AJMR

ISSN (Online) : 2278 – 4853

Asian Journal of Multidimensional Research

Published by :
www.tarj.in

VISION

The vision of the journals is to provide an academic platform to scholars all over the world to publish their novel, original, empiri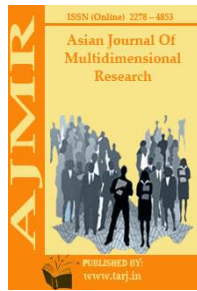cal and high quality research work. It propose to encourage research relating to latest trends and practices in international business, finance, banking, service marketing, human resource management, corporate governance, social responsibility and emerging paradigms in allied areas of management. It intends to reach the researcher's with plethora of knowledge to generate a pool of research content and propose problem solving models to address the current and emerging issues at the national and international level. Further, it aims to share and disseminate the empirical research findings with academia, industry, policy makers, and consultants with an approach to incorporate the research recommendations for the benefit of one and all.

Asian Journal of Multidimensional Research (AJMR)

(Double Blind Refereed & Reviewed International Journal)

UGC APPROVED JOURNAL
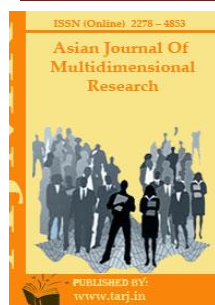
GURU KA LANGAR AS PARSAD EMBRACING "SARVE DHARM SAMBHAW"

Dr. Avanendu Parashar Pandey*; Dr. Monika Pandey**

*Assistant professor,
Centre for Tourism Management,
Haridwar, INDIA.
Email id: avan44@rediffmail.com

** Assistant professor,
Centre for Tourism Management
Dev Sanskriti University,
Haridwar, INDIA.
Email id: shri_man44@yahoo.com

_____

ABSTRACT

The Food which is offered to Hindu deity is known as Parsad. This food after offering to deity is distributed among devotees as offering of God. There are few rules in India for preparing the food as Parsad. The whole research paper revolves around the idea behind the langar, as per the Sikh faith, is for people of all castes and religions to eat together before visiting the Guru[1] Every human being is equal. 'The concept of equality is visible everywhere, from the place where people stay around the Gurudwara complex to the 'langar' (a concept of free dining for every one). Skin color fades in front of goodness, and religion does not matter in the sea of humanity here[2].In the Gurudwara it is carrying out the sewa for the overall welfare of people -- irrespective of religion, caste, colour, gender or creed. Not only we citizens of India believe this system of serving people but also Canadian president[3] Trudeau and his family members first went to to the "Langar Hall", where thousands of devotees partake langar (community food) and also do "sewa" (voluntary service). The Golden Temple's Langar Hall is the biggest community kitchen in the world. Langar is the main meal which is served all afternoon to every visitor, irrespective of their social standing or religious affiliation. In the earlier time Guru Nanak Dev Ji wanted to stress the idea that everyone is equal. Everyone shares the tasks of preparation, cooking, serving and cleaning. He said that[4] this community kitchen is meant for providing food to all devotees, pilgrims and visitors. It is a symbol of equality, fraternity and brotherhood. It is

here that the high and the low, the rich and the poor, the learned and the illiterate, the kings and the paupers, all share the same food sitting together in one row[5.]

KEYWORDS: *Langar, Community Food, Sangat, Pangat, Community Kitchen, Parsad.*

_____

INTRODUCTION

In the **Sikhism culture** the Langar or Communal Kitchen was firstly started by the first Sikh Guru,Guru Nanak Dev Ji in the year 1481.Guru ka Langar is a community kitchen which runs in the name of God,it is usually a small room which is attached to the Gurudwara[6] .The word **'Langar'** in sanskrit term means 'analgarh' i.e 'cooking room' and in the Persian term it means 'an almshouse' i.e 'an asylum for the poor' He introduced this institution in which all people would sit together and they will share food as a symbol of equality removing all the barriers of caste, creed, religion, gender, age or social status i.e all the people rich or poor, high or low, female or male will sit in the same row to eat which has given a term of **'Pangat'**. The feeling behind serving people from all religions, caste was true 'Sewa' to humanity. This institution served people in so many ways that in Langar all mens, women's and children's participates in the activities of preparation of meal, serving meal to the people sitting in **'sangat'**(a term which means company or association).The institution teaches people the etiquettes of sitting together, eating together with the people belonging to different communities and creating different communities situation. In the langar people freely volunteers **(sewadars)** to serve other people weekly as there are so many people who needs to be feeded and to serve them is a very generous thing to do as the caterers are not allowed. Langars can be organised daily or weekly or on special occasions like any festivals Guru Nanak jayanti,Vaisakhi etc.

RESEARCH OBJECTIVES :

The main aim of the present study is to present the cultural thoughts of Sri Guru Nanak Dev ji and to see the relevance of these concepts in the present time.

- To study the working of 'langar system' or the 'communal kitchen' i.e how these langar systems are helping people to preserve the culture of S ikhism that was started earlier by the Guru Ji.

- To analyse that whether this system was designed to maintain the equality between different religions, cultures, caste, creed and so on.

- It is to look after that the food served in the langar system is hygenic, vegetarian and of good quality.

To study that if there is any differences in the above mentioned points based on' Sarve Dharm Sambhaw'.

LITERATURE REVIEWS:

- On normal days, over 50,000 people partake langar served selflessly at the complex to people from various religions, cultures, castes, countries and gender[7].

1. It is designed to uphold the principle of equality between all people of the world regardless of religion, caste, colour, creed, age, gender or social status. In addition to the ideals of equality, the tradition of Langar expresses the ethics of sharing, community, inclusiveness and oneness

of all humankind. "..The Light of God is in all hearts."Guruji designed an institution in which all people would sit on the floor together, as equals, to eat the same simple food. It is here that all people high or low, rich or poor, male or female, all sit in the same pangat (literally "row" or "line") to share and enjoy the food together. "This is the true 'Sewa' to humanity" *Sher M, Illinois, USA[8]*

2. Community service: At the Guru Ka Langar in Golden Temple Amritsar free meals are provided to visitors belonging to all religions[9].

3. Sikhism offers a simple straight path to eternal bliss and spreads a message of love and universal brotherhood[10].

4. Langar (community Kitchen): Close to the principles of social work based on worth of an individual, acceptance and equality is the philosophy behind the Langar (Guru's kitchen-cum-eating-house).

5. Langar is the common kitchen room in the Gurudwara where everyone irrespective of their caste, class, creed, religion and sex sit together and eat from the common kitchen. It is not for the person only.

6. Sikh community organizes inter-faith langar at mosque : On October 8, volunteers of Sikh Press Association and Basics of Sikhi organized a langar at the historic Jama Masjid in Amritsar.Close to 400 people including madrassa students, Sikhs, Christians, and labourers of various faiths were served food that was prepared in the community kitchen on the rooftop of the mosque[11].

7. In an attempt to spread the message of love and peace, an interfaith langar (community kitchen) was organized at Jama Masjid in Ludhiana. To set an example of solidarity over the recent incidents, Muslims, Sikhs, Christians and Hindus came together to serve and eat under one roof[12].

SIGNIFICANCE:

The main aim of Guru Nanak Ji behind starting this 'community kitchen' was to remove the barriers of Hindu caste system where the people belongs to different caste does not sit together or eat together. He said that all people are human beings they share the same light, same air, same soil then why to have discrimination amongst them. The basic concept of 'equality' can be seen everywhere in the Gurudwara complex from serving meal to people to eating meal with people. It has some other objectives :

I. To offer free meal to the people from all over the country or world.

II. To offer 'Sewa' for the overall welfare of the people irrespective of caste, creed, religion, colour, gender or social status.

III. To provide a society which is free from old rituals, traditions and customs.

IV. To integrate the society as a whole.

V. To offer food which is volunteerly prepared by the people of any religion i.e one not need to be a sikh.

VI. To offer pure vegetarian and simple food so that no religion or caste system feels offended.

VII.   To make people learn the etiquettes of sitting together and eating together.

VIII.   Canadian elements of this food-centered marker of Sikh religious life, including internal community building and outreach activities[13].

Straight facts & figures

- The Foundation of the Golden Temple was laid down by a Muslim saint Mian Mir (The contributor of the entry[14] *E. Nicholl, (Secretary, Municipal Committee, Amritsar)*

- Its 'four door' symbolises openness of the sikhs towards all religion of people.

- Around 35% of the pilgrims who visit Golden Temple are non – sikhs.

- In the UK, homeless people are getting free meals, all thanks to the centuries-old Sikh tradition.

- In Canada, the Seva Food Bank serves food to low-income families.

- Langar Aid, an extension of Khalsa Aid, set up a communty kitchen in the ISIS territory to feeds Yazids.

Voluntary & selfless service:

The service in the 'langar system' is performed by people voluntarily without the intention of getting any rewards, recognition or personal benefit. This service is also known as 'sewa; which means 'selfless service'. In the Punjabi language the person performing such service is called a 'sevadar'. When people engaged in the communal service it enhances the relationships of communities and also works for moral upliftment of the society. People are encouraged from all over the world to perform this selfless service which are cleaning dishes, cooking food, serving food, cleaning floors and so on for many people this activity forms an essential part of their life, providing spiritual fulfillment and practical benefits. People do this voluntary service to other people without seeking their religion, caste, gender or social status[15].

Steps that converts an ordinary food 'as Parsad':

In the 'Community kitchen' every volunteer has to follow a process when preparing the food or serving the food in langar which converts an ordinary food as Parsad i.e. what are the essentials in the community kitchen which make a simple and vegetarian food so important for people that it carries huge crowd from all over the world removing all the barriers of religion, caste etc.

1. Take bath and enter the kitchen with clean clothes and freshly washed hands.

2. During preparation and serving 'parsad 'the mind should be occupied with good thoughts, holy scriptures, with the name of god not with gossip.

3. Avoid creating unnecessary rush in the kitchen.

4. Do not taste salt, sugar or anything while cooking the Parsad.

5. No portion of parsad is taken out for any other purpose before offering it to the guru.

DISCUSSION & INTERPRETATION:

After going through this research paper we have gone through different articles, blogs, references of different links and it is discussed that the major hub for Sikh religion serving 'langar' is Golden Temple in Amritsar where around 100,000 people have Parsad as a communal meal everyday 24/7 throughout the year. While discussing about the Sikh religion we have founded that there are several 'langars' are going on throughout the world with only one purpose that is the 'selfless service' or voluntary service. In the earlier tradition just like Sikhs in the Hindu religion also there is also a system of serving people called as 'bhandara' in which people from different religion eats together. Every persons follow the same instructions in the Gurudwara complex like when one person whether a female or male enters into the gurudwara they have to cover their heads with scarves or handkerchief whichever suits to a person of any religion. While interpretating it is discussed that people from all over the world come to serve 'langar' in different parts of the world and carries only one feeling with them that is to serve to do 'sewa'. When doing different activities in the Gurudwara complex like preparing meal, serving meal they believe that 'God is the creator of all beings'. Every person rich or poor, low caste or high caste devotes their share of time and money for feeding people as there soul is sanctified i.e. if a person having low income share there time in serving people or else a person having no time but money donates their money for purchasing pulses, rice, milk, ghee etc. In the research paper we have discussed that sikh religion follows the principles of 'Sarve Dharm Sambhaw' i.e. to serve

people they buy food from every religion or caste without discriminating them form others. Examples can be they buy vegetables from farmer buy pulses from Jain person, buy milk from Muslim person without actually knowing their religion or caste.

CONCLUSION:

From the above points that we have discussed in this research paper it is to be concluded that after analyzing this topic of 'sarve dharm sambhaw' in Sikh religion it is proven with different points which the researcher has founded .Sikh religion is one of those religion which has assures the acceptance worldwide, this Sikh religion is organsing langars in 46 places in 11 countries along with India with the help of all the devotees of Guru Nanakji around the world which means that people from all over the world are sanctioned with the pure feeling of serving people from different parts of the world without discriminating them on the basis of religion, caste, creed, ginger or social status. Langar is organizing for people on an inter-faith basis Muslims, Christians, Hindu all participates actively in the activities of this system.

REFERENCE:

1. http://indianexpress.com/article/cities/city-others/a-day-in-the-life-of-golden-temple-amritsar-langar-free-for-all-4794237/

2. https://yourstory.com/2014/06/goodwill-volunteering/

3. https://www.firstpost.com/business/how-can-be-religious-and-community-service-taxed-asks-shiromani-gurdwara-parbandhak-committee-3826151.html

4. http://www.bbc.co.uk/schools/gcsebitesize/rs/prejudice/sikhismrev4.shtml

5. http://www.sikhism101.com/sangat-and-pangat/

6. http://www.sikhiwiki.org/index.php/Langar

7. https://economictimes.indiatimes.com/news/politics-and-nation/gurdwaras-feel-the-gst-pinch-in-serving-free-langars/articleshow/62898442.cms

8. http://www.sikhiwiki.org/index.php/Langar

9. http://www.goldentempleamritsar.org/guru-ka-langar-amritsar-golden-temple.ph

10. Popli, U. K. (2010). Sikhism and Social Work. Origin and Development of Social Work in India, 182.

11. https://blogs.timesofindia.indiatimes.com/everything-social/sikh-community-organizes-inter-faith-langar-at-mosque/

12. https://www.indiatoday.in/fyi/story/watch-sikhs-and-muslims-organise-interfaith-langar-in-a-mosque-268696-2015-10-18

13. Dhillon, D. S. (1998). THE INSTITUTIONS OF GURU (GURUSHIP), GURDWARA, SANGAT AND LANGAR. Guru Nanak: Ideals and Institutions, ed. HS Soch and Madanjit Kaur, 202-225http://www.sikhiwiki.org/index.php/Seva

14. E. Nicholl, (Secretary, Municipal Committee, Amritsar)

15. http://www.sikhiwiki.org/index.php/Seva

16. Singh, P. (1971). *The Sikh Gurus and the Temple of Bread*. Amritsar: Dharam Parchar

Committee, Shromani Gurdwara Prabandhak Committee.

17. Desjardins, M., & Desjardins, E. (2009). Food that builds community: the Sikh Langar in Canada. *Cuizine: The Journal of Canadian Food Cultures/Cuizine: Revue des cultures culinaires au Canada*, *1*(2), 0-0.

18. Singh, G. (2008). Socio-economic aspect of Langar. In *International Conference on Religions & Cultures in Indian Civilization, New Delhi*.

19. Rose, D. (1995). *Sikhism*. Folens Limited.
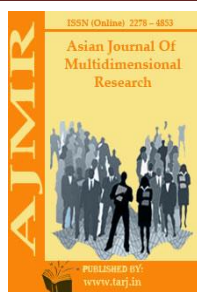
STUDY OF FUNGUS BEAUVERIA TENELLA BIOLOGICAL STRUGGLE WITH TERMITES OF THE GENUS ANACANTHOTERMES

Abdullaev Ikrom*; Manzura Doschanova**

*Chairman of Khorezm Mamun Academy,
Urgench city, UZBEKISTAN.

**Lecturer,
Department of Soil science chair,
Natural Sciences faculty,
Urgench State University,
Urgench city, UZBEKISTAN.
Email id: goodluck_0714@mail.ru

_____

ABSTRACT

The articled scribes material son the role of microorganism sin there gulation of populations of Turkestan and large Trans Caspian termites in Uzbekistan. From different termite nests most distinguished representatives of the genera: Aspergillus, Beauveria and Penicillium have been identified. Cases of separation of micromycetes of the genera: Fusarium, Alternaria, Cladosporium have been registered. In artificial termite infestation the strains of B. tenella caused the highest (100.0%) death rate of insects in laboratory conditions. The best indicators for the weight of the raw and dry weight of the fungus are noted on cellophane discs. Food film is unsuitable for this purpose, since it completely blocks the movement of nutrients and, therefore, there is no growth of the fungus. For rational and effective use of the drug in baits, it is necessary to establish the optimal amount of the mushroom component, at which a 100% death of termites is achieved. Moreover, the degree of toxicity of a 20-day culture fluid Fusarium sp. does not depend on the period of its use. The degree of its toxicity did not change from the method of application to the substratum: either immediately before feeding termites, or with preliminary drying and storage on the feed substrate. Thus, pre-treatment of the feed substrate with the culture liquid of the tested fungi with drying at room temperature does not radically alter its toxicity.

KEYWORDS: *Pathogenic Microbiota, Organic Substrate, Saprotroph, Inoculum.*

INTRODUCTION

Among the diverse world of insects, termites (Isoptera: Hodotermitidae) occupy a special place. Although termite biodiversity is not the richest in the number of species, it is one of the largest in number of individuals and represents a giant biomass. They have an exceptional negative value for mankind, as biological destroyers of structures and other objects of the national economy.

The result of their vital activity is the huge damage inflicted on human settlements. All wooden structures in buildings, in monuments of architecture and culture, in hydraulic structures, in residential and administrative buildings are subject to their destructive activity.

The threat of destruction from the activity of termites is also hanging over the world-famous cities of Central Asia, such as Bukhara, Samarkand and Khiva. The historical monuments of these cities, which have great cultural value, are growing international interest, due to which the number of tourist routes is expanding and increasing, Khiva received the status of a UNESCO World Heritage Site.

MATERIALS AND METHODS

Stationary studies were conducted in the North-West and Central regions covering the territories of the Khorezm region, the Republic of Karakalpakstan, Samarkand, Bukhara, and Navoi regions of Uzbekistan. The collection of patients and dead insects was carried out according to the methods of Yevlakhova and Zhuzhikov [4, 5]. For microbiological analysis, 586 samples were selected to identify the microflora of the termites under consideration according to the generally accepted bacteriological methods.

Entomopathogenic fungi were studied by known methods of mycology [4, 7]. To isolate the fungi from termites, all the collected individuals were divided into three groups according to the characteristics: dead, sick and healthy. To determine the external mycobiota of termites, flushing from their surface was prepared. To isolate the pathogenic mycobiota of termites after surface sterilization, they were placed in moist chambers or on nutrient media of 10-15 individuals per petri dish. Surface sterilization of the individuals selected for analysis was carried out by placing them in 960 alcohol for 1 to 2 minutes. or a 5.0% formalin solution, followed by a 5-fold wash in sterile water [3]. As the entomopathogen germinated and the fungal colonies formed, the fungi were screened in separate Petri dishes into Capeka agar for further identification [9].

Methods for identification and storage of isolated fungi. To determine the generic and species belonging to the isolated entomopathogens and micromycetes, a part of the spore was selected from a pure mushroom culture with a buttonhole and a single seeding was carried out with a "prick" into the center of the Petri dish with Chapek agar. Incubation of inoculated cups in this way was carried out in a thermostat at a temperature of 24 ° C for 15-20 days. During this period, every 5 days, a visual survey of growing colonies was carried out, the sizes and cultural and morphological features of the colony (the color of the upper and lower sides of the colony, its addition, the presence of exudate, etc.) and the main fungal structures (color of mycelium, size and structure conidiophore, size, color of conidia, chlamydospores, etc.) [10, 11].

Methods of obtaining a culture fluid for entomopathogens. When growing mushrooms on liquid nutrient media, some toxins and other biologically active substances produced by the mikomycete pass to the environment. By the action of the culture liquid on living test objects (termites), one can judge the degree of toxicity of the test fungus.

RESULTS AND ITS DISCUSSION

It is known that microorganisms (fungi and bacteria) and products of their vital activity are widely used in the fight against some harmful insects, but their effectiveness against termites is poorly studied. Among microbiological agents special attention should be paid to entomopathogenic fungi of the genus BeauveriaVuill., Which are safe for humans, warm-blooded animals and birds, which makes them especially attractive for the development of methods for regulating the population of harmful insects.

The degree of virulence of fungal organisms was determined by termites from the caste of workers caught from the Khorezm, Samarkand, Bukhara, Navoi regions and the Republic of Karakalpakstan. The termite caste is the most active caste, working individuals emerge from underground nests on the surface of the soil to collect food and can be the bearer of various pathogens within the family and the nest to the nest.

Mushrooms were selected which caused mycoses of termites in natural conditions in the areas of the studied regions of Uzbekistan. Infection was carried out by using filter paper as a feed for termites. Previously, an aqueous suspension was applied to the filter paper. It was found that when Beauveriatenella was infected with bacteria, 100% death of termites occurred in 7-10 days. Inoculation with fungi Aspergillus flavus and A.oryzae caused death of test insects during the same period by 63.1 and 51.2%, respectively. The species Scopulariopsisbrevicaulis caused mycosis in 32.5% termites in the experiment. A slight mortality of termites was caused by Cladosporiumbrevicompactum (7.0%) and Alternariaalternata (4.0%).

As follows from the results of the experiment, representatives of the family. Moniliaceae are more virulent towards termites than species related to this family. Dematiaceae. With artificial inoculation of termites by the species Mucor sp. the death of termites in experimental variants did not exceed the values in the control (1 - 2 individuals). Consequently, this entomophilous species is able to develop only on very weakened or dead insects and did not cause independent termite mycoses.

Thus, the species B. tenella with artificial infection caused the greatest (100.0%) death of termites in the laboratory. Other species - from 4.0 to 63.1%. Some types of Beauveriatenella, which caused term fungal infections up to 100.0%, may be used as promising for the development of biological control of termite abundance.

Effect of Beauveriatenella on different termite castes. For further development, the entomopathogenic species B.tenella was selected, which is the most promising for solving the problems of controlling the number of termites in anthropogenic and natural habitats. This fungus species meets the basic requirements for microbiological agents: first, it is pathogenic for termites, secondly, it is nontoxic for warm-blooded and human, and thirdly, it can be produced in large quantities without significant labor and material inputs.

To solve the question of the degree of susceptibility of termites from different castes to the fungal pathogen, a series of experiments was carried out. Termites from the Central (Samarkand region) and the North-Western (Khorezm region) regions were used in the experiments. As a result, it was found that workers of older (IV-V) ages were more susceptible to B. tenella, the greatest death of which was observed on the 4th day from the moment of inoculation and amounted to 11.2% and 20.4% (Table 1).

TABLE 1. EFFECT OF B. TENELLA ON TERMITES FROM DIFFERENT CASTES OF THE GENUS ANACANTHOTERMES.

Caste and age of termites	The number of termites in the variant (copies)	Death of termites (%) (according to Abbot) in 24 hours				
		1	2	3	4	5
Workers (P $_{II-III}$)	30	0	2.0	9.0	11.2	5.0
Workers (P $_{IV-V}$)	30	0	1.0	2.0	20.4	4.0
Nymphs	30	0	0	1.0	8.2	3.0
Soldiers	30	0	0	2.0	4.0	2.0
Winged	30	0	0	0	0	0

The greatest number of deaths from mycosis nymphs and soldiers also accounted for this period. The degree of virulence of the fungus for these termite stages was 8.2 and 4.0%, respectively. In the following days of the experiment, the number of dead termites decreased, and on the 10th-13th day all the experimental termites died with signs of mycosis.

The species B.tenella is isolated from 82 individuals, which is about 45% of the number of all termites tested. When identifying fungal isolates from the genus Beauveria, a comparative analysis of the morphological and cultural features was carried out at the optimum (240C) and lower (+ 50C) temperatures. The reference strains for B. bassiana and B. tenella were used as benchmarks for comparison. Strain B.tenella and B. bassiana differ in the composition of colonies, the color of the reverse. The same diagnostic differences of these species are fixed in the determinants [4, 7].

Growing mushrooms at a lower temperature slows their growth: in B. bassiana almost 2 times (the average diameter of the colony at + 240 C - 27.2 mm, at + 50 C - 14.5 mm) and slightly in B.tenella (colony diameter at + 240 C - 21.8 mm , at + 50C - 20.1 mm). The color of the reversionum at a lower temperature becomes reddish in B.tenella and does not change in B. bassiana.

The comparative test showed that the fungal isolates isolated from the termites are identical in morphological and cultural characteristics to B.tenella. As the inoculum included in the bait was the culture of endenopathogenic fungus B.tenella strain BD-85. In developing the procedure for obtaining a dry, free-flowing biological preparation, a series of tests were performed to determine the composition of the nutrient medium, the type of separation membrane, the optimal incubation period.

