- (ii) Unconsciousness with exaggerated reflex (hyperactive stage)
- (iii) Unconsciousness without reflex even to painful stimuli, and
- (iv) Even death

4. Therefore, Narco analysis test should be performed with great care and caution and in the supervision of experts. The maximum dose must not exceed 1gm. over a long period of time. The normal dose is half of above-mentioned quantity.

5. If the suspect goes to deep sleep then by the use of anti-narcotics stimulants the suspect awakes in a minute but feels drowsy and wants to sleep.

6. Emergency resuscitation equipment's should remain available because in certain cases incident of laryngospasm do occur.

7. The quantity of drug depends upon the suspect's sex, age, health and physical and mental condition.

8. The interviewee should be aware of the purpose of the drug and should be told that it is not a truth serum and it would not expose his or her thoughts secrets and whether he or she states will be confidential and if possible a family member of suspect should remain present during the test.

9. After intravenous injection of the truth serum the suspect should be involved in conversation on unconcerned topics.

10. When the suspect's speech began to slur ask him or her to count the number backward from 100. When number begins to skip and intervals between the two speeches become long, questions may be asked.

11. Questions about known items and matters should be asked. various stages of hypno-narcosis; to estimate duration of deep sleep following narcosis; and to investigate drugs which would extend the period for Psychiatric investigation.

12. Ask the suspect to review some pleasant memories. So that negative materials may be balanced and mere experiences stored in suspect's memory can be revealed.

13. After the procedure ends the suspect should remain on bed rest for about 5 hours.

14. The main objects of the investigation under intravenous administration of truth drug are to standardize the method of administration; to study the alternations of 43 blood pressure, pulse respiration etc. before and after the administration; to estimate time required; to reach the

Uses of Narco Analysis Test

Narco analysis may be used in following purposes

For Medical purposes—Narco analysis has been used in mental health cases for diagnosing habiliment. In medical field Narco analysis is used

1. for restoring speech to mute persons
2. in case of amnesia, for reviving memory, and
3. for expression of suppressed or repressed thought or conflict

In Criminal Investigation. —Narco analysis is now being used in forensic field also. According to Dr. S.L. Vaya, Deputy Director of DFS, Gandhi Nagar, Gujarat, “In India, Narco analysis is a useful and non-invasive asset for investigation and for prevention of crimes and if used in a scientific way can be very useful for interrogation of Suspect”. In criminal justice system it is used for investigation purposes. Narco analysis test should be used only in the cases where large interest of society is involved.

There are two categories of -suspects who undergo Narco analysis test:

1. Where suspect willingly volunteers and co-operates with the interrogator.
2. Where suspect is forced to change the test under court orders. The advantage of Narco analysis is that this technique is helpful in saving the innocents from prosecution and eliminating the use of third-degree method. In addition, it has been used as a time saving device in criminal cases with the help of Narco analysis by a trained and skilled psychiatrist.

Critical Analysis of Narco Analysis

Narco analysis has been criticized on number of grounds. They are following:

1. This test is not 100% accurate. Sriram Lakshman quoted that Dr. B.M. Mohan, Director of FSL, Bangalore claims that he has data to prove his contention that Narco analysis has 96 to 97 percent total screens rate. Sriram Lakshman is of view that Narco analysis should be discredited.
2. Dr. P. Chandra Sekharan, the highly regarded former director of the Forensic Sciences Department of Tamil Nadu, has characterized the practice as an unscientific, third degree method of investigation.
3. In Narco analysis by false tricks certain subjects made totally false statements. If the subject has been a drug addict or alcoholic his or her tolerance level will be high and he or she may false state of semi-consciousness and can tell lies.
4. It is very difficult to suggest a exact dosage of drug for a particular individual as it will vary from person to person depending upon the mental attitude and physical structure of the subject. It is said that if a wrong dose is administered to the subject to cost his life.

Polygraph or Lie Detector Test

The term ‘Polygraph literally means ‘many writings’ therefore the name refers to a process in which selected psychological activities are recorded. The first

attempt in this direction was made to expand a scientific instrument to identify reality or fraud as early as 1895 by Lombroso. It was basically designed to record blood pressure and changes in pulse rate. Later Larsen and Keeler designed an instrument which was further developed by John Reid in 1947. The very fundamental principle underlying Polygraph is that when a person lie he becomes nervous, which in turn causes mental excitation. To conceal the excitement which the person attempts, adrenal glands are stimulated to secrete Adrenalin, this on entering the blood stream, sets up the blood pressure and rate of pulse and respiration. All these psychological changes when recorded are collectively called Polygram, which is analysed and evaluate to find out whether during the lie detection test, the subject experienced emotional stress with any of the questions asked.

Such examination is performed on the basis of supposition that there is an intimate contact between mind and body and is performed by different components or the sensors of the Polygraph machine, which are attached to the body of the suspected person's body that is being cross-examined. The principle behind the test is that the suspect fears detection of his/her lie and creates in him/her an emotion of fear which consequently results in psychological changes which are captured by different instrument.

The blood pressure, pulse rate, respiration and muscle movements details etc recorded by the machine. This test is conducted at three stages namely pre-test interview, chart recording and diagnosis.

Procedure to Perform Polygraph

Polygraph test is a series of psychological tests. In this test changes in blood pressure, pulse rate, respiration, muscle movement, skin conductivity are recorded. An expert and skilled examining will make assessment of following procedures

1. As averment of examiner's emotional state;
2. Medical fitness of the examination
3. To identify overly responsive behaviour specialized tests be conducted;
4. To assess responsive capabilities of examination control question be asked
5. To do factual analysis of case information and 6. to do pre-test interview and detailed preview of questions.

In polygraph their aspects of human physiology are tested, viz

1. Tracing,
2. Electro dermal activity tracing, and
3. Cardiovascular tracing

The first relates to respiration, the second to skin conductance or skin resistance and the third with blood volume and pulse rate. If a person tries to

conceal physiological changes like increase or decrease in blood volume, increase or decrease in heart rate and changes in respiration, perspiration takes place. If the person is truthful, the organs exhibiting such physiological changes function in normal pattern.

Critical Analysis of Polygraph

1. The test does not tell as to whether the subject is lying or not. Results only show about the physiological changes which have to be interpreted by the expert.
2. In asking the question no science is involved and it wholly depends upon trickery and on the expertise of the examiner.
3. A person who can control his emotions to a great extent can still tell a lie, e.g., if a person has control on himself by practice of yoga or otherwise, this test is bound to fail.
4. Nervousness may be exhibited by many innocent and truthful persons under the conditions of police interrogations.

This nervousness may arise due to various reasons, e.g., fear of being involved in the crime, or the fear that his or her previous conduct may be shown to the police what is not related to the present crime. It may also be due to the fact of not properly understanding the procedure of polygraph, besides there may be fear of wrong interpretation of chart by the examiner and even the interrogator and examiner may be biased. If the examiner holds the subject guilty, he may interpret the chart with that bent of mind and vice versa he may be lenient in interpreting, chart of a person whom he considers innocent

Brain Mapping or P300 Test

Dr. Lawrence A. Farwell, Director and Chief scientist of 'Brain Wave Science' IWOA developed this test and patented in the year 1995. He was a well-known neurologist. This technique is also known as 'Brain wave finger printing'. In this technique, the suspect is first interviewed and interrogated to find out whether he is concealing any important information. Then sensors are attached to the head and the person is made to sit in front of a computer monitor. He is then shown and made to hear certain images and voice. The sensor attached to head monitors and records electrical activity and P300 waves in the brain, which is produced only if the subject has link with stimulus. The subject is not asked any question. To put it simply, it simply means that brain finger printing matches the information stored in the brain with that of the related crime and crime scene. In case of an innocent person no such P300 waves would get registered during the test.

The method can only detect information from their memory that would place both at the scene of the crime and it cannot decide what their roles were,

thereby creating a distinct possibility of an innocent eye-witness becoming a suspect of the crime and giving a dubious opportunity to the real culprit to create a situation of doubt.

Procedure to Perform Brain- Mapping

When any information is given to an individual, which corresponds to prior knowledge or information in his brain about the activity or event it will emit responses in the shape of p-300 waves. It has also been possible to observe stimulus response up to 800 mili seconds. P-300 is an electrically positive component and has a peak literacy of about 300 to 800 mili seconds at the midline partial area of the head. Dr. Farewell has been able to test not only the p-300 but also a negative electrical component which is found at midline frontal area and has an asset latency of 800 to 1200 mili seconds through MERMER. The familiarity reaction of brain towards the activity or events is the midline partial area of the head. The familiarity reaction of brain towards the activity or events is recorded in MERMER (Memory and Encoding Related Multifaceted Electroencephalographic response) apparatus. For measuring EEG (Electro Encephalograph) from several place of scalp a special head band equipped with electronic sensors, is attached to the scalp and the test is presented with a series of relevant and irrelevant words, pictures, signs, Bounds etc. and responses of the two different types of stimuli is measurable to know whether the relevant material is known to the brain or not. If the brain is confronted with the stimuli, which is already in its store it will emit p-300 at the rate of 300 mili seconds. Since, those responses are recorded EEG signals no question has to be answered by the test. The apparatus works not on emotions but on Cognitive Brain responses. This is a major difference between a polygraph and brain fingerprinting.

Critical Analysis of Brain Mapping

1. This test has its own limitations. The test is conducted by a human being and it is possible that they fail to fully and truthfully analyse the brain wave.
2. Innocent people who have not committed the crime but have only witnesses of wound also react to the stimuli. Similarly, a person may be aware of the crime due to details published in media and the brain may store it. In that case also their chance is that the innocent can also be found guilty. Therefore, this tests utility is only to imprint the subject's brain, which makes it clear that the subject is innocent.
3. This technique is also criticized on the ground that it is violation of brain privacy. By this a person loses his right to keep his thought to himself.
4. This is also not useful in case of a person who loses his memory, e.g., old people easily lose memory and therefore can brain mapping on an old man

accurately work? Similarly, a person suffering from deficiency in memory can exit normal p-300 brain waves?

5. The six-member committee headed by National Institute of Mental Health and Neuro Sciences (NIMHANS) Director Dr. Nagraj -concluded that Brain Mapping is unscientific and should not be used as an tool of investigation and an evidence adduced through brain mapping should be made inadmissible in Courts. He also said there is requirement of a methodical, systematic and meticulous examination of the procedure as it lacks ascertained principles.

Judicial interpretation towards Scientific methods of criminal investigation:

2006 Mumbai Serial Blasts Identification of clues in terrorist mind :

In the case of serial blasts in sub-urban trains of Mumbai on 11th July, 2006 (i.e., 11/7 serial blasts) the Anti-Terrorism Squad (ATS) of Mumbai Police had sought permission from the Court for conducting lie detection, brain mapping and narcoanalysis tests on the arrested suspects, viz., Kamal Ahmad Ansari, Mumtaz Maqbool Chaudhary, Faizal Sheikh, Mujammil Sheikh, Dr. Tanveer Ansari, Sohail Sheikh, Jameer Sheikh, Kalid Aziz Sheikh and Etesham Siddiqui. It is believed that the suspected persons have link with Lashkar-e-Toiba, a banned outfit. The tests would be conducted at Bangalore and it was proposed that the tests would be conducted first on Kamal Ansari, the prime suspect. In the incident about 200 persons were killed and over 600 persons were injured. Terrorist attack at Indian Institute of Science (IISc), Bangalore—Disclosure of facts by terrorist. —On December 28, 2005 a terrorist attack was made at Indian Institute of Science (IISc), Bangalore. The arrested suspect Abdul Rehman alias Raizur-Rehman was subjected to narcoanalysis and brain mapping tests and he had admitted that he met the Lashkar-e-Toiba top brass including Abdul Rehman Makki, Abdul Aziz, Abu Hamza etc. while he was in Saudi Arabia. He also admitted that he had worked for Hizbul Mujahideen. He also admitted his visit to Dhaka in 2003, earlier for which he had denied. He also disclosed that Naveed and Naushad had conducted the terrorist attack. Naveed is supposed to be Ghulam Yezdani like Rahman who native of Nalgonda, Andhra Pradesh and who operates from Saudi Arabia and Bangladesh for Harkat-ul-Jehadi-Islamic.

Abu Salem's case—Fruitful investigation. -Narcoanalysis test conducted on gangster Abu Salem at Government Bowring and Lady Curzon Hospital, Bangalore had given a new line and direction to the investigating agencies. The information sought by Mumbai Police has been obtained by conducting polygraph, brain mapping and narcoanalysis test on Abu Salem. The narco test was conducted on Salem which lasted for four hours in a closely guarded

operation theatre. The whole process was videographed by a Forensic Science Lab Official. After the test Abu Salem was transported to Mumbai.

Narcoanalysis Test on **Abdul Karim Telgi**.-The prime accused in multicore stamp paper scam Abdul Karim Telgi was subjected to Narcoanalysis test on 3rd March, 2004. A legal debate ensued over the test and the manner and procedure of the test. During the test Telgi revealed some names but his lawyer contested the results. The reliability of the test is to be heard by the Mumbai High Court where the hearing is to start from 24th February, 2007. Telgi was earlier subjected to lie detector test and P300/brain mapping test. His lawyer was of the view that narcoanalysis should not be done as it may pose threat to life but Dr. S. Malini of FSL, Bangalore said that the drug used in She test is completely safe. In this case of multicore stamp paper scam AntimTotla and his brother-in-law Prakash Takhete were also subjected to polygraph tests on 29th December, 2003. The aforesaid persons were closed to the prime accused Abdul Karim Telgi, the tests were performed at Ahmadabad and they derived the charges. It was further proposed to conduct P-300 brain fingerprinting and narcoanalysis on them. The tests were conducted after seizure of certain documents from the residence of Totla.

Narcoanalysis, Brain mapping and **Lie detector tests of Nithari's Serial Killers in U.P.**

In a serial killings case of Nithari (U.P.) Police arrested two persons, Moninder Singh Pandher and Surendra Koli, for murdering 30 children and women who were sexually abused after and/or before murders. Police had recovered a saw and many things which the two used to cut up the parts of the bodies and disposed of their bodies separately, never at one go or at one place in the sewer behind the house of the accused. A copy of Kinsey Report on sexual behaviour has also been found from the accused's house. Both of the accused were subjected to narco analysis, brain mapping and polygraph tests. In brain mapping names of some Ministers of State of U.P. and doctors cropped up. Test was conducted at DPS, Gandhinagar (Gujarat). Audio and video props were designed to focus mainly on two subjects among a host of others—nature of their sexual perversion and whether this was the only reason behind serial killings and rapes. After the brain mapping both were subjected to narcoanalysis test. In the test sodium pentothal was administered as a truth serum. Both the accused had been cooperative before questioning. The narcoanalysis test showed Surendra to be a cannibal psychopath driven by sexual impotency.

Recommended suggestions:

- Forensic expert must have thorough scientific knowledge of his /her field. He/she should have requisite knowledge and experience regarding the subject before his/her opinion can be acted upon by the courts.

- The role of forensic expert is very crucial. Any wrong, unreasoned or careless opinion may cause great injustice either to the prosecution or to the accused. This means that forensic expert must possess highly ethical and moral character in performing his/her duties sincerely, carefully and diligently.
- A forensic expert should work independently and without bias or pressure as his/ her ultimate goal is that the real truth and justice must prevail.
- Forensic experts must have also the requisite knowledge of the proper law and should be fully acquainted with the Government regulations and orders which are issued from time to time.
- The opinion and statement of the forensic experts must show, without asking or telling, that he/she is an expert in that particular branch of science and must command due respect on the basis of his/her expertise and opinion.
- Concrete steps should be taken to bring forensic science in the forefront of Criminal justice administration. So the presence of Forensic Lab personnel at the time of collection of DNA evidence from the crime scene should be made mandatory under the law.
- Since there is a possibility of delay in collecting DNA samples from the place of occurrence, submission of the same to the laboratories for test or the samples being often tampered with during transfer, evidence should be shown the way to exclude their possibilities from tampering. DNA test may be preferably conducted under the order of the Court.
- A network of standardized Forensic Laboratories should be laid down in the country which should be well equipped and must function with proper documentation authorized by the legislation.
- Adequate provisions should be made to make a National Bank DNA Databank, on the basis of CODES maintained by Federal Bureau Investigation in USA. Initially to start with the sample of DNA of prisoners should be collected as their finger impressions are taken and the records are maintained by the Government after their conviction under Identification of Prisoner's Act 1920
- Every officer should be aware of important issues involved in the identification, collection, transportation and storage of DNA evidence. Given the sensitive nature of DNA evidence, the concerned officers should always contact their laboratory personnel or related technicians when the questions relating to the collection of evidence arise.
- Government should train the investigating agencies in a better way so that they can enhance their investigating skills and resort to the Constitutional measures of investigation, rather than adopting unconstitutional and inhuman measures.



- Intelligence system must be made sounder and more efficient.
- Scientific technique of investigation should not be permitted to the extent they became violative of human rights and constitute torture of the accused.
- Rules laid down by the National Human Rights Commission (NHRC) must be strictly followed while using any scientific technique in Narco-Analysis.
- There must be proper legislations for conducting these tests and there must be proper implementation for enforcing these tests.
- More Polygraph Centres should be opened throughout the Country.
- There should be a Centralised body in India for controlling the procedural standard of tests for proper training of examiners as in USA and Japan.
- The polygraph test must be conducted on the accused person with the help of qualified experts only.
- The court must also allow the investigative authorities to conduct these tests without taking the consent of the accused who are involved particularly in the commission of heinous crimes which are extremely dangerous to the integrity and security of the nation.

Conclusion

The main use of forensic science is for purposes of law enforcement to investigate crimes such as murder, theft, or fraud etc... Scientific evidence is not only valuable to a successful criminal prosecution, but it may also be crucial in the eyes of many jurors. Scientific methods contribute to solving crimes through investigative activities like determining the cause of death, identifying suspects, finding missing persons and profiling criminals. Scientific methods can identify suspects by analysing evidence found at the scene of a crime. By using these criminals' scientific methods, it helps to identify the criminals very easily.

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SISTERHOOD AND FEMALE LIBERATION IN SOEURS D ARMES

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Abstract

Women being submissive, weak and mute are now just an old wives' tale. Denied of their rights and life, women lived as a non-existing entity who were forced to remain inside the premises of their houses. From the earlier pages of history, men are considered physically, emotionally, intellectually and psychologically superior to their weak counterpart women. Feminism, Male chauvinism and misogyny lies at the core of Caroline Fourest's film *Soeurs D Armes*, released in 2019. An embodiment of female feminist power, the film showcases how the twenty year old Yazidi girl, Zara, metamorphoses from a meek slave to the prominent position as a 'comrade in arms'. The paper draws through the trajectory of Zara's life before and after her abduction leading to the carving of a beautiful feminist soul at the end. Zara and other sisters in arms (Lioness of Kobane, Laura, Yeal, Kenza etc...) had endured much hardships and trauma in their lives due to men but realizing their inner spirit and power, the women rise out resolutely to subvert their prevailing status as a 'mere woman' and 'other' to the brave Kurdish fighters. A transformation is brought about through their solidarity and sisterhood. Female liberation is carefully analyzed throughout the paper as all the women fighters find a strong antipathy against men. The preconceptions and prejudices against women are discussed in detail and also how the women react vigorously counter them is also explored.

Keywords: Feminism, 'Other', Male Chauvinism, Misogyny, Trauma.

Caroline Fourest, a forthright columnist and documentarian, interested in topics such as women's and gay rights, extremism and religious fundamentalism. Her debut film feature, *Sisters In Arms* (aka *Red Snake*), inspired by the real-life portraits of international women volunteers who joined Kurdish female fighters in the war in Syria and Iraq against ISIS. She wages a war against the dominating masculine forces and directed the film which is described as:

Her (Fourest) move into fiction filmmaking brings together many of those themes and Fourest describes *Sisters In Arms* as "a feminist war film". It tells the story of members of a female fighting unit involved in heavy combat against Jihadists, weaving in the life stories that led them to the frontline.

Feminism is the underlying force of the film, but from the start itself chief male chauvinism directed against the whole female fraction is outwardly visible. The film is having powerfully centripetal magnetism where feminism lies in the centre while patriarchal norms and regulations are present on the frontier. Set against the war between ISIS and Kurdish forces, Fourest has used real life incidents including an interview of a Yazidi girl, Nadia Murad to develop the plot. She also came to know about Kurdish women fighting at the front as well as accounts about women who died on the battlefield. One can call Fourest a feminist director and she chooses the title “Sisters in Arms” enforcing and embodying the totality of feminine power at the warfront. Like *Girls of the Sun*, this movie presents the problems, physical abuse, identity crisis and harassments faced by women during wartime.

In 2014, thousands of Yazidi men were captured and about 3500 women, including girls were abducted for trafficking. Many of the girls were sold off into sex slavery. The sisters in arms as described in title of the film include the cast Dilan Gwyn, Maya Sansa, Noush Skaugen Esther Garrel, Amira Casar, Nanna Blondell and Camélia Jordana. In the film, Fourest explains:

there is Jordana a young French-Algerian woman who joins the unit in response to terror attacks back home; Casar is a Kurdish commander; Sansa plays a former model with an anarchical streak; Blondell is a skilled sniper; and Gwyn plays a former Yazidi slave determined to free her brother from the clutches of ISIS.

Lioness of Kobane admits the fact that women fighters are always erased from the pages of history. Long ago, before arrival of capitalism, Goddess and women were respected. Later on, male domination settled in. Their Kurdish grandmothers were fighting for their country but they were send back to home very soon. Just like Alice Walker in *In Search of Our Mothers’ Gardens* remarked that, our talent comes from our ancestors who are enslaved, curbed or driven insane by dominating power, Lioness establishes the truth of history of subservience of women who had been denied a ‘voice’:

A long time ago, when Mesopotamia was not divided between Persians, Kurds and Arabs, men respected the Mother goddess. It was the arrival of monotheism that system of male domination has imposed its laws...Viking women were fighting, our Kurdish grandmothers fought against the Turks. But when women rebel, they are erased from history, erased from the society and send back home. We send back home to be slaves.

Fourest became intrigued in the women who were travelling to join Kurdistan’s female fighters battling ISIS on the battlefield. They, like Zara, volunteered as well as international volunteers like Yeal and Kenza from France. She recounts her experience as the director:

I lost a lot of friends and colleagues. It became difficult for me to express all the emotions I was feeling with journalistic language. The ISIS fighters on the front were scared of being killed by a female fighter. They believed it would deprive them of paradise and the virgins that went it. I came to the conclusion that in the same war, you had peak feminist power and peak misogyny.

The film is a perfect example for portraying the condition of woman's power as well as submission during war. Women are abused, sold off, assaulted, raped and killed. Zara, who is the prime victim of male abuse throughout in the film, is sexually abused by Britani for a "long time". Girls who should be enjoying their adolescent period are casted away as sex objects, slaves and mistresses in name of "holy war". Before ISIS invasion, Zara, Keiro and their elder brother have been peacefully enjoying in their garden as she says that her life is going to change soon:

At that time I did not know what they could do to us or what they were capable of. I had my brother and family but I had not yet met my sisters in arms. I still cannot believe how fragile our happiness was and how much this war was about to change me.

The film opens with most serene symbolic red flower and joyful scene of brothers and sister playing, laughing, cheerfully. In Zone occuppe, when the group of girls and women are taken to the camp, man in the last truck talks with a man solider about how he would buy a Yazidi girl with brown or blue eyes. His eyes brightened as he said so and was very enthusiastic while these solider are killed by Sniper in a silent attack weapon. The typical feminist tune of the film is hummed and suddenly the man in the truck exclaims "Let a man kill me, not a woman", and Chief asks is there a man in their group and sarcastic smile appears on her face. The man was terrified as though he had seen a ghost when the female comrades appeared. The supreme domination of women's status is articulated in the frightened voice of that man. The power vested on them equals to men or may be even more than them in the film. The fear against reputation and position of women in Arab men's psyche is justified through Kurdish male comrade, "They think that they killed by a woman keeps them from getting to Heaven and from getting virgins, that come with it."

The "special" force "Snake Brigade" or "Spiders" is a group of women fighters who have gone to warfront and fights against male force. The male forces are terrified and startled at the front when they have seen these spiders. The brave, bold Snipe who fearlessly guards the sisters deep inside is torn apart because in an encounter with Iraq, her husband had died five ago. Bearing this agony in mind, she lives on fighting fearlessly. Women are comparatively weak

when it comes to emotional standards as one see even though the Kurdish women fighters are required to be strong, and should not cry at all, these fighters cry when they are reminiscing their dearest ones and also when one of the fellow fighters are dead forging their female spirit. Lady Kurda died for the cause of a child. Zara is empathetic be a teddy bear toy and Sniper warns that it might be a toy trap that is, a toy with yellow wire for a bomb blast. The solidarity of the sisters-in-arms is intensified when they sit around the campfire sharing their sorrows and humming the song slowly among themselves. When Lady Kurda is helpless and ready to die, she announces, "I love you, my sisters" and hums the song as the last words. The symbolic significance of solidarity is brought about. Kenza is killed by an Arab woman in the slave camp. Unlike men who solemnly guard their religion, women are more passionate about humanity and compassion. Lioness of Kobane discusses with Kenza about Turks and Arabs and Kenza confesses to her that they both are "cool Muslims" and Lioness strikes back, "You see these mountains, it's my religion."Thousands of women soliders fight up at Ligne de Front. Female fighters guard the front. Skilled women destroy the village through bomb blast. The majestic scene of Chief and sisters in arms facing the male fighters is filmed by Fourest. Comrades in arms hug one another after liberation. Keiro's life is saved by Zara through her song. The image of woman as a mother, daughter, and sister is evoked through Zara. Men have been brought up bearing in mind that they are guardians of the world and at the end of the film, true feminism is evoked with the subversion of basic knowledge streams about the divisions of men and women through conversation of girl and Zara about Kenza's drawing by Zara:

Keiro: Who is this?

Zara: An angel showing us the future

Keiro: Are you sure? It's a girl.

Zara: I spit and tell its ture.

Women have been marginalized and abused by ISIS and at the beginning of the film; one observes the ISIS separating the young and the old women in two different buses. They address the young as "fresh" to be sold. Zara, a girl of twenty is abducted from her whole family. Not only Zara, all the girls suffer from the same tragedy. At a certain instant, three girls are presented before Al Britani. When Zara is evaluated, the camp man discloses to Al Britani that her teeth is beautiful and inserts his fingers into her mouth and Zara does not behave meekly but is frustrated. The all powerful Britani says that he "will take her" as a slave. Zara tries hard to be with Keiro and pleads to Al Britani in utmost humble tone that "she will do anything if he buys Keiro". He thinks for a second about the total submissiveness of Zara because it is very evident that all

men want women as submissive, compliant and tame. But he clearly knows that Zara is his slave whether he buys Keiro or not. Her strategy to save her brother even when a woman couldn't speak shows of how cunning she is unlike other girls, brimming with so much energy. Zara is intelligent enough to extract a mobile phone when an ample opportunity dawns. She goes to shopping with Nadia and she steals the phone of the elders playing caroms. She manages to rescue from the clutches of her and also is brave enough to call her uncle and plan about escaping. In order to work out on escape, she cunningly takes sleeping pills from the shelf of Brittani and mixes it in the soup served for supper. The wife having not drink it (as it is made by Zara) catches her when she efforts to escape. When wife tries to scream, Zara forcefully gets hold of her mouth and asks an enigmatic question, "Do you really want me to stay?" Realization dawns on her and she lets Zara escape as she clearly knows she is treated as inferior by Al Brittani if Zara remains the mistress. Zara is bold like her father, to not accept the ISIS force. She doesn't say Arab prayers and remains adamant and steadfast to her own religion and customs. To save herself, she also opposes the driver, who is not ready to take her to a safe place. Later, when the driver forces her out she runs off to a specific spot which is attacked by ISIS and many fall dead. Witnessing such a majestic sight of female forces fighting, she decides to join the army.

Al Britani is the commander of the ISIS and holds a very respectable topmost position in the ISIS army. He is a strict patriarchy adherent and dominates women around him, visibly, his wife, Zara and even the Kurdish chief. He slaps Zara and his wife mercilessly without any regret, labeling them as his 'property'. Having already married to Nadia, making Zara his inferior mistress is a straightforward pointer to the implicit jingoism. He lives with his wife and brother-in-law, El Tounsi. Clearly, in Muslim religion, men can have as many as wives as they please and they consider it as their right, completely keeping women in the dark corner without any visible communication. Beyond the walls of their house, the opinions and grievances of Muslim/Arab women are curbed. Their views are not audibly heard even if they screech. They are suppressed, harassed, punished by the male counterpart. At one time, when Zara tries to escape from Nadia's custody, Nadia asks Britani to "punish" Zara. Britani retorts bitter contempt to when Nadia advises him. He warns Nadia, "Stop telling me what I have to do all the time" and thus it is evident that Nadia is a strong woman who is unafraid to talk out her opinions or even to counter men. The feminist in Nadia is also seen when she opposes her brother and husband when Zara is brought to home and grunts, "Tell me she is not going stay". She is well aware of her rights as a woman and guards them intently. Nadia's mere stare shocks Zara and makes her brother quiver and mute. Nadia is raising her voice against Al Brittani when Zara is brought as a mistress to the

house. As a wife, she is standing on a righteous ground to grab her rights and protests.