EntomopathogenB.tenella, like many other species of fungi from this group, grow well on artificial nutrient media of different composition [2, 6]. It was experimentally established that the cultivation of B. tenella on potato agar (CSA) is more effective than on Capek agar.

The yield of mushroom mass is 1.5 - 2 times higher. Therefore, taking into account the availability of constituents and the ease of preparation of the medium, an artificial nutrient medium, potato agar (KSA), used both for the propagation of the entomopathogen and for the long-term storage of live cultures of fungi, was chosen.

Several types of materials used as a separation membrane between the mycelium and nutrient medium have been tested, which, on the one hand, promotes the normal supply of nutrients of

their substrate to the mycelium, and, on the other hand, prevents the ingestion of pieces of the medium into the biopreparation when the mushroom mass is removed.

The best indicators for the weight of the raw and dry weight of the fungus are noted on cellophane discs. Food film is unsuitable for this purpose, since it completely blocks the movement of nutrients and, therefore, there is no growth of the fungus. When the entomopathogen was grown on the Synpore membrane filters, the most dry biomass was obtained (the dry matter yield was 75.0%), but the amount of the biopreparation is small (0.6 g with 10 Petri dishes), which also makes this material unsuitable for use in mushroom multiplication. When using different types of filter paper (v. 1, 2, 3), the resulting weight of the fungus is 3 to 4 times less.

Thus, cellophane is the best of the porous materials tested. An important indicator in the process of operating the biomaterial is the period of incubation of the fungus. It was revealed that during the cultivation of the fungus within 10-15 days, the greatest amount of fungal biomass was obtained. Cultivation for 20 days leads to the drying of the mushroom film already during the incubation (Table 2.).

TABLE 2. DYNAMICS OF B.TENELLA MASS, DEPENDING ON THE INCUBATION PERIOD.

№	Incubationperiod	The weight of the raw weight of the fungus (g)	The dry weight of the fungus (g)	Outputofbiomaterial (%)
1.	10 days	7.35	1.25	17.0
2.	15 days	8.35	1.3	15.6
3.	20 days	6.6	0.9	13.6

Thus, incubation at 15 days is preferable to other terms, since more benign raw materials can be obtained from the same surface occupied by the entomopathogenic one.

The biopreparation of various storage times was systematically tested for the viability of propagules by seeding them on nutrient media. Tests conducted every 3 months for 2 years showed the preservation of the viability of the fungus and the possibility of using the biological product as a biological agent against termites.

The viability of the entomopathogen was also tested depending on the storage method. Testing showed that both during storage of live culture on the school jamb of the nutrient medium and during storage of the mushroom propagule in the hermetically sealed ampoule, the viability of B.tenella fungus is maintained: the diameter of the passaged colonies on day 15 is, on average, 29.3 mm and 32.2 mm, respectively . But maintaining the viability of the culture on a nutrient medium at a low temperature (4 - 50C) requires periodic, approximately every 6 months, crossings, due to drying and loss of nutrient properties of the substrate, while storage of the propagules of the fungus in special ampoules is devoid of such costs.

For rational and effective use of the drug in baits, it is necessary to establish the optimal amount of the mushroom component, at which a 100% death of termites is achieved.

Artificial inoculation of termites with different doses of B.tenella showed that 100% death of termites occurs at doses higher than 5.0 mg. Mycological examination of the dead specimens showed that the death of experienced termites comes from mycosis. The number of termites from

which the pathogen was not isolated does not exceed the number of deaths from natural causes, like control. Doses of the drug, at 100.0, 50.0 and 25.0 mg, cause complete death of termites on days 5 to 6, and a decrease in doses up to 10.0, 5.0 and 2.5 mg prolongs the latent period in infected individuals by 3 to 4 days.

The drug obtained on the basis of B. tenella, has a virulence against termites and causes their complete death in doses above 2.5 mg. The incubation period for B.tenella 2 - 3 days, after which the insect test began to die. Regardless of the stage of development of termites, the greatest death of insects from mycosis lesion occurred on the 4th day.

The development of signs of mycoses on winged individuals is not fixed. This is probably due to the fact that the flight of adult winged individuals takes a very limited time and part of the termite life cycle at this stage occurs outside the termite. At the adult stage, isolated cases were noted when winged individuals were carriers of bacteria.

Consequently, it has been experimentally established that B. tenella fungus is pathogenic for termites of all stages and developmental ages and caused the greatest death on the fourth day, and complete (100%) death of test insects - on 10-13 days. Thus, B. tenellaentomopathogen can be used as a microbiological agent to control the population of termites of all castes in natural and anthropogenic habitats.

Many studies confirm the existence of a correlation between the toxic and virulent properties of entomopathogenic fungi. Fungal toxins act primarily on the nervous system, causing paralysis and death of the affected insect.

The mixture of toxic and biologically active substances released by the entomopathogen into the medium (culture liquid) can have a detrimental effect on termites and, in the future, can be used as one of the components of antitermite bait to improve the efficiency of the latter. We conducted experiments to establish the degree of toxicity of 10-day culture fluids of pathogenic fungi for termites. Especially acute - in the variant with Beauveriatenella (73.0%). Later, the number of dead insects in this variant increased steadily and after 10 days it was 100.0% (Table 3).

TABLE 3. EFFECT OF THE ENTOMOPATHOGEN CULTURE FLUID ON THE VIABILITY OF TERMITES.

№	Experiment Options	Number of termites in option (specimen)	Death of termites (%) by accounting days ($M \pm m$; $n = 5$)				
			1	**3**	**5**	**7**	**10**
1	*Aspergillus flavus*	100	8±1.2	54±6.9	68±5.4	78±7.8	82±7.3
2	*A. oryzae*	100	16±3.3	61±5.6	80±3.5	86±4.3	91±4.3
3	*Beauveria bassiana*	100	9±2.9	65±6.7	76±5.0	92±1.2	95±1.6
4	*B. tenella*	100	13±3.4	73±2.5	89±3.3	98±1.9	100
5	*Fusarium sp.*	100	14±2.4	46±5.8	65±6.7	74±8.4	84±6.8
6	*Scopulariopsis brevicaulis*	100	8±3.7	54±7.3	68±6.8	78±6.6	96±2.9
7	Control	100	0.0	0.0	0.0	2±1.2	7±1.3

The degree of toxicity of the culture fluids of other fungi, such as Scopulariopsisbrevicaulis, Beauveriabassiana and Aspergillus oryzae, was somewhat lower and 96.0, 95.0 and 91.0%, respectively, at the end of the experiment (10 days later). Toxic effect of culture fluid Fusarium sp. manifested in 84.0% of termites, and in A. flavus - 82.0%.

The natural precipitation of experienced termites in the control was noted only on day 7 and at the end of the experiment was 7.0%

Conditions of storage of culture liquid. In baits, the anti-thermal properties of all components must be maintained throughout the entire period of use, i.e. during the storage period and during their stay in the terminatrix.

Therefore, the degree of toxicity of the culture fluids of entomopathogens was tested depending on the timing and method of storage. To do this, 20-day culture liquids of six species of fungi were applied to a substrate, which was a filter paper and then dried at room temperature. Storage of the treated filter paper continued for 3 months in the refrigerator (Table 5).

TABLE 4. THE DEGREE OF TOXICITY FOR TERMITES OF CULTURE FLUIDS OF ENTOMOPATHOGENS AFTER DRYING ON FILTER PAPER.

Experiment Options Filter paper, after treatment with a cultured liquid	Number of terms in the version (pcs)	The percentage of dead termites by accounting days (M ± m; n = 5)				
		1	3	5	7	10
Aspergillusflavus	100	26±1.8	65±9.0	76±10.0	80±10.0	90±7.7
A. oryzae	100	28±6.0	86±3.6	94±1.0	97±1.2	100
B.bassiana	100	17±2.0	71±8.7	84±6.9	90±5.7	94±2.9
Beauveria tenella	100	9±4.3	74±5.3	86±4.3	96±1.8	99±1.0
Fusariumsp.	100	10±3.1	60±9.2	68±10.7	74±12.3	84±9.2
Scopulariopsis brevicaulis	100	12±3.3	75±6.9	80±5.9	83±6.0	92±8.0
Filter paper, after water treatment (control)	100	-	-	-	2±1.2	7±1.3

It was noted that intoxication of termites in all variants was observed from the first days of the experiment, but the greatest number of dead termites was observed starting from the third day. The greatest toxicity was exhibited by the culture liquids of the fungi Aspergillus oryzae and Beauveria tenella. The death of termites on the 10th day of the experiment was 100.0 and 99.0%, respectively. Among the myskardin fungi, the toxicity of B. tenella culture fluid is higher than the effect on termites of B. bassiana culture fluid (94.0%).

The toxic effect of the culture fluids of other entomopathogens was 84.0 - 94.0%. The natural precipitation of termites in the control was noted only on the 7th day (2.0%) and at the end of the experiment was 7.0%. It was found that the toxicity of the culture fluid of the entomopathogens persisted after application and drying on filter paper.

Moreover, the degree of toxicity of a 20-day culture fluid Fusarium sp. does not depend on the period of its use. The degree of its toxicity did not change from the method of application to the substratum: either immediately before feeding termites, or with preliminary drying and storage on the feed substrate.

In pre-dried fungi such as Beauveria bassiana, B. tenella and Scopulariopsis brevicaulis, preliminary drying reduced the toxicity of the culture liquid by 1.0%, while in Aspergillus species, on the contrary, pre-treatment of the feed substrate with a culture fluid increased the toxicity by 8.0-9.0% .

Thus, pre-treatment of the feed substrate with the culture liquid of the tested fungi with drying at room temperature does not radically alter its toxicity.

Such a method of drying a culture liquid on a vegetable feed can be used to impart, in addition to the virulent properties of antitermic baits, also toxic ones.

The degree of toxicity of the culture fluid of the fungus, in addition to the periods of incubation, depends on the period of its storage.

DEATH OF TERMITES
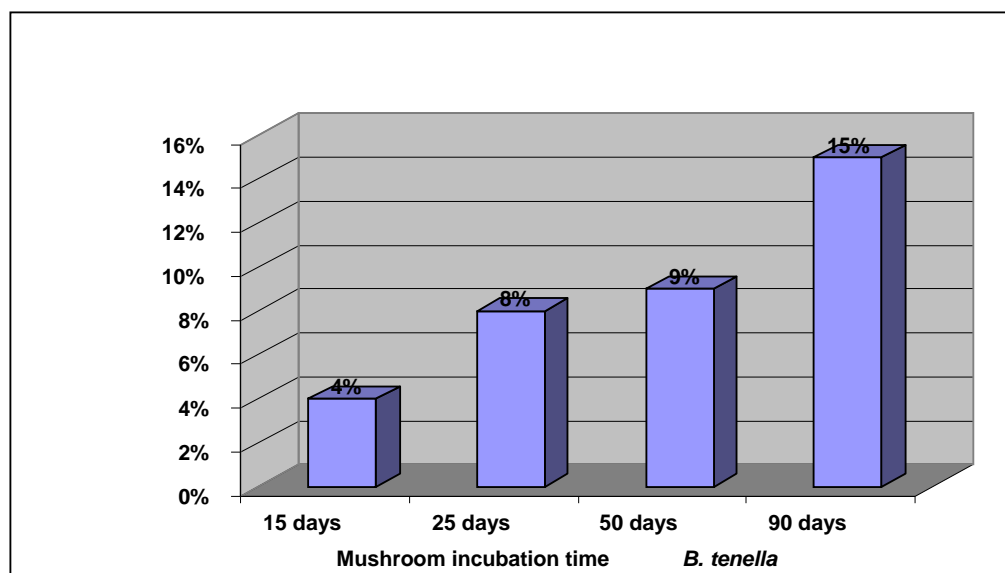
In the experiment, storage of culture liquid of B.tenella fungus of different (15, 25, 50, 90 days) incubation times was carried out in flasks at a temperature of 10 ° C (in a refrigerator) and 35 ° C (in a thermostat) for 30 days. (Fig. 1). After that, toxicity was checked for it on termites.

Fig.1. Toxicity for termites of B. tenella culture fluid of different incubation times after 30 days of storage at 35 ° C.

As can be seen from Fig. 1, the toxicity of the culture liquid drops significantly after storing it in a thermostat for a month and does not depend on the incubation period. It is likely that at this temperature the liquid in the liquid was subjected to processes that destroyed toxic or biologically active substances capable of causing toxicosis of termites.

Thus, it has been experimentally proved that the culture fluids of entomopathogenic fungi have a high toxicity with respect to termites. Their use as one of the components of the antitermis bait is

possible immediately after preparation or one month storage period (after impregnation of the feed substrate).

CONCLUSIONS

1. The appearance of Beauveriatenella during artificial infection caused the greatest (100.0%) death of termites in the laboratory. The virulence of other species studied (Alternaria alternate, Cladosporiumbrevi-compactum, Scopulariopsisbrevicaulis, A. orysae, Aspergillus flavus) ranges from 4.0 to 63.1%.

2. Promising for the development of biological measures to limit the number of termites and representatives of the genus Aspergillus, which caused mycosis termites 50.0 - 100.0%. Pathogenicity for termites Mucor sp. not fixed. Beauveriatenella pathogen to termites of all castes, except imago. The greatest death of insects in the experiment was fixed on the fourth day, and their complete (100%) death on the 10th -13th day.

3. It was experimentally established that 20 daily culture fluids of six (Aspergillus flavus, A. orysae,Beauveriabassiana,B.tenellaScopulariopsisbrevicaidis,Fusarium sp.) Of entomopathogens caused death by termites from 82.0 to 100.0%. The most pronounced toxicity was the B. tenella culture fluid.

4. It was found that the most effective concentration of B. tenella in bait from 83.0 mg to 1.0 g. At the same time, the number of termites is reduced and the inoculum is transferred to other nests.

5. A method for obtaining a dry, free-flowing biological preparation has been developed. It has been established that the optimal nutrient medium for growing and storing the fungus culture is potato agar (KSA), cellophane is an ideal porous material for use as a separation membrane, the optimal incubation time for the fungus is 15 days, the viability of the drug is preserved (in hermetically sealed ampoules). For 2 years or more.

LITERATURE REVIEW

1. Alyoshina O.A. State and perspectives of studying entomopathogenic fungi in the USSR // Mycology and phytopathology. - Moscow, Leningrad, 1978. - Vol. 12. - Issue. 6. - P. 457 - 460.
2. Aleshina O.A, Il'icheva S.N, Kononova E.V. A way to preserve a viable culture Beauveriabassiana (Bals.) Vuil // Mycology and phytopathology. - Moscow.-Leningrad, 1973. - T. 7.- Vol. 5. - P. 455 - 456.
3. Velitskaya M.S. Methodical instructions for the diagnosis of fungal diseases of harmful insects and the use of fungal biopreparations. - Leningrad, 1972. - 143 p.
4. Evlakhova A.A Entomopathogenic fungi. - Leningrad: Science, 1974. - 260 p.
5. . Zhuzhikov D.P Termites of the USSR. - Moscow: Publishing House of Moscow State University, 1979. - 225 p.
6. Ilyicheva S.N, Aleshina O.A, Kononova E.V, YursheneeYa.E. Storage of strains of the fungus Beauveriabassiana (Bals.) // Vuil. Mycology and phytopathology, 1975. - T. 9. - No. 6. - P. 536-538.

7. Koval E.Z. The determinant of entomophilous fungi of the USSR. - Kiev, 1974. - 258 p.
8. Methods of experimental mycology. - Kiev: NaukovaDumka, 1973.-241 p.
9. . Segi J. Methods of soil microbiology. - Moscow: Kolos, 1983. - 296 p.
10. Samson R.A., Evans H.C., LatgeJ.P. AtlasofEntomopathogenicFungi. 1988. - 187 p.
11. Subramanian C.V., Wasser S.P. Soil Microfungi of Israel. 2001. – 545 p.

MEMBERSHIP OF INDIVIDUALS IN VOLUNTARY ORGANIZATIONS IN INDIA: AN ANALYSIS OF SOCIO-ECONOMIC FEATURES

Jagdeep Kumar*

*Assistant Professor of Political Science,
Khalsa College, Gardiwala,
Hoshiarpur, Punjab, INDIA.
Email id: jchodha@yahoo.co.in

_____

ABSTRACT

Voluntary organisations play an important role in the development process as it promotes need based, area specific, innovative, integrated, environmental friendly and people friendly interventions. Membership in voluntary associations may be a source of solidarity and social integration. Therefore, the main purpose of this paper is to analyse socio-economic features of individuals who are active members of voluntary organizations in India. It is found in the analysis of data that married and living together as married persons, Hindu individuals, male respondents, individuals in the age group of 31 years to 60 years reported the maximum number of memberships in voluntary organizations. It is also observed that as the level of education and the level of income rises, the membership in voluntary organizations also rise.

KEYWORDS: *India, Membership, Organizations, Union, Voluntary.*

1. INTRODUCTION

A voluntary group or union (also sometimes called a voluntary organization, common interest association, association, or society) is a group of individuals who enter into an agreement, usually as volunteers, to form a body (or organisation) to accomplish a purpose. Common examples include trade associations, trade unions, learned societies, professional associations, and environmental groups (Wikipedia, 2017). Voluntary organisations also play an important role in the development process as it promotes need based, area specific, innovative, integrated, environmental friendly and people friendly interventions. Voluntary organisations have the capacity and capability to feel the pulse of the masses as they work at the grassroots level and are aware of the ground realities of the social problems (Bala, 2014). The main purpose of this paper is to analyse socio-economic features of individuals who are active members of voluntary organizations in India. The paper is divided into five sections. Following introduction second section displays data sources and methodology used in the study. Section third tabulates the membership of sample individuals in voluntary organizations. Socio-economic features of active members are explained in section four and final section concludes.

2. DATA SOURCES AND METHODOLOGY

The study is based on primary data collected by world values survey in India in 2012 from 244 individuals. The membership of individuals in four voluntary organizations – labour/trade union, political party, environmental organization, and professional association – is studied by using descriptive statistics. The whole statistical data analysis, tabulation and graphic presentation work is done in MS-Excel.

3. MEMBERSHIP OF INDIVIDUALS IN VOLUNTARY ORGANIZATIONS

The analysis of data reveals that out of total of 976 memberships, the active memberships are 357, i.e. 36.58 per cent individuals are active members whereas the majority 63.42 per cent individuals are inactive members of the four voluntary organizations in India, namely, labour/trade union, political party, environmental organization, and professional association (Table 1 and Figure 1). It is found that individual membership in professional association has least active, and membership in environmental organization, political party, and labour/trade union is most active. In a study of political participation, Verba, Schlozman, & Brady (1995) noted that, to understand why some people become active volunteers, it is important to ask why people do not participate. They identified three reasons for nonparticipation: (a) individuals lacked the capacity to volunteer, (b) individuals lacked motivation, or (c) individuals had not been asked. This implied that both access to resources and capacity to take part, in conjunction with motivation to take part, are necessary for members to become active. It also suggested that requests for participation act as catalysts for participation among those with the resources and desire to become active [cited in Martinez and McMullin, 2004].

TABLE 1: INDIVIDUALS AS MEMBERS IN VOLUNTARY ORGANIZATIONS

Organization	Active Member	Inactive Member	Total
Labour/Trade Union	94 (38.52)	150 (61.48)	244 (100.00)
Political Party	95 (38.93)	149 (61.07)	244 (100.00)
Environmental Organization	99 (40.57)	145 (59.43)	244 (100.00)
Professional Association	69 (28.28)	175 (71.72)	244 (100.00)
All	*357 (36.58)*	*619 (63.42)*	*976 (100.00)*

Source: Author's calculations.

Figure 1: Individuals as Members in Voluntary Organizations
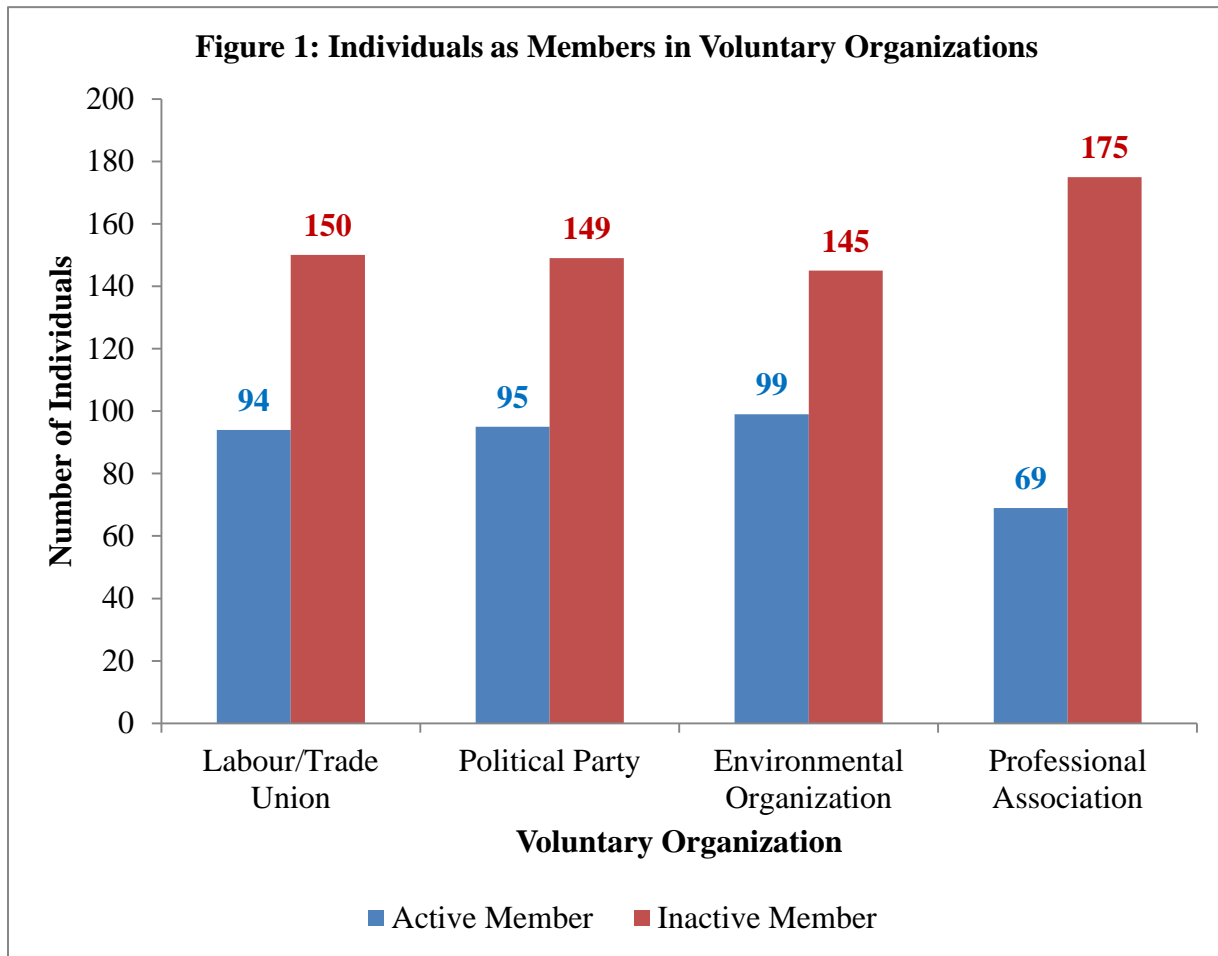
Source: Author's calculations.

4. SOCIO-ECONOMIC FEATURES OF ACTIVE MEMBERS

4.1 Marital Status

It is found in the analysis of data that married and living together as married persons join voluntary organizations more than their divorced/widowed and single counterparts in all the four types of associations: labour/trade union, political party, environmental organization, and professional association. In all these four organizations, more than 85 per cent individuals joined as members (Table 2 and Figure 2). About 10 per cent of the individuals are active members of these associations and the least number of memberships in these associations is reported by divorced/widowed individuals. Fischer et al. (1991) and Smith (1994) also found that married persons join voluntary associations more than their unmarried counterparts, especially in associational and familial contexts.

TABLE 2: MARITAL STATUS AND ACTIVE MEMBERSHIP IN VOLUNTARY ORGANIZATIONS

Marital Status	Labour/ Trade Union	Political Party	Environmental Organization	Professional Association
Married/Living together as Married	89.36 (84)	87.37 (83)	87.88 (87)	86.96 (60)
Divorced/Widowed	2.13 (2)	2.11 (2)	2.02 (2)	1.45 (1)
Single	8.51 (8)	10.53 (10)	10.10 (10)	11.59 (8)
All	*100.00 (94)*	*100.00 (95)*	*100.00 (99)*	*100.00 (69)*

Source: Author's calculations.

Fiugre 2: Marital Status and Active Membership in Voluntary Organizations
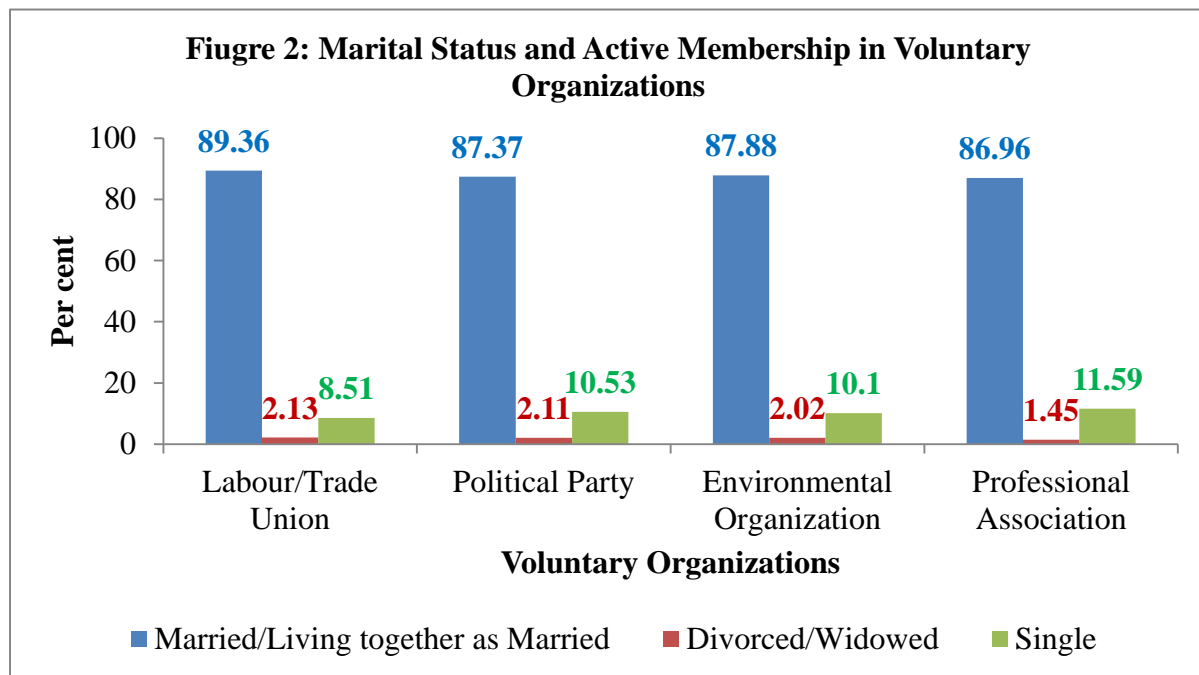
Source: Author's calculations.

4.2 RELIGION

Lam (2002) investigated the relationship between different dimensions of religiosity and voluntary association participation using data from Queen's University's 1996 "God and Society in North America" survey. The author look at the participatory, devotional, affiliative, and theological dimensions of religiosity and examine how they affect voluntary association participation at three different levels: membership, volunteering, and serving on a committee. Lam found that all four religious dimensions have considerable, but distinctive, influences on secular voluntary association participation. In India, it is found that Hindu individuals are more members of all the four voluntary associations than the individuals with Muslim and other religious affiliation (Table 3 and Figure 3).

TABLE 3: RELIGION AND ACTIVE MEMBERSHIP IN VOLUNTARY ORGANIZATIONS

Religion	Labour/ Trade Union	Political Party	Environmental Organization	Professional Association
Hindu	73.40 (69)	71.58 (68)	66.67 (66)	71.01 (49)
Muslim	24.47 (23)	26.32 (25)	31.31 (31)	27.54 (19)
Other	2.13 (2)	10.53 (2)	2.02 (2)	1.45 (1)
All	*100.00 (94)*	*100.00 (95)*	*100.00 (99)*	*100.00 (69)*

Source: Author's calculations.

Figure 3: Religion and Active Membership in Voluntary Organizations
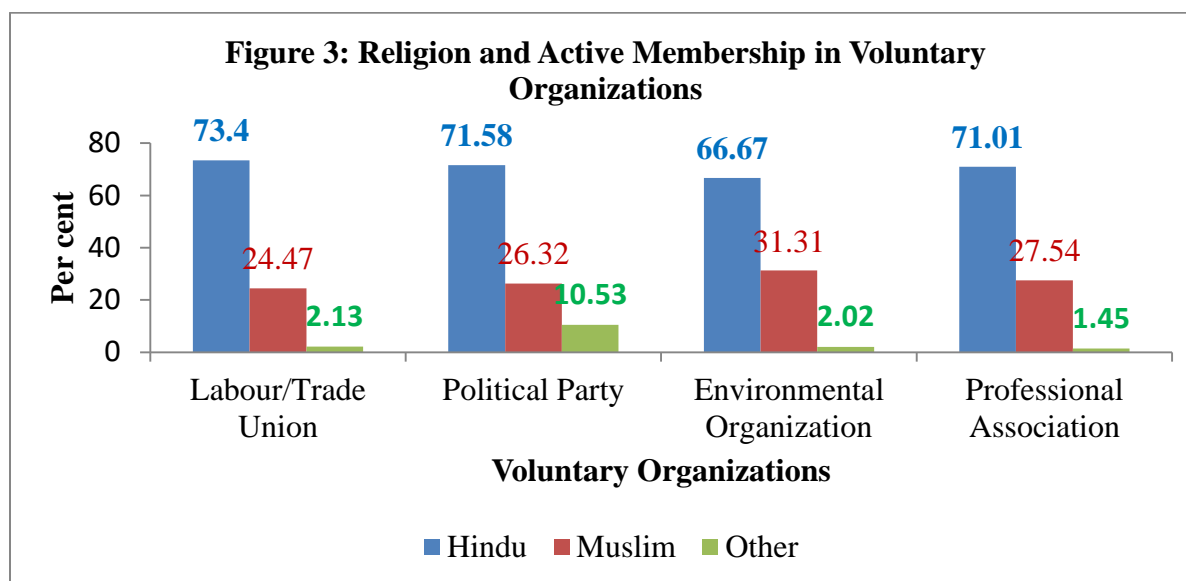
Source: Author's calculations.

4.3 GENDER

Findings concerning the linkage between gender and voluntary association participation are inconsistent. In a number of empirical investigations, men appeared to have higher participation rates than women (Curtis et al., 1992). In contrast, Chambre (1984) and others asserted that women are more likely than men to join and to volunteer regardless of age. In India, it is found that male individuals membership in voluntary organizations is higher than the female individuals (Table 4 and Figure 4). However, there is difference between the type of association in which male and female individuals actively participate. Male individuals actively participate in political party and labour union, whereas female individuals actively participate in professional association and environmental organization.

TABLE 4: GENDER AND ACTIVE MEMBERSHIP IN VOLUNTARY ORGANIZATIONS

Gender	Labour/ Trade Union	Political Party	Environmental Organization	Professional Association
Male	73.40 (69)	73.68 (70)	69.70 (69)	66.67 (46)
Female	26.60 (25)	26.32 (25)	30.30 (30)	33.33 (23)
All	*100.00 (94)*	*100.00 (95)*	*100.00 (99)*	*100.00 (69)*

Source: Author's calculations.

Figure 4: Gender and Active Membership in Voluntary Organizations
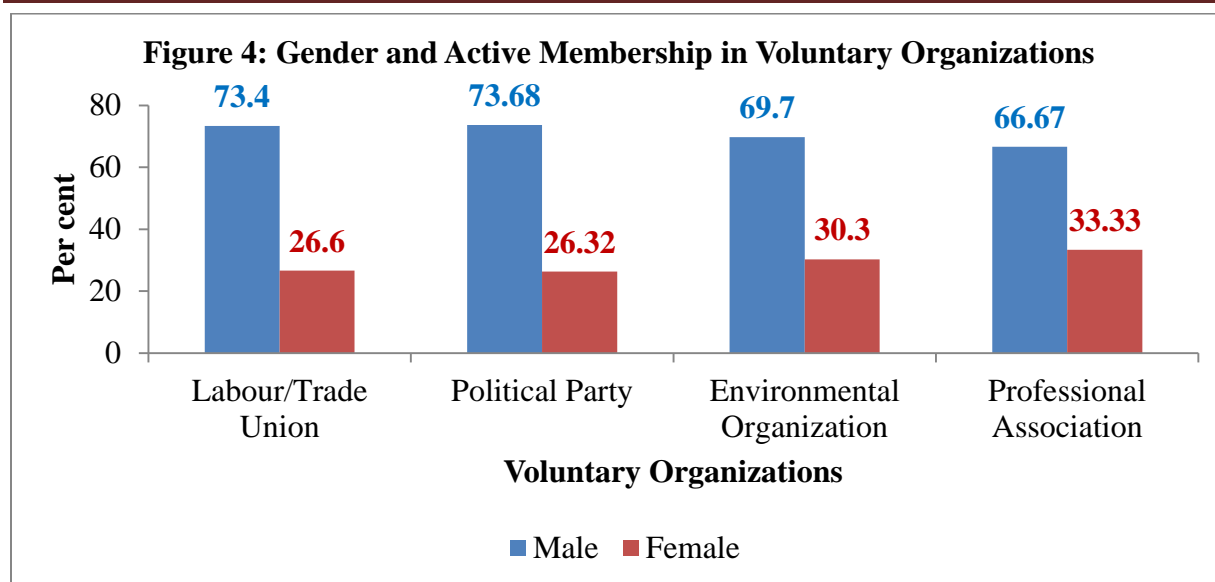
Source: Author's calculations.

4.4 AGE

Investigations of age differences trace to the post-World War II era, when Myrdal echoed de Toqueville's assertion that Americans tend to join voluntary associations, and continued into the 1950s and 1960s (Mayo, 1950; Rose, 1960). In the field survey, the middle aged individuals, individuals in the age group of 31 years to 60 years reported the maximum number of memberships than the individuals in the other age groups (Table 5 and Figure 5). After the age of 60 years the membership in all the four associations declined.

TABLE 5: AGE AND ACTIVE MEMBERSHIP IN VOLUNTARY ORGANIZATIONS

Age (Years)	Labour/ Trade Union	Political Party	Environmental Organization	Professional Association
18-30	30.85 (29)	33.68 (32)	34.34 (34)	39.13 (27)
31-60	59.57 (56)	61.05 (58)	58.59 (58)	53.62 (37)
61-89	9.57 (9)	5.26 (5)	7.07 (7)	7.25 (5)
All	*100.00 (94)*	*100.00 (95)*	*100.00 (99)*	*100.00 (69)*

Source: Author's calculations.

Figure 5: Age and Active Membership in Voluntary Organizations
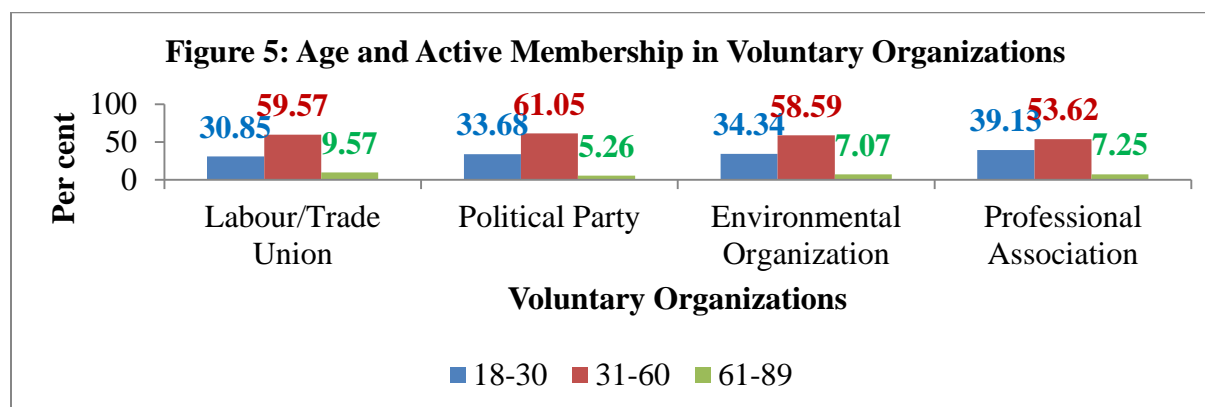
Source: Author's calculations.

4.5 EDUCATION

Educational attainment appears to have a universal positive relationship in voluntary groups (Fischer et al., 1991; McPherson and Ranger-Moore, 1991; McPherson and Rotolo, 1996; Monk, 1995; Rotolo, 1999; Smith, 1994), in terms of both number of memberships in voluntary associations and "intensity" of voluntarism (Cutler and Hendricks, 2000). McPherson and Ranger-Moore (1991) examined education over a 15-year period using GSS (General Social Surveys) data and concluded that it is a stable, strong predictor of membership in voluntary associations. The Minnesota Study of Volunteering reported a linear, positive link between education and organizational, familial, and individual-based volunteering, including voluntary associations (Fischer et al., 1991). A uniform trend (inverse U-shaped) is observed in the analysis of data that in all the four associations regarding membership in voluntary organizations. As the level of years of schooling rises up to secondary and senior secondary level rises, membership in voluntary associations rises from 13.83, 12.63, 9.09, and 11.59 points to 61.70, 55.79, 62.63, and 57.97 points for labour/trade union, political party, environmental organization, and professional association respectively (Table 6 and Figure 6). However, as the level of education reaches at college/university level, the membership in voluntary organizations has decreased.

TABLE 6: LEVEL OF EDUCATION AND ACTIVE MEMBERSHIP IN VOLUNTARY ORGANIZATIONS

Level of Education	Labour/ Trade Union	Political Party	Environmental Organization	Professional Association
None	13.83 (13)	12.63 (12)	9.09 (9)	11.59 (8)
Primary	14.89 (14)	18.95 (18)	19.19 (19)	17.39 (12)
Secondary & Senior Secondary	61.70 (58)	55.79 (53)	62.63 (62)	57.97 (40)
College/University	9.57 (9)	12.63 (12)	9.09 (9)	13.04 (9)
All	*100.00 (94)*	*100.00 (95)*	*100.00 (99)*	*100.00 (69)*

Source: Author's calculations.

Fiugre 6: Level of Education and Active Membership in Voluntary Organizations
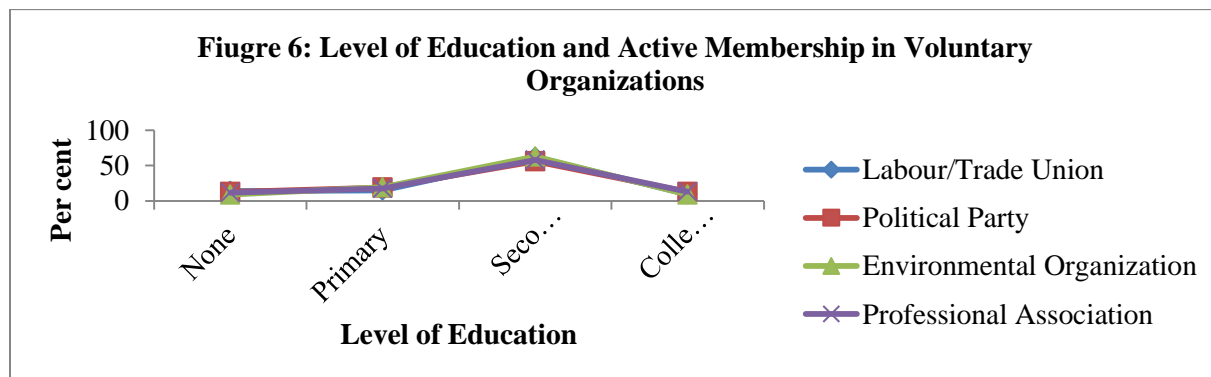
Source: Author's calculations.

4.6 INCOME

Income should be related negatively to volunteering when it is assumed that higher incomes mean higher opportunity costs; on the other hand, for an organization seeking new volunteers, people with higher incomes may be more attractive because they have more resources to support the organization. Indeed, volunteering is more common among higher incomes (Menchik & Weisbrod, 1987). It is found that as level of income rises, the membership in voluntary organizations also rise (Table 7 and Figure 7). Further, it is also found that for middle and high income individuals, the membership is very high as compares to the individuals with low income.

TABLE 7: INCOME LEVEL AND ACTIVE MEMBERSHIP IN VOLUNTARY ORGANIZATIONS

Income Level	Labour/ Trade Union	Political Party	Environmental Organization	Professional Association
Low	14.89 (14)	13.68 (13)	13.13 (13)	11.59 (8)
Middle	36.17 (34)	38.95 (37)	40.40 (40)	27.54 (19)
High	48.94 (46)	47.37 (45)	47.47 (47)	60.87 (42)
All	*100.00 (94)*	*100.00 (95)*	*100.00 (99)*	*100.00 (69)*

Source: Author's calculations.

Figure 7: Income Level and Active Membership in Voluntary Organizations
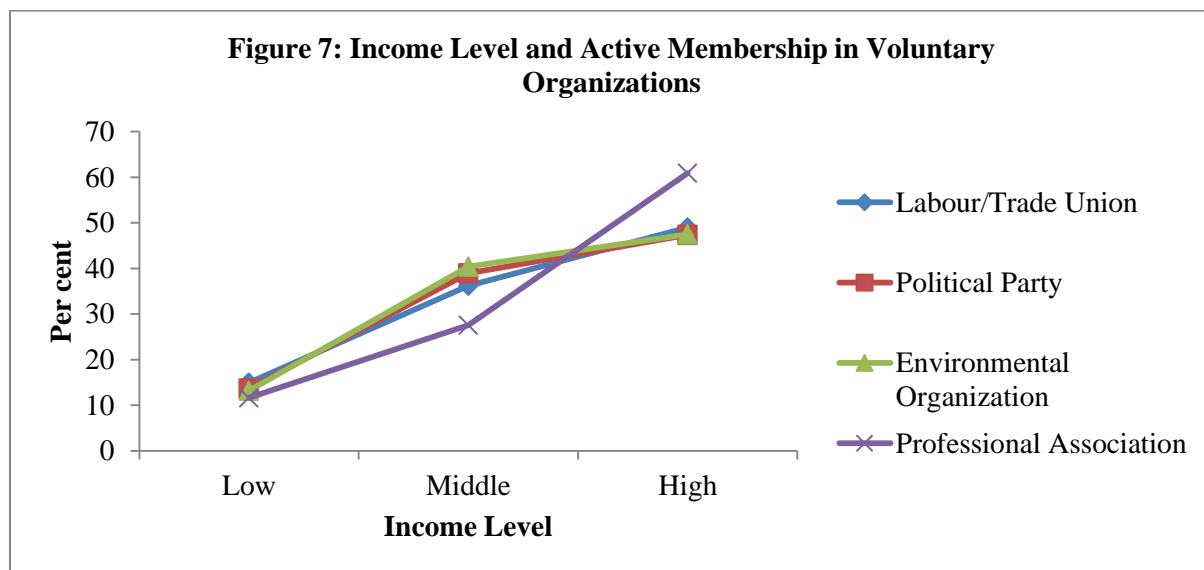
Source: Author's calculations.

5. CONCLUSION

The paper speaks to several socio-economic factors – marital status, religion, gender, age, education and income – affecting membership in voluntary organizations – labour/trade union, political party, environmental organization, and professional association. The study is based on primary data collected by world values survey in India in 2012 from 244 individuals. It is found in the analysis of data that married and living together as married persons, Hindu individuals, male respondents, individuals in the age group of 31 years to 60 years reported the maximum number of memberships in voluntary organizations. It is also observed that as the level of education and the level of income rises, the membership in voluntary organizations also rise.

REFERENCES

Bala, R. (2014) Voluntary Organizations in India. *International Journal of Innovative and Futuristic Research*, 1 (9): 349-354.

Curtis, J.E., Grabb, E.G. and Baer, D.E. (1992) Voluntary Association Membership in Fifteen Countries: A Comparative Analysis. *American Sociological Review*, 57: 139-152.

Cutler, S.J. and Hendricks, J. (2000) Age Differences in Voluntary Association Memberships: Fact or Artifact. *Journal of Gerontology*, 55B (2): S98-S107.

Chambre, S.M. (1984) Is Volunteering a Substitute for Role Loss in Old Age? An Empirical Test of Activity Theory. *The Gerontologist*, 24: 292-298.

Fischer, L.R., Mueller, D.P. and Cooper, P.W. (1991) Older Volunteers: A Discussion of the Minnesota Senior Study. *The Gerontologist*, 31: 183-194.

Lam, P.Y. (2002) As the Flocks Gather: How Religion Affects Voluntary Association Participation. *Journal for the Scientific Study of Religion*, 41 (3): 405-422.

Martinez, T.A. and McMullin, S.L. (2004) Factors Affecting Decisions to Volunteer in Nongovernmental Organizations. *Environment and Behaviour*, 36 (1): 112-126.

Mayo, S.C. (1950) Age Profiles of Social Participation in Rural Areas of Wake County, N.C. *Rural Sociology*, 15: 242-251.

McPherson, J.M. and Ranger-Moore, J. (1991) Evolution on a Dancing Landscape: Organization and Networks in Dynamic Blauspace. *Social Forces*, 70: 19-42.

McPherson, J.M. and Rotolo, T. (1996) Testing a Dynamic Model of Social Composition: Diversity and Change in Voluntary Groups. *American Sociological Review*, 61: 179-202.

Menchik, P. and Weisbrod, B. (1987) Volunteer Labour Supply. *Journal of Public Economics*, 32: 159-183.

Monk, A. (1995) "Volunteerism". In G.L. Maddox (Ed.), *The Encyclopedia of Aging*. New York: Springer.

Rose, A.M. (1960) "The Impact of Aging on Voluntary Associations". In C. Tibbitts (Ed.), *Handbook of Social Gerontology*. Chicago: University of Chicago Press.

Rotolo, T. (1999) Trends in Voluntary Association Participation. *Nonprofit and Voluntary Sector Quarterly*, 28: 199-212.

Smith, D.H. (1994) Determinants of Voluntary Association Participation and Volunteering: A Literature Review. *Nonprofit and Voluntary Sector Quarterly*, 23: 243-263.

Verba, S., Schlozman, K.L. and Brady, H.E. (1995) *Voice and equality: Civic Volunteerism in American Politics*. Cambridge, MA: Harvard University Press.

Wikipedia (2017) https://en.wikipedia.org/wiki/Voluntary_association. [Viewed on 14/12/2017].
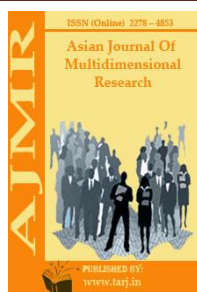
AN OVERVIEW OF THE NEW LEGAL REGIME OF BIO MEDICAL WASTE MANAGEMENT IN INDIA

Dr. Dharmendra Kumar Singh*; Anuj Kumar Singh*

*Associate Professor,
Department of Law,
Bareilly College, Bareilly, INDIA.
Email id: dksingh@bareillycollege.org

**Research Scholar,
Department of Law
Dr. Shakuntala Misra National Rehabilitation University,
Lucknow, INDIA.
Email id: anujsinghj13@gmail.com

_____

ABSTRACT

Bio-Medical waste is a threat to entire world and situation of India is not different. Indisposed bio-medical waste is the cause of many diseases. If it is disposed of properly, the graph of communicable diseases will slow down. There have been wide spread concern over Bio-Medical waste in India. For nurturing the efficacy of bio-medical waste regulation first Bio-Medical Waste (Management & Handling) Rules 1998 afterwards Bio-Medical Waste Management Rules 2016 has been framed and further has been amended in March 2018. In this research paper, the authors critically analyze the Bio-Medical Waste Management Rule 2016 and offer some suggestive measures to implement these rules. The various international conventions and laws are analyzed by the authors like the Stockholm Convention, Basel Convention and the Minamata Convention on Mercury. This paper also provides a glimpse of United States and United Kingdom model on Bio-medical waste regulation. The paper also explains the magnitude of bio-medical waste in India and how India is dealing with these wastes through rules under Environment (protection) Act, 1986.