The crucial and basic necessity of humans, the right to live is even denied to Zara as she is locked up in a room and one doesn't see her eating or sleeping peacefully. At one point, it is shown that Zara is not allowed to use the bathroom. Even Britani's wife is repellent towards Zara in the fear of Britani. Zara recounts the trauma of her life period 'being a slave' for so prolonged duration, "It feels like he is in me all the time. His smell and his disgusting face..." Laura comforts her assuring that she "will get through this" and modifies her into bold soul. Laura also comments that the tragic occurrence happening to women and "the invasion" they "suffer" are "deeper and more cruel than bullets". She also recounts her tragedy of being a slave at the age of sixteen, "I was sixteen when it happened to me. And it took me years to understand it was not my fault. And it wasn't my fault. It's a war." She exhorts Zara that now men fear them and they should be proud not weak:

Zara, you are so brave. Look at me. You are strong. You are standing, fighting. You are strong. Thousands of years, wars have been waged on the bodies of women. But here for once, they fear us and their fears are our power.

Al Britani emotionally manipulates Zara when he is captured by Kurdish female forces and don't show respect to them only because they are 'women'. But Lioness of Kobane doesn't depict even a pinch of fear and vows to kill him herself. He wants to exhibit control over Zara as once she was his slave before and cruelly harasses her contemptuously when she is a Kurdish fighter:

You are weak just like your father. He was screaming when Abu Mariam shot him in his head. He was screaming like you, when I was inside you. You enjoyed it, didn't you? Come on, be honest. Women enjoy when you force on them. And I felt you enjoy a hundred times.

But unable to bear the insults by Britani, Zara rises like a young phoenix from her old ashes of a slave. The power in her urges her to kill Britani and she brutally does the act unflinchingly. The woman in Zara proved to avenge him for his deeds.

Women were considered as mere playthings of men during war time. They are sold, bought, raped, kidnapped, abducted, gang raped, harassed, mistreated, beaten or even killed by male authority. Changing the outlook of woman as weak, Sisters in Arms dawns and wreaks an emotional havoc in the minds of men. Al Britani insults Kurdish army when he is in their detention. When the chief enquires him, Britani offends whole Kurdish female comrades

by saying that if a female is captured, the men would definitely take advantage of her. Keeping up with the standard of women being 'angels', they does not forget their duties for transient carnal desire like men.

It is important to note that one of them mutilates her face so as not to get sold. This girl is an embodiment of feminine power as she is seen to retort bashfully to the Arab guard when her name is asked, "It's none of your business." Zara and all other girls is enquired by Arab men and asked their age and name. This Yazidi girl abuses the officers and is slapped by him. But another comes and warns that "if it is mutilated, it won't fetch a prize"

Even the supreme ISIS leader Abu Mariam is offered a group of girls as his 'slaves' from various parts of the country. Towards the end, there is a last ritual showing that he also employs women trafficking. This practice has paved way for Abu Mariam's death that too in the hands of a woman, Laura. Kenza is also shot dead by a woman slave in purda. Women as behaving very brave in the film just like men.

Another instance also adds to this attitude when Lady Kurda and Laura try to save a child, Lady Kurda while fighting exhausts her bullets. She decides to use a grenade for suicide while the three ISIS soliders decide that they would share her. This is evident from one of the men's words: "We share her, but I go first". The crooked, devilish men are behaving just like wild animals with dirty instincts in mind. But as woman, she is the ever-loving mother than anything else and savior. The tiny bit of humanism and motherhood in Laura is essentially making her feminine and compassionate.

A prominent comment is made on the institution of marriage which enforces the competence and capability of women to act upon moral issues. Radical Feminist in Laura falls in love but opposes the idea of marriage. When Zara questions Laura if she is married, Laura grins and responds that she is not foolish enough to step into the mirage of a wedding. Traditionally, marriages happen between a superior Man and an inferior woman. Women should be subservient to a man in each and every respect. Even the marriage vows conform to the long held patriarchal pattern and portray wife as weak counterpart of her husband. However, Laura is in love with someone, but she is not ready to fall into the rattrap of marriage. She discloses that, "It (marriage) is probably the only stupid thing I managed to avoid doing".

The long institutionalized division between male and female continues to exist even in the modern society. Men and women are treated differently and even men and women soliders are differentiated as Zara recounts that, "If it's a war, why do I feel so ashamed when men come back from the battlefield, they show us their wounds; we look at them like heroes. But for me, I feel ashamed".



The decision to become a fighter is the best one as she embarks upon the journey of self-realization and empowerment. Women engage in physical labor which is attributed to men only. Here, the sex-slave camp has been guided by female purda wearers with a gun.

The violence inflicted upon women is common and widespread all along the history. Comrade Belkacem's sister Katia died before she was born. In 1990s Algeria, jihadists announced that they will kill the women who refuse to wear veil. When Katia went to school, she refused to do so and later on her father found her lying dead in "her own blood, attacked by the neighbors." Katia didn't step back in her decision even though death was evidently in sight. Her steadfastness and maturity is a source of inspiration in the film.

In war, women are abducted and shared or raped. They can be silenced and stand as mute witness to the pathetic circumstances. The completing misleading interpretation of a girl's virginity and sexual intercourse is framed by Arab men. They take women and their emotions for granted. They never anticipate what rape entails. A woman is completely shattered when one force on them and the experience clouds on their mind for the rest of their lives. It's a pleasure seeking experience for men but women are drastically stripped of their normal lives forever. Being born as a girl is a blessing but it is due to domination of men, women suffer in the world. Overtime, women are subjugated and kept inside their house while men act tyrannical around them. Zara has tolerated profusely and so did all female characters in the film. It is their strong determination to strive hard despite the odds which imbues courage in them.

Conclusion

A subversion of male domination, a journey of a woman through drastic phases of life and the salvation of traumatic women by embarking a step into Kurdish army Soeures D Armes is a clearly fabulous feminist film. As a feminist herself, Caroline Fourest has demonstrated that not only men can fight or propagate fear in women. Women power is demonstrated when each character decides to fight against male power. The greatest asset to the comrades is their sisterhood and they achieve female liberation through their companionship. Being a sister to each and every other in the group brought about solidarity among them and created the special bonding. This film is slapstick against all the male domination going around the world these days. Deeply satirical against the male forces, the film focuses on how women work together for a better tomorrow by wiping out the male chauvinism and misogyny. A phenomenal attitude shift on perspective of how women are



portrayed through the skilful sketches of their bold feminist actions is also analyzed in the paper.

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RISK SEVERITY OF NEEDLESTICK AND SHARPS INJURIES AMONGST NURSES - MITIGATION ADVISORY

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Abstract

Percutaneous injuries due to needlesticks and sharps to healthcare personnel particularly nurses pose a high risk of contracting infection from bloodborne pathogens such as HBV, HCV and HIV. This study is based on primary data that probes the incidence of needlestick and sharps injuries among 340 nurses in India. 85.3% of the nurses had encountered NSSIs in recent 12 months of their nursing career. The most frequently injured body part was the inner side of left-hand thumb, left hand thenar eminence and left-hand middle finger inner tip. 16.5% suffered deep injury with visible blood on the sharps. 56.8% reported winged needles are being the most common device causing the injury. Recapping needles, giving intramuscular injections and opening ampoule accounted for more than 50% of the high-risk tasks for NSSI by the nurses. The fact that more than 25 blood-borne virus infections have been reported to be caused by NSSIs among healthcare workers makes it a serious occupational hazard which calls for increased attention across all designation and experience levels among nurses.

Key words: Biohazard, Needlestick Injuries, NSSI, Nurses, Occupational Health.

Introduction

Percutaneous injuries to healthcare personnel particularly nurses due to needlesticks and other sharps pose a significant risk of contracting infection from bloodborne pathogens such as HBV, HCV and HIV. It is estimated that injuries from needlesticks and sharps cause about 66,000 HBV, 16,000 HCV and 200–5000 HIV infections amongst health-care workers every year (Prüss-Üstün et al., 2003) (“pruss-ustun nurses - Google Search,” n.d.). The first case of needlestick-transmitted HIV infection was reported in 1984. This has

increased the concern about the risks of transmission of bloodborne pathogens amongst healthcare workers as they go about their routine service delivery tasks. There is also an added risk of muco-cutaneous injury due to accidental contact of blood and bodily fluids with non-intact skin(Tarigan, Cifuentes, Quinn, & Kriebel, 2015). The routes of entry maybe through absorption, ingestion or inhalation.

Needle stick and Sharps Injuries (NSSI) are cuts caused by sharps such as hollow bore needles, butterfly needles, phlebotomy needles, IV cannulas, stylets etc. Several tasks such as opening the ampoule, administration of injections, handling/transferring specimens, surgical procedures, passing/handling sharps or failure to dispose of the needle in puncture proof containers, etc are the causes of NSSI amongst the nursing personnel.

Many policies have been formulated by the Government of India and the Medical Professional Associations(“NEEDLE STICK INJURY,” n.d.); but sadly, this is only on paper and very few hospitals and clinics follow them in a small way that suits them. Most policies aim at safety regulations and strategies to reduce or minimise exposures. Reducing the incidences and complete prevention of NSSI is the ultimate goal and everybody’s responsibility.

This study aimed to recognize the prevalence of NSSI among the nursing personnel and to understand its causative factors. It further aimed to quantify the awareness levels on measures to safeguard against NSSI, like policy on safe disposals, waste segregation at source and the use of safety devices etc.

Methodology

This study is based on primary data that probes the incidence of needlestick and sharps injuries among nurses in a metro city and its suburbs. Convenient (permission to conduct the study) and purposive sampling method was employed. The study was conducted amongst 340 staff nurses (with varying years of experience and designations) aged 20 – 60 years from 49 varied healthcare settings.

A self-constructed questionnaire was used to collect personal as well as demographic data. Questionnaires allowed the respondents an opportunity to identify various sharps related injuries experienced by them at their workplace. Nurses were also observed on a one-on-one basis in their work environment. They were fully informed about the design and purpose of the study and a written informed consent was obtained.

The self-constructed questionnaire is divided into 3 parts. Closed ended and open-ended question have been included. Since some of the research questions are qualitative in nature, open ended questions helped to better understand the current situation.

- Participant's background information such as educational qualifications, marital status, and economic status was obtained through Part A of the proforma.
- Part B explored the occupational health of the nurses and sought to elicit information on years of practice, work status, work setting, nursing activities, shift systems and use of mechanical aids.
- Awareness regarding preventive measures, method of sharps disposal and other protocols followed was collected in Part C.

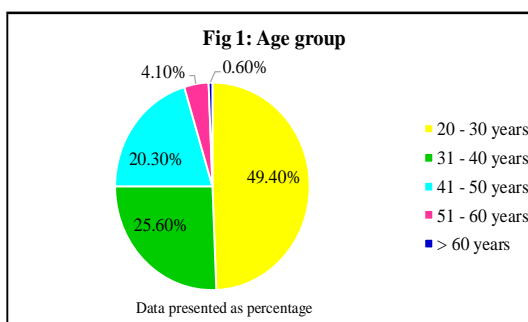
Analysis were performed using SPSS software for Windows (version 25, 2017, IBM Corporation, Armonk, New York, United State).

Results

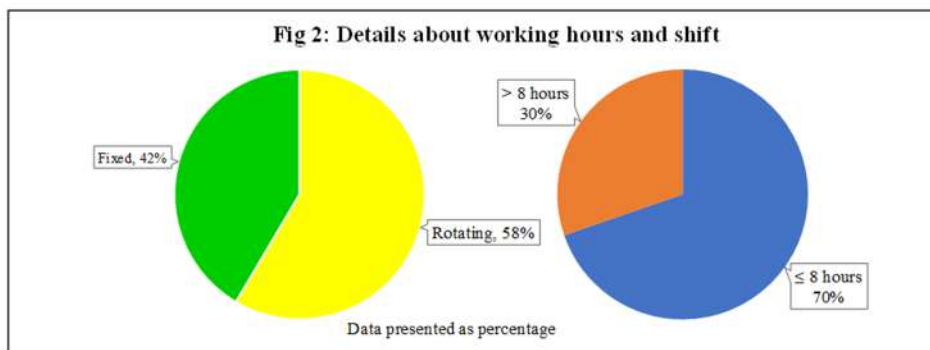
A cross sectional study was conducted amongst 340 nurses to determine the extent of injuries experienced due to Needlestick and Sharps. Table 1 gives the age and anthropometric characteristics of nurses in the current study. The minimum age of nurses was 20 years and maximum was 65 years. The mean age of nurses was 32.8 ± 10.4 years. The mean weight was 60.4 ± 9.2 kg and BMI was 26.3 ± 5 kg/m².

Table 1: Age and anthropometric characteristics of study population			
	Minimum	Maximum	Mean \pm SD
Age (years)	20	65	32.8 ± 10.4
Height (cm)	123	171	171 ± 7.8
Weight (kg)	39	87	60.4 ± 9.2
BMI (kg/m ²)	16.1	49.2	26.3 ± 5

Figure 1 gives distribution of study participants according to age group. Maximum nurses in the study were 20 – 30 years of age. Very small percentage of nurses were >60 years of age. Using the Asian cut-offs for BMI, 10 (2.9%) nurses were underweight



(BMI<18.5 kg/m²), 79 (23.2%) nurses had normal weight (BMI 18.5 to 23 kg/m²), 109 (32.1%) nurses were overweight (BMI 23 to 27 kg/m²) and 142 (41.8%) were obese (BMI >27 kg/m²).



Almost 50% of the nurses had completed H.S.C. + GNM followed by S.S.C. + GNM. Highest percentage of nurses (45.3%) were staff nurses followed by 27.4% nurses who were senior nurses. 12.4% were sister-in-charge and 15% were ANM. Almost 70% nurses worked for less than or up to 8 hours/day whereas around 30% worked for more than 8 hours/ day. 142 (41.5%) had fixed work shift (either 7 am to 3 pm. or 8 am. to 4 pm.) and 199 (58.5%) were on rotational work shifts (night shift of 9 p.m. to 8 am or evening shift 12 to 8 pm. etc.).

Table 2 gives details regarding physical activity undertaken by nurses. 159 (46.8%) did not exercise and 181 (53.2%) exercised. Highest percentage of nurses exercised for 3 to 4 times/ week. The most commonly performed exercise was walking/ running.

Table 2: Physical Activity details	
	Percentage
Do you exercise	
Yes	53.2%
No	46.8%
Frequency of exercise	
Not applicable	46.8%
Once/ week	2.6%
2 to 3 times/ week	4.1%
3 to 4 times/ week	15.6%
4 to 5 times/ week	3.5%
Daily	27.4%
Type of physical activity	
Not applicable	46.8%
Walking / running	30.6%
Gym/ exercise	13.2%
Yoga/ aerobics/ dance/ Zumba	9.4%

Data presented as percentage

Commonly used Sharps:

Table 3 gives the types of needle sticks/ sharps used by nurses in the current study. For needle sticks, highest percentage of nurses used hollow bore needles followed by intravenous and butterfly needles. Suture needles were used by very small percentage of nurses. In sharps, scissors were used by almost 96% of nurses. Scalpel and glass tubes/ slides/ capillary was used by very small percentage of nurses.

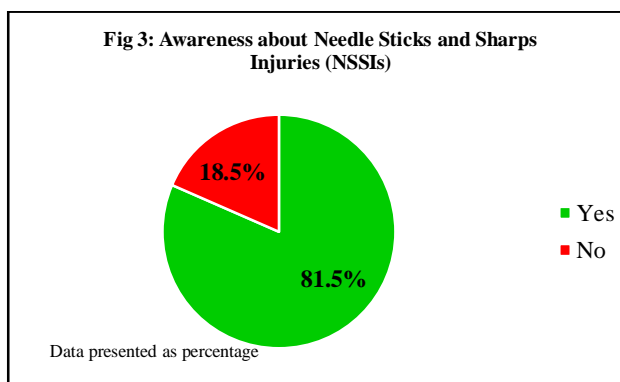
Table 3: Types of needle sticks and sharps used by nurses	
Type of needle stick/ sharps	Percentage
Hollow bore needles	72.1%
Butterfly needles	65.6%
Intravenous	66.8%
Stylets	38.5%
Phlebotomy Needles	22.1%
Glass tubes/ slides/ capillary	2.6%
Suture Needles	0.6%
Scalpel	0.6%
Scissor	95.6%
Metallic Implants	0.6%

Data presented as percentage

Needlestick and Sharps Injuries:

Figure 3 gives the percentage of nurses in the study who were aware about NSSI. About 81.5% of the nurses were aware about NSSI.

There was no significant association of years of experience with the awareness about NSSI indicating that similar percentage of nurses were aware about NSSI irrespective of the years of experience ($p>0.05$). Even though higher percentage of staff nurses were aware about NSSI as compared to ANM, senior nurses or sister-in-charge, this difference was not significant ($p>0.05$).



There was no significant difference in percentage of nurses who were aware about NSSI irrespective of whether they were in rotating shift or fixed shift

($p>0.05$). Higher percentage of nurses with >8 working hours were aware about NSSI as compared to nurses with <8 working hours; however, this difference was not significant ($p>0.05$). There was a significant association of number of rest breaks with the awareness about NSSI ($p<0.05$), higher percentage of nurses who had no breaks were aware about NSSI whereas low percentage of nurses with 1 break were aware about NSSI. Significantly higher percentage of nurses who reported that the rest break was not adequate were aware about NSSI as compared to nurses who reported that rest breaks were adequate ($p<0.05$).

High risk tasks:

Table 4 gives details of activities, that according to nurses, are those that carry high risk of occurrence of NSSI. Most commonly, nurses felt NSSI occur during opening and recapping needles followed by intravenous cannulation, blood collection, opening of ampoule/ vial, surgical procedures and when testing/screening for blood glucose/ hemoglobin. Relatively lower percentage of nurses reported that NSSI are likely to occur during disassembling of needle kits or disposal of needle sticks and sharps.

Table 4: Activities according to nurses during which NSSI are most likely to occur	
	Percentage
Administration of injections	33.2%
Opening of ampoule/ vial	43.5%
Disassembling needle kits	28.5%
Opening and recapping needles	56.8%
Surgical procedures	41.8%
Procedures involving intravenous and major vessel lines	36.8%
Disposing of needles and sharps	27.4%
Blood collection	46.5%
Scalpel handling	33.8%
Intravenous cannulation	48.2%
Needles used for testing/ screening for blood glucose and haemoglobin	41.2%

Data presented as percentage

Higher percentage of nurses with <5 years and >15 years of experience reported that NSSI is more likely to occur during blood collection as compared to nurses with 5 to 15 years of experience. Higher percentage of nurses with 5 to 15 years of experience reported that NSSI is more likely to occur during opening and recapping needles whereas higher percentage of nurses >15 years of experience reported that NSSI is more likely to occur during intravenous cannulation and needles used for testing for blood glucose/ hemoglobin. However, there was no

significant association of various likely reasons of NSSI with years of experience indicating that these difference in percentage of women reporting different likely causes of NSSI according to years of experience is not statistically significant ($p>0.05$).

Significantly higher percentage of sisters with fixed shift reported disassembling needle kits and intravenous cannulations (Table 5) as likely reasons for NSSI to occur as compared to nurses with rotating shift ($p<0.05$).

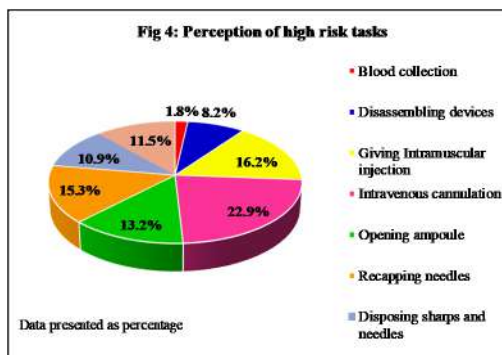
Table 5: Percentage of nurses who reported various likely reasons for NSSI to occur when classified according to shift system				
	Rotating shift (n=199)	Fixed shift (n=141)	χ^2 value	P value
Administration of injections	31.2%	36.2%	0.935	0.334
Opening of ampoule/ vial	40.7%	47.5%	1.559	0.212
Disassembling needle kits	22.1%	37.6%	9.696	0.002
Opening and recapping needles	56.3%	57.4%	0.046	0.831
Surgical procedures	38.2%	46.8%	2.520	0.112
Procedures involving intravenous and major vessel lines	32.7%	42.6%	3.472	0.062
Disposing of needles and sharps	25.1%	30.5%	1.198	0.274
Blood collection	44.2%	49.6%	0.976	0.323
Scalpel handling	30.2%	39%	2.892	0.089
Intravenous cannulation	43.7%	54.6%	3.921	0.048
Needles used for testing/ screening for blood glucose and haemoglobin	37.7%	46.1%	2.410	0.121

Data presented as percentage

Of the likely causes of NSSI, nurses were asked to pick up one cause which they believed to carry the highest risk towards incidence of NSSI. The result is presented in Figure 4. Intravenous cannulation was perceived to be the highest risk prone task for NSSI followed by giving intramuscular injection and recapping of needles. Least percentage of nurses choose blood collection as not so risky in terms of NSSI incidences.

Frequency of NSSI incidence:

About 14.7% nurses had no incidences of NSSI in last 12 months. 34.1% of nurses had 1 incidence of NSSI in last 12 months followed by 25% nurses having 2 incidences and 16.8% nurses having 3 incidences of NSSI in last 12 months. Very small percentage of nurses had 6



incidences of NSSI in last 12 months.

Table 5 gives incidence of NSSI in nurses in last 12 months when classified according to years of experience, designation of nurses, shift system and rest breaks. Higher percentage of nurses with <5 years of experience had 4 or more incidences of NSSI in last 6 months whereas only a small percentage of nurses with >15 years of experience had 4 or more incidences of NSSI in last 12 months. However, there was no significant association of incidence of NSSI in last 12 months with the years of experience; this difference was not significant ($p>0.05$).

	None	1 incidence	2 incidences	3 incidences	4 or more incidences	χ^2 value (P value)
Years of experience						
<5 years (n=154)	15.6%	35.1%	20.1%	15.6%	13.6%	13.099 (0.108)
5 to 15 years (n=108)	13%	34.3%	28.7%	14.8%	9.3%	
>15 years (n=78)	15.4%	32.1%	29.5%	21.8%	1.3%	
Designation of nurses						
ANM (n=51)	13.7%	31.4%	21.6%	19.6%	13.7%	12.912 (0.375)
Staff nurse (n=154)	15.6%	35.7%	20.8%	18.8%	9.1%	
Senior nurse (n=93)	9.7%	33.3%	35.5%	12.9%	8.6%	
Sister-in-charge (n=42)	23.8%	33.3%	21.4%	14.3%	7.1%	
Shift system						
Rotating shift (n=199)	15.6%	35.7%	23.6%	15.1%	10.1%	1.982 (0.739)
Fixed shift (n=141)	13.5%	31.9%	27%	19.1%	8.5%	
Working hours						
<8 hours (n=237)	14.8%	31.6%	25.7%	25.7%	19%	4.132 (0.388)
>8 hours (n=103)	14.6%	39.8%	23.3%	11.7%	10.7%	
Number of rest breaks						
None (n=46)	4.3%	47.8%	21.7%	6.5%	19.6%	24.486 (0.002)
1 break (n=208)	17.8%	28.8%	26%	21.2%	6.3%	
> 2 breaks (n=86)	12.8%	39.5%	24.4%	11.6%	11.6%	
Adequacy of rest break						
Rest break not adequate (n=205)	12.2%	36.1%	24.9%	16.6%	10.2%	3.199 (0.525)
Rest break adequate (n=135)	18.5%	31.1%	25.2%	17%	8.1%	

Data presented as percentage

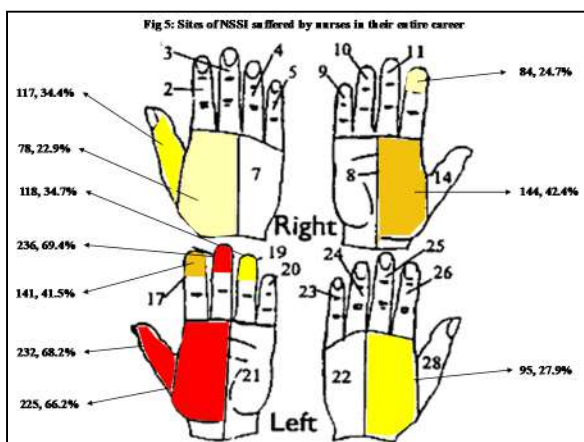
Higher percentage of ANM nurses had 4 or more incidences of NSSI in last 12 months as compared to nurses with other designations. Higher percentage of “sister-in-charge” had no incidence of NSSI in last 12 months as compared to nurses with other designations. Highest percentage of senior nurses had 2 incidences of NSSI in last 12 months. However, there was no significant association of incidence of NSSI in last 12 months with designation, indicating that this difference was not significant ($p>0.05$).

There was no significant difference in the percentage of nurses suffering from incidences of NSSI in last 12 months when classified according shift system, working hours or adequacy of rest breaks($p>0.05$).

However, there was a significant association of number of rest breaks with incidence of NSSI in last 12 months ($p<0.05$). Higher percentage of nurses who had no rest breaks had more incidence of NSSI overall as compared to nurses who got rest breaks.

Cause of the NSSI:

There was a significant association of years of experience and carelessness as a cause for NSSI, with higher percentage of nurses with <5 years of experience reporting carelessness as a cause for NSSI as compared to nurses with 5 to 15 years or >15 years of experience. Higher percentage of nurses with >15 years of experience reported emergency, fatigue and handling/ passing equipment as cause for NSSI whereas lower percentage reported needles left unattended as cause for NSSI as compared to nurses with <5 years and 5 to 15 years of experience. However, statistically, this difference was not significant ($p>0.05$).



Ref Fig 5, Site 15 (inner side of left-hand thumb), 16 (left hand thenar eminence) and 18 (left hand middle finger inner tip) were the most common sites with 65-68% nurses suffering from NSSI at these sites. About 40-50% suffered NSSI at site 13 (right hand thenar eminence), 17 (left hand index finger inner tip), and 38 (left foot). About 30-40% nurses suffered NSSI at site 1 (right hand thumb), 19 (left hand ring finger inner tip), 30 (left wrist), 31 (left forearm towards the wrist) and 44 (right foot). About 20-30% nurses suffered NSSI at site 6 (Back of right hand towards thumb), 12 (left hand index finger inner tip), 14 (inner side of right-hand thumb), and 27 (Back of left hand towards thumb). Less than 68 (20%) nurses suffered NSSI at other sites.

As for the depth of NSSI experienced, 158 (46.2%) suffered from superficial injury followed by 83 (24.4%) suffering from moderate depth injury. About 56 (16.5%) nurses suffered from deep injuries. Higher percentage of nurses who had <5 years of experience had deep injuries as compared to nurses who had >15 years of experience. However, this difference was not statistically significant ($p>0.05$). Higher percentage of senior nurses had superficial injuries whereas lower percentage of them had moderate and deep injuries as compared to nurses with other designation. However, once again, there was no statistically significant association of designation with the depth of injury. ($p>0.05$). There was no significant association of depth of injury with either shift system or working hours indicating depth of injury was similar irrespective of rotating/ fixed shift or working hours ($p>0.05$).



Figure 6 gives needles and sharps that caused injury among nurses. Winged needles were the most common cause for NSSI among nurses followed by intravenous stylets, hypodermic needles, glass tubes/ slides/ capillary and scalpel.

About 63.5% nurses, i.e. 2/3rd nurses followed the proper routine of washing with water, soap and then applying antiseptic after NSSI whereas rest 1/3rd nurses either only applied antiseptic, or merely washed with water (or water and

soap), but did not follow all three steps. When asked about use of protective equipment and/or clothing while handling patients, 12.9% was not wearing any protective clothing. 66.5% of nurses were wearing surgical gloves at time of exposure. Others were wearing surgical gown, gloves+mask or gown+mask.

Protocols to be followed after exposure did exist on paper but only 35.3% nurses were sure that hospital mission/ vision statement reflects safety of health care professional. About 31.5% nurses reported that no safety intervention program was organized whereas 28.5% reported that the administration organized safety intervention program. Rest of nurses reported that hospital either showed some concern after incidence or provided treatment. About 63.8% nurses, i.e. 2/3rd nurses received training regarding NSSI.

Discussion:

The study reported that 290 (85.3%) of the Indian nurses had encountered NSSIs in recent 12 months of their nursing career. Many studies both national (Singh, 1991) (Bashir & Qadri, 2019) and international (Bilski, 2005) (Prüss-Üstün et al., 2003) (Xujun, Yue, Mengjing, Lorann, & Huiyun, 2015) (Garus-Pakowska & Górajski, 2019), indicate that nurses are most vulnerable to infected sharps. The risk of infection depends on the Post Exposure Prophylaxis (PEP) observed by the injured nurse. Only 5 (1.5%) nurses have not been exposed to NSSIs in their entire career, which clearly reports that the nursing fraternity is more susceptible to being injured by needlesticks and sharps which could be contaminated with bloodborne pathogens. The average age of the sample being 32.8 years with an average years of nursing experience being 9.3 years.