KEYWORDS: *Bio-Medical waste, Environment Protection, BMW Rules 2016, International Convention, WHO*

1.0 INTRODUCTION

Biomedical waste contains infectious or potentially infectious material, includes the waste from dispensary, nursing home, hospital and medical laboratory. The infectious waste includes blood, syringe, needles, unwanted microbiological culture and stocks, body parts rejected after amputation, tissues, used bondage and dressings, used gloves and other medical supplies that may contaminate blood or fluid of human. Biomedical waste is created from those medical sources which are used for diagnosis, prevention, or treatment of diseases. World Health Organization (WHO) defines medical waste as waste generated by healthcare activities including a broad range of material from used needles and syringes to soiled dressings, body parts, diagnostic samples, blood, chemicals, pharmaceuticals, medical devices and radioactive materials.[1] Biomedical waste generate unpleasant smell, growth and multiplication of vectors like insects, rodents and worms and may lead to transmission of diseases like typhoid, cholera, hepatitis and AIDS through injuries from syringes and needles contaminated with human.[2] Bio-medical Waste scattered in and around the hospitals invites flies, insects, rodents, cats and dogs that are responsible for the spread of communicable disease like plague and rabies. It is the main liability of health management to manage hospital waste in most safe and eco- friendly manner. Bio medical waste is very heterogeneous blend and very difficult to treat but can be sorted out if proper management system is planned. Proper handling and management of bio-medical waste is major environmental concern to save human life because it spreads infectious and viral disease.

Bio-medical waste can be disposed of through many ways which includes incineration technology and non–incineration technology. Incineration Technology is a high temperature thermal process employing combustion of the waste under controlled condition for converting them into inert material and gases. Incinerators can be oil fired or electrically powered or a combination thereof. Broadly three types of incinerators are used for hospital waste: multiple hearth type, rotary kiln and controlled air types. All the types can have primary and secondary combustion chambers to ensure optimal combustion.[3] Non –Incineration Technology includes four basic processes- thermal, chemical, irradiative and biological. The majority of non-incineration technologies employ the thermal and chemical processes. The main purpose of the treatment technology is to decontaminate waste by destroying pathogens. Facilities should make ascertain that the technology should meet state criteria for disinfection. The non incineration technology may follow three types of technique autoclaving, microwave irradiation and chemical pyrolysis.[4]

The autoclave technique operates on the principle of the standard pressure cooker. The process invokes using steam at high temperatures. The steam generated at high temperature penetrates waste material and kills all microorganisms. The autoclaving is of three types-(a) Gravity Type (b) Pre –Vacuum Type(c) Retort Type. In Gravity Type, air is evacuated with the help of gravity alone. The system operates with temperature of 121 degree centigrade and steam pressure of 15 PSI for 60-90 minutes. In second type vacuum pumps are used to evacuate air from the Pre Vacuum Autoclave System so that the time cycle is reduced to 30-60 minutes. It operates at about 132 degree centigrade. In third Retort Type Autoclave autoclaves are designed much higher steam temperature and pressure. Autoclave treatment has been recommended for microbiology and biotechnology waste sharps, soiled and solid wastes.[5] This technology renders certain categories (mentioned in the rules) of biomedical waste innocuous and unrecognizable so that the treated residue can land filled.

The microwave irradiation technique is based on the principle of generation of high frequency waves. These waves cause the particles within the waste material to vibrate, generating heat. This heat generated from inside kills all pathogens.[6] The Chemical pyrolysis is the chemical decomposition of organic (carbon based) materials through the application of heat. Pyrolysis which is also the first step in gasification and combustion occurs in absence or near absence of oxygen, and it thus distinct from combustion (burning) ,which can take place only if sufficient oxygen is present. The rate of pyrolysis increases with temperature. In industrial applications the temperatures used are often 430 degree centigrade or higher, whereas in small-scale operations the temperature may be much lower. Two well known products created by pyrolysis are a form of Charcoal called Biochar, created by heating wood, and coke (which is used as an industrial fuel and a heat shield), created by heating coal. Pyrolysis also produces condensable liquids (or tar) and non condensable gases.[7]

The problem in India regarding bio-medical waste is the non compliance of International and national legal framework. The objective of this research paper is to analyse the spectrum of international convention with USA and UK legal regime on bio-medical waste management regulation system. The research paper also makes comprehensive analysis on legislative framework with judicial response on bio-medical waste in India and to suggest measures in the formation of an effective bio-medical waste management system.

2.0 International Convention and International organizations on Bio-Medical Waste

The United Nation has convened an international conference on the Human Environment at Stockholm 1972 where a dialogue on protection of environment had begun and later on United Nations Environment Programme (UNEP) was established and subsequently the concepts of sustainable development and development without destruction was evolved. Bio-medical Waste Management concern did not come on the agenda on Stockholm declaration as a focal point, however the declaration acknowledges that man is part of nature and his life depends on it. The secretary general, United Nation proposed that it is duty of every person on this planet to protect the environment and prevent its pollution and various domestic laws and international treaties impose this duty on individuals and on States. There are some international agreements and regulatory principle, which form the basis for healthcare waste management rules at the national level.

2.1 Basel Convention 1989
The Basel Convention is a global response to hazardous and toxic waste product and its illegal trafficking from developed countries to developing and less developed countries. As the world became more prosperous and the cross-border flow of goods and recyclables expanded, it appeared that the converse was designed for the Basel Convention. From vision to commitments, the Convention entered into a collision with globalization.[8] Basel Convention was signed by more than 100 countries concerns trans-boundary movement of hazardous waste. This Convention was adopted on March 22, 1989 by the Conference of Plenipotentiaries in Basel, Switzerland entered into force in 1992.The high quantities of e-wastes exported to Asia and Africa are overwhelming importing countries' capacity to deal properly with these wastes. The overarching objective of the Basel Convention is to protect human health and the environment against the adverse effects of hazardous wastes. Its scope of application cover a wide range of wastes defined as "hazardous wastes" based on their origin and/or composition and their characteristics.[9]

2.2 The Stockholm Convention on Persistent Organic Pollutants 2001

The Stockholm Convention on Persistent Organic Pollutants was adopted at a Conference of Plenipotentiaries on May 22, 2001 Stockholm, Sweden. The Convention entered into force on May 17, 2004, ninety (90) days after submission of the fiftieth instrument of ratification, acceptance, approval or accession in respect of the convention[10]. The objective of this Convention is to protect human health and the environment from persistent organic pollutants as precautionary approach is provided in Principle 15 of the Rio Declaration on the Environment and Development. This Convention inter alia is basically related to eliminate, restrict, the unintentional chemicals including pesticides which is listed in Annexure A, B, C to the Convention.

2.3 The Minamata Convention on Mercury 2013

The Minamata Convention on Mercury is a global treaty to protect human health and the environment from adverse effects of Mercury. The Minamata Convention entered into force on August 16, 2017 on the 90th day after the date of deposit of 50 instrument of ratification, acceptance or approval or accession. The major highlights of the Minamata Convention include a ban on new mercury mines, the phase out of existing ones, the phase out and phase down of mercury use in number of products and processes, control measures on emission to air and on release to land and water and the regulation of the informal sector of artisanal and small-scale gold mining. India has ratified the Convention of February 7, 2018 along with the flexibility for continued use of mercury based products and processes involving mercury compound up to 2025 The Minamata Convention on Mercury will further urge enterprises to move to mercury free alternatives in products and non mercury technologies in manufacturing process. This will drive research & development and promote innovations.[11]

3.0 Law of United States & United Kingdom related to Bio-medical Waste Management

The bio-medical waste management is very stringent in United States of America (USA) and United Kingdom (UK). The law related to bio-medical waste management can be summarized as follows:

3.1 Biomedical Waste Management System in United States

The Medical Waste Tracking Act of 1988 was passed in USA regarding the illegal dumping of body tissues, blood wastes and other contaminated biological materials. In USA the Medical Waste Management Act of 2009- Amends the Solid Waste Disposal Act to: (1) revise the definition of "medical waste"; (2) require the Administrator of the Environmental Protection Agency (EPA) to promulgate regulations listing types of medical waste; and (3) require the Administrator to conduct a medical waste management program to protect human health and the environment from medical waste and promulgate regulations on tracking, labeling, packaging, storing, handling, monitoring, and disposing of medical waste.[12] In Medical Waste Management Act 2009 [HR 2552 (111th)] under subtitle J Medical Waste Management Program is defined. In section 11004 there is provision of federal enforcement under which it is mentioned that the provision of section 3008 of Resource Conservation and Recovery Act 1976 (except for sub section (d)(7) and to extent such section applies to used oil) shall apply to a violation of this subtitle, with respect to medical waste, in the same manner and to same extent as such provisions apply to a violations of subtitle C, with respect to hazardous waste except that any reference in section 3008 to-

(i) Section 3006 shall be treated as reference to section 11005,

(ii) A permit under this subtitle shall be treated as reference to registration under section 11002; and

(iii) Authorization to operate under section 3005(e) shall be treated as reference to a registration under section 11002.[13]

Thus section 3008 of Resource Conservation and Recovery Act (RCRA) and Federal Facilities deals with subtitle C and subtitle D and is a primary federal statute regulating the generation, transportation, treatment, storage and disposal of solid and hazardous waste under Environment Protection Authority (EPA) enforcement. Under EPA enforcement section 3008(C) states that there is violation of compliance order under which if a violator fails to take corrective action within the time specified in compliance order, the administrator may assess a civil penalty of not more than $ 37500 for each day of continued noncompliance with the order. In addition, EPA administrator may suspend or revoke any permit issued to violator (whether issued by the administrator or the State). The Section 3008 (g) of the Act states that any person who violates any requirement of subtitle C will be liable to the United States for a civil penalty of not more than $ 37500 for each day of violation. Each day of violation constitutes a separate violation.[14]

Section 3008(d) and 3008(e) is related to criminal remedy. Section 3008(d) states that any knowing violation of any material condition or requirement of a permit of any applicable regulations or standards under subtitle C may be subject to a fine of not more than $ 50,000 per day violation and/or imprisonment not to exceed two years. The maximum punishment authorized by this section may be doubled with respect to both fine and imprisonment for a second conviction. Section 3008(e) states that any person who knowingly places another person in imminent danger of death or serious bodily injury under subtitle C will, upon conviction, are subject to a fine of not more than $ 250,000 and /or imprisonment not to exceed 15 years.[15]

3.2 Key legislation in United Kingdom relating to Biomedical Waste Management

There are number of pieces of legislations in U.K that cover a wide range of issues, from the generation, through to the collection, transport and finally either treatment or disposal of healthcare waste. It is important to note that many of these are not necessarily solely focused on healthcare waste and applicable to other waste stream. It is important to note that there is some variation across U.K. with respect to legislations and policies. In England and Wales the Hazardous Waste (England and Wales) Regulation 2005 is in application.[16] According regulation this shall be applied on anyone who produces, transports, recovers, disposes of or oversees the managements of such activities in relation to Hazardous Waste. Hazardous waste is defined that those wastes which is listed in list of Wastes Regulation which is the copy of the Europeon Waste Catalogue List produced by Environment Commission following the Hazardous Waste Directive. There are other ways also by which a waste can be defined as Hazardous Waste but reliance should be made on the list of waste. Hazardous Waste includes anatomical substances; hospital and other clinical wastes; pharmaceutical, medicine and veterinary compounds; biocides and phyto-pharmaceuticals substances etc under the Schedule -1 Annexure -1 of Hazardous Waste (England & Wales) Regulation 2005. An institution or body who is interested in hazardous waste handling must ensure that Consignment Notes is being covered. Consignment Note means the detail of each party involved in the transfer of waste and category of waste. These notes must be conserved in file for three years. Waste shall be handled in hierarchy in order of preference: prevention –reuse-recycling-recovery-disposal. In England and Wales the

consignee must provide declaration in every three months that they have received the hazardous waste from the site and it has been disposed of.

4.0 Gravity of Bio-Medical Waste in India

The Bio-medical waste is generated in India during diagnosis, treatment or immunization in hospitals, nursing homes, pathological laboratories, blood bank etc. The Ministry of Environment and Forest stated at march 17, 2016 at the time of the notification of new rules for the management of bio-medical wastes in the country that the total Bio-medical waste generation in country is 484 tonnes per day (TPD) from 1, 68, 869 healthcare facilities (HCF), out of which 447 TPD is treated, almost 38 TPD of the waste is left untreated finding its way in dumps or water bodies and re-enters our system. The hospital servicing 1000 patients or more per month are required to obtain authorization and segregate Bio-medical waste in 10 categories, pack five colour bags for disposal. There are 198 Common Bio-medical Waste Treatment Facilities (CBNWF) in operation and 28 are under construction. 21,870 HCFs have their own treatment facilities and 1, 31, 837 HCFs are using the CBMWFs [17]

The quantum of waste generated in India is estimated to be 1-2 kg per bed per day in a hospital and 600 gm per day per bed in clinic. 85 % of the hospital waste is non hazardous, 15 % is infectious /hazardous. Mixing of hazardous results in a contamination and makes the entire waste hazardous. Hence there is necessity to segregate and treat. Improper disposal increases risk of infection; encourages recycling of prohibited disposables and disposed drug; develops resistant microorganisms.[18]

5.0 Legal framework in India regarding Bio-medical Waste

There is no direct legislation regarding Bio-Medical Waste management in India. The Environment (Protection) Act, 1986[19] empowers the Central Government to make rules under delegated power to carry out the purpose of the legislation. India framed first time the biomedical waste management rules in 1998, and were modified in the years – 2000, 2003, and 2011. But it was not fully efficient to handle the new challenges in the field of bio-medical waste like radioactive waste, lead acid batteries waste, hazardous waste, e- waste and other categorize. The Central Government took the problem of bio-medical seriously in 2010-11 and started the process of amendment in 1998 rules in 2011, and published a draft version of Bio-Medical (Management and Handling) Rules, 2011. The draft of BMW rules 2011 remained as draft and did not get notified because of lack of consensus on categorization and standards[20]. Draft Bio-Medical (Management and Handling) Rules, 2011 was amended and further a new version of Draft Bio-Medical Waste (Management and Handling) Rules, 2015 was circulated for objections and suggestions within 60 days in general public in 3rd June, 2015. Finally, the objections or comments received   from the public in respect of the said draft rules have been duly considered by the Central Government. In exercise of the powers conferred by section 6, 8 and 25 of the Environment (Protection) Act, 1986, The Central Government made new regime with broader coverage in updated bio-medical Waste management rules-2016 (hereinafter BMW rules 2016). The Biomedical Waste (Management and Handling) Rules, 1998 was suppressed except as respects things done or omitted to be done before such suppression and the central Government made the new version of updated BMW Management Rules 2016.[21]

The Bio-Medical Waste Rules 2016 were enacted to remove lacunae in 1998 rules. These new rules have increased the coverage, simplified the categorization, segregation, transportation and disposal methods to decrease environmental pollution. The new rule has four schedule, five

forms and eighteen rules. The BMW rules 2016 are apply to all persons who generate, collect, receive, store, transport, treat, dispose, or handle bio-medical waste in any form and shall applicable to Municipal Solid Wastes, radioactive waste, lead acid batteries waste, hazardous waste, e- waste and hazardous microorganism[22]. It is duty of occupier[23] under BMW Rules 2016 inter alia to take all necessary steps to ensure that bio-medical waste is handled without any adverse effect to human health and the environment and accordance with these rules.[24] Duties in Rule 2016 has been expanded which includes Health Care Facilities (HCF) shall make a provision within the premises for safe and ventilated and secured location for storage of segregated bio-medical waste while it was not so in draft of BMW Rules 2011.[25] There has been made provision of pre-treat the laboratory waste, microbiological waste, blood samples and blood bags through disinfection or sterilization on site in the manner as prescribed by the World Health Organization(WHO) or National AIDS Control Organization (NACO) Guidelines and then sent to the Common biomedical waste treatment facility while it is not so in draft of 2011.[26] Provision of phase out use of chlorinated plastic bags, gloves and blood bags within two years from the date of notification of these rules was enacted while it was not so in draft 2011.[27] Provision of training to all its health care workers and other involved in handling of biomedical waste at the time of induction and thereafter at least once every year.[28] Provision of immunization of all its healthcare workers and other involved in handling of Bio-medical waste for protection against disease including Hepatitis B and Tetanus that are likely to be transmitted by handling of Bio-medical.[29] Provision of reporting of major accidents including accidents caused by fire hazard, blasts during handling of Bio-medical waste and remedial action taken by State pollution control board while these were not present in draft Rules of 2011.[30]

It shall be duty of operator[31] inter alia to take all necessary steps to ensure that bio medical waste collected from the occupier is transported, handled, stored, treated and disposed of, without any adverse effect to human health and the environment, in accordance with these rules and guidelines issued by the Central Government or as the case may be, the central pollution control board from time to time.[32] It is added in duties that operator shall ensure timely collection of Bio-Medical waste from HCFs and will assist the HCFs in conduct of training while it is not so in draft of 2011.[33] In draft of rule 2011 every HCFs where required shall set requisite Bio-Medical waste treatment facilities like incinerators, autoclave for the treatment of waste whereas in rule 2016 it has been enacted that no occupier shall establish onsite treatment and disposal facility, if a service of common Bio-Medical waste treatment facility is available at the distance of seventy-five kilometer.[34] In 2016 Rules there is a provision for one time authorization for non bedded HCFs.[35] Emission standard of Incinerators has been reduced from 150 mg/n meter cube to 50 mg/n meter cube.[36] There is a provision that Ministry of Environment, Forest and Climate Change shall review the implementation of the rules in the country once a year through the State Health Secretaries and Central Pollution Control Board (CPCB) and State Pollution Control Board (SPCB) while these were not so in draft rules 2011.[37] State Government shall constitute District Level Monitoring Committee under the chairmanship of District Collector or District Magistrate, Additional District Magistrate to monitor to compliance of provisions and District Level Committee shall submit its report once in six months to State Advisory Committee; State Pollution control Board for taking further action.[38]

No untreated bio-medical waste shall be mixed with other waste and it shall be segregated into containers or bags at point of generation in accordance with schedule 1 prior to its storage, transportation, treatment and disposal.[39] Every occupier or operator handling bio medical waste,

irrespective of quality shall make an application in Form II of Bio-Medical Waste Rule 2016 to the prescribed authority i.e. State Pollution Control Board and Pollution Control Committee, as case may be for the grant of authorization to generate, collect, receive, store, transport, treat, process etc in accordance to these rules and the prescribed authority shall grant provisional authorization in form III of Bio-Medical Waste Rule 2016 and validity of such authorization for bedded healthcare facility shall be synchronized with the validity of the consents.[40]

In schedule I Bio-medical Waste Categories and disposal options (Incineration, Plasma Pyrolysis, deep burial, Encapsulation, Chlorinated chemical etc.) are provided. In schedule II standards for treatment and disposal of bio-medical wastes in incineration (operating and emission standards), Operating and Emission Standards for disposal by Plasma Pyrolysis and Gasification, Standard for autoclaving of bio-medical waste, Standards of Microwaving, Standards for deep burial, Standards for efficacy of Chemical Disinfection Standard for dry heat sterilization and Standard for liquid waste are provided. In schedule III there is a list of Prescribed Authorities and their corresponding duties are given. In Schedule IV Label for Bio-Medical Waste Containers and Bags and format of forms of accident reporting, application format for authorization or renewal of authorization, authorization format, Annual Report format and format for application for filing appeal against order passed by prescribed authority are provided.

Rule 18 of BMW Rules 2016 states that occupier or an operator of a common bio-medical waste treatment facility shall be liable for all damages caused to environment or the public due to improper handling of bio-medical wastes. Sub clause (2) states that occupier or operator of common medical waste treatment facility shall be liable for action under section 5 and under section 15 of the Environment Protection Act 1986 in case of any violation there may be imprisonment which may extend to 5 years or one lakh rupee fine or both.

Apart from BMW Rules 2016 there is also the Hazardous and Other Waste (Management and Transboundary Movement) Rules 2016 which was enacted in exercise of the powers conferred by sections 6, 8 and 25 of the Environment (Protection) Act , 1986 and in suppression of Hazardous Wastes (Management, Handling and Transboundary Movement) Rules 2008. Section 4 of Hazardous and Other Waste Rules 2016 states that in management of hazardous and other wastes, an occupier[41] shall follow the following steps namely- prevention, minimization, reuse, recycling, recovery, utilization including co- processing, and safe disposal. In context of these Hazardous and Other Waste Rule 2016 "hazardous waste"[42] means any waste which by reason of characteristics such as physical, chemical, biological, reactive, toxic, flammable, explosive or corrosive, causes danger or is likely to cause danger to health or environment, whether alone or in contact with other wastes or substances, and shall include-

(i) Waste specified under column (3) of Schedule;
(ii) waste having equal to or more than the concentration limits specified for the constituents in class A and class B of the Schedule II or any of the characteristics as specified in class C of Schedule II; and
(iii) Wastes specified in part A of Schedule III in respect of import or export of such wastes or the wastes not specified in part A but exhibit hazardous characteristics specified in Part C of Schedule III;

The violation of these shall be punishable for a term which may extend to five year imprisonment and fine which may extend to one lakh rupees or with both.[43]

5.1 Bio-medical Waste (amendment) Rule 2018

Underlining the effort to protect the environment and human health from bio-medical waste, the Bio-Medical Rules 2016 have been amended to improve compliance and strengthen the implementation of environmentally sound management in India. In exercise of powers conferred by sub-section (1) and clause (v) of subsection (2) of section 3 of the Environment (Protection) Act,1986 read with sub rule (4) of rule 5 of Environment (Protection) Rule 2018 notification vide letter G.S.R 234(E) dated March 16, 2018 Bio-medical waste (amendment) Rule 2018 have been brought. The Gist of amendment is as follows-

(1) Bio-medical waste generators including hospitals, nursing home, clinics, dispensaries, veterinary institutions, animal houses, pathological laboratories, blood- banks, healthcare facilities and clinical establishments will have to phase out chlorinated plastic bags (excluding blood bags) and gloves by March 27, 2019.[44]

(2) All healthcare facilities shall make available the annual report on its website within period of two years from the date of publication of the Bio-medical Waste Management (Amendment) Rule 2018.[45]

(3) The operator of common Bio-medical waste treatment and disposal facilities shall establish bar coding and global positioning system for handling of Bio-medical Waste in accordance with guidelines issued by Central Pollution Control Board by March 27, 2019.[46]

(4) The State Pollution Control Boards / Pollution Control Committees have to compile, review and analyze the information received and send this information regarding district-wise bio-medical waste generation, information on Health Care Facilities having captive facilities, information on Common Bio-medical Waste and Treatment and Disposal Facilities.[47]

(5) Every occupier i.e. a person having administrative control over the institution and the premises generating Bio-medical Waste shall pre-treat the laboratory waste, microbiological waste, blood samples, and blood bags through disinfection or sterilization on site in the manner as prescribed by the World Health Organization (WHO) or guidelines on safe management of wastes from healthcare activities and WHO blue book 2014 and then sent to the Common Bio-medical waste treatment facility for final disposal.[48]

6.0 Judicial Approach on environment and Bio-medical Waste Management

Right to life is a fundamental right which includes right to enjoyment of pollution free water and air for full enjoyment of life and if anything endangers or impairs the quality of life in derogation of laws, a citizen has right to have recourse to Article 32 for removing the pollution of water or air which may be detrimental to quality of life. In *Vellor Citizens' Welfare Forum v. Union of India and others*[49] the supreme court, inter alia, held that the onus to prove is on the actor or developer to show that his action is environmentally benign and the State must attempt 'precautionary principle' to ensure that unless an activity is proved to environmentally benign in real and practical terms, it has to be presumed to be environmentally harmful.