The commonly used sharps were the hollow bore needles, butterfly needles, IV cannulas, and scissors. Hollow-bore needles pose a higher risk than solid needles as some amount of body fluid will be retained in them. 25% of hollow-bore needle injuries to healthcare professionals can be prevented by using safer needles (Tarigan et al., 2015). 277 (81.5%) nurses in this study were aware about the potential risk from being injured by contaminated needlesticks and sharps but only 2/3rd (63.5%) of them followed the proper procedure of routine washing with water, applying antiseptic and reporting the incident to higher authorities. This is high in comparison with similar studies conducted in Kashmir (only 10% reported the incidence) and Egypt (25.3% reported to the health services) and low in comparison to Poland (87.8% made a log book entry and 50% also reported it orally to higher authorities).

The most frequently injured body part was the inner side of left-hand thumb, left hand thenar eminence and left-hand middle finger inner tip. 16.5% suffered deep injury with visible blood on the sharps. 56.8% reported winged needles are being the most common device causing the injury. Recapping needles, giving intramuscular injections and opening ampoule accounted for more than 50% of the high-risk tasks for NSSI by the nurses.

Conclusion:

There must be an increased acknowledgement of NSSI, which occurs across all designation and experience levels among nurses. The fact that more than 25 blood-borne virus infections have been reported to be caused by needlestick injuries among healthcare workers (Tarigan et al., 2015) makes it a serious occupational hazard for the nursing profession. The results of this study should be used by Indian law enforcers to enact strict policies that enforce safe use of sharps and reporting of such incidences.

Recommendations:

Implementation of three tier control (Engineering, Administrative and Personal level) strategies will help largely.

Engineering controls include possible elimination of hazardous substance, substitution by less hazardous substance and design of appropriate work processes. For reducing the risk of NSSIs among healthcare personnel and nurses in specific:

- Elimination of unnecessary sharps and needlesticks.
- Substituting hypodermic needles where ever possible with:
 - Safety-Engineered Medical device (SMED). These are non-needle sharp used for withdrawing bodily fluids, accessing a vein or artery or administering medications or other fluids with a built-in safety feature or mechanism that effectively reduces the risk of an exposure (Medical Technology Association of Australia, 2013).
 - IV delivery systems that do not require needle access.
 - Needle-free liquid jet injections, a high-speed jet is used to puncture the skin and deliver drugs without the use of a needle.
 - Needles that retract, sheathe or blunt immediately after use.
- Organizing the workstation with appropriate sharps disposal containers within reach. Ensuring that the disposal containers are emptied or replaced when they are 3/4th full.
- Transporting waste bins with contaminated sharps in a vehicle. This vehicle must be disinfected before being used for other purposes.

Administrative controls include supervisory methods to ensure non-occurrence of incidents. Suggestions include:

- Providing adequate rest breaks during shift hours.
- Minimizing physical handling of needlesticks and sharps.
- Strict enforcement of safe working practice such as hands-free approach for every needlestick and sharps transfer.
- Giving verbal announcements when transporting sharps.
- Documentation of the injury (with specific details such as the date and time of injury or exposure; type of needle or sharps involved; circumstances of the injury/exposure or near-miss, whether visible blood was present in or on the needle/ syringe or sharp, whether the injury caused bleeding and investigative reports of the patient/previous user of the needle), to be made mandatory.
- Safe disposal of needlesticks, injection equipment and other sharps by immediately placing it in a leak-proof puncture-proof container.
- There are several direct and direct insured and uninsured costs associated with employee injuries. Hospitals (Government, semi-government, private, semi-private, etc.), should plan for cost of NSSIs which must include PEP, compensation of time and money lost by employees along with other basics.
- Only recommending a hepatitis B vaccine and providing it free of cost as is done in a few healthcare institutes is inadequate. Testing and follow-up treatment for nurses and other healthcare personnel (directly involved in patient care duties) who are exposed to NSSIs is absolutely essential to safeguard them further.
- Planning regular training and education workshops.
- Maintaining appropriate patient-staff ratio
- Building a strong on-premise- safety culture.
- Develop an “Injury Reporting Protocol” and “Documentation Format”
- Implementing safer work methods
 - Ban on recapping of needles
 - Easy access to appropriate disposal containers
 - Regularly checking sharp disposal bins and replacing it when it is 3/4th full
 - Sharing information among all workers about risk situations (e.g. uncooperative or confused patients).

Personal Controls is the easiest to implement but the least effective control measure. They include barriers or filters between the nurse and the hazard.

- Use of PPE such as gloves. Gowns, Masks, protective glasses and face shields.
- Comprehensive and responsible reporting of incidents
- Meticulous follow-up

Limitations of the study:

Although a sincere attempt has been made by the researchers to include nurses from several Indian healthcare settings, limitations must be considered when interpreting findings from this study. There is no available Indian data on the number of NSSIs among healthcare workers. Previous studies in India were based on either single hospital, sometimes more hospitals but in a small town. To the best of our knowledge there is no publication which covers nursing personnel in a major metro across multiple hospital settings. The sample in this study was solicited from a major metro and its surrounding suburbs wherein the awareness levels are high in comparison with the rest of the Indian continent. The results of this study cannot be extrapolated to all Indian nurses.

Author Statements:

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STRESS AND COPING MECHANISM AMONG COLOSTOMY PATIENTS

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Introduction:-

One treatment for colon and rectal cancer is the colostomy surgery. Colostomy actions most often performed in cases of colon and rectal carcinoma. Patients with colostomy likely to face complex problems such as changes in the physical, mental, emotional, social, sexual and economic. For patients who need a colostomy installed permanently or for life, it will have an impact on other aspects of life of the patient's physical, psychological, social, and spiritual. The main problem is the ability of a colostomy patient self-care of her and the psychological response to changes in the patient's self-image or body image that will affect the patient's mental, emotional and sexual. World Health Organization (WHO), saying that colon and rectal cancer is the third most common cause of cancer in men and the second most common cause of cancer among women worldwide in 2008. Every year, an estimated 550,000 people worldwide die from colorectal cancer. The risk of colon and rectal cancer will significantly increase at age 50 and became a two-fold greater in each of the next decade. Carcinoma of the rectum is more common in men than women, but there are no striking gender differences in colonic carcinoma in other areas.

Patients have to face the challenge of acquiring skills to live with the altered body and experience a psychosocial transition. The use of collecting equipment is associated with negative feelings, such as fear, anguish, sadness and helplessness, which can prompt self-deprecating experiences, linked to feelings of mutilation, loss of health and self-esteem, and reduced self-efficacy and a sense of chronic uselessness and incapacitation, among other emotions. Stoma patients experience changes in their lives especially related to their social network (work and leisure) and to sexuality, aggravating their feelings of insecurity and fear of rejection .

The possible negative psychological outcomes and emotional issues arising from the stoma make it essential the provision of comprehensive patient care, with an interdisciplinary and specialized approach to the needs of patients and their families, with a view to full physical, emotional and social recovery towards rehabilitation. It is necessary to prepare patients, mainly during the peri

operative period, when they experience anxiety and distress before the unknown - the "stoma". This preparation must include pre-operative education, demarcation of the stoma and guidance on self-care for patients and their families, in the postoperative period, as well as the referral to the Assistance Program for Stoma patients of the Unified Health System (SUS).

Need of the study

Stress is a multidimensional concept that consists of physiologic, psychological, and social aspects (Solow-iej, Mason, & Upton, 2009). Stress occurs when an individual appraises a certain situation as a threat that exceeds his or her ability to cope (Lazarus & Folkman, 1984). Stoma surgery often induces a series of physical and psychological stresses, leading to maladjustment and poorer health outcomes (Broadbent, Petrie, Al-ley, & Booth, 2003; Upton & Solowiej, 2010; Von Ah, Kang, & Carpenter, 2007). Common stoma-related stressors include altered body image, the loss of body function, and perceived self-care difficulties (Pers-son & Hellström, 2002).

These physical and psychological stressors often continue to affect patients after their discharge, impairing their daily functioning and quality of life (Cotrim & Pereira, 2008; Kilic, Taycan, Belli, & Ozmen, 2007; Manderson, 2005; Sharpe, Patel,

He coping concept is presented "the set of processes that an individual interposes between him and the event perceived as threatening in order to master, tolerate or reduce its impact upon his physical and psychological well-being". According to authors coping is defined as "the set of cognitive and behavioural efforts intended to master, reduce or tolerate internal or external demands which threaten or surpass an individual's resources"; this response is called "coping strategy".

With respect to the coping functions classified them into two divisions: problem-solving coping strategies and emotion-focused coping strategies. Problem-solving coping refers to the efforts to manage or change problems or also to improve the relationship between people and the environment. These are strategies that are referred to as adaptive, which are more closely related to reality and to the possibility of removing or minimizing the stressful source. Emotion-focused coping strategies involve the attempt to replace or regulate the emotional impact of stress on the individual. They mainly stem from defensive processes which cause individuals to avoid conscious confrontation with the threatening reality.

Aims:-

This paper aims to determine the change and adaptation to the post-colostomy Patients.

Purposes

The main purpose of this study was to explore factors related to stress in with colostomy patients and showing coping strategies, which are defined as a process with the purpose to control the requirements of the individual-environment relationship that will be designed by individuals with intestinal stomas in their daily lives.

Objectives:-

- Determine the stressors among colostomy patients
- Determine the coping mechanisms among colostomy patients
- Find out the association between stressors and coping mechanism scores with the selected demographic variables such as age, gender, educational status, duration of colostomy.

Review of literature:-

Coping strategies of ostomized individuals

Natalia Campos Barnabe^I; Magda Cristina Queiroz Dell'Acqua^{II}

This study aimed at understanding the experience of individuals with intestinal diversions as regards coping with their new life conditions. The qualitative approach was used, involving 11 ostomized subjects. The data were collected by means of semi-structured interviews which were taped and later fully transcribed and analyzed according to Content Analysis as proposed by Bardin and the Coping theoretical framework. The findings in the study were evidenced by three core categories denominated: I did not choose it; I had to accept it and I have to live with the ostomy. The form to manage the condition of being ostomized was revealed by coping strategies which were based on both emotions and the problem itself. The study contributed for reflection and application of knowledge in assistance practice and teaching for care the ostomized.

Stressors relating to patient psychological health following stoma surgery: an integrated literature review.

Ang SG^I, Chen HC, Siah RJ, He HG, Klainin-Yobas P Singapore General Hospital.

To summarize empirical evidence relating to stressors that may affect patients' psychosocial health following colostomy or ileostomy surgery during hospitalization and after discharge.

Eight articles were included with three qualitative and five quantitative research designs. Most studies were conducted in Western nations with one other in Taiwan. Following colostomy or ileostomy surgery, common stressors reported by patients during hospitalization included stoma formation, diagnosis of cancer, and preparation for self-care. After discharge, stressors that patients

experienced encompassed adapting to body changes, altered sexuality, and impact on social life and activities.

This review suggests that patients with stomas experience various stressors during hospitalization and after discharge. Additional research is needed for better understanding of patient postoperative experiences to facilitate the provision of appropriate nursing interventions to the stressors.

To help patients deal with stressors following stoma surgery, nurses may provide pre- and postoperative education regarding the treatment and recovery process and encourage patient self-care. Following discharge, nurses may provide long-term ongoing counselling and support, build social networks among patients with stomas, and implement home visit programs.

Stoma surgery negatively affects patients' physical, psychological, social, and sexual health. Postoperative education programs in clinical settings mostly focus on physical health and underemphasize psychological issues. More pre- and postoperative education programs are needed to help patients cope with stoma stressors.

Factors Related to Stress in Outpatients with Permanent Colostomies

The main purpose of this study was to explore factors related to stress in outpatients with permanent colostomies, using a convenience sample. Subjects were selected from one medical centre in southern Taiwan. The Stress of Colostomy Patients Scale and demographic data were collected using questionnaires either at the colorectal outpatient department or in the home of colostomy patients. Seventy-three subjects with colostomies participated in the study. Other diseases and caregivers of colostomy patients influenced overall stress in outpatients with permanent colostomies. The five major stressors were: "I have urination problems"; "I feel tired easily owing to physical decline"; "I can't travel freely because of my colostomy"; "I worry about recurrence of the disease"; and, "I suffer from insomnia". This study provides important information for assessing the stress level of outpatients with permanent colostomies and for developing nursing assessment tools for colostomy patients. To alleviate the overall stress of colostomy patients and to help them return to the activities of daily living before the operation, health care professionals could design individual nursing care plans based on data from assessment tools.

Methodology:

Research approach: Descriptive and evaluative research approach was selected to accomplish the objectives.

Research Design: Descriptive survey design.

Variables:-

Demographic variable – age, sex, educational background, marital relationship socio economic status

Research variable – stressors and coping mechanism

Delimitations:-

The study was delimited to only colostomy patients,

The study was confined to a selected private hospital, Kolkata

Population:-

Population of the study were the patients with colostomy for one year to 3years, age group between 20 to 50 years of age

Sample:

- Sample size was consist of 30

Conceptual frame work –

Conceptual frame work adopted for the study was based on ‘Adaptation Model ‘by Roy’s adaptation theory.

Inclusion criteria for sampling

1. Patients who were attended the OPD during the study period
2. Patients who were willing to participate in the study.
3. Patients who were available at the time of data collection.

Exclusion Criteria for sampling

1. Patients who are absent at the time of data collection and who are not willing to participate in the study.

Sampling technique –

Non probability purposive sampling technique was used

Ethical Permission:-

Ethical approval was obtained from the Research Ethics Committee of the Hospital

Data collections tools:-

Tool – I : Demographic variables consist of – demographic data consisting of 10 items such as Age , Sex , religion Education , Marital status ,Family income , level of family responsibility Job status ,Care provider. Type of colostomy

Tool – II : Structured colostomy stressors scale to assess the stressors of Colostomy patients consisting of 40 items covering four areas such as

physiological well being (10 items) , psychological well being (10 items) , social well being (14 items) , spiritual well being (6 items) .

Too I- III :Coping mechanism questionnaire based on WCQ (ways of coping questionnaire) by Lazarus and Folk man coping mechanism inventory of colostomy patients which was focused on three main factors .The major points are addressed within the context of the transactional, or process, model of stress and coping offered by Lazarus and Folkman. Three features of this model are discussed: (a) a focus on what individuals are actually doing and thinking in stressful transactions as opposed to what they usually do or would do, (active coping 15 items), (b) an emphasis on assessing coping behavior in relation to a specific context (avoidance coping 10 items) and (c) attention to the dynamic nature of coping behaviour, (minimize the situation 10 items).

Reliability:

The tool was found reliable ($r = 0.84$) for stressors scale and for coping scale ($r = 0.9$).

Data analysis and findings:

Data was analysed using descriptive and inferential statistics. The main findings of the study are as follows.

For demographic variables:

- Majority (60%) of the respondents are belonging to the age group of 41 -50 years of age.
- Majority of the respondents were male (65 %).
- Majority patients were with temporary colostomy (75 %).
- Majority of the respondents (75%) are married.
- Majority of the respondents (70%) are graduate in terms of education.
- 65% of respondents are from (0-1 yr) of surgery.
- Majority respondents (85 %) are working.
- 40% of the respondents having the family income between Rs 20001 to Rs 25000.
- Majority of the respondents (70%) had maximum level of family responsibilities.

For stressors scale:

The stressors scores of the subjects according to the areas were physiological (25%). psychological (32%), socio economic (38%), spiritual (5%). The highest level of stressor was identified in socio economic area.

For coping mechanism:

The findings of the coping mechanism scores were – Factor 1 Active coping (28%), Factor II Avoidance coping (30%), Factor III Minimize the situation 42%. There is no significant association between the selected variables and stressors in the area of sex, religion. But there was significant association

between the area of body image, family support, job status, quality of life, self image, family responsibilities.

Discussion

The evidence on the psychological aspects of stomized patients during surgical treatment is scarce in the national and international literature, especially in relation to the preoperative period, which involves physical and emotional preparation for surgery, and the postoperative period, with physiological stabilization, specialized assistance and preparation for discharge.

The psychological demand, through the analysis of this sample, showed that the need to live 24 hours a day connected to a colostomy bag arouses negative feelings, impacting all aspects of the patient's life. These changes may or may not be irreversible, depending on the clinical condition of each patient, professional support, family support and the use of coping strategies.

In order to achieve rehabilitation, specialized care should be interdisciplinary, including preoperative education, reception with professional support and individualized therapy, in order to promote a more satisfactory acceptance of the new condition . The use of coping strategies by the patients attenuates the impact of the illness and improves their psychological well-being.

Despite consistent results on the repercussions for stomized patients, there is a gap in studies focusing on the psychological impact during hospital stay resulting from the surgical treatment with stomization. This fact can be considered a limitation for the scope of the complete analysis of the aspects that characterize the psychological dimension of the patients in this moment of crisis.

Stoma patients presented worse quality of life in the first months post-surgery when compared to the six month. This illustrates that adaptation and acceptance require time and interdisciplinary care, encompassing psychological aspects, stoma care and the collecting bag, with prevention of complications, and support to cope with the stoma.

Conclusion

Patients who go through life with a stoma is an experience that is a big threat to the physical integrity and self-concept and changes in body image in relation to changes in bodily functions. Sexuality is an integral part of the patient's personal and is a very complex phenomenon. Many patients find it difficult to talk about sexual feelings, especially after changes in body image and nurses should be able to help patients identify and adapt to changes in the patient sexual concept. Cultural background plays an important role in the lives of patients, including patients personal and religious, their perceptions of the recovery, as well as the concept of behaviour and attitudes toward the disease. Nurses must combine

expression, information openly, the question with respect to the patient and family, and have a commitment to respond flexibly and constructively.

Implication:-

The study has implications for nursing education, nursing practice, nursing administration and nursing research.

Nursing Practice

Furthermore implication of this study will help in reducing the hospital stay and cost of the treatment in colostomy patients. Colostomy increases the risk of infection of the surrounding skin and infection of stoma, malnutrition, discontinuation of treatment, complications of the stoma that are stoma retraction, prolapsed, hernia, psychosexual problems in cancer patients. Colostomy also leads to poor quality of life so this research will build up basis to improve the quality of life of patients with lifelong colostomy.

Nursing Education

The study has an important implication for nursing education. It is the student life where a young student can be shaped or moulded and helped to develop sense of responsibility towards the patients. Students should be taught about holistic care. In order to provide evidence based nursing, the nurse educator should teach and provide learning experience to student nurses regarding colostomy care and changing of bag. They should be taught in detail about assessment and care of stoma. Education has the opportunity to plan and play an important role in changing the behavior of learners. There is urgent need to take up the studies which identify the prevalence of colostomy. More nursing personnel should take interest in developing scientifically tested material on prevention and control of colostomy surgery.

Nursing Administration -

There is need to sensitize the administration about the colostomy care and changing of colostomy bag as an effective nursing intervention so that, they should feel the need to introduce use of colostomy care and bag changing as a routine in the care of patient with colostomy. As administration to ensure quality, they should utilize and rely upon evidence based nursing practice. As the study reveals that the patients self care have more comfort in terms of relief from infections as compared to those not using. The nurse administrator should organize in service education program for the nurses to teach them about colostomy care

.Nursing Research

There must be constant research to develop its body of knowledge, to test its strategies and ensure that is action makes a difference thoughtful people in nursing remind us that we must lay emphasis on the use of research as well as conduct research. No profession can exist without research to develop its body

of knowledge, to test its strategies and ensure that its action make a difference. Thoughtful people in nursing remind us that we must lay emphasis on the use of research findings as well as on the conduct of research. The health care environment today is dynamic and more demanding. There is a need to promote research based practice as nursing moves towards as an independent professional practice mode. The researcher found that no enough studies had been conducted in this aspect to improve the quality of life of patient with colostomy. So nurses must take up research in this area so that quality care can be developed and implemented in this area. Nursing administrators at all levels of organization must create environment for research in nursing. They should encourage nursing personnel to make use of these results in the practice field.

Limitation:-

- Sample size was relatively small, so its findings could not be effectively generalised.
- The assessment were for limited time

Recommendations:-

On the basis of the study, the investigator offers the following recommendations for future research.

- A similar study can be replicated with a larger number of samples for making generalization of the study
- A similar study can be performed with other chronic disease patients.

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SIGNIFICANCE OF INFORMATION AND COMMUNICATION TECHNOLOGY (ICT) IN DIGITIZING RURAL INDIA: A STUDY ON ITS AWARENESS AMONG THE PEOPLE OF PURBA BARDHAMAN DISTRICT IN WEST BENGAL

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Abstract

Digital India scheme has been introduced by the Government of India in the year 2015 with a vision to transform India into a digitally empowered society and knowledge economy. The scheme was launched to make every household digitally literate and made available various government services to the citizens electronically through improved online infrastructure. The successful implementation of the programme requires strong ICT based infrastructure, till date it is only available in selected urban areas. In India more than two third of the total population resides in rural areas where basic services like water, electricity, mobile and internet is not available then how could we think about providing other government services via digital platform. As on March, 2019, 2,92,000 villages remains without electricity, 43000 villages does not have mobile services. The present study is focused on public response about the awareness of the Digitization process in the country initiated by the Government of India.

Keywords: ICT, Flagship, Digitization, Infrastructure, Economy

Introduction

Since last three decades India has showing a tremendous growth in the field of Information and Communication Technology (ICT). The traditional India turned as a Technological India. Rapid advances have been taken place in the field of ICT. ICT has become one of the strongest industries in the world. The Govt. of India launched Digital programme which led forward our country towards a digital era where all kinds of government services made available through internet. With the Make in India campaign and Digital India, the nation is planning to achieve rural literacy and improve their communication skills to reach the international standards in the field of ICT. This ensures their citizens overall development in all the aspects. With introduction of mobile connectivity in villages, unique single portal can be maintained for all government related



services. This helps all of us to get all kinds of data and information from anywhere which is stored electronically on cloud.

Digital India means movement from traditional analog electronic and mechanical devices to the modern digital technology available today. Digital technology includes cloud computing and mobile applications which are helpful for rapid economic growth and empowerment of countrymen. Recently mobile applications in smart market chaired top slot in last few years. The main objective of Govt. is to target nine pillars of the Digital India. Those are broadband highway, universal access to internet, public internet access program, e-Governance, e-Kranti-electronic delivery of services, information for all, electronics manufacturing, IT for job, early harvest program. Dept. of Electronics and Information Technology has connected ministry of communication, ministry of rural development, ministry of human resource development ministry of health and others to promote this programme.

With this great initiative, Indians life style has been changed. Government has provided many facilities to their citizens. Some of prominent in those facilities are Digilocker, e-education, e-health, e-sign, e-passport seva, e-banking, national digital library and national scholarship portal. These facilities are helpful in many ways to their citizens to provide equal opportunity of everyone in availing government services and also in minimizing corruption. Digilocker facilitates secure documentation. It helps in storing the important documents like PAN card, passport, mark sheets and various certificates in electronic form. Apart from this it also gives secure access to the government in case of any need.

The central government provided a special platform www.mygov.in to share inputs and on all issue related to policies carried out by various departments and governance. Using aadhaar authentication, e-sign framework allows citizens to digitally sign a document online itself. Another much popular program is e-hospital. With this facility, one can avail hospital services through online like taking appointments, payment of bill, several inquiries, diagnostic reports and other services in all government hospitals. In this digitization process another major initiative is student centric National Scholarship Portal (NSP). It paved way in one-step solution for every student. NSP help the student's right from submission of application to sanction and disbursal to the beneficiary of all scholarship provided by the various state Government and central Government. The verification process is also done online itself. The most important service is based on e-mail, SMS oriented e-sampark. One can send information and get public services through email and sort messaging services.

The initiative taken by the government is completely depends on the internet facilities. To make this movement successful, government of India has taken initiative to build a strong high speed broadband highway in rural areas to connect them from outside world. Gram panchayats to be linked with internet

along with mobile and bank account would enable participation in digital and financial space at individual as possible without any delay. With this digital empowerment transparency, accountability will play a key role in entire process. However security measures need to be taken by the users to protect themselves from phishing.

Research Methodology

The study was conducted using primary and secondary data. Secondary data was collected from various sources like journals, articles, government reports, books, newspapers and magazines covering wide collection of academic literature on Digital India. Further, descriptive survey method was applied during the study. 500 respondents of age group between 21-50 years were taken as sample from rural areas of Purba Burdwan district of West Bengal consisting 250 male, 250 female were randomly selected for this study. Response was divided into three categories such as positive, negative and also no response. The data has been collected using self –prepared questionnaire on the matter related to Digital India and tested for response in context of matter. Feedback was tabulated and comparatively analyzed using percentile tool.

Table 1 Gender wise classification of respondents

Gender	No. of Respondents	Percentage
Male	250	100
Female	250	100
Total	500	100

Source: Primary Data Collection

The above table represents the gender wise classifications of respondents in which 250 respondents are male while remaining 250 are females.

Table 2 Educational Qualification of the Respondents

Gender	No. of Respondents	Percentage
Higher Secondary level	60	12
Under Graduation	250	50
Post Graduation	110	22
Professional Degree	80	16
Total	500	100

Source: Primary Data Collection

The above table represents the educational qualification of respondents. It clearly showing that 50 per cent respondents are graduates, 22 per cent of respondents is Post Graduates. Only 12 per cent of respondents are completed

their Higher Secondary. Remaining 16 per cent of the respondents are professional degree holders.

Table 3 Income Level of the Respondents

Gender	No. of Respondents	Percentage
Below 10,000	235	47
10,000-20,000	195	39
20,000 and above	70	14
Total	500	100

Source: Primary Data Collection

The above table represents the income wise classification of the respondents. 47 per cent of respondents are having below Rs.10000 of monthly income. 39 per cent of respondents having monthly income between Rs. 10000 to 20000 and remaining 14 per cent of respondents are between Rs.20000 and above income per month.

Table 4 Gender wise response on awareness of Digital India and ICT

Gender	Yes	No	Total Respondents	Percentage of Respondents
Male	180	70	250	50
Female	92	158	250	50
Total			500	100

Source: Primary Data Collection

Table 4 shows the awareness of the respondent on use of ICT in digitizing the rural India and Digital India programs carried out by the Indian Government. 55 per cent of respondents understand the importance of ICT in digitizing rural India and also aware of the Digital India program. They are having well knowledge about major initiatives carried out by the government. 45 per cent of the respondents are not aware about the program. They have no knowledge about the Digital India programme.

Conclusion

The main aim of the Digital India programme is to educate people towards electronic gadgets usage in their daily life. This is a progressive movement initiated by the union government, but there are some hurdles reflecting with this study. Lack of infrastructure is the main hurdle to reach target. As digital literacy, slow internet connectivity, approach of internet, network problem, irregular power supply, and conventional working habits etc. are not showing much positive impact on digital usage. This is the basic reason why the people are unable to welcome this movement. Despite the successful implementation of many e-governance projects across the country, e-governance as a whole has



not been able to make the desired impact and fulfil its objectives. The government has to take initiation to use mass media to promote digital literacy as well as create awareness in people on various programs carried out by the government.

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EXPOSURE OF HUMAN BODY IN THE WORLD OF GLOBALIZATION: A NEED OR ACT OF NARCISSISM IN CONTEXT TO MANJULA PADMANABHAN'S HARVEST

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Abstract

In the recent times, exposure of human body has become an emerging business. Though there are many ways to earn livelihood, people have selected the path of exposition of their bodies either as a need for livelihood or as an act of narcissism. People started to find pleasure in this act; for which they think there is no need of marriage. In the novel 'Harvest', Manjula Padmanabhan tries to show the how being poor the characters had chosen the easy way of livelihood. Being poor, they chose to expose their body and earn their livelihood. The western culture has influenced the Indian people in such a way that they had forgotten all the values and traditions of the ancestors. In present world of globalization, the Indians have adopted everything from the western without being realizing what is bad and good. The author tries to show how the westerns have dominated the Indians from every point although being India is a free country. The third world people are under the influence of the first world people and they had chosen the exposition of their body as easy source of income to earn their livelihood. This paper tends to study the exposure of human body is the need to earn their livelihood or it's an act of narcissism.

Keywords: Manjula Padmanabhan , Globalization, Westernization, Narcissism.

Introduction

Manjula Padmanabhan's Harvest (1997) is a unique play. The play highlights a futuristic satire on the trade in live organs from the Third World to the West. Manjula Padmanabhan tries to show how the poor people are being influenced to be under the western to earn their livelihood. They are given all the luxuries which evoke them to be under the hands of the west. The play is set in 2010 AD, where the sale of human organs is a common practice. The characters although are shown as subalterns at the same is shown as hypocrite as the character Om shows an act of narcissism towards the end by accepting Ginni's demand to sell his body. The present world is running with this business trying to move towards a globalised development. In this reference, Manjula



Padmanabhan has specially set the play setting in Bombay where we see the exposure of human body at high rates either as a need or for act of narcissism.

Discussion

Globalization is the spread of products, technology, information, and jobs across national borders and cultures. In economic terms, it describes an interdependence of nations around the globe fostered through free trade.

On the upside, it can raise the standard of living in poor and less developed countries by providing job opportunity, modernization, and improved access to goods and services. On the downside, it can destroy job opportunities in more developed and high-wage countries as the production of goods moves across borders.

Globalization motives are idealistic, as well as opportunistic, but the development of a global free market has benefited large corporations based in the Western world. Its impact remains mixed for workers, cultures, and small businesses around the globe, in both developed and emerging nations.

Manjula Padmanabhan's *Harvest* examines the exposure of body through the lens of globalization as a need for the people or an act of narcissism. She tends to explore the real face of the society where a person tries this act of exposure for their own fulfillment of needs. It also shows how the first world people are using the body of the third world people taking the advantage of being poor and using to expand medicines. Padmanabhan very well portrays the influence of first world people over the third world through luxuries and using them for their own benefit. The play introduces its audience to a new slave trade and trafficking in bodies meaning that people are being literally bought and sold. It reflects how capital defines power but in two different context. Those without money are forced to sell their bodies and those with money ask for the body from the poor for their own use. Om is completely influenced by the western commodities where he readily sells his body. He readily accepts Ginni's demand to sell his body for fulfilling his needs and demands of family. Padmanabhan emphasizes the effect of globalization on people worldwide where exposure of body has become a business. They openly go for human trafficking but no one sees it as an illegal deed. Padmanabhan herself felt the need to write down the true image of the world where people are openly selling their bodies for fulfilling their needs either for wealth or for narcissism. In the post globalization era India has emerged as one of the biggest markets for developed countries not only in terms of selling products but also as a source of raw commodity. The impact of globalization has been seen in India's consumer market where durable and non-durable consumer products have become the main attraction of elite and upper middle class people but the poor class people, who are mostly devoid of the facilities provided by these consumer products,

also eager to have it though it is different thing that they cannot afford it. In this regard, the poor falls into the prey of the rich to fulfill their needs for which they readily accept whatever comes in their way to earn money. Human trafficking has also broken down the human relationships which can be seen in the characters Om and Jaya. Om has to show as unmarried for selling his body which he accepts only for the need of the money. He makes his wife his sister which brings problems in their relationship of marriage.

JAYA: And calling me your sister – what’s that? If I’m your sister, what does that make you? Sister, huh! My forehead burns, when I say that word, ‘sister’! [. . .] OM: You think I did it lightly. But at the cost of calling you my sister . . . we’ll be rich! Very rich! Insanely rich! But you’d rather live in this one small room, I suppose! Think it’s such a fine thing – living day in, day out, like monkeys in a hot-case – lulled to sleep by our neighbours’ rhythmic farting! Dancing to the tune of the melodious traffic! And starving. Yes, you’d prefer this to being called my sister on a stupid slip of paper no-one we know will ever see! (Padmanabhan 223)

Jeetu is the only character who talks about liberty and freedom but his all talks and ideas of this bourgeois ideology goes into vain when he gains mechanical eyesight after becoming blind. Having seen the virtual reality of developed countries, he has lost all of his rational faculties. Bombarded by the sexy and alluring presentation of developed countries he shatters his ties with the family to embrace the virtual world without realizing its inherent danger and unconsciously presents himself as an object, a commodity, to be sold with exchange value but at the end what he gets can be easily understood. A deconstructive reading of the text may show the implied relationship between developing countries and developed countries, which requires a commodity/body to survive and procreate in mechanical manner, and for which it takes lots of measures in terms of safety to ensure hygienic and healthy organ; then how Jeetu is accepted as a donor of body organ as he was full of diseases and unhygienic on his return at home after two months. The question arises whether Jeetu has been taken mistakenly or intentionally to get a donor of body organ free of cost—the mechanism is simple as first take the subject forcefully, then to allure him introduce the subject to the sexuality of developed countries in the virtual world and then the subject will himself embrace this virtual world as it happens with Jeetu. Or has Jeetu’s intimidation become necessary for the developed country as he speaks about liberty and freedom which is detrimental for the growth of consumerism? Then the relationship between developed countries and Third world countries is not merely the relationship of seller-buyer rather it is more than that—to control the body of the subject of Third World countries as a mere commodity and this hoo-ha about hygiene and safety are different means to control, to allure and to objectify the subject in the name



of consumer culture. If this safety and hygiene does matter to the buyer of body organs then Jeetu would have not been accepted as a donor, as what Om has said. In fact it is a neo-capitalist attitude to control not only a subject rather the whole family and that is what happened in the play. Since Jeetu is a insouciant, happy-go-lucky character, it is necessary to put him in the paradigm of consumer culture for which force or trick is essential. Om in the need of money puts the whole family at stake. He readily wills to sell his body and towards the end enjoys for his own interests and luxuries. Jaya denies for selling of the body and she is the only one who fights against this business. She compares Om with chicken which is fed only to be butchered and served as a meal: OM: Would she spend so much money on me, then? If I am just – a – a chicken to her? Answer me that! Do you know how much she's spent on us? JAYA: Never mind chicken – have you seen how their beef cattle live? Air-conditioned! Individual potties! Music from loudspeakers – why, they even have their own psychiatrists! All to ensure that their meat, when it finally gets to Ginni's table, will be the freshest, purest, sanest, happiest – (Padmanabhan 233).

Conclusion

Exposure of human body in the world of globalization is a curse. Adopting western culture is good but everything is not accepted. In the tradition days, these were not accepted in the Indian society. Poor people earn their livelihood through hard work but not by selling their bodies. Manjula Padmanabhan got the idea to write the novel story through her visit to Chennai where she has seen the reality of people selling their bodies to feed their family. The rich bureaucrats enjoy their luxurious life with the strength of money by buying the bodies of the poor. Human trafficking is although accepted as illegal but the generation in developed cities has adopted it as act of narcissism and for the poor it became an act of need which is clearly shown through the character of Om. Traditional culture is believed as boring in today's world of globalization but the rules adopted in the past were for the betterment of the society. Exposure of body for fulfilling the needs or enjoyment should be banned. Many of them who are into this business of human trafficking are either helpless or without home. So we should stand together like the character Jaya to be against this business and help the needy ones to indulge them in other activities like weaving, ploughing, social activities and many more.

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DIFEEERENT TYPES OF SNIFFING ATTACKS AND THEIR TOOLS-A RESEARCH PERSPECTIVE

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Abstract

Sniffing involves capturing, decoding, inspecting and interpreting the information inside a network. The purpose is to steal information, usually user IDs, passwords, network IDs, credit card numbers etc. Sniffing is generally referred to as a passive type of attack, wherein the attackers can be silent/invisible on the network. This makes too difficult to detect.so it is a dangerous attack. In this paper we examine sniffing attacks, its growth, problems and tools in a research perspective.

Keywords: Sniffing, MAC, Switch, Tools

I. Introduction

Sniffing is the process of monitoring and capturing all the packets going through a network using some tools called sniffing tools. Sniffing allows to see all sorts of traffic, both protected and unprotected. An attacking party may be able to gather information that can be used for further attacks or to cause other issues for the network or system owner.

One can sniff the following sensitive information from a network –

- Email traffic
- FTP passwords
- Web traffics
- Telnet passwords
- Router configuration
- Chat sessions
- DNS traffic

A sniffer normally turns the NIC of the system to the **promiscuous mode** so that it listens to all the data transmitted on its segment.

Promiscuous mode refers to the unique way of Ethernet hardware, which allows the NIC (Network Interface Card) to receive all traffic on the network, even if it is not addressed to this NIC. By default, a NIC ignores all traffic that is not addressed to it, which is done by comparing the destination address of

the Ethernet packet with the hardware address (MAC address) of the device. While this makes perfect sense for networking, non-promiscuous mode makes it difficult to use network monitoring and analysis software for diagnosing connectivity issues or traffic accounting. A sniffer can continuously monitor all the traffic to a computer through the NIC by decoding the information encapsulated in the data packets.

Network sniffing uses sniffer software, either open source or commercial. Broadly, there are three ways to sniff a network; external sniffer, internal sniffer and wireless sniffer

II. Types of Sniffing

Sniffing can be either Active or passive in nature.

Passive Sniffing

Passive sniffing allows listening only. It works with Hub devices. On a hub device, the traffic is sent to all the ports. In a network that uses hubs to connect systems, all hosts on the network can see the traffic. Therefore, an attacker can easily capture traffic going through.

The hubs are almost obsolete nowadays. Most modern networks use switches. Hence, passive sniffing is no more effective.

Active Sniffing

In active sniffing, the traffic is not only locked and monitored, but it also be altered in some way as determined by the attack. Active sniffing is used to sniff a switch-based network. It involves injecting **address resolution packets** (ARP) into a target network to flood on the switch **content addressable memory** (CAM) table. CAM keeps track of which host is connected to which port.

III. Mostly Affected Active Sniffing Techniques

- MAC Flooding
- DHCP Attacks
- DNS Poisoning
- Spoofing Attacks
- ARP Poisoning

Protocols in computer networking are not attached with security protection mechanism therefore do not offer much resistance to potential intruders. Several rules lend themselves to easy sniffing

- **HTTP** – It is used to send information in the clear text without any encryption and thus a real target.
- **SMTP** (Simple Mail Transfer Protocol) – SMTP is basically utilized in the transfer of emails. This protocol is efficient, but it does not include any protection against sniffing.

- **NNTP** (Network News Transfer Protocol) – It is used for all types of communications, but its main drawback is that data and even passwords are sent over the network as clear text.
- **POP** (Post Office Protocol) – POP is strictly used to receive emails from the servers. This protocol does not include protection against sniffing because it can be trapped.
- **FTP** (File Transfer Protocol) – FTP is used to send and receive files, but it does not offer any security features. All the data is sent as clear text that can be easily sniffed.
- **IMAP** (Internet Message Access Protocol) – IMAP is same as SMTP in its functions, but it is highly vulnerable to sniffing.
- **Telnet** – Telnet sends everything (usernames, passwords, keystrokes) over the network as clear text and hence, it can be easily sniffed. credentials, and much more.

ARP Poisoning

Address Resolution Protocol (ARP) is a stateless protocol used for resolving IP addresses to machine MAC addresses. All network devices that need to communicate on the network broadcast ARP queries in the system to find out other machine's MAC addresses. ARP Poisoning is also known as **ARP Spoofing**.

Here is how ARP works –

- When one machine needs to communicate with another, it looks up its ARP table.
- If the MAC address is not found in the table, the **ARP_request** is broadcasted over the network.
- All machines on the network will compare this IP address to MAC address.
- If one of the machines in the network identifies this address, then it will respond to the **ARP_request** with its IP and MAC address.
- The requesting computer will store the address pair in its ARP table and communication will take place.

ARP packets can be forged to send data to the attacker's machine.

- ARP spoofing constructs a large number of forged ARP request and reply packets to overload the switch.
- The switch is set in **forwarding mode** and after the **ARP table** is flooded with spoofed ARP responses, the attackers can sniff all network packets.

Attackers flood a target computer ARP cache with forged entries, which is also known as **poisoning**. ARP poisoning uses Man-in-the-Middle access to poison the network.

DNS Poisoning

DNS Poisoning is a technique that tricks a DNS server into believing that it has received authentic information when, in reality, it has not. It results in the

substitution of false IP address at the DNS level where web addresses are converted into numeric IP addresses. It allows an attacker to replace IP address entries for a target site on a given DNS server with IP address of the server controls. An attacker can create fake DNS entries for the server which may contain malicious content with the same name.

For instance, a user types www.google.com, but the user is sent to another fraud site instead of being directed to Google's servers. As we understand, DNS poisoning is used to redirect the users to fake pages which are managed by the attackers.

DHCP Starvation attacks and DHCP spoofing attacks

Another type of network attack which is targeted to DHCP servers is known as DHCP starvation attack. In a DHCP starvation attack, an attacker broadcasts large number of DHCP REQUEST messages with spoofed source MAC addresses. If the legitimate DHCP Server in the network start responding to all these bogus DHCP REQUEST messages, available IP Addresses in the DHCP server scope will be depleted within a very short span of time.

Once the available number of IP Addresses in the DHCP server is depleted, network attackers can then set up a rogue DHCP server and respond to new DHCP requests from network DHCP clients. By setting up a rogue DHCP server, the attacker can now launch DHCP spoofing attack.

After a DHCP starvation attack and setting up a rogue DHCP server, the attacker can start distributing IP addresses and other TCP/IP configuration settings to the network DHCP clients. TCP/IP configuration settings include Default Gateway and DNS Server IP addresses. Network attackers can now replace the original legitimate Default Gateway IP Address and DNS Server IP Address with their own IP Address.

Once the Default Gateway IP Address of the network devices are is changed, the network clients start sending the traffic destined to outside networks to the attacker's computer. The attacker can now capture sensitive user data and launch a man-in-the-middle attack. This is called as DHCP spoofing attack. Attacker can also set up a rogue DNS server and deviate the end user traffic to fake web sites and launch phishing attacks.

DHCP Poisoning

Dynamic Host Configuration Protocol (DHCP) is used as IP's DHCP-enabled clients. The server holds valid TCP/IP configuration parameters, valid IP addresses and time period of the lease offer. When a client needs an IP, it sends a request to the DHCP server. The DHCP server asks the client to send the

required parameters and once it receives the parameters, DHCP server sends the acknowledgement which contains the IP address of the client.

MAC Flooding Attack

The MAC Flooding is an attacking method intended to not compromise the security of the network switches. Usually, the switches maintain a table structure called MAC Table. This MAC Table consists of individual MAC addresses of the host computers on the network which are connected to ports of the switch. This table allows the switches to direct the data out of the ports where the recipient is located. The aim of the MAC Flooding is to takedown this MAC Table. In a typical MAC Flooding attack, the attacker sends Ethernet Frames in a huge number. When sending many Ethernet Frames to the switch, these frames will have various sender addresses. The intention of the attacker is consuming the memory of the switch that is used to store the MAC address table. The MAC addresses of legitimate users will be pushed out of the MAC Table. Now the switch cannot deliver the incoming data to the destination system. So considerable number of incoming frames will be flooded at all ports. MAC Address Table is full and it is unable to save new MAC addresses. It will lead the switch to enter into a fail-open mode and the switch will now behave same as a network hub. It will forward the incoming data to all ports like broadcasting. As the attacker is a part of the network, the attacker will also get the data packets intended for the victim machine. So that the attacker will be able to steal sensitive data from the communication of the victim and other computers. Usually a packet analyzer is used to capture these sensitive data. After launching a MAC Flood attack successfully, the attacker can also follow up with an ARP spoofing attack. This will help the attacker retaining access to the privileged data even after the attacked switches recover from the MAC Flooding attack.

IP Spoofing

IP spoofing is the creation of IP packets using somebody else's IP source addresses. This technique is used for obvious reasons and is employed in several of the attacks. Examining the IP header, the first 12 bytes contain various information about the packet. The next 8 bytes contains the source and destination IP addresses. A common misconception is that IP spoofing can be used to hide our IP address while surfing the Internet, chatting online, sending e-mail, and so on. This is generally not true. Forging the source IP address causes the responses to be misdirected, meaning you cannot create a normal network connection.

Password Sniffing [1]

Password sniffing is an attack on the internet that is used to steal user names and passwords from the network. Various stealing, man-in-the-middle attacks and replay attacks are widely used. The password sniffer is a small program that listens to all traffic in the attached networks; builds data streams out of TCP/IP packets, and extracts user names and passwords from those streams that contain protocols that send cleartext passwords.

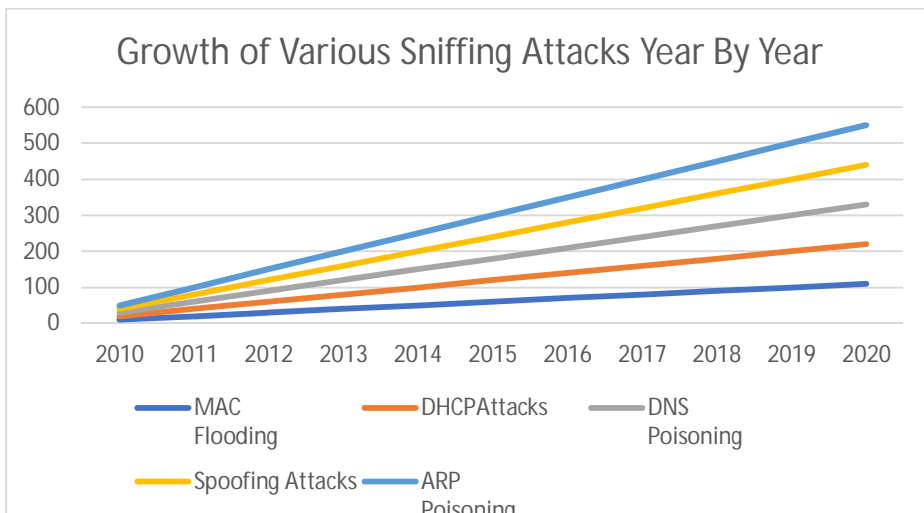
IV. Popular Sniffing Tools

- **Ettercap** – Ettercap is a comprehensive suite for man-in-the-middle attacks. It features sniffing of live connections, content filtering on the fly and many other interesting tricks. It supports active and passive dissection of many protocols and includes many features for network and host analysis.
- **Wireshark** – It is one of the most widely known and used packet sniffers. It offers a tremendous number of features designed to assist in the dissection and analysis of traffic.
- **Tcpdump** – It is a well-known command-line packet analyzer. It provides the ability to intercept and observe TCP/IP and other packets during transmission over the network. Available at www.tcpdump.org.
- **WinDump** – A Windows port of the popular Linux packet sniffer tcpdump, which is a command-line tool that is perfect for displaying header information.
- **OmniPeek** – Manufactured by WildPackets, OmniPeek is a commercial product that is the evolution of the product EtherPeek.
- **Dsniff** – A suite of tools designed to perform sniffing with different protocols with the intent of intercepting and revealing passwords. Dsniff is designed for Unix and Linux platforms and does not have a full equivalent on the Windows platform.
- **EtherApe** – It is a Linux/Unix tool designed to display graphically a system's incoming and outgoing connections.
- **MSN Sniffer** – It is a sniffing utility specifically designed for sniffing traffic generated by the MSN Messenger application.
- **NetWitness NextGen** – It includes a hardware-based sniffer, along with other features, designed to monitor and analyze all traffic on a network. This tool is used by the FBI and other law enforcement agencies.
- **Sniffpass** – It is a password monitoring software that listens to your network, capture the password that pass through your network adapter, and display them on the screen instantly.

A potential hacker can use any of these sniffing tools to analyze traffic on a network and dissect information.

V. Results and Discussion

The purpose is to steal information, usually user IDs, Passwords, Network details, credit card numbers etc. Sniffing is generally referred to as a “passive” type of attack, where in attackers can be silent/invisible on the network. This makes it difficult to detect, and hence it is a dangerous type of attack. Encrypting the data does not mean that everything is safe. The attacker might be able to capture a lot of data and run crypto attacks to get something out of it. In this paper we made a survey of sniffing attacks and studied different areas of sniffing. The chances are increasing year by year for every attack.



VI. Conclusion

To prevent network from sniffing attacks, organizations and individual users should keep away from applications that are using insecure protocols, like basic HTTP authentication, File Transfer protocols(ftp)and Telnet. Instead, secure protocols such as HTTPS, Secure File Transfer Protocol (SFTP) and Secure Shell should be preferred. In case there is a necessity for using any insecure protocol in any application, all data transmission should be encrypted. If required (Virtual Private network) can be used to provide secure access to users. In our study, we found from various scientists and other experiences, some methods we can add as protection methods for sniffing attacks are as follows.

- Avoid the physical access to the network media to ensure sniffer is not installed



- Use encryption to provide confidentiality
- Add the MAC address of the gateway to the cache
- Use static IP address and static ARP tables to prevent Spoofing
- Turnoff Network identification broadcasts to discover sniffing tools
- Use encrypted sessions such as Secure Shell instead of Telnet
- Use Secure Socket layer(SSL)for email connections

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EMOTIONAL INTELLIGENCE AND PSYCHOLOGICAL WELL-BEING OF PROSPECTIVE SPECIAL EDUCATORS

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Abstract

This study aims to identify the emotional intelligence and psychological well-being of prospective special educators. Emotional intelligence and psychological well-being are like two sides of a coin. The prospective teachers have to be emotionally matured and psychologically stable to express their teaching competency in an effective way. Quality teachers are to be emotionally balanced to handle children with special needs. Good health and psychological well-being also play a vital role for the teachers who handle children with special needs. The purpose of the study is to explore the emotional intelligence and psychological well-being of prospective special educators. Quantitative data were analyzed using descriptive statistics.

Keywords: Prospective Special Educators, Emotional Intelligence, Psychological Well-Being

Introduction

Teachers are the backbone of a nation, they make awareness about unknowns. According to Malala Yousafzai, one child, one teacher, one book, one pen can change the world. The teachers are shaping the human behavior throughout learning. Good teachers develop good students. The teachers need to exhibit positive mental state, background knowledge and competency skills. According to UNESCO (1996), a good teacher is interacting with student through physically and mentally. Good teachers understand their emotions and make their students to understand their emotions. Emotional intelligence is the ability of recognize one's own emotions and others for encouraging and managing it in an effective to maintain cordial relationship. Emotional intelligence is important to handle classroom situation. Psychological well-being is positive mental state, to handle situation with grin manner. These studies focus on, the teacher trainee in the field of special education, how they are managing their own emotions as well as others and on the level of psychological well being.

Emotional Intelligence

According to Goleman (1995) described Emotional intelligence as the capacity to recognize one's own feeling or Emotional and social as well as those of others, it's the major determinant of human success. Emotional intelligence (EI) is the area of cognitive that developing interpersonal behaviour. The term emotional intelligence was famous in 1995 by psychologist and Behaviour Science Journalist, Dr. Daniel Goleman who described emotional intelligence as a person's ability to manage his feelings so that

those feelings are expressed appropriately and effectively. Emotional intelligence refers to the capacity for recognizing our's own feelings and those of others and for managing emotions well, in us and in our relationships (Goleman, 1998). Emotional intelligent persons are having interpersonal communication skills, self-management, goal achievement and demonstrate personal responsibility in completing assignment and working effectively (Nelson and Law, 2003).

Psychological Well-Being

Well-being refers the experience of health, happiness and satisfaction of life. Wellness is condition of individual or group with positive state. Psychological well-being refers wellness of cognitive behavior. According to Ryff (2007), Psychological well-being refers to its purposeful aspect of being happiness or satisfaction. She gave new word of Eudaimonic refers psychological well being. Eudaimonic well being is used to refer to the purposeful aspect of Psychological Well being and he breaks down Eudaimonic well being into six key parts. They are

- Self – acceptance
- Personal growth
- Purpose in life
- Environmental mastery
- Autonomy
- Positive relation with others

The six factor model of psychological well- being is developed by Carol Ryff (2004) which determines six factors. These six factors are made complete satisfaction of a human life. Psychological well- being is attained by achieving a state of balance affected by both challenging and rewarding life events. All the above six factors have to be explored to face challenges in one's life. Every individual wants pleasant and peaceful life, that's only possible for the above six factors. Teacher must possess all these six factors to possess psychological well being among teaching learning circumstances especially who handle children with special needs.

Emotional Intelligence and Psychological Well Being of Special Educators

Emotional intelligence is important to the teachers, because it influence teaching – learning process. So teachers should know how to manage their emotions. It helps the teachers to handle children easily in a classroom situation. Particularly special education teachers need more emotion balance while handling students with disabilities. Brackett (2018) carried out a study to assess the emotional intelligence of students and educators. When a school weaves social-emotional learning throughout its curriculum and culture both to help the students to tune emotions and teaching "emotional skills" to handle difficult feelings where the students and teachers thrive. Brackett discusses ways to develop the emotional intelligence of everyone in the school and lists five key emotional skills at the heart of RULER, a program created by the Yale Center for Emotional Intelligence to infuse SEL throughout a school or district. He briefly describes RULER's tools and strategies. Salovey stated the basic skills to be improved to develop emotional intelligence among teachers, are self-knowledge, emotional control, ability to motivate, empathy, and social and leadership skills. The teacher must also demonstrate



psychological well being, because they are part of their competency. Psychological well being makes happy and understanding within our self, which has a lining effect throughout the teaching learning process. Jeon & Liency (2018) conducted a study on early childhood teacher psychological well being. He explored potential predictors of depression, stress and emotional exhaustion. This research findings suggested that it is important to help teachers build teaching competence and efficacy and to prepare them to handle stressors from work environments in order to reduce their psychological burden. Psychological wellbeing is depending upon their environment, social interaction and emotional balanced. Prospective special educators are handling with the student with disabilities so they should know how handle their stress and reduce depression.

Need for the study

Earlier research in the field of emotional intelligence and psychological well being is reviewed and presented here. The related studies in the above field will give an insight to take up this study in a more logical and systematic manner. Balazs (2015) conducted a study on Emotional Intelligence Patterns of Teachers Working in Public Education. The data necessary for the empirical research presented in this study were provided by 572 people, from altogether 26 schools. The schools included 18 primary schools, 7 secondary training institutions and 1 primary and secondary school. The major question of the study related to the pedagogues' emotional intelligence, more precisely if the teachers of different institutions showed any individual differences in their emotional intelligence patterns according to the given type of their school's organizational culture. They also examined if the nature of the organizational culture had any influence on the development of the individual's emotional intelligence pattern. The results declared that the teachers of different institutions have their own particular organizational cultures evolve different emotional intelligence patterns. Finally they concluded that in the long term the organizational culture affects the evolution of the individual's emotional intelligence pattern and vice versa.

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Clemmer (2017) conducted an analysis of the relationship of the Emotional intelligence of Special Education Teachers and Special Education student Achievement. This study Bar-On's (1997) definition of emotional intelligence (EI) was used. "Emotional Intelligence" is defined as a set of emotional and social skills that influence the way they perceive and express ourselves, develop and maintain social relationships, cope with challenges, and use emotional information in an effective and meaningful way" (Bar-On, 1997, p. 3). Researchers have investigated the role of Emotional Intelligence in school leaders. The classroom teacher was the leader of his/her respective classroom. Therefore, the purpose of this study was to explore the relationship between the special

education teachers' Emotional intelligence and its impact on student reading achievement. Results of the study illustrate the connections of aspects of Emotional Intelligence and student achievement. The study results showed stress management was a statistically significant predictor of student reading achievement. Results and implications for practice are discussed to improve student achievement and teacher effectiveness.

Dennis et al., (2016) conducted a study on adapting progress feedback and emotional support to learner personality. As feedback is an important part of learning and motivation, they investigated how to adapt the feedback of a conversational agent to learner performance; they expected an interaction effect between personality and performance, on feedback. They investigated two aspects of feedback. First they investigated whether the conversational agent should employ a slant (or bias) in its feedback on particular test scores to motivate a learner with a particular personality trait more effectively (for example, using you are slightly below expectations" depending which emotional support messages the conversational agent show use (for example using praise emotional reflection, reassurance or advice) give learner personality and performance. They investigated the adaptation of this feed back to a learner personality, in particular the traits in the five factor model. Fine experiments were run where participant gave progress to students with different personalities and test scores. The type of emotional support give varied between different personalities. (e. g. neurotic individuals with poor grades received more emotional reflection.) Two algorithms were created using different method to describe the adaptations and evaluation on how well they described the experimental data using DICE scores. A refined algorithm was created based on the results. Finally they gave qualitative study with teachers to investigate the algorithms effectiveness and further refine the algorithm.

Dolev & Leshem (2017) describe study on developing emotional intelligence competence among teachers. This study linked between emotional intelligence and different life aspects, including personal well-being, quality of social relationships and professional effectiveness. In the field of education, Emotional Intelligence has been linked to different aspects of school life, such as learning, academic achievements and pro-social behaviours among students and more recently, to effective teaching. The paper reports the qualitative findings of a comprehensive research project which followed a two-year emotional intelligence development programme, as part of teacher-targeted professional development training in one school in Israel. Data is based on 26 in-depth interviews with school teachers. The focus of the study was to explore what impacts an Emotional Intelligence training programme might have upon the participants. The findings indicate that Emotional Intelligence developed in teachers and that the Emotional Intelligence training programmes may be effective in bringing about positive Emotional Intelligence shifts and related behaviours which may positively impact upon teachers' practice, their sense of meaningfulness and their relations with students.

Jaleel et al., (2017) conducted comparison between emotional intelligence and aggression among student teachers at secondary level. The study explored the relationship between emotional intelligence and aggression among teacher trainees at secondary level. The hypothesis formulated for the study was, there was no significant



relationship between Emotional Intelligence and aggression of teacher trainees at secondary level. The method adopted for the study was descriptive survey, which was carried out on a sample of 90 student teachers at secondary level, selected purposively. The tools used for data collection were, 1) Emotional Intelligence Inventory by Mangal and Shubhra Mangal designed for college and university students for the measurement of their emotional intelligence (total as well as separately) in respect to four areas or aspects of emotional intelligence namely, intrapersonal awareness, interpersonal awareness, intrapersonal management and interpersonal management. 2) Aggression Scale by Mathur and Rajkumari Bhatnagar. The statistical techniques used for the study are, Karl Pearson Product Moment coefficient of correlation and Analysis of Variance. The results revealed that 44% of the teacher trainees have average emotional intelligence, 26% have high EI, whereas, 24% have low EI. Only 6.66% of teacher trainees have low aggression. 44% have average aggression and almost half of the sample has high aggression. The computed value of coefficient of correlation between Emotional Intelligence and Aggression is not significant at 0.05 level. The computed value of coefficient of correlation between Emotional Intelligence and Aggression of teacher trainees coming from rural and urban areas is also not significant at 0.05 levels. Finding shows that most of the teacher trainees are have high emotional intelligence and have low level of aggression.