In *A.P. Pollution Control Board v. Prof. M.V. Nayudu (retd)*[50], the Apex Court noted that the concept of healthy environment as a part of the fundamental right to live developed by it was finding acceptance in various countries side by side with right to development. In *M.C. Mehta v. Union of India and others*[51], three judge bench of supreme court held that Article 39(e), 47 and 48A by themselves and collectively cast a duty on the State to secure the health of people,

improve public health and protect and improve the environment. Further again the Apex Court reiterated in *M.C. Mehta v. Union of India*[52] that the right to live is fundamental right under Article 21 of the Constitution and it includes the right of enjoyment of pollution free air for the enjoyment of life. It was further observed that the most vital necessities such as air ,water and soil having regard to the right of life under Article 21, cannot be permitted to be misused and polluted so as to reduce the quality of life of others.

6.1The Cases Directly Related to Bio-medical Waste Management

The *P.K. Nayyar v. Union of India*[53] Case is directly related to the common Bio-medical Waste Treatment facility. The Government of NCT of Delhi established a common Bio-medical Waste Treatment facility at Okhla, in collaboration with respondent 7 M/S Synergy Waste Management Pvt. Ltd, on the land allotted to it by Delhi Development Authority and on Agreement dated 19th May, 2005 in this regard was signed between respondent and Govt. of NCT of Delhi. The said facility is meant for treatment and disposal of bio-medical waste collected from different Hospitals and Healthcare Establishments and also has an Effluent Treatment Plan (Physico Chemical Treatment) for the treatment of waste water generated from the facility. The said facility is situated at a distance of about 30 meters away from a residential colony called Sukhdev Vihar. The residents of Sukhdev Vihar made representation to Govt. of NCT against of the said facility, expressing serious concern with respect to adverse effect on their health due to the operation of the said facility. Govt. of NCT constituted committee in this regard. The committee vides its report dated 15th January, 2008 inter-alia reported that:

(a) Health concern of the nearly population could not be ruled out.
(b) It may not be possible to shut down the incinerator without causing serious disruption of BMW Management of the city.
(c) Shifting of the said facility may be considered an option, for which efforts have already initiated. and
(d) Authorities may consider conduct an impact analysis in case of other incinerators near populated areas, and initiate further action is required.

The petition was filed in Delhi High Court by the residents of Sukhdev Vihar and adjoining area, seeking closure of said facility primarily on the ground that being very close to densely populated residential colonies, it was creating poisonous and hazardous environment for the residents of those colonies, thereby adversely affecting their health and degrading environment for all the times to come.

Though the Hon'ble Court considered the guidelines issued by CPCB on the treatment of common bio-medical waste and installation for such plants. Incineration is controlled combustion from where waste is completely oxidized and harmful microorganisms present in it are destroyed /denatured under high temperature. But the summary of "Epidemiological Studies on Adverse Health Effects Associated with Incineration" would show that medical waste incinerators are a leading source of dioxins and mercury in the environment and there is a link between incinerator emission and adverse health impacts on incinerators workers and residents living around the incinerators.

Thus the court directed Govt. of NCT of Delhi and M/S Synergy Waste Management Pvt. Ltd to shift the bio-medical waste disposal facility, being operated near Sukhdev Vihar, to a suitable site. The site suitable for shifting of said facility in terms of this order would be identified from today in consultation with DDA and DPCC and the facility in question would be shifted within

three months thereafter i.e within 06 months from today. M/S Synergy is permitted to continue to operate the facility at the present site till it is shifted to new site in terms of this order or 06 months from the date if judgment.

The National Green Tribunal (NGT) in the matter of environmental clearance notification of SPCB and renewal of authorization under Bio-Medical Waste (Management & Handling) Rules, 1998 in **Haat Supreme Wastech Pvt. Ltd., Through its Director v. State of Haryana**[54], the Swatanter Kumar, J. (Chairperson) of NGT for bench held that units are carrying on activity of handling bio-medical waste treatment plants shall be required to obtain environmental clearance in as per provision of law. In the case of **D. Swamy v. Karnataka State Pollution Control Board**[55] a question arose that Whether prior environmental clearance required for establishing common bio medical waste treatment facility under Bio-Medical Waste (Management and Handling) Rules, 2016?. Answering the question for three judge's bench by M.S. Nambiar, J. of NGT held that prior environmental clearance is required for all new projects or activities listed under EIA Notification, 2006 of a Common Bio-Medical Waste Treatment Facility. The notification did not show that retrospective operation was intended.

Recently the Manipur High Court Imphal in the case of **Laishramcha Ji-nine Meetei v. The State of Manipur**[56] observed that it becomes necessary to direct the State Pollution Control Board authority to strictly implement the 2016 Rules and in order to aid and assist this Court in ensuring that the new Rules of Bio-Medical Waste (Management and Handling), Rules 2016 is effectively implemented, the Assistant Director of Health Services has to identify the list of Hospitals, Clinics, Nursing Homes and Dispensaries under Rule 2 identify them so as to enable the Court to monitor the same through Advocate Commissioners.

7.0 CONCLUSIONS & SUGGESTIONS

The International law and environmental law are closely related to each other because climate change, viral & infectious disease etc are not confined to only the nation which creates it but its impact is huge and may be global. Therefore the strengthening of International Law will also reflect in stabilizing healthy, green and sustainable environment. As far as the Medical waste is concerned each and every country must strictly follow the Basel Convention and Other International Convention. U.S.A. model of criminal remedy for bio-medical waste is more deterrent because if any person knowingly puts any person in imminent danger of death and grievous injury will be liable up 15 year imprisonment and $25, 0000 fines.

In domain of municipal solid waste, biomedical waste acquires a special dimension because it is more infectious and hazardous. It can spread serious disease to individual. If infectious waste is not segregated, non infectious waste becomes infectious and poses environmental threat to the society. Incineration of Bio-medical waste is one of the technological and feasible way, which is having various advantages such as significant volume reduction, weight reduction and capable to handle most types of wastes. A common Bio- medical Waste Treatment Facility (CBWTF) in contrast to installation of individual treatment is economical and should rampantly is used for treatment and disposal of bio- medical waste. Private hospital also must be allowed to use Incinerators etc like Government hospitals and they can charge fee from other hospital for proper handling of medical – waste. In healthcare waste generally there are two types of waste: Regulated Medical Waste (RMW) and Unregulated Medical Waste (UMW). Approximately 75-85 % of healthcare waste is unregulated waste and plastic and it does not remain in contact with patient so it is not infectious. This type of waste is regulated through municipal regulation. Only

15-25% is treated is infectious and regulated medical waste. Medical Hazardous waste must be disposed and must not be recycled. Some of the examples of medical hazardous waste are waste containing blood or excrement, Human specimen culture, Human surgery specimen/removed tissues & contaminated sharps. It is also suggested that medical waste must be classified according to the risk factor associated. That medical waste which grave risk to close vicinity should be disposed of far away from residential population. Every college, hospital, pathology lab etc. must not be registered under the Clinical Establishment (Registration & Regulation) Act 2010 unless they present and submit the copy of authorization certificate under BMW Rules 2016. There should be restriction on municipal corporation employee for not to mix garbage with biomedical waste.

REFERENCES:

1. http://www.searo.who.int/india/topics/medical_waste/en/ retrieved on March 15, 2018.

2. CEET: Biomedical Waste Management Burgeoning issue (2008).

3. Graves PD, management of hospital waste- An overview, Proceedings of National workshop on Management of Hospital Waste, 1998.

4. Surjeet S Katoch Biomedical Waste Classification and prevailing management strategies, proceeding of international conference on sustainable solid Waste Management pp.169-175 .

5. Mathur et al., Curr.World Environ., Vol. 7(1), 117-124(2012).

6. Ibid

7. http://www.britannica.com/science/pyrolysis retrieved on January 10, 2018.

8. Portas, Pierre."Commentary: The Basel Convention, Back to the Future."Sustainable Development Law & Policy, Spring 2006, 38-41.

9. Trade Measures in the Basel Convention on the Control of Transboundary Movements of Hazardous Wastes and   Their Disposal available at www.oecd.org/officialdocuments/publicdisplaydocumentspdf/?doclanguage/?doclanguage/?doclanguage=en&eve=com/env/td(97)41final.

10. Stockholm Convention on Persistent Organic Pollutants (POPs) http://www.wipo.int/edocs/trtdocs/en/unep-pop/trp_unep_pop2.pdf retrieved on march 30, 2018.

11. http://pib.nic.in/newsite/printrelease.aspx?relid=176356 retrieved on 1april , 2018

12. https://www.congress.gov/bill/111th-congress/house-bill/2552,   retrieved on February 27, 2018.

13. http://www.govt track.US/Congress/bills/111/hr2552/text, retrieved on February 27, 2018.

14. http//www.epa.gov/enforcement/resource-conservation-and-recovery-act-rcra-and   –federal-facilities#EPA %20Enforcement, retrieved on February 20, 2018

15. Ibid

16. http://www.ciwn-journal.co.ok/downloads/healthcare-waste-WEB.Pdf retrieved April 10, 2018

17. http://www.vikaspedia.in/energy/environment/waste-mangement/Bio-medical-waste-management/bio- medical-waste-management-rules. A portal of Ministry of Information Technology Government of India CDAC retrieved on April 15, 2018.

18. Ibid

19. The Environment (Protection) Act, 1986 (29 of 1986).

20. The Gazette of India Biomedical Wastes(Management and Handling) Rules, India: Ministry of Environment and Forests, Government of India. Notification Dated; 20th July, 1998.

21. Long Notes of BMW Rules 2016, Gazette vide number G.S.R 450(E)

22. Rule 2, BMW Rules 2016

23. Rule 3 (m) of BMW rules 2016 defines occupier as a person having administrative control over the institution and the premises generating biomedical waste , which includes a hospital ,nursing home,   clinic, dispensary, veterinary institution, animal house, pathological laboratory, blood bank, health care facility and clinical establishment ,irrespective of their system of medicine and by whatever name they are called;

24. Rule 4 of Bio-Medical Waste Management Rules 2016

25. Rule4(b) of BMW Rules 2016

26. Rule 4(c) of BMW Rules 2016

27. Rule 4(d) of BMW Rules 2016

28. Rule4(g) of BMW Rules 2016

29. Rule 4(h) of BMW Rules 2016

30. Rule 4(o) of BMW Rules 2016

31. Rule 3(n) BMW Rules 2016   defines"operator of a common bio-medical waste treatment facility" means a person who owns or controls a Common Bio-medical Waste Treatment Facility (CBMWTF) for the collection,   reception, storage, transport, treatment, disposal or any other form of handling of bio-medical waste;

32. Rule 5 of BMW rules 2016

33. Rule 5(b) of BMW Rules 2016

34. Rule7(3) of BMW Rules 2016

35. Rule 10(1) of BMW Rules 2016

36. Schedule II (i) B of BMW Rules 2016

37. Rule 12(1) of BMW Rules 2016

38. Rule 12(4), 12(5),12(6) of BMW Rules 2016

39. Rule 8 of BMW rules 2016

40. Rule 10 of BMW Rules 2016

41. Rule 3(21) defines occupier as in relation to any factory or premises, means a person who has, control over   the affairs of the factory or the premises and includes in relation to any hazardous and other waste, the person   in possession of the hazardous or other waste.

42. Rule 3(17) of Hazardous and other Wastes (Management, Transboundary Movement) Rules 2016

43. Section 15 of Environment Protection Act 1986

44. Amendment in BMW Rules 2016 with substitution for clause (d) in Rule 4

45. Amendment in BMW Rules 2016 with substitution for clause (p) in Rule 4

46. Amendment in BMW Rules 2016 with addition in Clause 4(i) and Clause 5(c) in Rule 4.

47. Amendment in BMW Rules 2016 with addition in Clause 13(2) in Rule 4.

48. Amendment in BMW Rules 2016 with Substitution for Clause 4(c) for the portion beginning with "or National and ending with final disposal".

49. (1996) 5 SCC 647.

50. (2001) 2 SCC 62.

51. (2002) 2 SCC 963.

52. (2004) 12 SCC 118.

53. MANU/DE/0130/2013

54. MANU/GT/0089/2013.

55. MANU/GT/0042/2017.
56. MANU/MN/0056/2018.
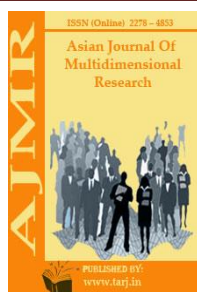
NON ACADEMIC LEGISLATIVE UNITS, DIALYEXISMS AND THEIR TYPES ON THE LIFE ACTIVITY OF OMON MATJON

Ravshan Xudoyberganov*; Akbar Otaboyev**

*Faculty of Philology,
Department Of Uzbek Linguistic,
Urgench State University,
Urgench City, UZBEKISTAN.
Email id: ravshan.x@gmail.com

**Faculty of Philology,
Department Of Uzbek Linguistic,
Urgench State University,
Urgench City, UZBEKISTAN.
Email id: goodluck_0714@Mail.Ru

_____

ABSTRACT

In this article Oman Mathjon's works have been studied in the use of non-lexical lexical units and dialectics. The dialectics were also studied as a major feature of the development as whole. It should be noted that, while talking about the non-material layer, each of them has to be emphasized in term so fits use by the artist. The word "telpak" is a warm headdress on other shevels and dialects of the Uzbek literary language (in the literary language it uses the hood variant). Particularly, it is a part of the Khorezmian dialect, the Oguz dialect, and their equivalent and alternatives do not appear in the Uzbek language and its poems. In the case of "Tomboshi", he really belongs to the Horezmian dialect, but it is not typical of the Ogiz dialect, but the horn of the Khorezm dialect, which is a synonym for the word "Oguz" in the above-mentioned word. If you use words like "hand-operated" or "charming," or "pragmatic," the talk will be much faster. Thus, some writers may focus not only on literary language-specific lexemes but also on the use of non-formal language elements for the correct interpretation of life events.

KEYWORDS: *Non-Literary, LexicalUnits, Dialectism, Inactive Lexicon, Literary Language.*

INTRODUCTION

In this article we would like to give a detailed in sight in to how Oman Matzone, one of the most prominent writers, one of the most brilliant stars in the poetry of the poetry, uses the non-stubborn layer in the work of Omon Matzone, verbal speech and dialectism. Indeed, for the richness of the literary language, the variety of grammar in the dictionary of the language is determined by its abundance and the breadth and depth of its meaning. In addition to the words in the literary language of artistic literary language, it is enriched by the influence of non-lexical lexical units and improves in its own way.

It should be noted that, while talking about the non-material layer, each of them has to be emphasized in term so fits use by the artist. For this reason, the famous Swiss Linguist Sharl Balli (the first frazeologist in global linguistics), and academician V.V.Vinogradov, emphasize that there is also a lexemy that lacks common literary language, which is not literary in the literary language (Kringos, Boerma, &Pellny, 2009; Mars & Altman, 1992; Peshkova,2009).

Linguist, K.S.Gorbachevich argues that the writers are also trying to use different non- verbal word and phrase forms and textual expressions in the way of life's accurate description and literally overturn literary norms.

Thus, some writers may focus not only on literary language-specific lexemes but also on the use of non-formal language elements for the correct interpretation of life events. In particular, writer and poet Omon Matchon had to circumvent literary language in some cases. This kind of nonsense, which is used in the poet's creativity, is more precise, the use of verbal expressions and dialectics in language tools, in its turn, is appropriate.

It is well known that dialectics and spoken words are an integral part of the national language and are mainly used in the literary language of speech, although they are primarily lively speaking. Therefore, many studies of linguistic studies have suggested that dialectics, nouns, and vocabulary can be used in the context of literary language and in the context of literary language norms(An & 1998, n.d.; Materials, Ceramic, & 1989, n.d.; Rahmatullaev, Ganieva, &Khabibullaev,2017).In general, dialectics are used in various literary works for different purposes. Especially when it comes to their methodological abilities, it is important for the rich and attractive language of the artistic work. It is therefore reason able to say that they go into the functional language of the literary language, which is appropriate for emotional painting, and in particular, "the style of ordinary speech style."

METHODS:

Along with the foregoing, there are further comments on how they serve as a methodologist. Hence, non-standard layers, dialectics, and nouns are lexical means that carry out the methodological aspect, and the use of it can be characterized as characteristic for poet's creativity.

For example, in the poem of Omon Matchon "The Dragon That Dies," the following word, which is unique to a non-adult layer, occurs:

"Қуёнларгажудаўч-да"(Thanks to the rabbits)

"Ичидаэнг*ириси*…" (His greatestone ...)   (from the poem"DyingDragon") The word"**iris"**in poetry refers to the meanings of the adult,semi circle,typho on in the Uzbek literary language, and this word is exactly the same today in the Khorezmi and ialect, Oguzand Kipchak,which is part of the Uzbek literary language.Sometimes it is appropriate to note that the variant of the Khorezm

dialect has its twenties form. In this poem, the poet refers to the rabbit's rabbits, the big snake that rattles the rabbits, and the great word is noun-specific, which changes in shape and distortion.

Let's take a look at the fragment from poet's poem "Habegim's friend jokes":

"Қаранг, ёзда ҳам ечмаслар"
(Look, they do not get off in the summer)
Чўгирмани, гуппини…[1]
Chugurma and guppi
Look, they do not get it off in the summer

In fact, the term "Chugurma " is termed Horezmian dialect, long fur, round shaped headpiece, woven in Khorezm and southern Karakalpakstan. He used the Khorezmian dialect as a telpak. The word "telpak" is a warm headdress on other shevels and dialects of the Uzbek literary language (in the literary language it uses the hood variant).

The term "*гуппини* " is specifically used for the Horezmian dialect, which refers to a slender cottonseed, sleeveless series of slender yarns. As for the use of the word "*гуппини* ", it is commonly used for ordinary workers because of their warmth and convenience in household work, field conditions, and agricultural work, and in some languages of the Uzbek language there is no equivalent in literary language. It is clear that the Russian language has an impact on the situation, because the term jodja is derived from the Russian and Uzbek languages(Robel, 2004; Ruziev, Ghosh, & Dow, 2007; Winter, Teo, & Chang, 2008).

The director of a school interview with the famous poet OmonMatchon goes on to discuss some of the words in the Horezmian dialect. First of all, he adds a number of dialects that are typical of Horezmian dialect: for example, patik, jungle, hawk, dumbbell, spleen, chuta, patraine, singing, mejana, bajana, hawk, bean, daii, checha, kayvoni, tiy, reed, , we went, brushes, boots, scot, dolphins, olapo and others. All of the examples presented in his book are only dialects of the Khorezm dialect. Particularly, it is a part of the Khorezmian dialect, the Oguz dialect, and their equivalent and alternatives do not appear in the Uzbek language and its poems. Immediately after the debate, Amon Matchon replies: I could stop talking to you when you were alone, but that is the majority of people, and most of them are intellectuals. That's why I'm sorry, and I quote the words that are worth mentioning.

The word "Patik" is really worded in Khorezm, but its equivalent, but it is often called a pathologist, and most importantly, the pathologist's words are understood by ordinary people, so popularly accepted and supported by his people for centuries.

The word "**Учак**" is also a Houthisian dialect, and its equivalent is the roof of a house, a building.

In the case of "Tomboshi", he really belongs to the Horezmian dialect, but it is not typical of the Ogiz dialect, but the horn of the Khorezm dialect, which is a synonym for the word "Oguz" in the above-mentioned word. Here you can not absolutely agree with your opinion.

The word "Tungktu" is actually the word of Khorezm, but in fact, it is said that this word is also used in other languages of the Uzbek literary language, as well as it is not the Khorezm dialect, but the Kipchak dialect because her son There are options for the representatives of the OguzLahja, who are in the same form. In fact, the word "dumb" is a small gate that separates the building from the inside of the house, more precisely, from the wall.

The word "talaq" is also ancient khorazmiy. People are a small house warming property that is stored in a certain period of time, usually a home, a building upstairs, over the roof, prepared and served. It contains wheat, potatoes, onion, carrots, garlic, salted meat and many others. Its equivalent is the scroll words used in the warehouse and public oral speech(Materials et al., n.d.; Robel, 2004).

DISCUSSIONS:

Chuta is also called the ancient khokhazmiy, and indeed I have heard it from my dear teacher, Professor OtanazarMadrahimov, who explained to me the meaning of the word: "Chuta is the word of ancient khostasman, which means cotton fields, rather, the place where the tail is irrigated." It does not have the equivalent, and it is so local coloring. The word "Patrat" is specific to the Khorezm dialect, which is used in the speech of Khorezm's Oguz and Kipchaksheba, which is always used for those who are showing signs of being deceived. The equivalent of this word can be summed up in Uzbek and its poems.

In short, the Khorezmian phrase, which is quoted in the above-quoted text, makes a special emphasis on the word syllable.

The word "Caesar" is often used not only in the Khorezmian dialect, but also in the language of the literary language as well as in other parts of the dialect, not in the dialects of oguz and kipchak. However, in their meanings, there are some differences, so they are similar in shape. In fact, the envelope in the Horezmian dialect is a manipulation of a particular group of people. However, in some cases, the term is also used in the Horezmian dialect, and is used extensively, especially for younger girls.

Linguist RuziqulNormuradov, in his research, linguistically researched the works of well-known writer ShukurKholmirzaev, as follows: "Oops! There was no resentment. -A brother, the dog is bad. - What does E dog do? He's gone right behind the property right now. " He wrote: "This phrase is based on a speech by representatives of the Sheva community living in Surkhandarya region, not only to point to the scene, but also to emphasize or remind the heroes of the heroes. This word gives some kind of creativity and sincerity. It is the point of the reader's attention to the concept expressed by this word that this is a special feature in artistic literature. If you use words like "hand-operated" or "charming," or "pragmatic," the talk will be much faster. The character that somebody in the person looks at is the one that they want to emphasize. The word "scepter" in the meaning of the word is simple, sincerity, and the description of things that can be normal to human beings - a character that is the basis for a person to hold close to him ".t is evident that the phrase "sincerely, sincerely," with "ordinary people like everyone else," can be used to describe the phrase "simple miser" used in lively conversations. The person who treats the text as if drawing attention to himself. It is evident that the use of dialectics has a role in the creation of artistic text. The skillful use of them, of course, will serve to ensure the integrity of the work(Abdullaev, De Fraiture, Giordano, Yakubov, & Rasulov, 2009; Fathi, 2006; Karagiannis, 2006; Razakov Sh & Shakhgunova, 2001).

It should be noted that the prominent poet OmonMatchon emphasized that the principal of the school used all the words in his works to express and illustrate the artistic, sensual, and local color, in addition to the word "guta", "gadik".

CONCLUSION

In poetry, speech is a very complex process, learning and research requires a great deal of responsibility from every researcher. Therefore, although the interest in poetry language problems has grown significantly in the post-Soviet period, the consistency of work in this area is on the agenda as an important theoretical and practical task of modern Uzbek linguistics and literature.

AmanMatchon's poetry and his works were written in a unique art style. Accordingly, her poetry is worthy of artistic and linguistic study, which is a material that is sophisticated, and it is still an object of many special and sophisticated research.

As can be seen from the analysis, the poet OmonMatchon widely used dialectics in his own language. His poetical dialectics are characterized by different uses: a) space attitude; b) attitude to the national language and local color; c) sensitivity, expression of nationality.

REFERENCES:

Abdullaev, I., De Fraiture, C., Giordano, M., Yakubov, M., & Rasulov, A. (2009). Agricultural water use and trade in uzbekistan: Situation and potential impacts of market liberalization. *International Journal of Water Resources Development*, *25*(1), 47–63. https://doi.org/10.1080/07900620802517533

An, L. H.-J. of B. M. R., & 1998, undefined. (n.d.). Bioactive materials: the potential for tissue regeneration. *Wiley Online Library*. Retrieved from https://onlinelibrary.wiley.com/doi/abs/10.1002/(SICI)1097-4636(19980915)41:4%3C511::AID-JBM1%3E3.0.CO;2-F

Fathi, H. (2006). Gender, Islam, and social change in Uzbekistan. *Central Asian Survey*, *25*(3), 303–317. https://doi.org/10.1080/02634930601022575

Karagiannis, E. (2006). Political Islam in Uzbekistan: Hizb ut-Tahrir al-Islami. *Europe - Asia Studies*, *58*(2), 261–280. https://doi.org/10.1080/09668130500481444

Kringos, D. S., Boerma, W., & Pellny, M. (2009). Measuring mechanisms for quality assurance in primary care systems in transition: Test of a new instrument in Slovenia and Uzbekistan. *Quality in Primary Care*, *17*(3), 165–177.