Naqvi et.al, (2016) explored the relationship between emotional intelligence and performance of secondary school teachers. The major aim of the study was to find out the relationship between emotional intelligence and performance of teachers at secondary school level. The target population of the study comprised 3168 secondary school teachers. Sample of the study consisted of 950 male and female secondary school teachers working in high schools of rural and urban areas. The sample was taken on proportionate basis according to the population of male and female secondary school teachers in each district. The study was co-relational in nature. The required data was calculated through survey technique. The instrument was named Trait Emotional Intelligence Questionnaire Short Form (TEIQue-SF) which was developed by Petrides to measure the emotional intelligence level of secondary school teachers. The performance of teachers was measured through the results of students in annual examination of class 10 conducted by Board of Intermediate and Secondary Education Lahore (BISE). The collected data was analyzed using mean, standard deviation and Pearson r. It was found that emotional intelligence of teachers was having strong relationship with the performance of school teachers.

Pursun & Efilti (2019) carried out the analyzing of the emotional intelligence scores of the special education teacher candidates for the predictor of multiple intelligence areas. This study aims to analyses the emotional intelligence scores of the special education teacher candidates for the predictor of multiple intelligences areas. This study was conducted through relational scanning model. 211 teacher candidates, 106 females and 105 males, participated in the study. Data were collected through Personal Information Form, Teele Multiple Intelligence Inventory and Schutte Emotional Intelligence Scale. The results revealed that while the gender variable and optimism scores are significant variables predicting the determination of individuals in which predominant intelligence is both interpersonal and not, optimism and evaluation of emotions scores are significant



variables predicting the determination of individuals whose predominant intelligence is both visual and not. However, the results suggested that demographic variables (gender and grade level) and emotional intelligence scores did not affect kinesthetic, musical, intrapersonal, logical and verbal intelligence areas which were found as the predominant intelligence areas of teachers.

Valente et al., (2019) conducted a study on the relationship between teachers' emotional intelligence and classroom discipline management. One of the fundamental problems of educational systems in many countries is related to classroom discipline. This reflects one of the worst problems faced by teachers. Classroom discipline management strategies play an effective role in creating positive teacher-student relationships. One of the factors that influence behavior management in a classroom is emotional intelligence. Therefore, this study analyze how teachers emotional intelligence influences the management of discipline in a classroom and the relationship between gender, academic formation, and service time of teachers with their emotional intelligence. Its sample comprises 559 basic and secondary school teachers. An Emotional Competence Questionnaire, a Scale of Teacher Efficacy in Classroom Management, and a personal and professional data inquiry have been used as instruments. Results show that teachers who have more capacity to deal with emotion demonstrate a greater management of discipline in the classroom. Most of the relationships in the model are statistically significant.

Liang et.al, (2017) found out the relationship among workplace spirituality, Meaning in life and Psychological well-being of Teachers. Taking 610 teachers as its subjects, the study employed three scales: one to measure the subjects' sense of workplace spirituality, another to measure their sense of meaning in life, and a third to measure their sense of psychological well-being. These three scales were pretested and found to have good reliability and validity. The questionnaire data were analyzed using hierarchical regression in order to understand the explanatory power of the predictors (workplace spirituality and meaning in life) to dependent variable of psychological well-being. The results showed 62.70% explanatory power. According to the research findings, this study suggests that teachers should understand the importance of having workplace spirituality, of being psychologically sound and of feeling they have a meaningful life.

Kurt & Demirbolat (2019) conducted on investigation of the relationship between psychological capital perception, psychological well-being and job satisfaction of teachers. The aim of this research is to determine the relationship between psychological capital, psychological well-being and job satisfaction of teachers. The research is a descriptive study in relational screening model. The research model includes three variables; one independent variable (psychological capital) and other two dependent variables (job satisfaction and psychological well-being). In the structural model, job satisfaction variable may also be expressed as mediator variable. The study population consists of 12714 teachers working in official secondary schools in seven central districts in Ankara Province in 2017-2018 academic year. Sample of the population is selected by multi-stage sampling method. Stratified sampling method is used in the first stage and simple random sampling method is used in the second stage. Sample size is calculated as at least 384 teachers. In the research, Psychological Capital Scale

developed by Luthans, Youssef & Avolio (2007b); Minnesota Satisfaction Questionnaire developed by Weiss, Dawis, Lofquist & England (1967) and Psychological Well-Being Scale developed by Ryff (1989) were used as data collection tools. Scales which are pre-implemented within the scope of the research yielded valid and reliable results. Data analysis was done with SPSS 23.0 and LISREL 8.87 statistics software packages. According to the results obtained from the research, it was determined that teachers' psychological capital perception was "good" and their job satisfaction and psychological well-being are "high". According to the results of the analysis by means of structural equality modelling, it was determined that teachers' psychological capital perception affects their job satisfaction and psychological well-being levels positively and predicts them significantly; and it was also determined that job satisfaction has a partial mediator role in the relationship between teachers' psychological capital perception and their psychological well-being.

Gul & Caglayan (2017) found out the effect of the Drama Course on psychological well-being of physical education teacher candidates. This study was carried out to determine whether the drama course has any effect on the psychological well-being levels of the 4th grade students who study at the Department of Physical Education and Sports Teaching at the Faculty of Sport Sciences. The research group consists of 39 students studying at the 4th grade in the Department of Physical Education and Sports Teaching at the Faculty of Sport Sciences of Selçuk University in the fall semester of 2016-2017 academic year. The study was carried out in accordance with the pre-test-post-test model and the scale was applied to students at the beginning of the academic year and at the end of the semester after 14 weeks drama lesson. Drama lessons were taught for 4 hours per week according to the curriculum. "Psychological Well-Being Scale" developed by Ryff (1989) and adapted to Turkish by Cenkseven (2004) was used as the data collection tool in the research. In the analysis of the data, t-test (Paired-Samples t test) was used for the related measures from the parametric tests. Significance level in the study was taken as 0.05. As a result of the research; it was found that there was a difference in favor of post-test scores between pre-test and post-test averages of all subscales of the candidate teachers' psychological well-being scale (positive relationships with others, autonomy, environmental dominance, individual development, life purpose and self-acceptance) but this difference was not significant at the 0.05 level. Kasapoglu & Didin (2019) conducted study on life skills as a predictor of Psychological Well-Being of Pre-Service Pre-School Teachers in Turkey. This study aims to investigate the relationship between pre-service pre-school teachers' life skills and psychological well-being and to determine whether or not various variables related to pre-service pre-school teachers (gender, age, grade level, type of instruction, cumulated grade point average, and status of taking course about life skills) and their life skills significantly predict their psychological well-being. In this quantitative study with correlation design, data were gathered from 391 pre-service pre-school teachers studying at a state university, with 5-point Likert-type Life Skills Scale developed by Bolat and Balaman (2017); 7-point Likert-type Psychological Well-being Scale developed by Diener, Wirtz, Tov, Kim-Prieto, Choi, Oishi and BiswasDiener (2010) and adapted into Turkish by Telef (2013). Data were analyzed through descriptive statistics, canonical correlation and hierarchical regression. It is concluded that pre-

service pre-school teachers' psychological well-being levels are relatively high and that the life skill they developed most is communication and interpersonal relationships. Canonical correlation results indicate that there is a medium-level relation between life skills and psychological well-being and that psychological well-being is significantly predicted by gender, age, and the following life skills: "empathy and self-awareness", "decision-making and problem-solving", "creative and critical thinking".

Strahan nee Brown & Simon (2019) describe The Psychological Environment and Teachers Collective – Efficacy Beliefs. The psychological environment of schools is a powerful determinant of staff well-being and educational outcomes for children. The work reported here explored teachers' Collective-Efficacy (CE) and well-being. Staff in a sample of schools completed a survey of their Collective Efficacy. A sub-sample of teachers was interviewed to elicit views about the relationship between Collective Efficacy and leadership practices. Overall staff Collective Efficacy was correlated with key indicators of pupils' attainments. Four themes in the interviews indicated attributions for staff well-being and motivation: Communication, Learning, Supporting Roles, and Stress Management. Enhancing Collective Efficacy is critical for staff well-being. At a time when staff recruitment, retention and well-being may be jeopardized, the findings here indicate the critical importance of professional relationships for the ethos and effectiveness of schools. Thus the study reviewed explored emotional intelligence and psychological well being as a separate variables but this study aims to explore the two variables levels among prospective special educators. Further, from the above quoted studies it is evident that number of studies were explored on emotional intelligence of general teachers and that too those who are inservice teachers and as the attempt on prospective special educators is very limited the present study has been undertaken to study the emotional intelligence and psychological well being of the prospective special educators.

Title of the Problem

“Emotional Intelligence and Psychological Well-being of the Prospective Special Educators”.

Objective of the Study

- To develop a tool to assess the prospective special educator' Emotional intelligence
- To develop a tool to assess the prospective special educator' Psychological Well-Being.
- To find out the mean scores and the levels of Emotional intelligence and Psychological well-being of prospective special educators.

Hypothesis of the Study

- There exists significant difference in the mean scores and the levels of Emotional intelligence of prospective special educators
- There exists significant difference in the mean scores and the levels of Psychological well-being of prospective special educators

Methodology

Survey method was adopted in this study. Standardized tools for Emotional intelligence and Psychological Well-being were adapted in the study. Purposive sampling technique was used in this study in selecting sample. 73 prospective special educators studying in B.Ed level was selected for the study.

Result and Discussion

The main objective of the present study is to find out the emotional intelligence and psychological well-being of prospective special educators. The collected data was analyzed and presented in the table below.

Table 1 Number and Level of Emotional Intelligence of Prospective Special Educators

Variable	Level		
	Low	Moderate	High
Emotional intelligence	12	51	10

From the above table, the raw data were scored and mean and standard deviation was calculated. The mean \pm 1 SD was adapted and the number of prospective special educators' level of emotional intelligence was categorized into three levels – High, Moderate and Low. Mean scores falling between 78.04 and 62.26 are categorized under moderate level, mean value above 78.04 falls under high level and mean value below 62.26 falls under low level of emotional intelligence. Out of 73 prospective special educators, 10 prospective special educators fall under high level, 51 prospective special educators in moderate level and 12 prospective special educators fall under low level of emotional intelligence. Thus, the hypothesis “there exists different levels of emotional intelligence among prospective special educators is accepted.

Table 2 Number and Level of Psychological Well Being of Prospective Special Educators

Variable	Level		
	Low	Moderate	High
Psychological Well-Being	6	56	11

From the above table, the raw data were scored and mean and standard deviation was calculated. The mean \pm 1 SD was adapted and the number of prospective special educators' level of psychological well-being was categorized into three levels – High, Moderate and Low. Mean scores falling between 250.99 and 193.97 are categorized under moderate level, mean value above 250.99 falls under high level and mean value below 193.97 falls under low level of psychological well-being. Out of 73 prospective special educators', 11 prospective special educators fall under high level, 56 students fall under moderate level and 6 students possess low level of psychological well-being. Thus, the hypothesis “there exists different level of psychological well-being among prospective special educators' is accepted.



Table 3 Statement wise Analysis of Emotional Intelligence of Prospective Special Educators

S.No	Statement of Emotional Intelligence	Mean	Level
1.	I know when to speak about my personal matters with others	2.76	H
2.	When I am faced with obstacles, I remember times I faced similar obstacles and overcame them	2.20	M
3.	I expect that I will do well on most things I try	2.50	M
4.	Other people find it easy to confide in me	2.17	M
5.	Some of the major events in my life have led me to re evaluate what is important and not important	2.45	M
6.	When my mood changes, I see new possibilities	2.43	M
7.	Emotional are something that make my life worth living	2.17	M
8.	I am aware of my emotional as I experience them	2.32	M
9.	I expect good things to happen	2.42	M
10.	I like to share my emotions with others	2.28	M
11.	When I experience a positive emotional, I know how to make it last	2.34	M
12.	I arrange events others enjoy	2.50	M
13.	I seek out activities that make me happy	2.31	M
14.	I am aware of the non verbal messages I send to others	2.26	M
15.	I present myself in a way that makes a good impression on others	2.47	M
16.	When I am in a positive mood solving problem is easy for me	2.54	M
17.	I know why m emotions change	2.38	M
18.	When I am in a positive mood I am able to come up with new ideas	2.45	M
19.	I have control over my emotions	2.27	M
20.	I easily recognize my emotional as I experience them	2.36	M
21.	I motivate myself by imagining a good outcome to task I take on	2.39	M
22.	I compliment others when have done something well	2.13	M
23.	I am aware of the non verbal message other people send	2.24	M
24.	When other person tells me about an important event in his or her life, I almost feel as though I have experience this event myself	2.19	M
25.	When I feel a change in emotional in tend to come with new ideas	2.32	M
26.	When I am faced with a challenge, I give up because I believe I will fail	1.84	L
27.	I help others people feel better when they are down	2.39	M
28.	I use good moods to help myself keep trying in the face	2.45	M



	of obstacles		
29	I can tell how people are feeling by listening to the tone of their voice	2.35	M
30	It is difficult for me to understand why people feel the way they do	2.09	L

From the above table, it is evident that the prospective special educators possessed different levels of emotional intelligence. Statement wise analysis revealed that, the mean scores is calculated and the scores between 2.60 and 2.08 falls under moderate category and the mean scores above 2.60 is categorized under high level and the mean score below 2.08 is categorized under low level. Thus when the listed statement is categorized under three levels, Out of 30 statements only in 2 statements low level of emotional intelligence was demonstrated by the prospective special educators. On the other hand, prospective teachers demonstrated high level of emotional intelligence in only one statement 'I know when to speak about my personal matters with others' and in the remaining 27 statements the prospective special educators demonstrated moderate level of emotional intelligence. Therefore, the stated hypothesis that there exists difference in the level of statement wise emotional intelligence' is accepted.

Table 3Statement wise Analysis of Psychological Well-being of Prospective Special Educators

S.No	Statement of Psychological Well-being	Mean	Level
	Autonomy		
1.	I am not afraid to voice my opinions, even when they are in opposition to the opinions of most people.	4.68	H
2.	My decisions are not usually influenced by what everyone else is doing.	4.55	M
3.	I tend to worry about what other people think of me.	4.17	M
4.	Being happy with myself is more important to me than having others approve of me.	4.39	M
5.	I tend to be influenced by people with strong opinions.	3.46	L
6.	I have confidence in my opinions, even if they are contrary to the general consensus.	4.48	M
7.	It's difficult for me to voice my own opinions on controversial matters.	3.70	M
8.	I often change my mind about decisions if my friends or family disagree.	3.83	M
9.	I judge myself by what I think is important, not by the values of what others think is important.	4.60	M
	Environmental Mastery		
10.	In general, I feel I am in charge of the situation in which I live.	4.51	M
11.	The demands of everyday life often get me down.	3.60	M
12.	I do not fit very well with the people in the community	3.57	M



	around me.		
13.	I am quite good at managing the many responsibilities of my daily life.	4.97	H
14.	I often feel overwhelmed by my responsibilities.	4.62	M
15.	I generally do a good job of taking care of my personal finances and affairs.	4.74	H
16.	I am good at juggling my time so that I can fit everything in that needs to be done.	4.26	M
17.	I have difficulty arranging my life in a way that is satisfying to me.	4.11	M
18.	I have been able to build a home and a lifestyle for myself that is much to my liking.	4.74	H
	Personal Growth		
19.	I am not interested in activities that will expand my horizons.	3.12	L
20.	I don't want to try new ways of doing things—my life is fine the way it is.	3.34	L
21.	I think it is important to have new experiences that challenge how you think about yourself and the world.	4.79	H
22.	When I think about it, I haven't really improved much as a person over the years.	3.74	M
23.	I have a sense that I have developed a lot as a person over time.	4.05	M
24.	I do not enjoy being in new situations that require me to change my old familiar ways of doing things.	3.20	L
25.	For me, life has been a continuous process of learning, changing, and growth.	4.99	H
26.	I gave up trying to make big improvements or changes in my life a long time ago.	4.60	M
27.	There is truth to the saying that you can't teach an old dog new tricks	3.41	L
	Positive Relations with Others		
28.	Most people see me as loving and affectionate.	4.66	H
29.	Maintaining close relationships has been difficult and frustrating for me.	3.53	M
30.	I often feel lonely because I have few close friends with whom to share my concerns.	3.41	M
31.	I enjoy personal and mutual conversations with family members or friends.	4.52	M
32.	I don't have many people who want to listen when I need to talk.	3.71	M
33.	It seems to me that most other people have more friends than I do.	3.90	M
34.	People would describe me as a giving person, willing	4.81	H



	to share my time with others.		
35.	I have not experienced many warm and trusting relationships with others.	3.07	L
36.	I know that I can trust my friends, and they know that they can trust me.	5.05	H
	Purpose in Life		
37.	I live one day at a time and don't really think about the future.	3.30	L
38.	I tend to focus on the present, because the future always brings me problems.	3.75	M
39.	My daily activities often seem trivial and unimportant to me.	3.33	L
40.	I don't have a good sense of what it is that I am trying to accomplish in my life.	3.14	L
41.	I used to set goals for myself, but that now seems a waste of time.	3.46	L
42.	I enjoy making plans for the future and working to make them a reality.	4.66	H
43.	I am an active person in carrying out the plans I set for myself.	4.41	M
44.	Some people wander aimlessly through life, but I am not one of them.	4.19	M
45.	I sometimes feel as if I've done all there is to do in life.	4.16	M
	Self-Acceptance		
46.	When I look at the story of my life, I am pleased with how things have turned out.	4.25	H
47.	In general, I feel confident and positive about myself.	4.80	H
48.	I feel like many of the people I know have gotten more out of life than I have.	4.34	H
49.	I like most aspects of my personality.	4.70	H
50.	I made some mistakes in the past, but I feel that all in all everything has worked out for the best.	4.86	H
51.	In many ways, I feel disappointed about my achievements in my life.	3.96	M
52.	My attitude about myself is probably not as positive as most people feel about themselves.	3.78	M
53.	The past had its ups and downs, but in general, I wouldn't want to change it.	3.90	M
54.	When I compare myself to friends and acquaintances, it makes me feel good about who I am.	4.52	M

For statement wise analysis, the mean scores is calculated and the scores between 4.65 and 3.49 falls under moderate category and the mean scores above 4.65 is categorized under high level and the mean score below 3.49 is categorized under low level. From the

above table, it is evident that the prospective special educators possessed high level of psychological well-being in 15 statements; in 29 statements prospective teachers evinced moderate level of psychological well-being and 10 statements fall under low level of psychological well-being. Therefore there exists significant difference in the statement wise level of psychological well-being of prospective special educators. Thus the stated hypothesis there exist different levels in the statement wise psychological well-being among prospective special educators is accepted.

Table 4 Psychological Well-Being domain wise analysis of prospective Special Educators

Domains	Level of Domain wise, Psychological Well-being of prospective special educators		
	Low	Moderate	High
Autonomy	1	7	1
Environmental Mastery	0	6	3
Personal Growth	4	3	2
Positive Relations with Others	1	5	3
Purpose in Life	4	4	1
Self-Acceptance	0	4	5

Form the table, Psychological well-being demonstrate six domains, each domain have 9 statements. The table presents the statement wise number of low, moderate and high level of psychological well-being of prospective teachers. The prospective teachers evinced one low level of psychological well-being and high level of psychological wellbeing in one statement. Out of 9 statements, there are no statements falling under low level, whereas 6 statements fall under moderate level three statements under high level. Under personal growth, four statements are falling under low and two under high and three falls under moderate. In the Positive relations with others only one statement is categorized in low level whereas, five statements in moderate and three under high level. Under purpose in life, the prospective special educators demonstrated low level in four statements and moderate in four statements and high in only one statement. The domain self-acceptance evinced that prospective special educators possess only moderate and high level of well-being and they haven't evinced low level of well-being under this domain. This shows their self-acceptance which in turn develop self-confidence.

Conclusion

Emotional intelligence and psychological well-being are the two variables which need to be strengthened to develop their teaching competency. These variables are most important to the prospective special educators as they have to handle students with special needs. They need to serve for the diverse needs of the learners. The present study result showed that most of the prospective special educators are possessing moderate level of emotional intelligence and psychological wellbeing. The present study is a limelight for the teacher educators to give orientation and training programme to the

prospective special educators to develop their emotional intelligence and psychological wellbeing which in turn help them to develop empathy and dedicated to serve children with disabilities in an effective manner. The need to possess emotional maturity and positive mental state is vital to handle children with various special needs. Thus the present study also stress the need to restructure and revamp the teacher education curriculum which promote necessary skills to help the student teacher to turn into an emotionally stable and vibrant teachers to serve the children with special needs.

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PERFORMANCE EVALUATION OF GOVERNMENT HOSPITALS IN URBAN AREAS OF KERALA

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Abstract

Throughout the world, hospitals are under increasing pressure to become more efficient. Efficiency analysis tools can play a role in helping policymaker's insight into which units are less efficient. The objective of this paper is to evaluate the performance of government hospitals by measuring efficiency of Government hospitals and identify the sources of inefficiencies. The efficiency of each hospital is measured by using the Data Envelopment Analysis (DEA). Inputs in hospital production is classified as labour, and capital. The labour input can be disaggregated into the various professional groups such as physician, nurse and administrative staff and capital is indicated by the number of hospital beds. The output includes outpatient visits and inpatient days. The study provides useful insights to management by unraveling the sources of inefficiency in the functioning of Government hospitals.

Keywords: Data Envelopment Analysis, Technical Efficiency, Hospital Efficiency, Utilization

1. Introduction

Economic development has become increasingly important and it is used as the basis for integrating the various segments of the globe. The challenges of development are to improve the quality of life. It emphasizes on better education, higher standard of health, and less poverty. With rapid economic development in developing countries, there is increased urbanization and influx of population into slums and shanty habitations, a large chunk of poor population has moved into environmentally deprived urban areas which are overcrowded, and often lack access to basic services

The current experiences of most developing countries witness the declining allocation of public funds for the health sector, increasing inefficiency in the utilisation of funds for public healthcare, inequality in the access to public healthcare services, and increasing costs of health services especially for serious



and chronic illnesses and accidents. The inefficient use of public funds in the public health sectors of developing countries in the context of poverty, unemployment, inaccessibility of health services to treat chronic ill, and poor management of services require essential institutional reforms.. However, the supply of health care resources to address the problems has been continuously declining, thus jeopardizing the progress towards achieving the health-related Millennium Development Goals Since independence, India's focus of public health has been on rural areas which is clearly reflected in the famous Joseph Bhore's report in 1946.This resulted in neglect of systematic planning for health care infrastructure and delivery of comprehensive healthcare services for urban population. There were sporadic and scanty efforts such as World Bank-funded India Population Projects. These were never planned to be sustainable and taken to scale. The rapid increase in urban population due to migration stretched the infrastructure often moving the neo-migrants and the poor into unhygienic settlements and risky environment making them more vulnerable to diseases, increasing their need for healthcare which is neither within their reach nor affordable for them.

India witnesses widening differentials in health outcomes mainly caused by socioeconomic inequities and inequities in provision and access to health services. In spite of India's poor performance on health outcomes, its policies have increasingly focused on the establishment of a wide network of public health service delivery systems. Most of the Indian states have fared poorly in health outcomes. Several scholars have emphasised the need for addressing the persistence of inequities in health and access to health services in India. Key areas that require attention in this regard include the introduction of innovative systems of monitoring and the evaluation of progress towards equitable health outcomes and strengthening democracy in the functioning of public health delivery systems.

Kerala's achievements in the health sector have been often cited as role models for the country. Some of its health indices match with that of the developed countries. While providing quality healthcare affordable and acceptable to all, Kerala has also focused on prevention, control and management of communicable, non-communicable and lifestyle diseases, disaster management, healthy pollution-free environment, making the public aware on the need to identify health needs and utilize health services by implementing various national health programmes. Historically, Kerala made a small beginning to provide infrastructural facilities for a primary healthcare system. After the re-organisation of the State, it has reached a fairly high level of standard and soundness. The availability of facilities for primary health care, their

accessibility, the very high degree of awareness and acceptability among the people has made Kerala model an almost perfect one.

The efficiency of Government hospitals in urban areas depends on the operation of a various hospitals. Efficiency measurement of hospitals poses big challenge, because it is difficult to define and measure inputs and outputs of the Government hospitals. It is there for unnecessary to quantify the level of technical in efficiency of government hospitals in urban areas of Kerala so as to alert policy makers of the potential resource gains to the health system if the hospitals are technically efficient .In this context the present study makes an attempt to measure the efficiency of Government hospitals from the urban areas of Thrissur district using data envelopment analysis (DEA).Government hospitals provide healthcare to a wide range of urban population in Kerala. Efficient utilization of resources in these hospitals is essential for delivering health services at a lower cost. Therefore, we aimed to evaluate the performance of Government hospitals in urban areas of Thrissur district in Kerala by measuring their efficiency.

The objective of this paper is to measure the performance of Government hospitals in the urban areas of Thrissur district and identify the sources of inefficiencies. The rest of the paper is structured as follows. Section 2 presents a brief review of the literature on the efficiency measurement using data envelopment analysis. Section 3 provides a conceptual framework for the measurement of efficiency. Section 4 describes the methodology used in the study. Section 5 discusses the empirical results and Section 6 concludes the study.

2. Review of literature

The literature on the efficiency of hospitals in foreign countries has grown rapidly in the recent years. But the researches in efficiency of government hospitals in the country are scanty. This section discusses the different strands of literature on the efficiency based on DEA model.

Eyob Zere, Thomas Mbeeli, Kalumbi Shangula, Custodia Mandlhate, Kautoo Mutirua, Ben Tjivambi and William Kapenambili (2006) employed DEA to assess the efficiency of hospitals in Namibia and it found that the existing level of pure technical and scale inefficiency of the district hospitals is considerably high and may negatively affect the government's initiatives to improve access to quality health care and scaling up of interventions that are necessary to achieve the health-related Millennium Yawe, Bruno (2010) employed DEA to assess the efficiency of hospitals in Uganda and The results of the standard data envelopment analysis models indicate the existence of different degrees of technical and scale inefficiency in Uganda's district referral hospitals. With the super-efficiency model, a ranking of the efficient units is

possible. When super- efficiency models are executed, hospitals can be ranked and categorised into four groups: strongly super-efficient; super-efficient; efficient and inefficient. H Chowdhury (2016) used DEA with truncated regression approach ,analyze production performance of hospital services in Ontario (Canada), by investigating its key determinants. The study also examined distributions of efficiency across geographic locations, size and teaching status. It found that several organizational factors such as occupancy rate, rate of unit-producing personnel, outpatient–inpatient ratio, case-mix index, geographic locations, are significant determinants of efficiency.

M Karahan(2018) used DEA.to make efficiency analysis based on optimization techniques and their normative structure to create the benchmark for the hospitals in Turkey. The study provided the significant findings for the improvement process of hospitals.. The results of this study have also provided meaningful insights into Turkish health care managers' views of the interaction between efficiency and health care expenditures.

Sayem Ahmed, Md. Zahid Hasan, Samia Laokri, Zerine Jannat Mohammad Wahid Ahmed, Farzana Dorin, Veronica Vargas, Jahangir A. M. Khan (2019) employed DEA to assess the efficiency of Public district hospitals in Bangladesh and it found that The average scale, VRS, and CRS technical efficiency of the DHs were estimated to 85%, 92%, and 79% respectively. They found that Population size, poverty headcount, bed occupancy ratio, administrative divisions were significantly associated with the technical efficiency of the DHs.

3. Measurement of Efficiency: Data Envelopment Analysis approach

Data Envelopment Analysis is a linear programming based technique for measuring the performance efficiency of organisational units which are termed as Decision Making Units (DMUs). This technique aims to measure how efficiently a DMU uses the resources available to generate a set of outputs (Charnes et al. 1978).

The efficiency measure proposed by Farrell in 1957 did not receive much attention until Charnes, Cooper and Rhodes formulated a mathematical programming approach to frontier estimation in 1978. They coined the term DEA for the first time. The DEA model developed by Charnes, Cooper, and Rhodes had an input orientation and assumed constant return to scale (CRS). The CRS model offers best solutions only when all firms are operating at optimum scale. Subsequent studies by Banker, Charnes and Cooper have considered alternative sets of assumption and introduced a variable return to scale (VRS) model. The VRS model measures technical efficiency devoid of scale efficiency (SE) effects.

CRS model generates technical efficiency scores under the assumption of constant returns to scale. CRS efficiency score is a measure of TE. VRS model

provides efficiency score which is a measure of PTE devoid of SE. SE measures the divergences of DMUs from the Most Productive Scale Size (MPSS). MPSS indicates the size of operation where output is maximized per unit of input. SE is obtained by dividing CRS score by VRS score ($SE = TE \text{ score} / PTE \text{ score}$).

The performance of DMUs is assessed in DEA using the concept of efficiency which is the ratio of total outputs to total inputs. Efficiencies estimated using DEA are relative i.e., relative to the best performing DMU. The best performing DMU is assigned an efficiency score of unity or 100 percent and performance of other DMUs vary, between 0 and 100 percent relative to this performance.

There are two directions for DEA models - either an input orientation or an output orientation. An input orientation aims at reducing input amounts as much as possible while keeping at least the present outputs levels, while an output orientation aims at maximizing output levels without increasing the use of inputs (Cooper et al. 2000).

4. Methodology

The present study is designed as exploratory one based on data collected for the year 2017, from the Government Hospitals. This study makes an attempt to measure TE scores in the functioning of Government hospitals in urban areas of Thrissur district using both CRS and VRS models of DEA with an output orientation. The study uses DEA based on production approach. The production approach views hospitals as producers of services, using resources such as labour, and capital. In this study Inputs in hospital production are classified as labour, and capital. The labour input can be disaggregated into the various professional groups such as physician, nurse and administrative staff and capital is indicated by the number of hospital beds. The output includes outpatient visits and inpatient days. DEA-SOLVER Software developed by Cooper, Seiford and Tone is used.

There are 6698 government hospitals across 14 districts of Kerala. For the purpose of the present study 6 government hospitals in the urban areas of Thrissur district has been selected purposively. Of the 9 Government hospitals in the urban areas of Thrissur district 6 of them have been selected at random.

5. Results and discussions

Table 1 shows the results obtained under both CRS and VRS assumptions. Efficiency obtained from CRS model of DEA is known as technical efficiency (TE) and efficiency obtained from VRS model of DEA is known as pure technical efficiency (PTE). In DEA literature DMUs with TE score equal to 1 are called 'globally efficient' and DMUs with PTE score equal to 1 are called 'locally efficient' and DMUs with efficiency score equal to 1 under both CRS and VRS assumptions are called 'most productive scale size' DMUs.

Table 1

Efficiency Scores of Sample GOVERNMENT HOSPITALA Government hospitals for the year 2014-2015

Sl.N o.	GOVERNMENT HOSPITALS	TE	TIE	PTE	PTIE	SE	SIE
1	TALUK HOSPITAL KODUNGALLUR	1	0	1	0	1	0
2	GENERAL HOSPITAL IRINJALAKUDA	0.902	0.098	1	0	0.902	0.098
3	TALUK HOSPITAL CHALAKUDI	0.871	0.129	0.9821	0.0179	0.841	0.159
4	TALUKHOSPITAL KUNNAMKULAM	0.9231	0.0769	1	0	1	0
5	TALUK HOSPITAL CHAVAKKAD	0.7947	0.2053	0.7172	0.2828	0.854	0.146
6	DISTRICTHOSPITAL WADAKKANCHERY	0.7302	0.2698	0.8171	0.1829	0.7936	0.2064
	AVERAGE	0.8702	0.1298	0.9194	0.0806	0.8984	0.1016

The mean efficiency score of the Government hospitals is 0.87 under CRS assumption and 0.92 under VRS assumption. These results imply that inefficient Government hospitals can become fully efficient by augmenting outputs, on an average, by 13% without reducing the current level of inputs. It appears from the Table 1 that 3Government hospitals (Taluk hospital KodungallurGeneral hospital Irinjalakuda Taluk hospital Kunnankulam) have obtained 100 percent PTE score and attained the status of ‘locally efficient’ Government hospitals. Of these 3 locally efficient Government hospitals, Taluk hospital Kodungallur has secured 100 percent TE score and become ‘globally efficient’ Government hospital of the sample hospitals.

Taluk hospital Kodungallurform efficiency frontier and appear in the reference set for inefficient Government hospitals. This hospital is called peer with exemplary practices which may be emulated by inefficient Government hospitalsto attain the status of fully efficient Government hospitals. As the TE score of District hospital Wadakkanchery is comparatively low, it can be considered as inefficient among Government hospital of the sample Government hospitals. These Government hospitalsneed the attention of the hospitalmanagement committee.

5.1 Sources of inefficiency in Government hospitals

This section explores the sources of inefficiency in the Government hospitals. It is observed from Table 1 that 3Government hospitals – Taluk hospital KodungallurGeneral hospital Irinjalakuda Taluk hospital Kunnankulam have

obtained PTE score equal to 1 and attained 100 percent managerial efficiency. However, of these only 1 Government hospital, namely Taluk hospital Kodungallur, has secured TE score equal to 1. This Government hospitals lie on the efficiency frontier under both CRS and VRS assumptions and operate at most productive scale size (MPSS).

General hospital Irinjalakuda Taluk hospital Kunnankulam are 100 percent efficient Government hospitals under VRS assumption. Their source of inefficiency is not caused by managerial inefficiency but by inappropriate scale size. This would mean that these 2 Government hospitals have best practices in the utilisation of inputs but they failed to operate at MPSS. Analysing the TIE, PTIE and SIE, it may be concluded that nearly 8% technical inefficiency is caused by managerial under-performance and nearly 10% by divergence from MPSS (scale inefficiency). Since the average technical efficiency of the Government hospitals is 87%, there is little scope for overall improvements in these facilities by adjusting inputs. Therefore, further investment in Government hospitals is needed for improvement of services.

6. Conclusion

This paper measures the performance of a sample of 6 Government hospitals for the year 2017 using DEA. The study uses labour, and capitals inputs and outpatient visits and inpatient days as outputs. Mean efficiency score of sample Government hospitals is 0.87 under CRS assumption and 0.92 under VRS assumption. One Government hospital operates at MPSS and produces maximum output per unit of input. The decomposition of technical efficiency into pure technical efficiency and scale efficiency reveals that the technical inefficiency is mainly due to scale inefficiency. The study provides useful insights to hospital management committee by identifying Government hospitals with excellent practices and by unraveling the sources of inefficiency in the Government hospitals in urban areas.

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SIMULATION OF LOAD SHEDDING SCHEME

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Abstract

Power System stability with its reliable operation in a manner such as to maintain in an equality between power generation meeting the load demand (considering all losses in the supply system) at all times has been the major concern for designers & operating professionals over the years. In interconnected power systems, voltage and frequency are the most significant parameters for power system operation analysis. In intelligent adaptive load shedding scheme, the system is divided into smaller islands with consideration of quick restoration. This scheme is based on the rate of frequency decline, it needs to adjust its decision criteria in an autonomous manner due to various uncertainties in power system.

Keywords: Load shedding, Load flow, Short Circuit Analysis, Stability of Power System

Introduction:

Conventional loads shedding approaches namely Breaker Interlock mechanism. Under Frequency Relaying method and PLC based shedding technique have been devised over a number of years each having its merits & demerits. As such an intelligent load shedding approach has been designed keeping in mind a detailed understanding of power system dynamics and process constraints, combined with an in-depth knowledge of system disturbances. These latest and innovative methods provide a fast & optimal solution to the load shedding problems which are practically impossible to prevent. System restoration from such events like a generator in the least amount of time from fault inception is a mandatory concern in power system study. Blackouts are because mainly due to sudden & large changes in generation capacity such as the outage of a generator which produces a severe imbalance between generation and load demand. This leads to a rapid decline in system frequency. Voltage and frequency considerations are of prime importance in maintaining system stability. If these factors go out of permissible range, then the last5 solution to avoid total power system collapse has been load shedding strategy. Rapid and selective shedding of loads from the system may

be a good option to restore the balance and maintain the system frequency. In this paper various techniques that have been utilized over the years have been discussed along with some modern methods keeping in mind restoration of stable power system operation whenever load imbalance due to voltage fluctuations and frequency disruption occurs.

Literature Review:

Different reference papers which are related to this paper are as follows:

1. "Islanding and Load Shedding Schemes for Captive Power Plants" –by K.Rajamani & U.K. Hambarde.
2. "An Intelligent Adaptive Load Shedding Scheme" –by Haibo You, Vijay Vittal, Juhwan Jung, Chen-Ching Liu, Massoud Amin, Rambabu Adapa.
3. "An Adaptive Load Shedding Technique for Controlled Islanding" –by Maria Vrakopoulou & Goran Andersson.
4. "Effect of Load Shedding Strategy on Interconnected Power System Stability When A Blackout Occurs" –by Ghanzanfar Shahgholian.

Methodology:

In this paper three important topics have been discussed in brief. The topics are i. Load flow Analysis ii. Short Circuit Analysis iii. Transient Stability Analysis.

i. Load flow Analysis:

Steady state solution of a power system for a given operating condition is determined by the load flow analysis. It determines the state of a power system for a given generation & load pattern. The term 'state' means complex voltage at the power system buses. Load flow analysis is also used for planning studies, operational studies & support tool for other power system studies.

"Why load flow is needed?"

Planning purpose: For generation and transmission expansion planning purpose.

Operation studies: To study impact of component outages. To analyze the effect of possible load & generation variation on the performance of the system.

Support tool: As a support tool purpose in different power system studies viz. Economic Load Dispatch, Unit commitment & also in optimum power flow analysis. Load flow is also needed into stability analysis of power system.

"How to perform load flow analysis?"

Given operating condition:

- Active and reactive power of the loads at different buses of the power system.
- Active power o/p of the generators and the voltage at the generators terminal are constant.

To represent the operating condition of the power system buses are classified as **P-Q bus or Load bus**: Where both active power(P) and reactive power (Q) are known.

P-V bus or Generator bus: In this bus where active power (P) and voltage (V) are known.

Slack bus: In this bus voltage & load angle or power angle (δ) are known. This bus is also known as reference bus.

Methods of load flow analysis:

There are mainly three methods present in load flow analysis. They are i. Gauss-Seidel(G-S) method. ii. Newton-Raphson(N-R) method iii. Fast-decoupled load flow(FDLF) method.

The above mention methods are iterative processes. For each and every method a large no. of iterations are required. Gauss-Seidel method has very weak convergence property as the bus voltages are updated one by one thus the program towards the convergence is very slow. No of iterations needed for convergence increase as the size of the system (in terms of no of buses) increase. For the large system convergence is difficult to obtain. For the above mention problems, in load flow analysis N-R method are extensively used. Practically a power system is very critical & very complex. To get a proper solution is very tough unless using a large iterative process. From that point of view N-R process is more applicable in case of very large and complex power system. A Jacobean matrix is needed to perform the N-R method. It follows the quadratic convergence characteristics nature i.e. solution error after each iteration significantly reduces.

Another method calls fast decoupled load flow (FDLF) is applicable where faster convergence is needed. It is an approximation of N-R method in an attempt to make the Jacobean matrix is constant. The constant Jacobean matrix makes the FDLF 5 to 6 times faster than N-R method.

ii. Short Circuit Analysis:

Short circuit (SC) analysis determines the current through power system component in case of a SC fault at a certain location of the power system. It is useful to determine the rating and setting of the power system protection devices. During SC fault system becomes unbalanced and is the best studied by using symmetrical component analysis method. Using symmetrical component analysis the coupled system equation lead to set decoupled equations making analysis simple. Network interconnection in all these analysis are represented by bus admittance or bus impedance matrix. In SC study bus impedance matrix is used.

For fault analysis line capacitance & resistance are generally neglected. Capacitance is avoided because fault current is quite large compare to normal

load current while the charging current is much lower than the normal charging current during fault condition. Thus calculation accuracy is almost unaltered if the capacitance is neglected. In case of fault analysis (SC fault) of high voltage part of power system resistance is neglected as line resistance is much lower than the series inductive reactance(X/R ratio of lines increases with the increase in voltage level), such that resistance will have very little impact on the magnitude of fault current.

More over the capacity of the circuit breakers(CBs) are available in discrete sizes only thus accurate value calculation of fault current by incorporation the resistance will not be of any used. The calculated value of fault current however will be little higher compare with the accurate values but this is not a disadvantage as the selected CBs capacities may be on the higher side, which will be rather beneficial. The only disadvantage of neglecting resistance is that the phase angle information of the bus voltages will not be available but during fault bus voltage angle of phase angles are not in used at all. Rather avoiding the resistance values would make the analysis simple which is advantageous considering the large size of the power system.

The CBs are also termed as over current protective devices (OCPDs). The main concern in SC analysis is to determine the value of fault current or sc current in order to select and install the correct OCPD which will act in time to cut off the supply. This time interval from the point of fault inception to the point of complete fault clearance is known as fault clearance time.

Fault Representation:

A fault represents a structural network change

- Equivalent to the addition of impedance at the place of the fault.
- If the fault impedance is zero, the fault is referred to as a bolted fault or solid fault.

Fault Types:

- Balanced fault.
- Three phase line to ground fault.
- Single line ton ground fault.
- Double line to ground fault.
- Line to line fault.

Magnitude of fault current depends on:

- The impedance of the network.
- The internal impedances of the generators.
- The resistance of the fault (arc resistance).

iii. Transient Stability Analysis:

Transient stability of a transmission line is a major area of research from several decades. Transient stability restores the system after clearance of fault.

Any unbalance between the generation and load initiates a transient s that causes the rotors of the synchronous machine to swing because net accelerating torques are exerted on these rotors.

Stability Fundamental:

Definition:

The transient stability is the ability of a system to maintain synchronous operation and to reach a stable state or the one close to it after a large disturbance.

Here the term ‘large disturbance’ means short circuit fault, out of service of alternators, huge change in load demand etc. After occurring such kind of problems, a system always suffers in the field of stability. The connected alternators face a large turbulence during this period. Irrespective of incident, the system becomes more unstable. To stable the system some precautionary measures may need. The measures are to cut the faulty alternator from the system by CBs, disconnects the non-emergency load from the system to main the stability etc. system balance possible when the power generation is equal to the load demand in a power system. in this paper we have studied the response of the speed of alternator after occurring a large disturbance.

System Disturbances That Can Cause Instability:

The most common disturbances that produce instability in industrial power systems are:

- a. Short circuits
- b. Loss of a tie circuit to a public utility
- c. Loss of a portion of on-site generation
- d. Switching operations
- e. Abrupt decrease in electrical load on generators

Load shedding scheme:

(i) Definition:

It is defined as the cutoff of non-essential loads from the system after occurring a large disturbances in the system (SC fault, huge change in load demand etc) to main the system stability. Which load will be disconnected that is decided by the system automatically or by the operator.

(ii) Value proposition:

- Load shedding solutions are suitable for medium to large electricity consumers with significant non-essential loads.
- Load shedding schemes can be programmed to provide peak demand avoidance. This is suitable when there is a supply tariffs that includes demand charges.

- The scheme can also be programmed to support a supply tariff includes a demand curtailment agreement.

Result & discussion:

In this study we considered three generators with some motoring and light loads. It was a very simple system by which we could be understood the result of the system after performing the various operations (considered the system is loss less and all the alternators were ideal). The single line diagram of the system is given below. All studies were done in ETAP 6.0.0 version software.

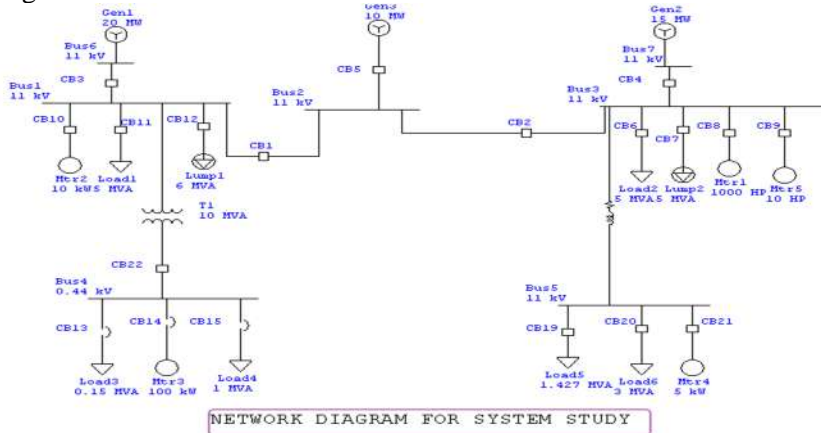


Fig 1: Single line diagram of the study

The system input tables are shown in the below:

Table 1: Generator input data:

Name		Turbo Gen1	Turbo Gen2	Diesel Gen 3
Capacity	kW	20000	12000	10000
Rated voltage	kV	11	11	11
Rated PF	%	100	100	100
Rated efficiency	%	100	100	100
Min Q	MVAR	0	0	0.019
Max Q	MVAR	13.403	8.727	7.437
Xd''	%	12.0	12.0	12.0
Xd'	%	23.0	23.0	23.0
X2	%	12.0	12.0	12.0
X/R	%	48.0	48.0	48.0
X0	%	12.0	12.0	12.0
Neutral grounding		Solid	Solid	Solid

Table 2: Bus bar input details:

Sl no:	Bus Name	Voltage Rating in kV	Initial Volt in %
1	Bus 1	11	100
2	Bus 2	11	100
3	Bus 3	0.44	100
4	Bus 4	11	100
5	Bus 5	11	100

Table 3: Motor input details:

Sl no:	Motor Id	kV	kW	Load in %	%Pf	%Eff
1	Mtr 1	11	10	90	100	93.58
2	Mtr 2	11	7.46	90	100	93.79
3	Mtr 3	0.44	100	90	100	94.41
4	Mtr 4	11	5	90	100	93.39

Table 4: Lumped loads input details:

Name	kV	MVA	MW	Amps
Lump load 1	11	6	6	314.9
Lump load 2	11	5	5	262.4

Table 5: Static loads input details:

Name	kV	MVA	MW	Amps
Static load 1	11	5	5	262.4
Static load 2	11	5	5	262.4
Static load 3	0.44	0.15	0.15	196.8
Static load 4	0.44	1	1	1312
Static load 5	11	1.427	1.427	74.9
Static load 6	11	3	3	157.5

Table 6: Transformer input details:

Specification	Rating
Primary voltage(kV)	11
Secondary voltage(kV)	0.44
MVA	10
Primary current (Amps)	524.9
Secondary current (Amps)	13122
Positive sequence impedance (ohm)	6.75
Zero sequence impedance (ohm)	6.75
Positive sequence X/R	15.5
Zero sequence X/R	15.5



Table 7: Circuit Breaker input details:

Name	Rated kV	Rated Amps
CB1	25	1200
CB2	25	1200
CB3	25	1200
CB4	25	1200
CB5	25	1200
CB6	12	2000
CB7	25	1200
CB8	25	1200
CB9	25	1200
CB10	25	1200
CB11	25	1200
CB12	25	1200
CB13	0.44	3
CB14	0.44	3
CB15	0.44	3
CB19	15	800
CB20	15	2000
CB21	15	2000
CB22	3.6	2000

Table 8: Transmission Line input details:

Name	Rating
Length	1 mile
Positive sequence impedance (ohm)	0.01
Negative sequence impedance (ohm)	0.01
Zero sequence impedance (ohm)	0.01

Load flow study case:

The 20 MW and 15 MW alternators will supply power to 11 kv and 0.44 kv after sufficing the plant process load.

CONDITION FOR LOAD FLOW:

- LF01 – Load flow study during start up G1 & G2 on, G3 off. Motor 1 & 5 were kept out of service
- Generation capacity 35MW & connected load 25 MW.

Contract: SSN: 12345678

Engineer: Study Case: LF Revision: Base

Filename: ijm Config: Normal

L1: G1 and G2- CONNECTED, SUPPLYING 15MW LOAD. LOAD FLOW STUDY

LOAD FLOW REPORT

Bus	ID	Voltage			Generation		Load		Load Flow					XPR
		kV	%Mag	Ang	MW	MVar	MW	MVar	ID	MW	MVar	Amp	%PF	
Bus1		11.000	100.000	0.0	0	0	11.013	0.009	Bus4	1.278	0.105	67.3	99.7	
									Bus2	2.432	-0.047	127.7	-100.0	
									Bus6	-14.723	-0.068	772.7	100.0	
Bus2		11.000	100.000	0.0	0	0	0	0	Bus1	-2.432	0.047	127.7	-100.0	
									Bus3	2.432	-0.047	127.7	-100.0	
Bus3		11.000	100.000	0.0	0	0	10.000	0.000	Bus5	4.432	0.021	232.6	100.0	
									Bus2	-2.432	0.047	127.7	-100.0	
									Bus7	-12.000	-0.068	629.8	100.0	
Bus4		0.440	99.877	-0.5	0	0	1.277	0.094	Bus1	-1.277	-0.094	168.2	99.7	
Bus5		11.000	99.962	-0.2	0	0	4.430	0.005	Bus3	-4.430	-0.005	232.6	100.0	
*Bus6		11.000	100.000	0.0	14.723	0.068	0	0	Bus1	14.723	0.068	772.7	100.0	
*Bus7		11.000	100.000	0.0	12.000	0.068	0	0	Bus3	12.000	0.068	629.8	100.0	

* Indicates a voltage regulated bus (voltage controlled or swing type machine connected to it)

! Indicates a bus with a load mismatch of more than 0.1 MVA

Fig 2: Result of load flow study

Short circuit study case:

A 3 phase SCC occurred in 11 kV & 440V buses.

Condition for SC analysis:

- G1 & G2 were on, G3 off. Motor 1 & motor 5 were out of service.
- Maximum 3 phase SC current was 168.8 k Amps.

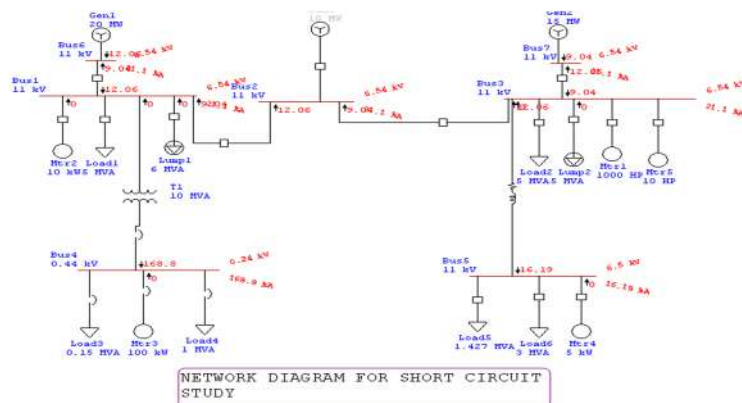


Fig 3: Single line diagram for SC analysis & simulation result of SC analysis

SHORT CIRCUIT REPORT

Fault at Bus:	Bus1													
Nominal kV:	= 11.000													
Voltage c Factor:	= 1.10 (User Defined)													
Contribution		3-Phase Fault			Line-To-Ground Fault			Positive & Zero Sequence Impedances Looking into "From Bus"						
From Bus ID	To Bus ID	% V	kA rms	AA	% Voltage at From Bus	kA rms	AA	AA	AA	% Impedance on 100 MVA base	R1	X1	R0	X0
Bus1	Total	0.00	22.239	0.00	102.99	102.33	21.100	21.100	0.430E+00	2.099E+00	6.288E+00	3.025E+00		
Bus4	Bus1	0.87	0.031	99.20	99.98	100.00	0.029	0.000	3.000E+00	1.100E+00				
Mtr2	Bus1	100.00	0.008	100.00	100.00	100.00	0.003	0.000	7.700E+00	6.890E+00				
Lump1	Bus1	100.00	1.888	100.00	100.00	100.00	1.032	0.000	3.400E+00	3.400E+00				
Ons1	Bus1	100.00	10.840	100.00	100.00	100.00	10.840	12.037	1.100E+00	5.200E+00	1.100E+00	5.200E+00		
Bus1	Bus1	0.00	0.003	0.00	102.89	102.33	0.001	0.000	3.000E+00	1.100E+00				
Lump2	Bus1	100.00	1.386	100.00	100.00	100.00	0.877	0.000	4.100E+00	4.100E+00				
Ons2	Bus1	100.00	9.203	100.00	100.00	100.00	9.203	9.943	1.400E+00	1.400E+00	1.400E+00	1.400E+00		
Initial Symmetrical Current (kA, rms)		3-Phase	L-G	L-L										
		22.239	21.100	18.218										
Peak Current (kA, Method C)		18.760	53.818	49.149										
Breaking Current (kA, rms, approx)		4.888	21.100	18.218										
Steady State Current (kA, rms)		4.888	21.100	18.218										
					* Indicates a fault current contribution from a three-winding transformer									
					* Indicates a zero sequence fault current contribution (ZSO) from a grounded Delta-Y transformer									

Fig 4: Result of SC analysis for Bus 1

Contract:		SN:	12345678
Engineer:		Revision:	Base
Filename:	std	Config:	Normal

Fault at Bus:		Bus2		Nominal kV = 11.000		Voltage c Factor = 1.10 (User Defined)						
Contribution		3-Phase Fault		Line-To-Ground Fault		Positive & Zero Sequence Impedances Looking into "From Bus"						
From Bus ID	To Bus ID	% From Bus	kA	% Voltage at From Bus	kA	kA Symm. rms	R1	X1	R0	X0		
Bus2	Total	0.00	22.239	0.00	102.99	102.33	21.100		8.47E+00	2.19E+00	6.23E+00	3.02E+00
Bus1	Bus2	0.00	0.003	0.00	102.89	102.33	0.001	0.000	1.58E+00	1.32E+00		
Lump2	Bus2	100.00	1.386	100.00	100.00	100.00	0.877	0.000	0.13E+00	0.43E+00		
Ons1	Bus2	100.00	9.203	100.00	100.00	100.00	9.203	0.843	1.47E+00	1.02E+00	1.47E+00	2.04E+00
Bus4	Bus2	0.87	0.031	99.20	99.98	100.00	0.029	0.000	3.08E+00	1.10E+00		
Mtr2	Bus2	100.00	0.008	100.00	100.00	100.00	0.003	0.000	7.78E+00	8.89E+00		
Lump1	Bus2	100.00	1.888	100.00	100.00	100.00	1.032	0.000	9.45E+00	1.04E+00		
Ons2	Bus2	100.00	10.840	100.00	100.00	100.00	10.840	12.037	1.10E+00	2.22E+00	1.10E+00	3.23E+00
Initial Symmetrical Current (kA, rms)		3-Phase		L-G		L-L		L-L-G				
		22.239		21.100		18.218		15.797				
Peak Current (kA, Method C)		18.760		53.818		49.149		35.810				
Breaking Current (kA, rms, approx)		4.888		21.100		18.218		21.787				
Steady State Current (kA, rms)		4.888		21.100		18.218		21.787				
* Indicates a fault current contribution from a three-winding transformer												
* Indicates a zero sequence fault current contribution (ZSO) from a grounded Delta-Y transformer												

Fig 5: Result of SC analysis for Bus 2

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Location:	6.0.0	Date:	05-04-2009
Contract:		SN:	12345678
Engineer:		Revision:	Base
Filename:	std	Config:	Normal

Fault at bus:		Bus4		Nominal kV = 0.440		Voltage c Factor = 1.05 (User Defined)	
Contribution		3-Phase Fault		Line-To-Ground Fault		Positive & Zero Sequence Impedance Looking into "From Bus"	
From Bus ID	To Bus ID	% V	kA rms	% Voltage at From Bus	kA Symm rms	R1	X1
Bus4	Total	0.00	153.047	0.00	95.08	95.08	168.781
Bus1	Bus4	71.33	151.884	84.40	100.02	84.98	167.993
Mtr2	Bus4	95.65	1.215	95.65	95.65	0.808	0.000
		3-Phase		L-L		L-L-G	
Initial Symmetrical Current (kA, rms)		153.047		168.781		132.451	
Peak Current (kA, Method C)		399.854		441.057		425.824	
Breaking Current (kA, rms, approx)		168.781		168.781		132.451	
Steady State Current (kA, rms)		145.252		168.781		132.451	
* Indicates a fault current contribution from a three-winding transformer							
* Indicates a zero sequence fault current contribution (ZSO) from a grounded Delta-Y transformer							

Fig 6: Result of SC analysis for Bus 4

Project:	ETAP	Page:	5
Location:	6.0.0	Date:	05-04-2009
Contract:		SN:	12345678
Engineer:		Revision:	Base
File name:	add	Config:	Normal

Fault at bus: Bus6												
Nominal kV: 11.000												
Voltage Factor: 1.10 (User Defined)												
Contributors		3-Phase Fault			Line-To-Ground Fault			Positive & Zero Sequence Impedances Looking into "From Bus"				
From Bus ID	To Bus ID	% V From Bus	kA Symm rms	% V From Bus	kA Symm rms	% V From Bus	kA Symm rms	R1	X1	R0	X0	
Bus6	Total	0.00	18.857	0.00	102.33	101.71	18.184	18.184	1.87E+00	3.42E+00	1.43E+00	3.84E+01
Bus3	Bus6	24.20	18.855	23.30	102.33	101.71	18.180	18.184	1.87E+00	3.42E+00	1.43E+00	3.84E+01
Line	Bus6	100.00	0.003	100.00	100.00	100.00	0.003	0.000	1.58E+00	1.02E+00		
Initial Symmetrical Current (kA rms)		3-Phase		L-G		L-L		L-L-G				
Peak Current (kA) Method C		18.857		54.104		54.104		18.297				
Breaking Current (kA rms) Method C		44.239		42.188		38.062		43.011				
Steady State Current (kA rms) Method C		15.010		18.184		14.008		18.297				

- ⚡ Indicates a zero sequence fault (type=3SD) from a grounded L-G or phase-to-phase.