Mars, G., & Altman, Y. (1992). A Case of a Factory in Uzbekistan; its Second Economy Activity and Comparison with a Similar Case in Soviet Georgia. *Central Asian Survey*, *11*(2), 101–111. https://doi.org/10.1080/02634939208400774

Materials, W. L.-A. C., Ceramic, P. 1 of 2:, & 1989, undefined. (n.d.). Review, Status, and Future of the Chemical Vapor Infiltration Process for Fabrication of Fiber-Reinforced Ceramic Composites. *Wiley Online Library*. Retrieved from https://onlinelibrary.wiley.com/doi/abs/10.1002/9780470310557.ch1

Peshkova, S. (2009). Bringing the mosque home and talking politics: Women, domestic space, and the state in the Ferghana Valley (Uzbekistan). *Contemporary Islam*, *3*(3), 251–273. https://doi.org/10.1007/s11562-009-0093-z

Rahmatullaev, M., Ganieva, B., & Khabibullaev, A. (2017). Library and Information Science Education in Uzbekistan. *Slavic & East European Information Resources*, *18*(1–2), 41–48. https://doi.org/10.1080/15228886.2017.1322381

Razakov Sh, A., & Shakhgunova, Gs. (2001). [Current malaria situation in the Republic of Uzbekistan]. *Med Parazitol (Mosk)*, (1), 39–41. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11548313

Robel, R. R. (2004). The Silk Road: Two Thousand Years in the Heart of Asia. *History: Reviews of New Books*. https://doi.org/10.1080/03612759.2004.10528626

Ruziev, K., Ghosh, D., & Dow, S. C. (2007). The Uzbek puzzle revisited: An analysis of economic performance in Uzbekistan since 1991. In *Central Asian Survey* (Vol. 26, pp. 7–30). https://doi.org/10.1080/02634930701423400

Winter, T., Teo, P., & Chang, T. C. (2008). *Asia on tour: Exploring the rise of Asian tourism. Asia on Tour: Exploring the Rise of Asian Tourism.* https://doi.org/10.4324/9780203891803
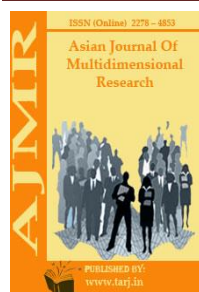
PANEL CAUSALITY EVIDENCE ON THE RELATION BETWEEN GOVERNMENT EXPENDITURE AND INCOME GROWTH IN BRICS COUNTRIES

Amit Kundu*

*Assistant Professor of Economics,
Mathabhanga College,
West Bengal, INDIA.
Email id: ms.amitkundu@rediffmail.com

_____

ABSTRACT

The aim of this paper is to analyze the causality relationship between government expenditure and economic growth for BRICS countries. More than 20 years data have been use for the study. The results of Panel cointegration does not support the existence of long-run relationship for BRICS panel. Furthermore, the empirical finding of causality indicates no causality between government expenditure and economic growth in short-run for BRICS countries. In 1930s John Maynard Keynes argued that government spending boosted growth by injecting purchasing capacity into the economy. Since demand for loan able fund is more than supply of loan able fund, it allegedly lead to higher interest rates. Higher interest rates are believed to reduce investment while lower investment leads to lower productivity resulting in productivity means lower growth. Here government expenditure is an exogenous variable. Therefore, as far Keynesian Hypothesis is concerned there is causality between economic growth and government expenditure and causality runs from government expenditure to economic growth.

KEYWORDS: *GDP, Government Expenditure, endogenous growth theory, Panel Unit Root, Vector Autoregressive Model.*

INTRODUCTION:

In growth theory there is a basic question whether increasing government expenditure promotes economic growth. From empirical evidence it is found that government expenditure on health and education raises labor productivity and development of infrastructure by government expenditure increases private investment. Private investment is one of the essential factors for economic growth. But on the other hand, higher government expenditure at a cost of increased taxes or borrowing may create obstruction for economic activity.

During the world economic recession of the 1930s, the government sectors of both developed and developing economies played a vital role in stimulating economic growth and as a whole economic development in compliance with Keynes advice. At that time for the improvement of economic growth many countries had taken shelter of higher government expenditures and reducing taxes. These empirical achievements and the Keynesian thought generated considerable interest among economists and policy makers for using government expenditure as a policy for economic development. In 1930s John Maynard Keynes argued that government spending boosted growth by injecting purchasing capacity into the economy. According to Keynes, government could reverse economic downturns by borrowing money from the private sector and then returning the money to the private sector through various spending programs.

Financing of government expenditure can be growth retarding. Government expenditure through budget deficit is bad. High budget deficit means demand for loan able fund is more than supply of loan able fund. Since demand for loan able fund is more than supply of loan able fund, it allegedly lead to higher interest rates. Higher interest rates are believed to reduce investment while lower investment leads to lower productivity resulting in productivity means lower growth.

Therefore, there are two important theories regarding the relationship between public expenditure and economic growth. One is Wagner's hypothesis (Wagner's Law) and another is Keynesian hypothesis. Wagner hypothesis focuses on public expenditure as an endogenous factor. Here public expenditure is driven by the growth of national income. On the other hand according to the Keynesian hypothesis economic growth occurs as a result of rising public expenditure. Here government expenditure is an exogenous variable. Therefore, as far Keynesian Hypothesis is concerned there is causality between economic growth and government expenditure and causality runs from government expenditure to economic growth. On the other hand as far Wagner hypothesis is concerned, the causality runs from economic growth to government expenditure.

Keynesian hypothesis and Wagner hypothesis are basically different. There are a number of research works on the relationship between government expenditure and economic growth, but there is no clear consensus among these studies on the exact relationship between these two variables concerned.

LITERATURE REVIEW:

There exists a plethora of studies on the relationship between government spending and economic growth. All these studies used the time series data and panel data for government expenditure and GDP (or GNP) of the countries concerned.

These studies, however, differ among themselves in the matter of techniques employed on each account. Consequently, different studies came up with different conclusions about relations

between government expenditure and economic growth in any particular country even though these studies employed almost the same datasets for the variables concerned.

I seek to present the summary of findings from different studies below in the following way:

Athour(s)	Country(s)	Method	Main results
Afzal and Abbas (2010)	Pakistan	Johansen cointegration test Granger Causality test	Wagner's hypothesis does not hold for three periods (1961 - 2007, 1973 - 1990, 1991 - 2007). Wagner's law holds for the period 1981-1989)
Aregbeyen (2006)	Nigeria	Johansen Cointegration test and Granger causality test	Support Wagner's law during the period 1970-2003
Aziz and Abul Kalam (2009)	Bangladesh	Johansen's cointegration test and Granger Causality test	Support Wagner's law during the period 1976-2007
Ghorbani and Firooz Zarea(2009)	Iran	Engle and Granger - ECM	Support Wagner's law during the period 1960-2000
Halicioglu (2003)	Turkey	Johansen- Juselius cointegration and Granger causality test	Does not Support Wagner's law during the period 1960-2000
Islam (2001)	USA	Johansen- Juselius cointegration test	Strong Support for Wagner's law for the USA during the period 1929-1996
Ju Huang (2006)	China and Taiwan	Bound test and Unrestricted Error Correction Model(UECM)	Does not Support Wagner's law during the period 1979-2002
Kesavarajah, M. (2012)	Sri Lanka	Cointegration and Error Correction Modeling (ECM) techniques	No strong evidence in support of the validity of the Wagner's law for Sri Lankan economy.
K. P. K. S. Lahirushan, W. G. V. Gunasekara (2015)	Singapore, Malaysia, Thailand, South Korea, Japan, China, Sri Lanka, India and Bhutan	Random effects panel OLS model	Empirical findings exhibit a momentous positive impact of government expenditure on Gross Domestic Production in Asian region. Secondly, government expenditure and economic growth indicate a long-run relationship in Asian countries. In conclusion, there is a unidirectional causality from economic growth to government expenditure and government expenditure to economic growth in Asian countries. Hence the

			study is validated that it is in line with the Keynesian theory and Wagner's law as well.
M. Iftikhar -UL - Husnain and Asif Mehmood (2006)	Pakistan	ADF test, Co integration test, Granger causality test	Failed to find any evidence in favor of Wagner's law in case of Pakistan at both levels of public expenditures.
Narayan *et al.* (2008)	Fiji islands	Johansen Cointegration test	Support Wagner's law during the period 1970-2002
Narayan *et al.* (2008)	China's provinces	panel cointegration and Granger causality testing approach	find mixed evidence in support of wagner's law for China's central and western provinces and There is less support for Wagner's law for China as a whole
N Ravinthirakumaran, M. Kesavaraiah (2011)	Sri Lanka	Multivariate co-integration and error correction modeling technique	The expenditure on education has a significant positive impact on economic growth while, defense and health expenditure have a significant negative impact on economic growth in Sri Lanka.
Oxley (1994)	Britain	Granger causality test	Support Wagner's law during the period 1870-1913
Pradhan (2007)	India	Engle and Granger and (ECM) Model	Does not Support Wagner's law during the period 1970 to 2004 but Keynesian view is stablished during this period
Sinha *et al* (2007)	Thailand	ARDL and Toda-Yamamoto (1995) causality test	Does not Support Wagner's law during the period 1950-2003
Samudram *et al.* (2009)	Malaysia	ARDL (bound test)	Support Wagner's law for expenditures on defense, education, development and agriculture (1970-2004)
Verma, S. and Rahul Arora (2010)	India	Cointegration, VEC, VAR	There exists long-run relationship between economic growth and growth of public expenditure. The results provide a strong empirical support for the existence of Wagner's law in pre and post reforms period.
Vijay L.N. Gangal and Ms. Honey Gupta (2013)	India	ADF Unit Root Test, Cointegration Test and Granger Causality test	The study reveals that there is linear stationarity in both the variables that indicates the long run

			equilibrium and there is a positive impact of Total public expenditure on economic growth. There is a unidirectional relationship, i.e. from TPE to GDP found by Granger causality Test.

DATA AND METHODOLOGY:

Data:

At the present time empirical investigation on economics data has been focused on panel data analysis. There are various advantages of panel data analysis in contrast with time series data; such as: controlling for individual heterogeneity and give more informative data, more variability, less co linearity among the variables, and more efficiency. (Baltagi. 2005). My paper focused panel data of government expenditure and real GDP of five BRICS countries over the 1995 to 2014 years. The data was collected from World Bank website (www.worldbank.org) Government expenditure and real GDP measured in constant 2005 dollars, the natural logarithms of variables are denoted as LGDP (Y_t) and LGNE (E_t).

METHODOLOGY:

Panel Unit Root Test:

Several Panel unit root tests presented to investigate the stationary properties of panel data. This paper applied four tests proposed by Levin et al. (LLC, 2002), Im et al. (IPS, 2003), Breitung (2000) and Fisher-type test proposed by Maddala and Wu (1999) and Choi (2001) to test the null hypothesis of having unit root.
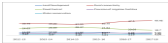
Following Dickey and Fuller (1979, 1981), Levin and Lin (1993), and Levin, Lin and Chu (2002), consider a panel extension of the null hypothesis that each individual time series in the panel contains a unit root against the alternative hypothesis that all individual series are

stationary.(Hsiao, 2003).

The adjusted t-statistic of LLC is:

$$t_p^* = \frac{t_p - N\tilde{T}\hat{S}_N \hat{\sigma}_{\tilde{\varepsilon}}^{-2} \hat{\sigma}(\hat{\rho}) \mu_{m\tilde{T}}^*}{\sigma_{m\tilde{T}}^*}$$

where $\mu_{m\tilde{T}}^*$ and $\sigma_{m\tilde{T}}^*$ are the mean and standard deviation adjustments provided by table 2 of LLC. Levin, Lin and Chu show that t_p^* is asymptotically distributed as N (0, 1). The test of Im, Pesaran and Shin (IPS, 2003) allow for a heterogeneous coefficient of y_{it-1} and propose an alternative testing procedure based on averaging individual unit root test statistics. IPS suggests an average of the ADF tests when u_{it} is serially correlated with different serial correlation properties across cross-sectional units. The t-statistic of IPS can be expressed as follows:

$$t_{IPS} = \frac{\sqrt{N}(\bar{t} - \frac{1}{N}\Sigma_{i=1}^{N}E[t_{iT}|\rho_i = 0])}{\sqrt{\frac{1}{N}\Sigma_{i=1}^{N}var[t_{iT}|\rho_i = 0]}} \quad =>N(0,1)$$

Values of [figure] and $t_p^* = \frac{t_p - N\bar{T}\hat{S}_N\hat{\sigma}_\varepsilon^{-2}\hat{\sigma}(\hat{\rho})\mu_{m\bar{T}}^*}{\sigma_{m\bar{T}}^*}$ obtained from the results of Monte Carlo simulations carried out by IPS.

As mentioned in Baltagi (2005), LLC and IPS tests may not keep nominal size well when either N is small or N is large relative to T. Breitung (2000) found that the LLC and IPS tests suffer from a dramatic loss of power if individual-specific trends are included. Breitung suggests a test statistic that does not employ a bias adjustment whose power is substantially higher than LLC or the IPS tests using Monte Carlo experiments. The test statistic of Breitung(2000) panel unit root test has the following form:

$$\mu_{m\bar{T}}^*$$

Maddala and Wu (1999) and Choi (2001) proposed a Fisher-type test of unit root, which combines the *p*-values from unit root tests for each cross-section *i* to test for unit root in panel data. The Fisher test is nonparametric and distributed as chi-square with two degrees of freedom:

$$\sigma_{m\bar{T}}^*$$

Granger Causality Test:

To investigate the causality relationship between two variables in panel data we can use the following bi-variate vector autoregressive (VAR) model and employing Wald's test:
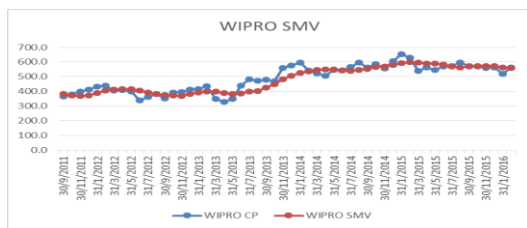
Where i=1, …, N; t=1, …, T; k refers to the lag, and [figure] and [figure] are white noise error term.

Empirical Results:

3.1. Panel Unit Root Test

The results of Levin et al. (LLC, 2002), Im, Pesaran and Shin W-stat (IPS, 2003), ADF - Fisher Chi-square and PP - Fisher Chi-square panel unit root test of countries (BRICS) reported in table 1.

TABLE 1: PANEL UNIT ROOT TEST

| | Variables | | | | | | | |
| | LGDP | | | | LGNE | | | |
Test	Level	Prob.	1st difference	Prob.	Level	Prob.	1st difference	Prob.
Levin, Lin & Chu t*	0.061	0.52	-4.582	0.00	1.33	0.90	-3.39	0.00
Im, Pesaran and Shin W-stat	3.356	0.99	-3.693	0.00	4.10	1.00	-3.85	0.00
ADF - Fisher Chi-square	0.918	0.99	31.949	0.00	0.60	1.00	32.55	0.00
PP - Fisher Chi-square	1.149	0.99	32.535	0.00	0.52	1.00	32.81	0.00

The results of several panel unit root tests indicate that government expenditure and economic growth are non-stationary at level for Brazil, Russia, India, China and South Africa and become stationary after first difference, which means that both LGDP and LGNE are integrated of order one I (1).

Panel Cointegration Test:

The results of Pedroni and Johansen Fisher panel cointegration tests, respectively, presented in table 2 and 3. None of the test statistics of Pedroni and Johansen Fisher Panel Cointegration tests cannot reject the null hypothesis of no cointegration for countries concerned. The results of Pedroni and Johansen Fisher panel cointegration tests reveal no long-run relationship between LGDP and LGNE for BRICS countries.

TABLE 2: PEDRONI PANEL COINTEGRATION TEST

	Statistic	Probability
Panel v-Statistic	0.862	0.1943
Panel rho-Statistic	0.161	0.5641
Panel PP-Statistic	0.135	0.5540
Panel ADF-Statistic	-0.652	0.2571
Group rho-Statistic	0.929	0.8238
Group PP-Statistic	0.287	0.6131
Group ADF-Statistic	-3.11	0.0009

TABLE 3: JOHANSEN FISHER PANEL COINTEGRATION

Johansen Fisher Panel Cointegration Test					
Series: LGDP LGNE (LGDP dependent variable)					
Trend assumption: Linear deterministic trend					
Lags interval (in first differences): 1 1					
Unrestricted Cointegration Rank Test (Trace and Maximum Eigenvalue)					
Hypothesized	Fisher Stat.*			Fisher Stat.*	
No. of CE(s)	(from trace test)	Prob.		(from max-eigen test)	Prob.
None	15.34	0.1201		13.12	0.2171
At most 1	16.81	0.0787		16.81	0.0787

Johansen Fisher Panel Cointegration Test					
Series: LGNE LGDP		LGNE dependent variable			
Included observations: 100					
Trend assumption: Linear deterministic trend					
Lags interval (in first differences): 1 1					
Hypothesized	Fisher Stat.*			Fisher Stat.*	
No. of CE(s)	(from trace test)	Prob.		(from max-eigen test)	Prob.
None	15.34	0.1201		13.12	0.2171
At most 1	16.81	0.0787		16.81	0.0787

Therefore, there is no long run association between the variables concerned. So we have construct VAR model. There are two ways to estimate panel VAR. One is Fixed Effect Model and another is Random Effect Model. The best model can be checked by Hausman test.

TABLE 4: FIXED EFFECT MODEL

Dependent Variable: LGDP at 1st differewnce				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.023746	0.062612	-0.379258	0.7055
ΔY_{t-1}	-3.541509	3.220073	-1.099823	0.2747
ΔY_{t-2}	3.782773	3.154967	1.198990	0.2341
ΔE_{t-1}	-1.334108	2.089702	-0.638420	0.5250
ΔE_{t-2}	0.677120	2.090830	0.323852	0.7469
ΔY_t = LGDP at 1st difference, ΔE_t = LGNE at 1st difference				
R-squared	0.064649	Akaike info criterion		-0.752428
Adjusted R-squared	-0.028886	Schwarz criterion		-0.500768
Log likelihood	42.48303	Durbin-Watson stat		1.190601
F-statistic	0.691170			
Prob(F-statistic)	0.698159			

TABLE 5: RANDOM EFFECT MODEL

Dependent Variable: LGDP at 1st differewnce				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	-0.025529	0.034008	-0.750665	0.4550
DLGDP(1)	-3.180963	2.773475	-1.146923	0.2547
DLGDP(2)	4.016020	2.687925	1.494097	0.1389

DLGNE(1)	-1.084696	2.052149	-0.528566	0.5985
DLGNE(2)	0.936392	2.027614	0.461820	0.6454
	Effects Specification			
			S.D.	Rho
Cross-section random			0.000000	0.0000
Idiosyncratic random			0.158346	1.0000
	Weighted Statistics			
R-squared	0.037518	Mean dependent var		-0.005547
Adjusted R-squared	-0.008314	S.D. dependent var		0.156108
S.E. of regression	0.156755	Sum squared resid		2.064065
F-statistic	0.818598	Durbin-Watson stat		1.157705
Prob(F-statistic)	0.516881			
	Unweighted Statistics			
R-squared	0.037518	Mean dependent var		-0.005547
Sum squared resid	2.064065	Durbin-Watson stat		1.157705

TABLE 5: HAUSMAN TEST

Correlated Random Effects - Hausman Test
Equation: Untitled
Test cross-section random effects

Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000000	4	1.0000

TABLE 6: WALD TEST

Wald Test			
Equation: Untitled			
Test Statistic	Value	df	Probability
F-statistic	0.214958	(2, 84)	0.8070
Chi-square	0.429917	2	0.8066
Null Hypothesis: C(4)=C(5)=0			

TABLE 7: FIXED EFFECT MODEL (DEPENDENT VARIABLE ΔE_T)

Dependent Variable: LGNE at 1st differewnce				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.021175	0.061556	0.343999	0.7317
ΔE_{t-1}	1.321831	2.054440	0.643402	0.5218
ΔE_{t-2}	-0.441552	2.055549	-0.214810	0.8305
ΔY_{t-1}	3.534689	3.165736	1.116546	0.2675
ΔY_{t-2}	-3.447361	3.101729	-1.111432	0.2697
ΔY_t = LGDP at 1st difference, ΔE_t = LGNE at 1st difference				
R-squared	0.059438	Akaike info criterion		-0.786464
Adjusted R-squared	-0.034618	Schwarz criterion		-0.534804
Log likelihood	43.99765			

F-statistic	0.631945		
Prob(F-statistic)	0.748637		

TABLE 8: RANDOM EFFECT MODEL (DEPENDENT VARIABLE ΔE_T)

Dependent Variable: ΔE_t				
Variable	Coefficient	Std. Error	t-Statistic	Prob.
C	0.023264	0.033434	0.695816	0.4885
ΔE_{t-1}	1.093810	2.017521	0.542156	0.5891
ΔE_{t-2}	-0.678250	1.993399	-0.340248	0.7345
ΔY_{t-1}	3.196597	2.726675	1.172343	0.2444
ΔY_{t-2}	-3.673104	2.642568	-1.389975	0.1682
	Effects Specification			
			S.D.	Rho
Cross-section random			0.000000	0.0000
Idiosyncratic random			0.155674	1.0000
	Weighted Statistics			
R-squared	0.035800	Mean dependent var		0.005197
Adjusted R-squared	-0.010114	S.D. dependent var		0.153048
S.E. of regression	0.153820	Sum squared resid		1.987484
F-statistic	0.779713	Durbin-Watson stat		1.159725
Prob(F-statistic)	0.541483			
	Unweighted Statistics			
R-squared	0.035800	Mean dependent var		0.005197
Sum squared resid	1.987484	Durbin-Watson stat		1.159725

TABLE 9: HAUSMAN TEST

Correlated Random Effects - Hausman Test			
Equation: Untitled			
Test cross-section random effects			
Test Summary	Chi-Sq. Statistic	Chi-Sq. d.f.	Prob.
Cross-section random	0.000	4	1.00

Table 10: Wald Test

Wald Test:			
Equation: Untitled			
Test Statistic	Value	df	Probability
F-statistic	1.125605	(2, 84)	0.3293
Chi-square	2.251210	2	0.3245
Null Hypothesis: C(4)=C(5)=0			

CONCLUSION

There are several studies about the relationship between government expenditure and economic growth, but there are no common findings between the different studies, so investigation on this subject is still controversial among economist. For this reason, in this paper, we attempt to investigate the causal relationship between government expenditure and economic growth in short-run and long-run for BRICS countries.

The empirical result of panel co integration test indicates no co integration between government expenditure and economic growth for BRICS panel, which implies that there does not exist any long-run relationship BRICS countries. The panel causality framework based on Wald's test performed after investigates co integration relationship and indicates that no causality running in short-run for BRICS countries in both directions. These findings can be significant to some extent for policymakers to implement policy for the size of public expenditure.

REFERENCES:

Abul Kalam, M., Aziz, N. (2009). Growth of Government Expenditure in Bangladesh: An Empirical Enquiry into the Validity of Wagner's Law, *Global Economy journal*, 9(2).1-18.

Afzal, M., Abbas, Q. (2010). Wagner's law in Pakistan: Another look, *Journal of Economics and International Finance*, 2(1), 012-019.

Aregbeyen, O. (2006). Cointegration, Causality and Wagner's Law: A Test for Nigeria Central Bank of Nigeria, *economic and financial review*, 44(2), 1-18.