Fig 7: Result of SC analysis for Bus 5

Project:	ETAP	Page:	6
Location:	6.0.0	Date:	05-04-2009
Contract:		SN:	12345678
Engineer:		Revision:	Base
File name:	add	Config:	Normal

Fault at bus:		Bus6											
Nominal kV:		11.000											
Voltage Factor:		1.10 (User-Defined)											
Contribution		3-Phase Fault				Line-To-Ground Fault				Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus ID	To Bus ID	% V From Bus	kA Symm rms	% Voltage at Bus ID	kA Symm rms	% V From Bus	kA Symm rms	% Voltage at Bus ID	R1	X1	R0	X0	
Bus6	Total	0.00	22.339	0.00	102.99	102.33	21.100	21.100	8.43E+00	2.59E+00	6.28E+00	3.02E+01	
Gen1	Bus6	100.00	10.940	100.00	100.00	100.00	10.940	12.057	1.10E+00	5.28E+00	1.13E+00	3.28E+01	
Bus4	Bus1	0.57	0.051	59.20	59.88	100.00	0.039	0.000	3.09E+00	1.10E+00			
Bus2	Bus1	100.00	0.004	100.00	100.00	100.00	0.003	0.000	7.70E+00	4.80E+00			
Lump1	Bus1	100.00	1.463	100.00	100.00	100.00	1.032	0.000	3.43E+00	3.43E+00			
Bus5	Bus3	0.00	0.003	0.00	102.99	102.33	0.001	0.000	1.58E+00	1.02E+00			
Lump2	Bus3	100.00	1.384	100.00	100.00	100.00	0.877	0.000	4.15E+00	4.15E+00			
Gen2	Bus7	100.00	8.205	100.00	100.00	100.00	8.205	9.943	1.47E+00	7.04E+00	1.47E+00	5.04E+01	
		3-Phase		L-G		L-L		L-L-G					
Initial Symmetrical Current (kA rms)		22.339		21.100		19.216		21.787					
Peak Current (kA) Method C		58.788		55.838		49.140		55.810					
Breaking Current (kA rms) Method C		21.100		21.100		19.216		21.787					
Steady State Current (kA rms)		4.883		21.100		19.216		21.787					

Fig 8: Result of SC analysis for Bus 6

Project:	ETAP	Page:	7
Location:	6.0.0	Date:	05-04-2009
Contract:		SN:	12345678
Engineer:		Revision:	Base
File name:	add	Config:	Normal

Fault at bus: Bus7													
Nominal kV = 11.000													
Voltage Factor = 1.10 (User Defined)													
Contribution		3-Phase Fault				Line-To-Ground Fault				Positive & Zero Sequence Impedances Looking into "From Bus"			
From Bus ID	To Bus ID	% V From Bus	kA Symm rms	% V From Bus	kA Symm rms	% V From Bus	kA Symm rms	R1	X1	R0	X0		
Bus7	Total	0.00	22.339	0.00	102.99	102.33	21.100	21.100	8.43E+00	2.59E+00	6.28E+00	3.02E+01	
Gen2	Bus7	100.00	8.205	100.00	100.00	100.00	8.205	9.943	1.47E+00	7.04E+00	1.47E+00	5.04E+01	
Bus3	Bus3	0.00	0.003	0.00	102.99	102.33	0.001	0.000	1.58E+00	1.02E+00			
Lump2	Bus3	100.00	1.384	100.00	100.00	100.00	0.877	0.000	4.15E+00	4.15E+00			
Bus4	Bus1	0.57	0.051	59.20	59.88	100.00	0.039	0.000	3.09E+00	1.10E+00			
Bus2	Bus1	100.00	0.004	100.00	100.00	100.00	0.003	0.000	7.70E+00	4.80E+00			
Lump1	Bus1	100.00	1.463	100.00	100.00	100.00	1.032	0.000	3.43E+00	3.43E+00			
Gen1	Bus6	100.00	10.940	100.00	100.00	100.00	10.940	12.057	1.10E+00	5.28E+00	1.13E+00	3.28E+01	
Initial Symmetrical Current (kA rms)		22.339		21.100		19.216		21.787					
Peak Current (kA) Method C		58.788		55.838		49.140		55.810					
Breaking Current (kA rms) Method C		21.100		21.100		19.216		21.787					
Steady State Current (kA rms)		4.883		21.100		19.216		21.787					

Fig 9: Result of SC analysis for Bus 7

Transient stability study case:

Area of study 1:

- G1 and G2 on, load 25 MW, fault at bus 3 & 19 MW being shed
- T1- 1.0s- LG fault at bus 3
- T2-1.01s- CB4 open
- T3-1.05s- CB11, CB12, CB7 open
- T4-1.06s-CB20 open

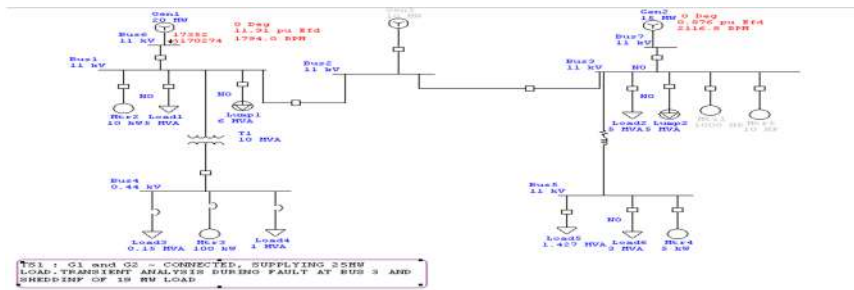


Fig 10: Single line diagram for transient stability study & simulation result of stability study case area 1

Project:	ETAP	Page:	1
Location:	6.0.0	Date:	01-03-2009
Contract:		SN:	12345678
Engineer:	Study Case: TS	Revision:	Base
Filename:	sub	Config:	Normal

TS1: DURING FAULT AT BUS3 AND SHEDDING OF 19 MW LOAD					
Action Summary					
Event ID	Time (Sec)	Device Type	Device ID	Action	
E1	1.000	Bus	Bus3	Line-Ground Fault	
E2	1.010	Protective Device	CB4	Open	
E3	1.050	Protective Device	CB11	Open	
E3	1.050	Protective Device	CB12	Open	
E3	1.050	Protective Device	CB7	Open	
E4	1.060	Protective Device	CB20	Open	

Fig 11: Action summary of transient stability study case area 1

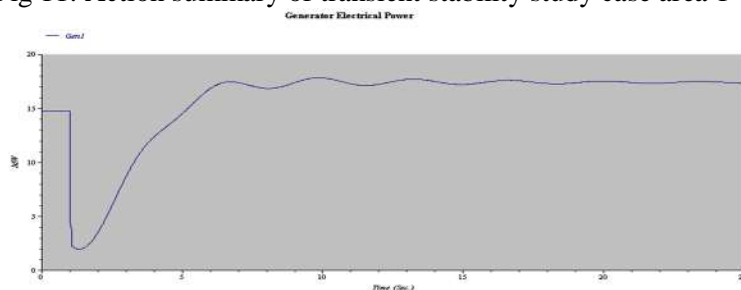


Fig 12: Active power output for transient study case area 1

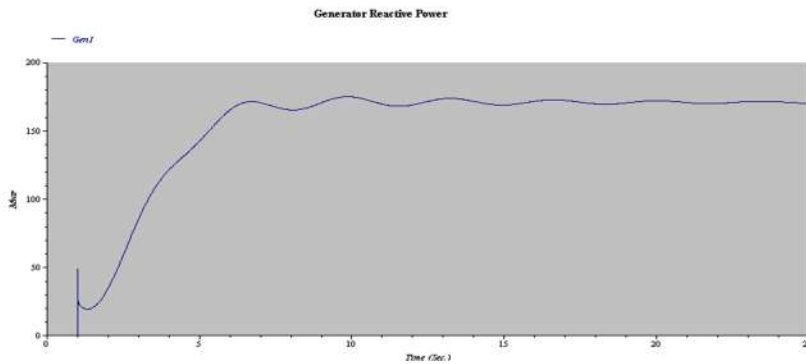


Fig 13: Reactive power output for transient study case area 1

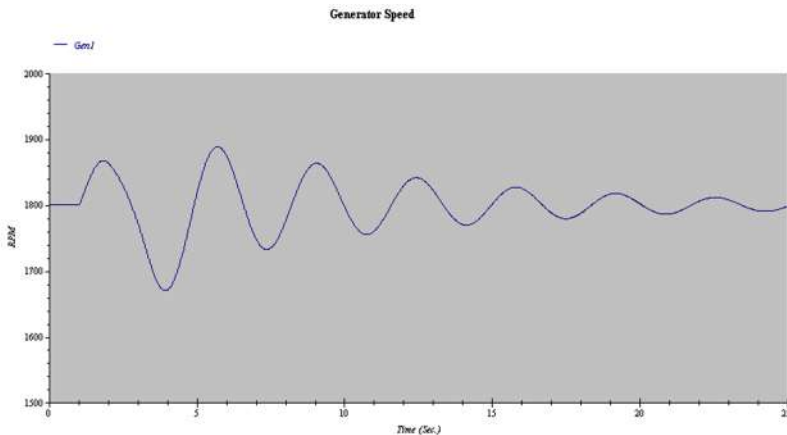


Fig 14: Generator speed for transient study case area 1

Area of study 2:

- Fault at bus 4 and shedding of 1.25 MW load T2-1.01s- CB4 open
- T1-1.0s-3Ph fault at bus 4
- T2-1.01s-CB22 open

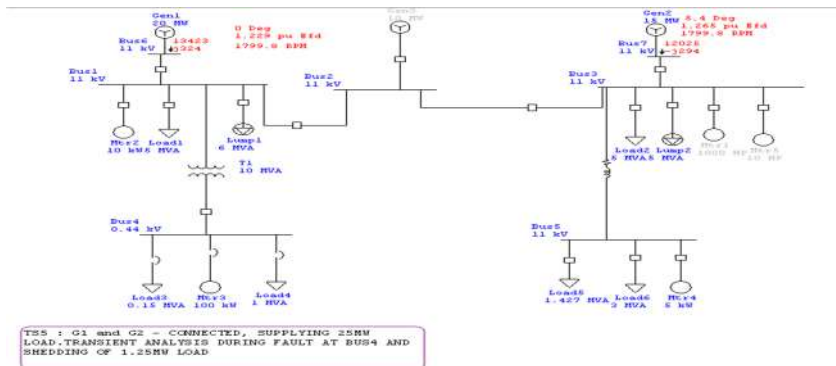


Fig 15: Single line diagram for transient stability study & simulation result of stability study case area 2

Project:	ETAP	Page:	1
Location:	6.0.0	Date:	05-04-2009
Contract:		SN:	12345678
Engineer:	Study Case: TS	Revision:	Base
Filename: 40b		Config:	Normal

TS5: DURING FAULT AT BUS4 AND SHEDDING OF 1.25 MW LOAD

Action Summary					
Event ID	Time (Sec.)	Device Type	Device ID	Action	
E1	1.000	Bus	Bus4	3 Phase Fault	
E2	1.010	Protective Device	CB12	Open	

Fig 16: Action summary of transient stability study case area 2

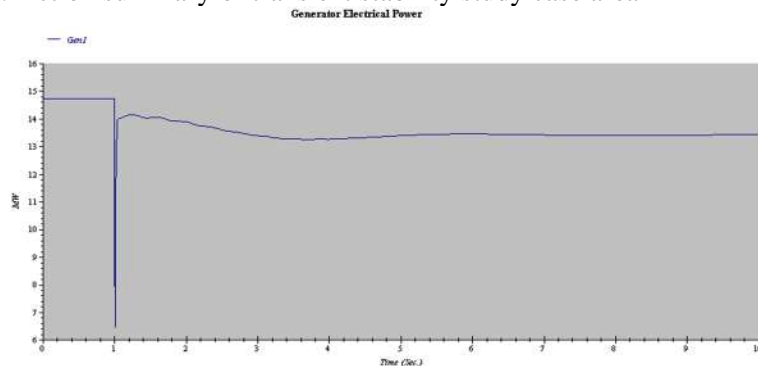


Fig 17: Active power output for transient study case area 2

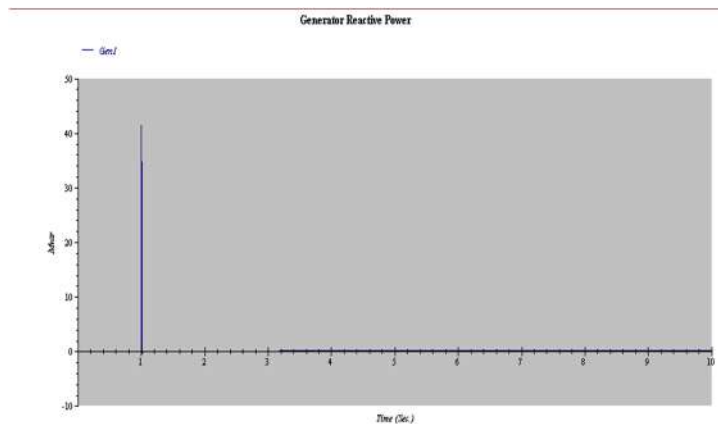


Fig 18: Reactive power output for transient study case area 2

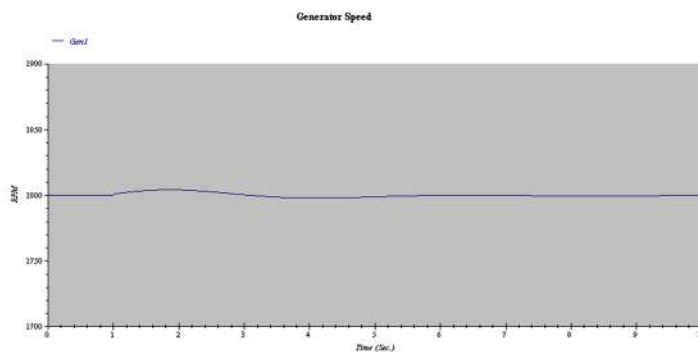


Fig 19: Generator speed for transient study case area 2

Observations:

- From load flow analysis it was found that generator 1 supplying 14.7 MW and generator 2 is supplying 12 MW to the connected 25 MW load when all the buses were in stable condition.
- In short circuit analysis it was observed that all buses were under critical conditions and maximum short circuit current of 168.8kAmps was flowing through the bus 4.
- a) From transient analysis, maximum generation capacity had to exceeded the load connected hence load had to be shaded judiciously so as to maintain a certain amount of synchronous behavior with respect to system stability.

b) Generator must work in power factor range within 0.8 and 1 to maintain uninterrupted power supply at economic cost.

Conclusion:

We performed load flow, short circuit and transient stability analysis on a 7 bus system. According to the generation capacity in each variation of the main SLD, appropriate amount of load are connected to maintain system stability. Infinite, it can be said that an alternative approach to undertake an intelligent and adaptive load shedding scheme is desirable over the tried and tested conventional methods, from the point of view of system stability, fluctuations in voltage and frequency disruptions when a system retains its steady state after being restored from a load shedding situation. Fault Clearance Time minimization is ought to be the main area of concern for power system operating personnel along with reduction in transient distributions.

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COMPARATIVE ANALYSIS OF PSYCHOLOGICAL ATTRIBUTES OF AMBULANCE ATTENDANTS SERVING GOVERNMENT AND PRIVATE HOSPITALS IN KOLKATA

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Abstract

Present Study seeks to assess the Emotional intelligence and Self Esteem of ambulance attendants (both in public and private sector hospitals) from Kolkata. The total sample size constituted 100 - 50 ambulance attendants from government hospitals while the rest 50 ambulance attendants served private sector hospitals . Tools used were Emotional intelligence scale developed by Anukool Hyde et.al (2002) and Rosenberg self esteem scale developed by Rosenberg M. (1965) . Statistical measures include Pearson Product Moment Correlation and Independent equal sample size t test . Results indicated prevalence of significant differences in emotional intelligence as well as self esteem among ambulance attendants engaged serving both private and public sector hospitals in Kolkata (N = 100). Also , Significant correlation was found to be exist between the variables of emotional intelligence and self esteem currently under study . This study focussed on psychological attributes of ambulance drivers which can thereby impact the security of the patient being transported in the ambulance , the other crew members travelling inside patient compartment and the drivers themselves .

Keywords : Ambulance Attendants , Emotional Intelligence , Self Esteem

Introduction

John D. Mayer and Peter Salovey (1995) defines emotional intelligence as “ the capacity to reason with emotion in four areas - to perceive emotion, to integrate it in thought, to understand it and to manage it.” Therefore this definition throws light on the fact that every individual has varying capabilities to deal with our emotions. Goleman (1995) recognises five personality traits underlying emotional intelligence which include empathy, motivation, social skills, self regulation and self awareness. Professionals worldwide acknowledge the relevance of emotions to work outcomes- the research on this topic has continued to gain momentum, but it wasn't until the publication of Daniel Goleman's 1995 New York Times Bestseller book named :-“Emotional Intelligence and why it can matter more than IQ.” He gave the world a new meaning of Emotional intelligence with his definition. Thus Mayer and

Salovey pioneered the concept of Emotional intelligence but it was Goleman who popularized the concept of Emotional Intelligence .

Baumeister (1998) defines self esteem as “ the evaluative aspect of self concept that corresponds to an overall view of the self as worthy or unworthy.” Therefore , self esteem is the judgement as well as attitude towards the self. Early theorists like Abraham Maslow has described two aspects of self esteem in his hierarchy theory of needs. - First aspect relates to respect from self ; Second aspect relates to respect from others. Carl Rogers belonging to the group of humanistic psychologists believed that every human being is born with good qualities ; his sessions accepted his clients the way they are and gave unconditional positive regard to them through his therapy , which he thought was a very effective way of boosting self esteem. In his words :- “Every human being with no exception for the mere fact to be is worthy of unconditional respect of everybody else, he deserves to esteem himself and to be esteemed.”

Ambulance attendants happen to be those persons certified and trained to appraise and initiate the administration of emergency healthcare services for diseased or traumatic patients before or during transportation of victims to health care facility . The community comprising emergency medical services (EMS) undergoes several challenges while providing patient care as well as maintaining the safety of patients and themselves. One prime factor that influences patient safety is the capability of the EMS provider operating the ambulance to quickly and safely maneuver to the prescribes site of the medical emergency and subsequently transport patients to the hospital. This research effort focuses mainly on certain psychological attributes of ambulance drivers (including emotional intelligence and self esteem) which can impact safety of their crew in the patient compartment, the patient being transported, and the drivers themselves. Identifying and documenting best practices for improved driver performance will further advance respective authorities’ concerns to improve EMS performance and safety.

Research Methodology

Aims & Objectives –

- Determine the existence of any significant relationship between two variables – Emotional intelligence and self esteem utilized in the study.
- Ascertain significant differences in emotional intelligence and self esteem between ambulance attendants engaged in public as well as private sector hospitals respectively .

Tools used

- Emotional Intelligence scale developed by Anukool Hyde , Upinder Dhar and Sanjyot Pethe (2002) measuring 10 dimensions such as Self awareness,

Empathy, Self-motivation, Emotional stability, Managing relations, Integrity, Self-development, Value orientation, Commitment and Altruistic Behaviour. It consists of a 5 point scale ranging from “STRONGLY AGREE” to “AGREE” to “UNDECIDED” to “DISAGREE” to “STRONGLY DISAGREE”. All the 34 items on the scale were scored directly. Each statement was scored 5 for Strongly agree, 4 for Agree, 3 for Undecided, 2 for Disagree and 1 for Strongly Disagree. The minimum score that could be obtained is 34 and the maximum score is 170. The reliability of the scale as determined by calculating reliability coefficient , split half technique was calculated to be 0.88 . The validity coefficient was found to be 0.93 which is in conjunction with the reliability coefficient.

- Rosenberg Self esteem Scale is a 10-item scale that measures global self-worth by measuring both positive and negative feelings about the self. The scale is believed to be uni-dimensional. All items are answered using a 4-point Likert scale format ranging from strongly agree to strongly disagree. Items 2, 5, 6, 8, 9 are reverse scored. Give “Strongly Disagree” 1 point, “Disagree” 2 points, “Agree” 3 points, and “Strongly Agree” 4 points. Higher scores indicate higher self-esteem. A mode that constrained the 10 items to equal discrimination was contrasted with a model allowing the discriminations to be estimated freely. The test of significance indicated that the unconstrained model better fit the data-that is, the 10 items of the Rosenberg Self-Esteem Scale are not equally discriminating and are differentially related to self-esteem. The pattern of functioning of the items was examined with respect to their content, and observations are offered with implications for validating and developing future personality instruments.

Sampling

Also known as Judgemental or Subjective sampling ; this technique relies on the judgement of the researcher when it comes to selecting units (e.g., people, cases/organisations, events, pieces of data) that are to be studied. Usually, the sample being investigated is quite small, especially when compared against probability sampling techniques . The main goal of purposive sampling is to focus on particular characteristics of a population that are of interest, which will best enable you to answer your research questions. The sample being studied is not representative of the population, but for researchers undertaking mixed research methods , this is not considered to be a weakness.

Here , the researcher selects units based on having similar characteristics because such characteristics are of particular interested to the researcher.

Description of Sample

The sample size is relatively small (N = 100) proportionately divided into two groups : Group I comprises Ambulance attendants of public sector hospitals (N = 50) whereas Group II comprises Ambulance attendants of Private sector hospitals (N = 50) , in city of Kolkata. Emergency medical service (EMS) providers from renowned hospitals in Kolkata including RG Kar , SSKM , National Medical College (Public sector hospitals) , AMRI group , RN Tagore , Calcutta Heart Clinic , Columbia Asia , North City , Charnock Hospital (Privately owned hospitals) were used purposively to constitute sample for the present study.

Inclusion criteria is as follows :

- The sample units must be engaged in Emergency medical ambulance service in city of Kolkata only
- The sample units may be serving hospitals of either Public sector or Private sector .
- The sample units should be mentally sound and alert .
- The sample units lie within age range 20 – 65 years .
- The sample units are serving their profession for atleast a year .
- The sample units may be male or female.

Statistical Analysis

Inferential statistics measure includes Pearson's r Correlation and Independent Equal Sample size t-test .

Results

TABLE 1 showing the t value and significance two tailed value of the variable Emotional Intelligence between GROUP I & GROUP II

GROUP 1	GROUP 2	t value	Sig.(2 tailed)	Significance
AMBULANCE ATTENDANTS OF PUBLIC HOSPITALS	AMBULANCE ATTENDANTS OF PRIVATE HOSPITALS	2.22	0.031	Significant

TABLE 2 showing the t value and significance two tailed value of the variable Self Esteem between GROUP I & GROUP II

GROUP 1	GROUP 2	t value	Sig.(2 tailed)	Significance
AMBULANCE ATTENDANTS OF PUBLIC HOSPITALS	AMBULANCE ATTENDANTS OF PRIVATE HOSPITALS	2.26	0.028	Significant

TABLE 3 showing the correlation coefficient between Emotional Intelligence and Self Esteem of BOTH THE GROUPS

VARIABLE 1	VARIABLE 2	r value	Sig.(2 tailed)	Significance
EMOTIONAL INTELLIGENCE	SELF ESTEEM	0.18	0.273	Significant

Discussion

The very first hypothesis determines whether there are significant differences between ambulance attendants of public and private hospitals of Kolkata respectively in terms of emotional intelligence . The obtained 2-tail significance value has been found to be **0.031** as it is evident from the result table which is much lower than 0.05 level of significance, suggestive of **rejection** of null hypothesis and **acceptance** of alternative hypothesis . Therefore significant mean differences exist between ambulance attendants of public & private sector hospitals respectively in terms of emotional intelligence . This difference can be attributed to several subjective or individualised factors . Emotional intelligence is postulated to promote positive social functioning by helping individuals to detect others' emotion states, adopt others' perspectives, enhance communication, and regulate behavior. Also Emotional intelligence is hypothesized to influence the success with which employees implement strategies to manage conflict and stress, and overall job performance (Ashkanasy & Daus, 2005; Lopes, Co'te', & Salovey, 2006a). Preliminary findings in the area suggest that emotional intelligence positively contributes to several aspects of workplace performance. In a health insurance company, analysts and clerical employees from the finance department with higher scores on the component of emotional intelligence had higher company rank and received greater merit pay increases than employees with lower scores (Marc A. Brackett , Susan E. Rivers, and Peter Salovey , 2011) .

The second hypothesis determines whether there are significant differences between ambulance attendants of public and private hospitals of Kolkata respectively in terms of self esteem . The obtained 2-tail significance value has been found to be **0.028** as it is evident from the result table which is much lower than 0.05 level of significance, suggestive of **rejection** of null hypothesis and **acceptance** of alternative hypothesis again . Therefore significant mean differences exist between ambulance attendants of public & private sector hospitals respectively in terms of self esteem . Previous researches imply that those whose self-esteem is contingent on the work area are more likely to engage in self-imposed behaviour regulation than those whose self-esteem is not contingent on that area. If self-esteem is not contingent on a certain area, success or failure in that domain holds few implications for one's sense of self (Ferris, et al., 2010). Ferris et al., (2010) established that the behavior of

individuals with low self-esteem was more influenced by contextual variables than individuals with high self-esteem so long as such behaviors did not threaten domains upon which their self-esteem levels were based. These evidences are suggestive of the fact that self esteem stands as a viable indicator of work performance , also in case of work involving taking risks and maintaining time (like the ambulance attendants) .

Third hypothesis tried to explore whether or not there is a significant relationship between **Emotional Intelligence and Self Esteem** of the ambulance attendants of Kolkata . The obtained two tailed significance correlation value has been found to be **0.273** as it is evident from the result table which is much lower than 0.05 level of significance, which states that there is a significant relationship between emotional intelligence and self esteem of the ambulance attendants of Kolkata. Several studies conducted on emotional intelligence and self esteem including a study by **Chester (1996)** has shown that there is a positive relationship between emotional intelligence and self esteem among participants of a study, and the present investigation also tends to support the view. In a study done by Cheung et.al (2013), self esteem is positively correlated with social experience, social competence etc. Emotional intelligence helps to build social competence and ultimately promotes self esteem. Therefore in the present case, the null hypothesis (H_0) stating that there is no relationship between the emotional intelligence and self esteem of the ambulance attendants of Kolkata is **rejected**, while the alternative hypothesis(H_1) stating that there is a relationship between the emotional intelligence and self esteem of the ambulance attendants of Kolkata is **accepted**. Emotional intelligence is positively related with self esteem among young male adults as it was investigated in a study. Their study also found that such people who possess emotional intelligence are most likely to evaluate themselves positively and experience more self worth and have high self esteem which leads (Rey et.al, 2011).to greater satisfaction in life.

Limitations of the study

- The greatest problem faced by present researcher was during the data collection phase . Since the present sample comprised of ambulance attendants who were always in a state of motion and hurry , it was extremely difficult to get hold of them .
- Another problem imposed was unwillingness to cooperate on part of the sample. AT times even when their colleagues did, they had said a straight no on face. Many were suspicious and did not believe and hence did not give any data.



- The sample comprised less educated people mainly having less knowledge regarding research work and hence they were unmindful at times while stating responses .

Implications of research

This research effort may facilitate development of adequate guidelines and standards for improvising the delivery of emergency ambulance services to patients in their “golden hour”. It primarily focussed on psychological attributes of ambulance drivers which can thereby impact the security of , the patient being transported, the other crew members travelling inside patient compartment and the drivers themselves. Identifying and documenting best practices for improved driver performance will further advance efforts to improve Emergency medical service’s performance and safety.

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ATTITUDE TOWARDS BIOLOGY EDUCATION AND ACADEMIC ACHIEVEMENT IN BIOLOGY OF HIGHER SECONDARY STUDENTS

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Abstract

The present study aimed to investigate Attitude of higher secondary students towards Biology education and their Academic achievement. Using judgmental sampling technique, 249 students from XI class under WBCHSE of Rampurhat Sub-Division, Birbhum district in West Bengal. To measure student's attitude towards biology of class XI students and academic achievement in biology education two standardized questionnaires were developed. The attitude towards biology education questionnaire was prepared from following five dimensions and four chapters of two units from Biology syllabus of Class XI. The data collected was subjected to statistical analysis, namely, mean, standard deviation, Karl Pearson's Product Moment Correlation Co-efficient 'r'. Results showed that significant difference in the attitude towards Biology education of higher secondary students the students belonging to the rural and urban, boys and girls, urban boys and urban girls, and rural girls and urban girls. The attitude towards Biology education in higher secondary students with respect to rural boys and rural girls, and rural boys and urban boys were insignificant. The significant Relationship of all locality and all gender attitudes towards Biology education and academic achievement. The girls are significantly better in their attitude toward Biology education and their Academic achievement when compared to the boys in all categories of schools. The students in urban schools the attitude towards Biology education and academic achievement of the higher secondary student's better achievement than the students in rural Schools.

Keywords: Attitude towards Biology, Academic achievement, National Policy on Education, Attitude scale.