Baltagi, B.H. (2005). Econometric Analaysis of Panel Data. John Wiley & Sons, Ltd Third Edition.

Breitung, J. (2000). The local power of some unit root tests for panel data. *Advances in Econometrics* 15, 161–177.

Choi, I. (2001). Unit root tests for panel data. *Journal of International Money and Finance* 20, 249-272.

Dickey, D.A., and W.A.Fuller. (1979). Distribution of the Estimators for Autoregressive Time Series with a Unit Root, *Journal of the American Statistical Association* 74, 427–431.

Gangal Vijay L.N. and Ms. Honey Gupta .(2013). Public Expenditure and Economic Growth A Case Study of India, *Global Journal of Management and Business Studies,* 3, Number 2 (2013), pp. 191-196

Ghorbani, M., Firooz Zarea, A. (2009). Investigating Wagner's law in Iran's economy, *Journal of Economics and International Finance*, 1(5), 115-121.

Hsiao, C., 2003. Analysis of Panel Data, Second Edition. Cambridge University Press, Cambridge.

Halisioglu, F. (2003). Testing Wagner's Law for Turkey, 1960–2000, *Review Middle East Economic and Finance*, 1(2), 129-140.

Im, K.S., M.H.Pesaran, and Y.Shin. (2003). Testing for unit roots in heterogeneous panels. *Journal of Econometrics* 115, 53-74.

Islam, A, M. .(2000), 'Wagner's law revisited: cointegration and exogeneity tests for the USA' Applied Economics Letters, 8(8), 509 – 515.

Ju huang, C. (2006). Government Expenditures in China and Taiwan: Do They Follow Wagner's Law? *Journal of Economic Development,* 31(2), 139-148.

Kesavarajah, M. (2012). Wagner's Law in Sri Lanka: an Econometric Analysis, *Annual Research Journal of SLSAJ*, 12, 89-99.

Lahirushan K. P. K. S., W. G. V. Gunasekara .(2015). The Impact of Government Expenditure on Economic Growth: A Study of Asian Countries*, 'International Journal of Social, Behavioral, Educational, Economic, Business and Industrial Engineering* 9, 3044-3052.

Levin, A., and C.F.Lin. (1993). Unit Root Tests in Panel Data: Asymptotic and Finite Sample Properties. Working paper, University of California, San Diego.

Levin, A., C.F.Lin, and C.S.J. Chu.(2002). Unit -root test in panel data: asymptotic and finite sample properties. *Journal of Econometrics,* 108, 1-24.

M. Iftikhar-UL-Husnain and Asif Mehmood .(2006). Whether Or Not Public Expenditure In Pakistan Follows Wagner's Law? A Time Series Study 1973-2006, International Conference On Applied Economics – ICOAE 2010, 315-319.

Narayan, p., Prasad, A., Singh, B. (2008). A test of the Wagner's hypothesis for the Fiji islands, *Journal of Applied Economics*, 40(21), 2793-2801.

Narayan, P., Nielsen, I., Smyth, R. (2008). Panel Data, Cointegration, Causality and Wagner's Law: Empirical Evidence from Chinese Provinces, *China Economic Review*, 19(2), 297–307.

Oxley, L. (1994). Cointegration, Causality and Wagner's Law: A Test for Britain 1870-1913, *Scottish Journal of Political Economy*, 41(3), 286-298.

Pradhan, p p. (2007). Wagner's Law: Is It Valid in India? *The IUP Journal of Public Finance*, 5(2), 7-20.

Ravinthirakumaran N., M. Kesavaraiah .(2012). The Impact Of Government Expenditure On Economic Growth In Sri Lanka: An Econometric Analysis'Proceedings of the 8th International Conference on Business Management – 2011, 8 (2011).

Samudram, M., Nair, M., Vaithilingam, S. (2009). Keynes And Wagner On Government Expenditures And Economic Development: The Case Of A Developing Economy, *Empirical Economics*, 36(3), 697-712.

Sinha, D. (2007). Does the Wagner's Law hold for Thailand? A Time Series Study, Ritsumeikan Asia Pacific University, Japan, Macquarie University, MPRA Paper, No.2560.

Verma, S. and Rahul Arora (2010). Does the Indian Economy Support Wagner's Law? An Econometric Analysis , *Eurasian Journal of Business and Economics* 2010, 3 (5), 77-91.

EVALUATION OF MGNREGA IN JAMMU AND KASHMIR: A POLICY SOLUTION TO RURAL DEVELOPMENT

Fozia Tabassum*; Md. Firdos Ahmad**

* Research Scholar,
Department of Economics,
Aligarh Muslim University,
Aligarh, INDIA.
Email id: foziatabassum6@gmail.com

** Assistant Professor,
Department of Economics,
Aligarh Muslim University,
Aligarh, INDIA.
Email id: mdfirdosahmad@gmail.com

_____

ABSTRACT

The MGNREGA was developed by the Indian Government to reduce rural poverty through 100 days of guaranteed employment per year. Using secondary data, we explore whether this Scheme has provided social protection by creating assets and employment in the state of Jammu and Kashmir. Our results showed that the performance of MGNREGA is dismal in the state. Women employment rate is below the minimum required provision of 33 percent. The study has observed that despite being a source of employment, MGNREGA has not been able to create enormous assets and high level of empowerment and employment in the state of Jammu and Kashmir. Better implementation and greater recognition of the care giving responsibilities of women will be required for this policy to fully meet its goals.

KEYWORDS: *MGNREGA, Employment, Women Participation And Asset Creation.*

INTRODUCTION

In 2005, an ambitious programme was set up by Govt. of India i.e. National Rural Employment Guarantee Act (NREGA) and came into force on February 2, 2006. It was renamed as MGNREGA i.e. Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) in October 2009. Prior to MGNREGA, various programmes had been implemented by the Government of India to escalate the prolific employment of unemployed rural labourers These programmes could not provoke employment for rural masses on a large scale inorder to make a noticeable reduction in unemployment and poverty.

 It has been described as 'the largest state-run employment-generation scheme in the world' and 'the largest anti-poverty public employment programme in India. It was 'an Act to provide for the enhancement of livelihood security of the households in rural areas by providing at least one hundred days of guaranteed wage employment in every financial year to every household whose adult members volunteer to do unskilled manual work' (Ministry of Law and Justice 2005).

Goals of MGNREGA: The major goals of MGNREGA includes

Protective: To protect the environment by creating the productive assests

Preventive: To prevent the migration from rural to urban areas

Promotive: To   promote social equity and Empowerment of rural women and poor through the provision of a right based law.

Difference of MGNREGA with other employment programmes

- Earlier wage employment programmes did not provide any guarantee of job, this Act provided guaranteed job.

- Almost, all the programmes were allocation based, MGNREGA is a demand based programme.

- There was no time frame in other wage employment programmes but there is a time frame in MGNREGA and hence employment will be given within 15 days of demand and payment also within 15 days of work.

OBJECTIVES

- To know the employment generated by MGNREGA in the state of Jammu and Kashmir.

- To know the participation rate of women under the Scheme in the State of Jammu and Kashmir.

- To know the expenditure pattern on various items of work under MGNREGA in Jammu and Kashmir.

RESEARCH METHODOLOGY

To attain the objectives, secondary data have been collected from the official website of MGNREGA, Govt. of India. Also, information was gathered from other reliable sources like articles, journals, books, official reports and newspaper. The data has been presented by the use of simple percentage method with the help of tables and charts.

RESULTS

MGNREGA and Employment Generation

The basic objective of MGNREGA is to provide guaranteed wage employment of 100 days in a financial year to every household in rural area. Below table (1) and graph shows the employment effect of MGNREGA in Jammu and Kashmir.

TABLE 1
EMPLOYMENT EFFECT OF MGNREGA IN JAMMU AND KASHMIR

Items	2012 - 13	2013- 14	2014- 15	2015 - 16	2016- 17	2017- 18
NO. Of H.H Registered	117793	1257681	1263956	1335004	1246788	1169347
Employment demanded by HH	658644	711994	382530	703474	676567	397832
Demand against Registration (%)	55.91	56.61	30.26	52.69	54.26	34.02
Employment provided to HH	646516	657203	332265	652900	626832	331882
Employment provided (%)	98.15	92.3	86.85	92.81	92.64	83.42
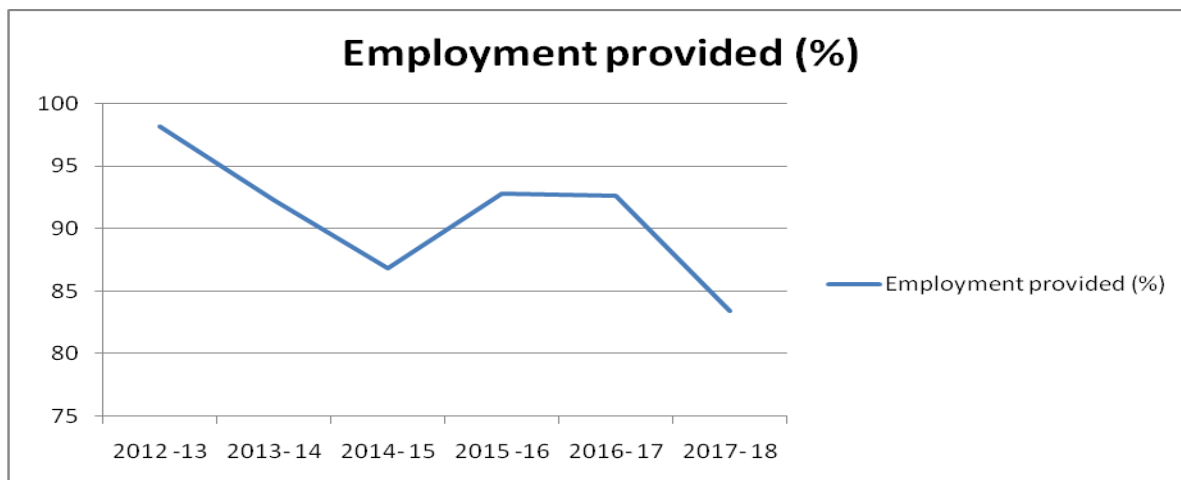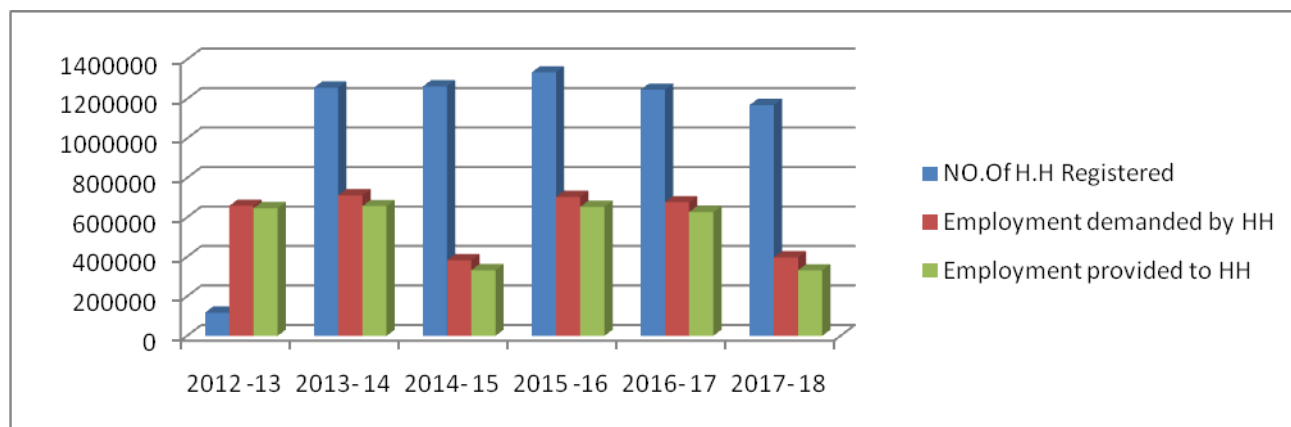
It is evident that the no. of households registered for job has increased from 1.17 lakh to 1.33Lakh in 2015-16, but it decreased upto1.16 Lakh in 2017-18. The actual demand for employment has increased from 6.5lakh to 6.7 lakh in 2012-13 to 2016-17. But in present scenario, the people demanded less employment under MGNREGA which has   decreased drastically up to 3.9 lakh in 2017-18. Overall, the Govt. also fails to provide employment under MGNREGA to the rural poor, which can be traced from the above graph. The unemployment has increased around 10 percent during 2012-13 to 2014-15 and in two years i.e.in 2015-17 unemployment reduced by 6 percent but remains stagnant and finally unemployment under MGNREGA in Jammu and Kashmir increased up to 9percent in 2017-18.

MGNREGA and Women Participation

One of the major objectives of MGNREGA is to ensure women participation in development process. Accordingly this participation level is fixed at 33 percent following the guidelines of MGNREGA. . Provisions like work within a radius of five kilometers from the house, absence of supervisor and contractor, and flexibility in terms of choosing period and months of employment equal wages for men and women (Schedule II (34)); and crèches for the children of women workers (Schedule II (28)) were made in the Act, with the view of ensuring that rural women benefit from the scheme in a certain manner. Below table (2) and graph shows the participation rate of women under the scheme in India and J& k state.

TABLE 2 PARTICIPATION RATE OF WOMEN UNDER THE SCHEME IN INDIA AND J&K STATE

Year	India	J & K
2006-07	40.65	4.45
2007-08	42.51	0.92
2008-09	47.87	5.76
2009-10	48.19	6.67
2010-11	47.72	7.47
2011-12	48.18	17.72
2012-13	51.3	20.5
2013-14	52.82	21.2
2014-15	54.88	23.13
2015-16	54.3	25.27
2016-17	56.14	25.28
2017-18	54.44	26.79
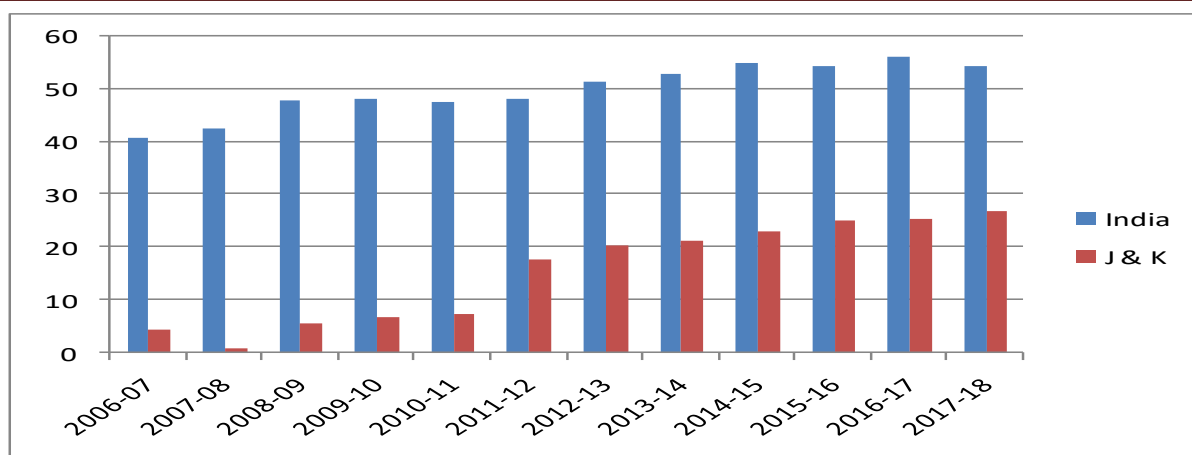
It is evident that MGNREGA has played a significant role in stimulating women's employment. At national level the share of women workers has recorded an increase from nearly 40 percent to 55 percent in 2017-18, which shows an increasing trend and is above the minimum required level of 33 percent. If we look the participation rate of women under MGNREGS in Jammu and Kashmir, it has increased   4.45 to 26.7 since its early years of implementation. But, still at present it is below the minimum required level of MGNREGS provision of 33percent. The inefficiency to implement one third provision is an important   indicator of the failure of MGNREGA implementation in the state.

MGNREGA and Asset Creation: The auxiliary objective of MGNREGA is strengthening natural resource management through works that address causes of chronic poverty like drought, deforestation and soil erosion so as to encourage sustainable development. Further, MGNREGA by encouraging work on water conservation, soil conservation, irrigation, flood protection, afforestation and plantation helps to insulate local community from adverse affect of climate change. Below table (3) and figure shows the estimates of expenditure (in percentage) pattern on various items of work under MGNREGA in the state of Jammu and Kashmir.

TABLE 3
ESTIMATES OF EXPENDITURE (IN PERCENTAGE) PATTERN ON VARIOUS ITEMS OF WORK UNDER MGNREGA IN THE STATE OF JAMMU AND KASHMIR

Items	2012 -13	2013 -14	2014-15	2015 -16	2016-17	2017-18
Land Development	11.98	12.58	11.06	10.87	8.93	7.92
Rural connectivity	39.79	39.09	37.55	39.79	47.5	49.46
Flood Control	24.69	26.69	28.37	25.84	20.69	18.7
Provision of irrigation facilities	8.71	8.12	7.77	9.3	9.29	9.88
Water conservation	5.47	3.9	3.49	3.61	4.19	4.64
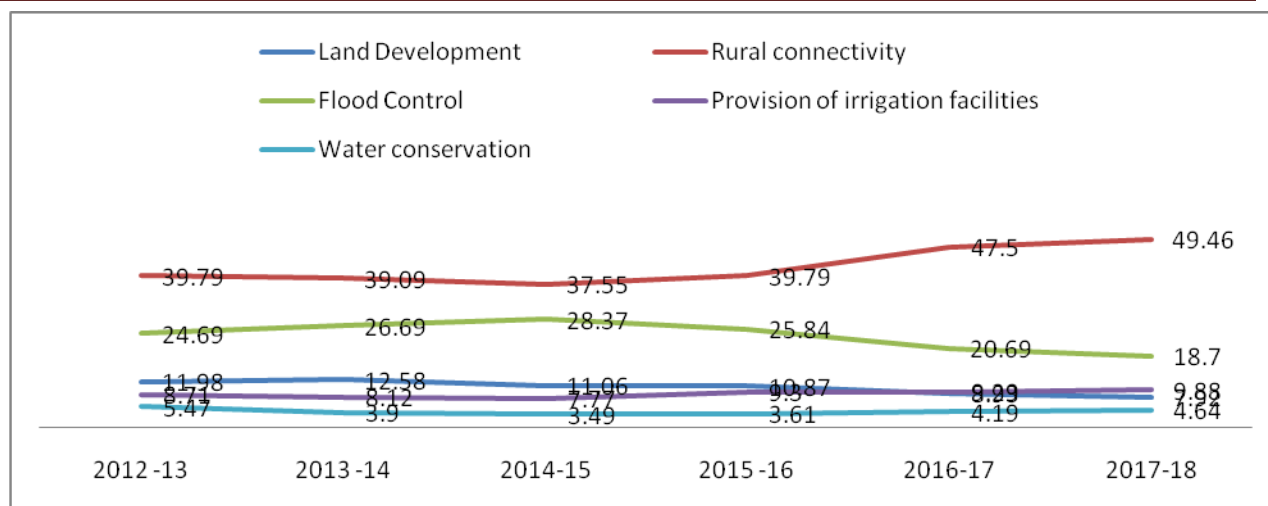
Data shown in the table and figure indicates that the expenditure (in percentage) pattern is not up to the mark except on the item of rural connectivity. A large improvement has occurred in case of rural connectivity which is followed by flood control. The activity like rural connectivity has become prominent asset creation and has increased from 39.79 percent to 49.46 percent during 2012-13 to 2017-18. But there exists a declining trend of expenditure in other works like land development and water conservation in the state of Jammu and Kashmir.

CONCLUSION:

It is evident from the above summary that MGNREGA has opened up the scope for transformation of the rural economy from its perishing stage to a comparatively better natural resource endowed economy. MGNREGA has not only the potential to raise the female labour participation rate by bringing employment opportunities at their door step, but it has also the potential to reduce the gender disparity by providing equal wages in the labour market . Our findings also revealed that the scheme has been successful in providing employment to all those who have actually demanded employment in the state of Jammu and Kashmir. But the low participation of women, below the minimum required provision of MGNREGA revealed the presence of gender discrimination under the scheme in the state of Jammu and Kashmir.

REFERENCES:
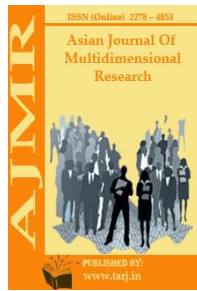
Ahangar, G. B. (2014). Women Empowerment through MGNREGA: A Case Study of Block Shahabad of District Anantnag, Jammu And Kashmir. *ABHINAV National Monthly Refereed Journal of Research in Commerce and Management*, *3*, 55-62.

Das, D. (2012). Examining India's Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA): Its impact on women participation. *International Journal of Research in Management, 6*(2), 209-218.

Dhananjaya, K. & Prathibha, M.S. (2011), "Role of Mahatma Gandhi National Rural Employment Guarantee Act (MGNREGA) in Rural Asset Creation in India: An Analysis", *Journal of Global Economy*, *7*(4), 275-295.

Hirway, I. & Terhat, P. (1999). *Towards Employment Guarantee in India,* Saga Publication, New Delhi.

Khera, R. (2008). "Empowerment Guarantee Act", *Economic and Political Weekly*, *30*(2), 49-57.

Mourtin, K. (2007). "NREGA - A Key to Sustainable Rural Development, An Empirical Evidence from Betul District, Madhya Pradesh", *Journal of Vikas Vani*, *3*(3), 14-23.

Pankaj, A. & Tankha, R. (2010), "Empowerment Effects of the NREGS on Women Workers: A Study in Four States", *Economic and Political Weekly,* 45(30), 45-55.

Rohtagi, V.D. (2009), *Introducing to National Rural Employment Guarantee Act*, Sumit Publication, Delhi.

www.nrega.nic.in

TEACHERS' QUALITY OF WORK LIFE IN INDIA AND ITS CHALLENGES WITH SPECIAL REFERENCE TO HIGHER EDUCATION

Linus Benedicta D Souza*; Dr. Flosy C. R. D Souza**

*Research Scholar,
Mangalore University,
St. Ann's College of Education (Autonomous),
Mangalore, Karnataka, INDIA.
Email id: linusbenedictapinto@gmail.com

**Associate Professor,
St. Ann's College of Education, (Autonomous),
Mangalore, Karnataka, INDIA.

_____

ABSTRACT

The purpose of this study was to trace the trend in Teachers' Quality of Work Life (QWL) and to find the difference in the QWL of Higher Education Teachers' with reference to Gender. It further focused on the Challenges ahead and suggests measures to improve the QWL of the Teachers'. QWL seeks to create such a work environment where the employees work co-operatively and make positive contribution in achieving organizational objectives. The suggestions given would be of strategic importance to educational institutions to identify the critical and determinant factors that could enhance Teachers' job satisfaction, commitment, and performance levels.

KEYWORDS: *Quality of Work Life, Higher Education.*

INTRODUCTION:

Quality of work life (QWL) refers to the favourableness or unfavourableness of a job environment for the people working in an organisation. It basically talks about the methods in which an organisation can ensure the holistic well-being of an employee instead of just focusing on work-related aspects. It refers to the relationship between a worker and his environment, that can be broken down into different dimensions like the social, technical and economic, in which the work is normally viewed and designed. QWL means the sum total of values, both material and nonmaterial, attained by a worker throughout his career life. QWL includes aspects of work-related life such as wages and hours of work, work environment, benefits and services, career prospects and human relations, which are possibly relevant to work satisfaction. It can be concluded that QWL is concerned with improving life not only at work but also life outside work.

QWL seeks to create such a work environment where the employees work co-operatively and make positive contribution in achieving organizational objectives. According to Alireza and Amirian (2012) QWL has direct bearing with productivity, as improved QWL will ultimately lead to higher productivity and job satisfaction. QWL seeks to create such a work environment where the employees work co-operatively and make positive contribution in achieving organizational goal.