1. Introduction:

Life needs discovery to get energy for surviving in the rapidly changing world. Like the other subject the Biology has power to proper identification of the key to get actual path for adjustment in this always changing human society. Biology made up foundation of important disciplines like Zoology, Ecology, Bio informatics, Biotechnology, Biomedical Research, Molecular Biology, Genetics, Hematology, Oncology, Aerobiology, etc. Most of the school taken care regarding Biology but result is not satisfactory in over. It is a very common experience of the teachers of higher Secondary schools that due to many constraints in our education system transaction of curriculum through instructional procedure may not always fulfill the aims of **Biology**. Thus it's necessary to identify the alternatives to achieve the goal of **Biology**. The most serious problem in our class-room teaching is not to give proper attention for the development

of reasoning among students. Students are instructed mainly for acquiring information according to the will of the teachers. It is very unfortunate that little did many teachers realize that the manner they handled the teaching of biology as a subject, behave and interact with the students as biology teachers could produce major effect on students' achievement. (L.O. Gbore and C.A. Daramola, 2013). The main concern of all education efforts is to see that the learner achieves quality control; quality assurance and total quality management of achievement have increasingly gained the attention of research in education. The world is becoming more and more competitive and quality of performance has become the key factor for personal progress. The whole system of education revolves around the academic achievement of the students.

Biology is a practical based subject. Therefore the Practical work in Biology teaching and learning process has crucial role in higher secondary education, and to increase more Attitude towards Biology education and Academic achievement (Millar, 2004)

This study is an effort to find out the level of Biology education and academic achievement of the students of higher secondary schools in Rampurhat Sub-Division of Birbhum District in West-Bengal. The school selected from urban and rural areas. In the field of Biology this District backward in respect of Indian perspective and state level performances. Research has not been done on this topic on these areas previously.

In India National Policy on Education (1986) Secondary education begins to expose students to the differentiated roles of science, the humanities and social sciences. Access to secondary education will be widened with emphasis on enrolment of girls, SCs and STs, Minorities particularly in science, commerce and vocational streams.

The NCERT in India has been playing a crucial role to revise the Biology syllabus of the Classes XI and XII. A discussion on these in the prescribed syllabus would help tackle prevalent misconceptions and empower the student to play a rational, responsible and informed role in society.

Governments and Education system has been trying to achieve the ultimate goal in education. They have been spending many core rupees on Higher Secondary education. But the results are not in proportion to the expenditure incurred. Only nearly 40 to 60 percent of the students are successful.

2. Emergence of the study:

Researcher has realized the actual scenario of attitude towards biology education and academic achievement in biology of XI standard students of Rampurhat Sub-Division of Birbhum District in West-Bengal. Researcher found the unsatisfactory level of biology education and students Achievement of the students of XI standard. Researcher realized questions i.e. are there measure the attitude of students towards biology education and academic achievement in biology? Is there a correlation between attitudes toward Biology and student's academic Achievement? For obtaining the actual condition as per the student's attitudes toward Biology, academic Achievement and relationship researcher has selected such type of descriptive study.

3. Significance of the Study:

In view of the importance accorded Biology as a subject in the society, this study is an area worthy of academic attention in the course of struggle to actively participate in the

Bio-technological growth of the world. The outcome of this study with respect to the selected variables investigated would be useful for teachers, educational planners and also guardians. The teachers will be able to understand the importance of attitude towards biology and academic achievement, take all motivational steps for increasing the attitude towards biology and academic achievement of students. The planners can take the proper planning and to implement the planning to increase the attitude towards biology and academic achievement and they will give their attention on rural isolated area. It will motivate the guardians to increase interest of the attitude towards biology and academic achievement among their sons and daughters. Gender bias will be removed from their mind.

4.Objectives of the study:

Major objectives of the present study were:-

1. To measure the attitude of students towards biology education.
2. To measure the academic achievement in biology.
3. To find out the relationship between student's attitude towards biology education and their academic achievement.

5. Hypothesis of the study:

The following null hypotheses were formulated for the purpose of testing:

- ⁰H₁: There exists no significant strata wise relationship between student's attitude towards biology education and their academic achievement in biology education.

6. Operational definitions of the term used:

i. Attitude and attitude scale:

Thurstone (1946) has defined attitude as degree of positive or negative affect association with some psychological object. By a psychological object meant any symbol, phrase, slogan, person, institution, and ideal, idea towards which people may differ with respect to positive or negative effect.

Attitude scales have been prepared for the measurement of attitude. Attitude scales are of report inventories designed to measure to the extent to which an individual has favorable or unfavorable feelings towards some person, group, object, institution, or ideas.

ii. Attitude towards Biology Education:

Attitude is a human tendency of rely, think, feel and also act related to a specific condition or considerable fact. Attitude towards Biology education is a human entire organization of thought, beliefs, and behavioral tendencies towards the exercising of Biology education.

iii. Academic Achievement in Biology Education:

Academic achievement in biology education means an extent of scholastic performance of the learner in biology education. The extent of scholastic performance is an index to assess the actual grasping level in terms of predetermined objectives.

7. Research Methodology:

Researcher has followed the features of descriptive research design in this study.

i. Sampling:

Researcher considered XI class students under WBCHSE as the population for this study. For carrying out the study, researcher considered judgmental sampling process to select the actual area for study; in this case higher secondary schools had chosen for this study in the periphery of Rampurhat Sub-Division Birbhum district in West Bengal. 249 Science students had been selected for this study from eight schools. Out of the two hundred and forty nine students (249) one hundred and thirty six (136) were boys, and another one hundred and thirteen (113) were girls

ii. Tool used:

To measure student's attitude towards biology of students of class XI and academic achievement in biology education- two standardized questionnaires developed by the researcher. After detail literature survey, researcher locates the specific five dimensions of the selected sample; then items developed by maintaining each dimensional criterion and as per research objectives. After that, for item analysis and determining the assessment quality of each item of the test, researcher used prior try out for each test. Thereafter, researcher must determine different qualities (validity, reliability, norms, and objectivity) of each test as a whole. In this way, researcher developed the standardized two questionnaires in this purpose.

iii. Research Design:

Researcher considered a quantitative descriptive research design to carry out the present study. In this regards, researcher considered judgmental sampling technique for this study and also considered three types of subsequent strata (i.e. gender, locality and gender plus locality) for current study. Researcher decided that two types of qualitative data collection instruments i.e. standardized questionnaires of student's attitude towards biology education and students' academic achievement in biology education.

8. Analysis and Interpretation of the study:

Different descriptive and inferential statistics were used in current study. Basically for assessing properties of the observed distribution, descriptive statistics were used. For testing the null hypothesis, coefficient of correlation 'r' was used. Differential analysis was used to compute the data and to verify the hypotheses by using the Statistical Package for the Social Sciences (SPSS) and MS Excel Data Analysis Software. As per conditions of the correlation coefficient 'r' values were founded out.

By observing the mean values in different strata of this study of Attitude towards Biology education and Academic Achievement of Biology, it is interpreted that the variation is very much differ. That perception has been cleared for different value of standard deviation and standard error of the mean. This perception has also been presented graphically below.

Table 8.1:Descriptive Statistics related to Students' Attitude towards Biology education:

Strata	N	Minimum	Maximum	Mean	SE _M	SD
BARURAL	138	73.00	120.00	105.1812	.80233	9.42526
BAURBAN	111	72.00	120.00	107.5856	1.28613	13.55022
BABOYS	136	72.00	120.00	104.7353	.89206	10.40316
BAGIRLS	113	78.00	120.00	108.0796	1.17329	12.47221
BARURALBOYS	78	73.00	120.00	104.0769	1.09668	9.68566
BARURALGIRLS	60	78.00	118.00	106.6166	1.15570	8.95202
BAURBANBOYS	58	72.00	120.00	105.6206	1.48674	11.32274
BAURBANGIRLS	53	78.00	120.00	111.6226	.94945	6.91215
BATOTAL	249	72.00	120.00	106.2530	.72795	11.48685

** BARURAL → Biology Study Attitude of Rural Students, BAURBAN → Biology Study Attitude of Urban Students, BABOY→ Biology Study Attitude of Male Students, BAGIRLS → Biology Study Attitude of Female Students, BATOTAL → Biology Study Attitude of Total Selected Students, BARURALBOYS → Biology Study Attitude of Rural Boys Students, BARURALGIRLS → Biology Study Attitude of Rural Female Students, BAURBANBOYS → Biology Study Attitude of Urban Boys Students, BAURBANGIRLS→ Biology Study Attitude of Urban Female Students.

From the above Table-8.1, some descriptive evidences are precisely represented some attribute of the trends of the attitude on Biological Study. The minimum and maximum scores were between from 72 to 120 all those eight schools students. The uniformity in Mean value, standard deviation and standard error of the mean had proved that the strata wise variations in terms of the Attitude towards Biology education of higher secondary students were found very much differ. (Fig. 8.1).

Fig. 8.1: Bar graph representing strata wise mean scores for observing the variation in the Attitude towards Biology education:

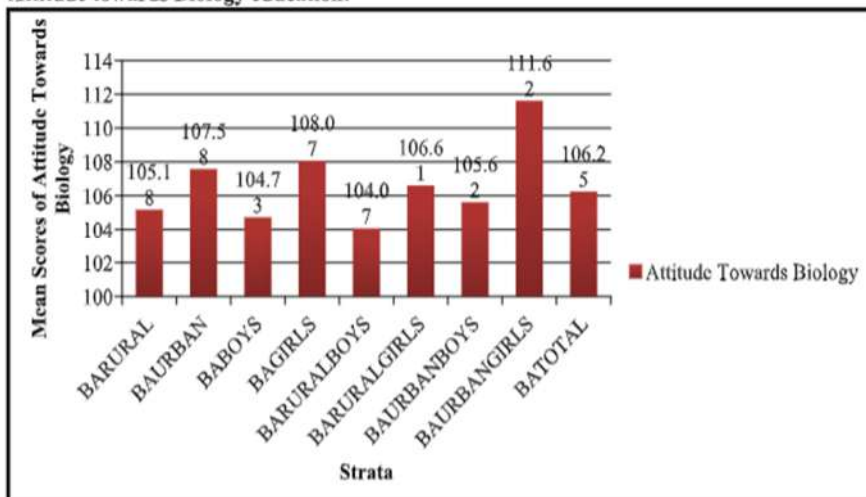


Fig. 8.1: Showing a bar graph for the data given in Table 8.1.

The above figure specifically has indicated that Urban Girls students are better performer than any other strata. It was also found that the Girls Students were more aware about the Attitude towards Biology education than Boys. Urban students were more aware than rural student

Table 8.2: Descriptive Statistics related to Students' Academic Achievement.

	N	Minimum	Maximum	Mean	SE _M	SD
AARURAL	138	16.00	49.00	37.5362	.73164	8.59482
AAURBAN	111	16.00	49.00	39.2973	.72406	7.62841
AABOYS	136	16.00	49.00	35.7574	.76750	8.95048
AAGIRLS	113	23.00	49.00	41.3571	.55979	5.92423
AARURALBOYS	78	16.00	49.00	35.4358	1.04964	9.27024
AARURALGIRLS	60	23.00	49.00	40.2666	.87522	6.77949
AAURBANBOYS	58	16.00	49.00	36.1896	1.12429	8.56237
AAURBANGIRLS	53	31.00	49.00	42.6981	0.61699	4.49180
AATOTAL	249	16.00	49.00	38.3213	.52023	8.20904

** AARURAL → Academic Achievement of Rural students, AAURBAN → Academic Achievement of Urban students, AABOY → Academic Achievement of Male students, AAGIRL → Academic Achievement of Female students, AATOTAL → Academic Achievement of Total students, AARURALBOYS → Academic Achievement of Rural Boys students, AARURALGIRLS→ Academic Achievement of Rural Girls students, AAURBANBOY → Academic Achievement of Urban Male students, AAURBANGIRL → Academic Achievement of Urban Female students.

Fig. 8.2: Bar graph representing strata wise mean scores for observing the variation in the Academic achievement in Biology:

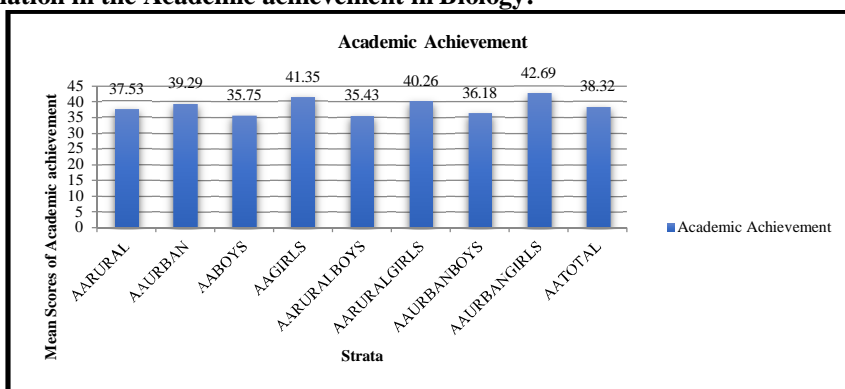


Fig. 8.2: Showing a bar graph for the data given in Table 8.2.

The above figure specifically has indicated that Urban Girls students are better performer than any other strata. It was also found that the Girls Students were more

aware about the Academic achievement in Biology than Boys. Urban students were more aware than rural students.

i. Testing of Hypothesis

Testing corresponding hypothesis has been presented one by one-

⁰H₁: There exists no significant strata wise relationship between student's attitude towards biology education and their academic achievement in biology education.

Table 8.3: Correlations between BATOTAL and AATOTAL

		BATOTAL	AATOTAL
BATOTAL	Pearson Correlation	1	.414**
	Sig. (2-tailed)		.001
	N	249	249
AATOTAL	Pearson Correlation	.414**	1
	Sig. (2-tailed)	.001	
	N	249	249

**. Correlation is significant at the 0.01 level (2-tailed).

According to the Correlations Table 8.3, it was seen that the correlation coefficient $r=0.414$, indicating a positive moderate relationship (41.4%). Calculated r value was .414 and sample ' r ' value for $N=249$, $df=247$ ($n-2$) on 0.001 level was 0.146. The p value from the table of critical values for Pearson's ' r ' on level of significance for a two-tailed test was less than calculated ' r ' value of .414 level of significance i.e. ($r=.414$, $p<0.001$) and it was indicated that the coefficient is significantly different from 0. Therefore, it is interpreted that corresponding null- hypothesis is to be rejected. On the basis of correlation analysis, it has been found significant relationship between attitude towards Biology education and their academic achievement of total students of higher secondary schools students ($r=.414$, $p<0.001$) (Fig. 8.3).

Fig. 8.3: Graph of Correlations between BATOTAL and AATOTAL

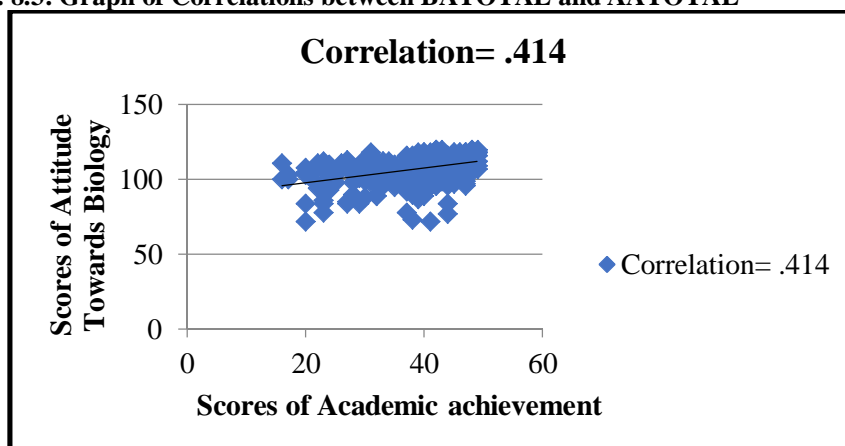


Fig. 8.3: Showing a Correlation graph for the data given in Table 8.3.

9. Discussion of result:

Relationship of attitudes towards Biology education and academic achievement in Biology:

The null hypothesis used for assessing the relationship among different strata of attitudes towards Biology education and academic achievement in Biology is rejected. There were significance relationships between attitude towards Biology education and Academic achievement of total students ($r=.414$, $p<0.001$). The correlation table and correlation graph (Table 8.3 and Fig.8.3) had been shown this relationship clearly. This fact was supported by the findings of Adodo Sunday O., Oyeniyi Joke D. (2013), UchennaUdeani and Sunday A. Adeyemo (2011) Ksheerasagar, S. and Kavyakishore, P.B. (2013), Ahmad R. Nasr (2011).

10. Major important findings of the Study:

There is a significant relationship between the attitude towards Biology education and academic achievement in Biology class XI standard total students ($r =.414$, $p < .001$) of Birbhum district, Rampurhat Sub-Division in West Bengal (Table 8.3 and Fig. 8.3).

11. Conclusions of the Study:

The interpretation of the results prompted the researcher to draw the following important Conclusions.

- The girls of XI standards had better in the attitude towards Biology education and academic achievement in Biology of the higher secondary student's than boys. It was supported by findings by the Ksheerasagar, S. and Kavyakishore, P.B. (2013).
- The urban of XI standards had better in the attitude towards Biology education and academic achievement in Biology of the higher secondary student's than rural.
- From the result, it is interpreted that the attitude towards Biology education and academic achievement in Biology of XI standards has been correlated to each other.
- Hence, it is concluded that the attitude towards Biology education is one of the main factor that affect much towards on the Academic achievement in Biology among students of XI Standard. Therefore, it is necessary for teachers to enhance the good attitude towards Biology education among the higher secondary school students.

12. Recommendations:

Teacher should also be made to undergo retraining, so that their level of teaching expertise is increased and they are able to perform their duties with great ease. School administrator should constantly organize seminars, workshop, conference and symposium to improve students' interest in biology. The government should make adequate provision for individuals who intend to take up science courses, biology especially, in the tertiary institutions. This will increase the availability of qualified Biology teachers in institution of learning. The Biology curriculum should be revisited and should be made to include activities and exercise that would cater for the learning differences of the students.

Practical work arouses interest and encourages accurate observation and description to the students. The practical work and the equipments were creating curiosity to the

students mind. Teaching aids, laboratory facilities and conditions should be made available to the teachers and students. School administrator and the government should take necessary action to develop the laboratory, laboratory oriented equipments like good microscope, ph paper, chromatography paper, different preserved plant and animal for identification, and good permanent slides for identification, different types of chemicals for reactions of urine tests etc.

Prokopet al (2007) showed that field trips guided by Biologists positively influenced participants' attitudes toward future careers in biology.

13. Limitation of the study:

Researcher tried to follow the proper methodology strictly, but there were some limitations in the

present investigation. These were as follows:

- The test items of the Attitude towards Biology education and academic achievement in biology questionnaire were specified for only five dimensions and only four chapter and two unit from Class XI for Academic achievement.
- Due to shortage of time the researcher could not apply the test to a large number of students.
- The researcher had taken help of the principles of purposive sampling. The researcher had taken into consideration the students both the sexes in rural and urban areas.

14. Suggestion for further study:

For detailing the current study, some fundamental aspects have been suggested by the researcher in following areas:

- There was a scope for further researcher to prepare an Attitude towards Biology education questionnaire basing on other more probable dimensions.
- There was a scope for further researcher to prepare the Academic achievement in Biology questionnaire basing on other more probable chapters and units of class XI Biology syllabus.
- The investigation should be employed over a wider range of population including rural, urban, semi-urban, and industrial areas. A longitudinal study of the selected pupils from the secondary stage up to higher secondary stage would furnish more comprehensive findings about Attitude towards Biology education of the students.

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ARTIFICIAL INTELLIGENCE FOR GROSS NATIONAL HAPPINESS: A NEED FOR SAFE AI FOR HUMANITY-A SIMPLE LITERATURE REVIEW

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Abstract

This article introduces to the world of Artificial Intelligence and developments and its impacts. It is noted that it has impacted developed countries as well as developing countries. AI has been harnessed for different purposes; however, it is cautioned that AI can also bring destructions to humanity. It also reveals the negative impact brought to the world.

Nonetheless, development of AI has brought significant improvement in Bhutan in different fields from Education, health to conservation activities that is aligned with GNH pillars. It also signifies that AI must be integrated with the Bhutanese values to ensure effectiveness of the application.

Key Words: G2C (Government to Citizen), AI (Artificial Intelligence), GPS (Global Positioning system, DNA (Deoxyribonucleic Acid).GNH (Gross National Happiness)

Introduction

Artificial Intelligence is revolutionizing our lives. AI is arguably one of the biggest trends, which has positive as well as negative impact on Earth. The people have been harnessing AI for multiple purposes in modern world from agriculture, medicines, climate, aviation, education, to business and different fields. World Economic Forum (2018) states that the most important consideration in the development of AI is, arguably, to ensure that benefits humanity, which includes being both “human-friendly” and “Earth-friendly”. AI can be applied to different fields and AI will gain momentum in Bhutan in coming years. Our government has been proactive in harnessing some of the AI in delivering the public services like G2C and other organization like Metrology Department has been using big data to provide timely information about weather and climatic, glacier and flood warning; AI has been most useful in conservation of our natural environment including wildlife through biological corridor which fulfills the aspects of Gross National Happiness.

Literature Review

How Artificial Intelligence is changing the lives and contributing to happiness.

Artificial Intelligence has the potential to significantly benefit people in the undeveloped and developing world. For instance, 2015 earthquake in Nepal AI had been applied in disaster relief which was faster and organized by using data in social media and disaster response activities was carried out.

Technology is changing how we investigate and protect planet Earth. The increased portability and reduced cost of data collection and synthesis tools, for instance visual and acoustic sensors to DNA sequencers, online mapping platforms, and apps for sharing photos have rapidly transformed how people research and conserve natural world(Palminteri,2018). According the report gathered by World Economic Forum,(2018), the proliferation of artificial intelligence is having significant impact on society changing the way we work live and interact. With machine learning people program the computer to learn by itself (Worral, 2015), in a similar way Ovenden (2018) augments that themain advantage of Machine Learning is its ability to deal with complexities. 'Machine learning, inference, planning, and perception have the potential to bring great value to the developing world in a wide array of areas, including healthcare, education, transportation, and agriculture.'(Nathan Eagle et al.,2018).The Economic and Social Commission for Asia and the Pacific (ESCAP) provides clear examples of AI. According to ESCAP, AI can augment human capacity by processing and analysing large datasets much faster than humans. For instance, in medical care, AI may help analyse data of a large number of individuals and identify patterns for disease diagnosis.

Developed countries have already harnessed AI and continuous to do so, however in developing economies where AI is likely to have the more significant impact (Ovenden, 2018) and entered a period in which enormous technology driven change is helping to address a number of challenges. Canuma(2018) positively states that by leveraging the power of AI, businesses, non-governmental organizations (NGOs) and governments can solve life-threatening, economical and technological problems to improve the wealth and livelihood of local communities in the developing world.

There are various technologies used for conservation and recording around the world as well as in Bhutan. The forest officials have been using camera traps to capture the image of wild life in Bhutan's parks and sanctuaries. Remote sensing and GPS, apps are reportedly used around the world and in Bhutan to provide real life data and information, record, monitor different aspects of the wild life conservation. Use of smart devices such phones makes easier for the conservationist to learn, share photo, and help researchers to conserve endangered species. Use of unmanned machines like drones to collect data,

images, landscaping and monitoring of habitat is increasing (Palminteri, 2018). Use of such AI facilities have enhanced the interaction of knowledge, sharing and recording of information and monitoring activities and manage data.

According to Ovenden (2018), AI is capable of increasing the yield of farmland under tillage in developing countries; with machine learning algorithms used in drone technology to both plant and fertilize seeds at a speed beyond human abilities. Artificial Intelligence is also applied in crop and agriculture. One of the studies done by Kafale et al. (2018) in Ethiopia shows that crop simulation models have been used, which integrated the art scientific knowledge from different disciplines, such crop physiology, agro meteorology. Such models can be used in research and application to foresee crop yield and agricultural product improvement. In addition use of such model provide guidance in solving real world problems related to agricultural sustainability, food security, productivity, yield analysis, climate change projection and scoping for best management. In addition, in Tanzania, due to changes in climate, the country had focused on research and development investments on agronomic practices, which can enhance soil carbon and soil moisture conservation for productivity (Jawoo, 2018).

One of the biggest issues in China is air pollution and affects millions lives. However, according to British Broadcasting Center and China Global Television Network (CGTN), the Chinese government is striving to reduce the air pollution and the air pollution has decreased over last five years. According to Pabon (2018), the first thing person in China check in their smart phones is air quality. In addition, this App enables users to track everything from local air quality, personal carbon footprint, to daily food waste.

However, according to the report, AI is increasingly becoming more autonomy and AI safety is important. Anderson(2018)clarifies that digital life is augmenting human capacities and disrupting old human activities. Code-driven systems have spread to more than half of the world's inhabitants in ambient information and connectivity, offering previously unimagined opportunities and unprecedented threats.

Our planet provides both challenges and opportunity. Challenges such as climate change, biodiversity and conservation, healthy oceans, water security, clean air, weather and disaster resilience (World Economic Forum, 2018). However these challenges are urgent and unprecedented and can be overcome by an era of unprecedented innovation and technological change. This change has been given birth in Bhutan as well. Different stakeholders are aware of these challenges and strive towards deepest impact. World Economic Forum has listed AI capabilities such as Automated intelligence, Assisted intelligence and Augmented intelligence, which is beneficial for the humankind.

To develop safe AI, the ultimate goal is to ensure that it becomes value aligned,



for the purpose of good future which is aligned with humanity values, promising safe application of technology for humankind. Artificial intelligence evokes both excitement and fear (Bhattacharya, 2018).

Some of the robotic catastrophes as listed in Pepito et al. (2019) from various authors are

“Twenty four employees at an Amazon warehouse in New Jersey were hospitalized after a robot accidentally punctured a can of bear repellent. A robot in China “attacked” and injured a person. A robot called “Little Chubby” was left without supervision temporarily at a hi-tech fair then suddenly; it smashed through a glass booth and injured a visitor. Figures from 2000-2013 about adverse events during robot-assisted surgery have been reported to the US Food and Drug Administration and it states that there were 144 deaths, 1392 injuries, and 8061 counts of device malfunctions during robot-assisted surgeries from 2000-2013. And, a woman in Arizona, USA was killed by an Uber car that was in “autonomous” mode at the time of the crash. However, today, autonomous robots have become part of our daily lives, raising new issues particularly concerning criteria that inform criminal law.”

Research Methods

For the purpose of this symposium, peer reviewed articles; journals, government and international documents were studied. In addition, websites of governmental organization and nongovernmental were explored to gather the information. Not limited to this, personal contacts with relevant people were made over the social media such as wechat and facebook to collect relevant information. Search engines like google was deployed to find scholarly articles using words- AI or Artificial Intelligence, technologies etc. In addition, various websites, which is related to AI, was explored to garner the insights.

Discussion & Results

Ovenden (2018) states that AI can be used to learn to analyze multiple factors at the same time in a way that humans cannot which can show, say, where a drought could occur, how many people it is likely to impact, and what is required to fix the problem. Besides this, Ijaz (2018) analysis shows that big data and AI are changing the nature of the financial industry in the United States and Europe.

However, the impact on emerging markets is even more significant. AI is one of the recent trends that transform different spheres of lives and activities as stated in the above literature; however AI can be destructive if not used with cautions. It can destroy humanity by use of weaponry. In addition, emergence of AI had displaced some of the human values, time, and affection. People also become

dependent on AI and decision-making can be poor. Just like any other countries, Bhutan has been experiencing the development of the AI over the period of time. Although different AI and technologies have been used in Bhutan in different areas like mapping, GPS, wildlife, environment (parks), transportation and G2C services, augmented technology in some schools; some of the AI like games (PUBG) has affected life of the youth as stated in the national medias recently. A strong statement from Storrs Hall, nano-scientist and computer system architect is mentioned in Wang (2013) study, that it is possible for computers to achieve human intelligence, consciousness and moral machines. This simply indicates that if computers are not programmed in such way to benefit human, it will bring destruction to human.

Some of the AI that Bhutan has been tapping in Bhutan are: aviation, G2C, assistive technology for visually impaired students, augmented learning, hydrology and meteorology for weather forecast, glacial lakes, climate and flood warning system. Not limited to these, there could be various technologies and AI using in different organizations, which is yet to find out and study.

Nevertheless, it must be reminded that AI must be used for humankind and must benefit the society and should be value driven to align with Gross National Happiness.

Conclusion

Artificial Intelligence provides limitless opportunities to the humankind. Its usage has increased many folds over the last few years since the establishment of Internet three decades ago. This will continue to develop and affect the way people interact and work. However, artificial intelligence can be disaster if not used with caution. AI needs to be used for the benefit of humanity, which is human and earthfriendly and safe.

Note: due to limited time given for the preparation and research, this topic has scope for further research. Gross National Happiness is new term, which is famous in the world as new economic thought that coined by His Majesty the 4th King of Bhutan in 1972. Since then many research and articles were published; however, there is no studies done on Artificial Intelligence for Gross National Happiness. This gives researchers to explore in future researches.

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