QWL, as the word goes it is all about how the work and personal life is being managed meaningfully to meet the needs of both work and life. It is a set of principles or the elements that are relevant to an individual's well being in the organization which consists of the task, the physical work environment, social environment within the organization, administrative system and relationship between life on and off the job. In this context, for improving the QWL all the stakeholders take responsibility such as employers, workers, professional organizations, government and managers. This paper is an attempt to trace the trend in teacher's quality of work life with specific reference to Higher Education in India. This paper further focuses on the Challenges ahead and suggests measures to improve the QWL of the teachers.

REVIEW OF LITERATURE:

Several research studies in the world have measured the Quality of Work Life (QWL) of employees in Industries, Universities, Schools, Government and Non- government organizations. Quality of Work Life has its roots in the theories of Maslow, Herzberg and McGregor. Under high time pressure workers see task completion as their main objective and complete the task as quickly as possible, but at the sacrifice of quality (Van der Kleij, Lijkwn, Rasker and De Dreu, 2008).

Shahrashob (2006) did his thesis on the "relationship between quality of work life and organizational commitment among high school teachers in Gonbadkavus city in Iran". The findings indicated that there was a positive relationship between an individuals quality of work life and organizational commitment.

A study by Tasmin, (2006) claimed that women teachers' job satisfaction is influenced by their work environment, interpersonal relation and supervision of the head teacher, whereas men teachers' job satisfaction is influenced by salary and job security.

Kian-Sam Hong, Kok-Wah Tan & Suraini Bujang, (2010) explained that respondents only had moderate work life quality. There were also moderate relationships between work life quality

and work commitment, stress, and satisfaction but there were no differences in the quality of work life based on demographic variables. On studying the work commitment based on gender the researcher found the difference in the level of commitment. Research also revealed that there were also no differences in work stress and satisfaction based on the same demographic variables. Similarly, the findings suggested that work commitment, work stress and satisfaction were not significantly correlated. Improvement in QWL of the teachers will ensure that students gain benefits from teaching

Tabassumb Ayesha (2012) investigated QWL of employees in the private universities of Bangladesh. The researcher designed a structured questionnaire with 5-point Likert-scale and collected the data from 72 fulltime faculty members among 11 private universities. The researcher analyzed the dimensions of Quality of Work Life and its relationship with job satisfaction. This study concluded that there is a positive relationship between the dimensions of QWL and job satisfaction. This study suggested to the management of the institutions that the policies be designed in such a way that QWL issues should be considered. Improved QWL provides a higher level of job satisfaction which in turn reduces faculty member's turnover rate.

NEED FOR THE STUDY:

What we need today is quality in Higher Education. In QWL has direct bearing with productivity, as improved QWL will ultimately lead to higher productivity and job satisfaction. QWL seeks to create such a work environment where the teachers work co-operatively and make positive contribution in achieving educational institution goals. The study has made an attempt to trace the trend in Teachers' Quality of Work Life (QWL) and to find the difference in the QWL of Higher education Teachers' with reference to Gender.

Trend in teacher's quality of work life:

Education empowers human beings by developing their skills, abilities, rationale that provides competitive edge to them. They get knowledge through education, evaluate the phenomenon and generate as well as share the ideas in the society.

Teachers are the pillars of an institution, various functions of an institute is planned, executed and controlled by human resource. The management of human resource plays a key role in opening up of new opportunities for promoting the growth of both the individual and institutions. Through QWL the institute works in the same direction. It is essential for the institution to develop quality relation between its teachers and working environment because now-a- days, a demanding job creates imbalance between family and work life due to job pressure and conflicting interests. The threat of imbalance in work and non-work life has implications not only on the teachers but also on organizations, governments and society.

One of the ironies of the Indian education system is that there is practically no incentive for performers. Teachers move up the ladder according to seniority. The Indian government had introduced a range of awards for teachers in 1950. Discussions with teachers and stakeholders revealed that selection for awards now rarely depended on performance on the ground and was more a function of a teacher's ability to lobby with the decision-makers. These aspects are well quoted by Kotze (2005) —"employees spend most of their time in work related activities, even plan their time, living standards and social interaction around the demands of their work. Indeed, to a large extent, people define themselves and others in terms of their work, making Quality of Work Life (QWL) in organizations a major component of quality of life in general." Rathi,

(2010) confirms the same through her study. Therefore, the QWL has emerged as one of the most important aspects of job that ensures long term association of employees with the organization.

A national survey, conducted in 2003, found that only 50 percent of teachers responding indicated that the professional development they experience helps them teach more effectively. There is an increasing need to link school knowledge with community knowledge. This increases the relevance of education and the quality of learning. This also promotes the inclusion of locally relevant content in the curriculum and pedagogy.

QWL is a way through which an institution gets aware of its responsibility to develop jobs and working conditions which are excellent for people and beneficial for the economic health of the institution. India's developing economy is rising with liberalization, privatization, automation and globalization. These factors affect the life of educational institution and also employees. It becomes more challenging for teachers to cope with advancements so that they are able to prepare the new generations to stand matched to the market demand. With this challenge, it is necessary to provide a better and flexible working environment for teachers so that they can give their best to the institutions.

Education is potentially the greatest social equalizer in society and higher education plays a critical role and thus provides a very deep impact in creating society, culture, and economic wellbeing of new generation. So the educational employees' quality of work life is a necessary indeed, the key ingredient for the progress of our nation.

Higher education is the key to success of a nation which boosts the economic potential of entire nation leading to the development of the nation. This is like middleware transformation engines which produces manpower for industry, develop entrepreneurs and motivates young minds for R&D. This responsibility is on the shoulders of educational employees to understand and transform the energy and knowledge of students in an effective and efficient manner.

Quality of work life of employees in India

In India, some of the companies that emphasize the quality of work life of their employees are Hewlett-Packard(HP), Smith Kline Beecham, American Express, Colgate Palmolive, Gillette, Dr. Reddy's Laboratories, Reliance and Maruti Udyog Limited. HP allows flexible working arrangements for its employees and follows certain innovative practices such as allowing employees to avail leave for special occasions like marriage, exam preparation, adoption of a child, bereavement in the family, and paternity.

QWL and Quality of life has a significant association in teaching environment. Factors such as salary and wages have badly affected relationship between academicians and administrators. Due to salary bias between equally qualified employees, and low advancement opportunity for growth, dissatisfaction regarding leave flexibility are some of the reasons for low QWL of respondents.

Improved QWL is beneficial for both the employee and institute so it's the mutual responsibility of the two.

OBJECTIVE OF THE STUDY:

To trace the trend in Teachers' Quality of Work Life (QWL) and to find the difference in the QWL of Higher education Teachers' with reference to Gender.

HYPOTHESES:

There is no significant difference in the QWL of Higher education Teachers' with reference to Gender.

METHODOLOGY

Two hundred teachers, one hundred female and one hundred male teachers teaching the Undergraduate courses namely B.A, B.SC, B.B.M, B.COM and B.C.A of Dakshina Kannada district constituted the sample of the study QWL Scale constructed by the investigator involving the components. stability of tenure, growth opportunity, employee satisfaction, innovative practices ,work life balance ,human relations, challenging activities   validated by experts in the field has been used. To generalize the results the 't' test was used. The analysis shows that there is no significant difference in the Quality of Work Life of male and female teachers of higher education.

Analysis and Interpretation

H_O: There is no significant difference in the quality work life among male and female teachers

Test of significance namely't' test was applied to test the hypothesis.

TABLE 1: 'T' TEST RELATED TO QUALITY OF WORK LIFE

Gender	N	Mean	Std. Deviation	't'	Significance(0.05 level)
Male	100	169.78	10.006		
Female	100	168.32	9.274	1.30	NS

NS: Not Significant

From the above table it is evident that the 't' value is 1.30, which is not significant at 0.05 level. This indicates that there is no significance difference in the quality of work life among the male and female teachers.

CHALLENGES:

Higher education is the first and foremost which faces the requirement and challenges of the industry and society. The effectiveness and efficiency of education industry is directly dependent on employees only because the infrastructure and technology is lesser required in comparison to other industries. Each teacher will have her/his own priorities and values. One way of improving their QWL is to ask teachers what their most important priorities are and find out what things each teacher values the most. More often than not, they tend to value the same things: salaries, meeting times and benefits.

Some of the other Challenges faced by the teachers related to QWL may include, Poor Working environment, lack of Flexibility of working hours, Salary disparity, lack of Health care benefits, lack of access to recreational/fitness resource, heavy Work load, Limited opportunities to develop new skills, lack of Fair and equitable performance appraisal, Limited opportunity for scholarly pursuit, fear of Job security, lack of good Relationship with co-workers and supervisors and Limited Opportunity to work independently.

Suggestions to improve QWL of the teachers:

- Provide professional development. In order to get better at what they do, it's a good idea for teachers to improve their skills and stay current in their fields.

- Allow teachers to have some control over their teaching methods by selecting their own textbooks and other instructional materials. When you offer control, teachers feel they have the authority to implement new methods or reinvent old ones.

- Keep teachers safe while they're at work. Some school/college systems have a resource officer who provides a level of protection during the day.

- Encourage family participation: Invite parents to the school/college for presentations and awards, and make it easier for parents to get involved

- Reduce class size so that teachers have more time to work with each child.

- Offer support to teachers at all times. Whenever there's a conflict with students or parents, try to stand behind your teacher's decisions. When a teacher feels she has her school's support, she's more likely to be happy.

- Create an environment in which educational employees achieve their own set targets for Excellence and sustain the same with autonomy and accountability.

- Conduct Qualification enhancement programs like workshop and training for teachers and staff in new technologies, standards and processes.

- Organize Employee exchange programs between national and international varsities for understanding of global need, requirement and cultural differences.

- Formulate Fair and transparent employee's evaluation cell for understanding the need of employees, rewards and recognition, promotion schemes, grievance redressing and personal counseling mechanisms.

- Establish a Life and Career Advising Centre –a single point of contact for educational employees' counseling on current job, personal and career issues.

- Conduct frequent meeting, dialogues and sharing of information between employees and management for transparency and institutions new plans and projects

It is found from literature review that quality of work life is an important issue from the teacher's perspectives as it affects the Teachers' job satisfaction level, commitment, engagement, performance, work life balance and organizational commitment. Therefore, the above suggestions would be of strategic importance to educational institutions to identify the critical and determinants factors that could enhance teacher's job satisfaction, commitment, and performance level. Hence, higher educational authority should take progressive steps to organize a conducive and congenial work culture and environment at higher educational level in which every teacher works in a well defined manner for their own excellence and for institutional effectiveness also.

CONCLUSION:

QWL is concerned with improving life not only at work but also life outside work. In today's competitive market, the academic institutions need to focus explicitly on providing quality

education to the students with the help of experienced academicians. The quality in education would increase when the faculty members have a better quality of work life and this can be possible by providing better welfare facilities to them by the institutions. Welfare facilities enable the staff members to live a quality and more satisfactory life. These facilities also help teachers to keep their motivation levels high.

BIBLIOGRAPHY

Blix, G.A. and Lee, J.W. (1994), Occupational Stress among University Teachers, Journal of Educational Research, Vol. 36(2), pp. 157-159.

Abel, M.H. and Sewell, J. (1999), Stress and Burnout in Rural and Urban Secondary School Teachers, The Journal of Education Research, Vol. 92(5), pp. 287- 293.

Tasmin, S. (2006). A study of primary schools in Bangladesh. University of Bergen, Norway

Shahrashob (2006) Asia Pacific Journal of Research Vol: I Issue XII, December 2013 ISSN: 2320-5504, E-ISSN-2347-4793

Trehan Ruchi (2008), Work environment and Quality of Life. New Delhi: Regal Publications

Kumar, D., & Deo, J., M., (2011). Stress and Work Life of College Teachers, Journal of Academy of Indian Academy of Applied Psychocology, 37, 78- 85.

Tabassum, A. (2012). Interrelations between Quality of Work Life Dimensions and Faculty Member Job Satisfaction in the Private Universities of Bangladesh, European Journal of Business and Management, 4(2), 78-89

Alireza and Amirian (2012) Study of the Relationship between Teachers and Principals' Spiritual Leadership, Quality of Work Life, Job Satisfaction and Productivity Article ISSN 1450-223X Issue 49 (*2012*), pp.

Arif S., & Ilyas M., (2013). "Quality of Work- life model for Teachers of Private Universities in Pakistan. " Quality Assurance in Education, Emerald Group Publishing Limited. 21(3), 282-298. 20. WFD Consulting. (2003).

Education in India-Wikipedia, the free encyclopedia. (n.d.). Retrieved September 23, 2013, from http://en.wikipedia.org/wiki/Education_in_India

Kawaljit Kaur (2016) Impact of Quality of Work life on Overall Job Satisfaction Level and Motivational Level: A Study of Government Universities in Punjab. Business Review International Volume 8, Issue 8, February 2016

A Comparative Study of QWL among University Teachers Kawaljit Kaur1 , Dhiraj Sharma2 1 (Assistant Professor, P.G. Department of Commerce and Management, Khalsa College, Amritsar) 2 (Assistant Professor, School of Management Studies, Punjabi University, Patiala) (1 bhatiaasr@gmail.com, 2 dhiraj.pbiuniv@gmail.com)

THE ROLE OF COMPUTER-ASSISTED SUBGRAPHY IN DIAGNOSING, DISTRIBUTING PRESSURE AND PRESCRIBING PREVENTIVE FOOTWEAR FOR DIABETICS

Dj.A. Djuraev *; A.A. Khaydarov**

*Professor of Technical Sciences,
"Tashkent Institute of Textile and Light Industry",
UZBEKISTAN.

**Candidate of Technical Sciences,
"Tashkent Institute of Textile and Light Industry",
M.O Mukhammedova, Doctarate,
Bukhara Engineering and Technology Institute,
UZBEKISTAN.

_____

ABSTRACT

For solving the problems of rehabilitation of the lower extremities an important role is assigned to the examination of the functional state of the feet.With the help of computer subgraphs one can see a reak picture of the distribution of pressure along the surface of the track and identify the zones of overload of the feet. The urgency in the timely detection of this pathology is explained by the number of people with diabetes. Annually this number increases. In order to prevent the development of complications, it is necessary to know the causes of their occurrence. A number of factors have been identified that are associated with the development of the diabetic foot syndrome. The main goal of the confectioning of materials for the product is the production of high quality goods, competitive in the conditions of market relations. The way of life of the person, nevertheless, includes in itself still a dynamic component or fulfillment of various locomotion acts: walking, running and other physical activities. It is necessary to proceed from an objective assessment. This assessment can serve as a change in blood filling during compression of the foot.

KEYWORDS: *Measuring Insoles, Risk Of Recurrence Of Trophic Ulcers, Non-Rational Footwear, Subgraph, Decrease N Sentivity, Treament- And- Prophylactic.*

INTRODUCTION

The state of the social sphere at the present time can be assessed as critical. Its financing, as before, is carried out on a residual principle. The allocated funds for the development of health care, education, science, culture do not correspond to the existing need(Crook, 1996; Mukhtarov, Fox, Mukhamedova, & Wegerich, 2015).

At the same time, a new stage in the reform of science requires the concentration of research on priority (critical) areas of development of the social sphere, where the forces of science are scattered in many industrial areas and dozens of federal programs. Such dispersion of forces not only hinders the effective development of the social sphere, but also creates pockets of social tension and instability in society(Bobur et al., 2015; Seiple, 2005; W. Anderson, 1954).

Creation of a database for the scientific justification of the design of medical footwear, taking into account the location of the reflex zones on the feet, will allow not only to correct and unload the deformed parts of the feet, but also to provide therapeutic and preventive effects through them on individual organs.

Shoes are designed to protect the foot and, consequently, the entire human body from the effects of the environment; it facilitates movement and provides a normal condition for work and leisure.

In the context of increasing the requirements for the quality of footwear, the constant renewal of the range of materials, their reasonable choice, as well as the study of methods for evaluating the most important properties of materials that determine their ability to meet the needs of the individual in the products, is of particular importance.

METHODOLOGY

Diagnosis of the human musculoskeletal system is especially important, which is explained by the direct relationship between the state of the person's feet and the state of the human spine, as well as the maxillofacial system of a person. The development of foot pathologies not only leads to an incorrect distribution of pressure along the supporting surface, but also to pathologies of the joints, which in turn can disrupt the habitual way of life of a person(Greil, Lifka, Society, & 1998, n.d.; Sahadeo & Zanca, 2007).

The problems of diabetic foot are now causing increased interest in all leading orthopedic firms in the world. Diabetes mellitus is a chronic disease that, at the present stage of the development of medicine, can not be cured. According to the WHO International Committee (1988), the number of patients with diabetes mellitus has increased significantly and is more than 3% of the world's population, and in the age group over 60 years - 7-9%. However, many experts believe that the true incidence of diabetes is 2 times higher than the one diagnosed. Every third patient is hospitalized with a connection with a lesion of the feet, diabetic gangrene is responsible for 70% of all amputations(Frehywot et al., 2013; Nei, of, & 1979, n.d.).

Especially important is the timely detection of pathologies associated with the syndrome of the diabetic foot. Syndrome diabetic foot is characterized by purulent necrotic processes and in neglected cases can lead to amputation of the affected lower limb. The urgency in the timely detection of this pathology is explained by the number of people with diabetes. Annually this number increases. At the same time from the number of 5 million about a quarter - is subject to

the manifestation of the syndrome of the diabetic foot. Untimely detection of this pathology leads to amputations, and then to an increase in the number of disabled people.

The idea of computer sublimation comes from optical methods of stop diagnostics. There are systems that contain a glass plate where a person is placed, and a scanner that shoots the subject of the subject. According to the received pictures, having preliminarily performed certain analytical calculations, they make a diagnosis. The method has proved itself well and is used to this day. This diagnosis has a disadvantage - a person during the study is worth, i.e. is in static. The way of life of the person, nevertheless, includes in itself still a dynamic component or fulfillment of various locomotion acts: walking, running and other physical activities.

DISCUSSIONS

In view of the foregoing, we can conclude that when using optical methods for diagnosing the human musculoskeletal system, it is not possible to obtain data on the distribution of pressure along the support surface of the human foot during physical exertion(Granich, Gilks, Dye, Lancet, & 2009, n.d.; Khodjaeva, Kharabara, & Akhmedov, 2001).

To solve this problem, it is proposed to use the method of computer subgraphy. The method itself is based on the determination of the distribution of pressure along the support surface of the human feet by means of a computer subgraph. Computer sub-graph is an information and measuring system that includes a data acquisition unit, a data processing unit and a personal computer.

The device is a measuring insole with built-in sensors, which are embedded in the shoes of the subject. After processing the received data, they arrive at a personal computer where they are interpreted in a special software package and diagnosed.

Prospects for such information and measurement systems are quite extensive. The use of research results can be applied in sports medicine, the manufacture of orthopedic shoes and other areas.

As mentioned above, it is important to reduce the pressure of the top of the shoe on the foot in different positions. At the same time, it should be noted that with redistribution and pressure control throughout the contact area, it is possible to achieve a significant reduction in the foot pressure design in individual zones (see Fig. 2a), it can be seen that high-pressure foci (different zones) when the orthopedic footwear is not enlarged (see Fig. 2b). Especially the elimination of zones (red shades) due to the use of the recommended design of orthopedic footwear (see Fig. 1). Table 1 compares the pressure values when using existing and recommended footwear. Analysis of the data in Table 1 shows that when the recommended design of orthopedic footwear is not used, on average (10-15%) percent, the pressure on the foot decreases compared to the existing footwear at different positions.

а)   *Б)*
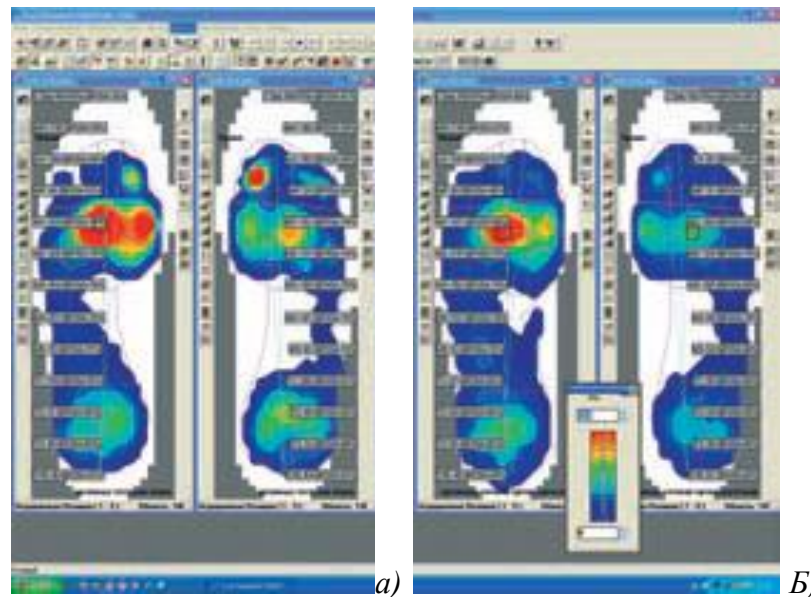
Fig.1. Results of subgraphy in ordinary and orthopedic footwear of lower extremities

When designing the internal form of shoes (pads), it should be borne in mind that even a slight pressure on the surface of the foot results in squeezing the capillaries and squeezing blood out of them. Long-term circulatory disturbances in the capillaries can lead to traumatic lesions.

Comfortable footwear should be considered one that does not cause disturbances in the circulation of the skin and the bone structure of the feet, i.e. ensures its normal functioning. It is known that the foot of shoes, especially in shoes and half-shoes, is compressed and transverse direction. Even with the putting on of the shoe and the position of the foot on the weight, compression of the foot and stretching of the upper material in the transverse direction are noted. To determine the pressure of shoes on the foot, it is necessary to proceed from an objective assessment. This assessment can serve as a change in blood filling during compression of the foot. It was recommended new orthopedic footwear for patients with diabetes mellitus (Fig. 1).

Figure 1.

№	Condition	Pressure	
		Existing shoes	**Recommended shoes**
1.	In the horizontal	8,7	6,9
2.	With the support of one leg and the knee of the other	17,3	14,7
3.	With support on both feet	18,5	16,9
4.	The moment of the sensation of compression	5,4	4,6

Table title: Pressure, MPa, the top of the shoe on the foot In different positions

People suffering from diabetes should pay special attention to their feet and feet. To protect against injuries with reduced sensitivity, prevention of orthopedic ulcers, it is advised to wear preventive orthopedic footwear.

People suffering from diabetes mellitus are affected by blood vessels and nerves. As a result, the sensitivity of the legs decreases the risk of foot traumas increases, the development of ulcerative foot defects.

Diabetic footwear is one of the preventive measures aimed at preventing the development of foot lesions. If the patient wears orthopedic footwear suitable for him, then this reduces the probability of ulceration on the foot 2-3 times. The diabetic foot syndrome is an independent complication of diabetes mellitus, which is dangerous because of severe clinical, psychological, social, economic consequences. In order to prevent the development of complications, it is necessary to know the causes of their occurrence. A number of factors have been identified that are associated with the development of the diabetic foot syndrome. Of particular interest is the determination of the significance of social and hygienic risk factors in the onset and progression of diabetes mellitus(Khodjaeva et al., 2001; Razakov Sh & Shakhgunova, 2001).

The main goal of the confectioning of materials for the product is the production of high quality goods, competitive in the conditions of market relations. This provides a comprehensive solution to the problem of rational and correct selection of materials in product packages based on a deep knowledge of the range, properties of materials and requirements for the product as a whole and its individual details. The causes of deformities of the feet can be conditionally divided into external and internal ones. External reasons include overloads, depending on the nature of work and irrational shoes, to internal - hereditary-constitutional predispositions, as well as the primary weakness of the muscular apparatus. In the classification of pathological states of the foot due to excessive static load, static deformations and functional insufficiency are usually identified. Static deformations include: longitudinal and transverse flatfoot, deviation of the thumb outward, hammer-shaped fingers, callousness, calluses and scrapes. Functional insufficiency of the feet is characterized by fast fatigue of the lower limbs, tenderness of the feet and lower leg, swelling of the soft tissues of the feet, instability of the joints during exercise (podtatyvanie stop when walking and running), increased sweating.

The prophylactic effect of orthopedic footwear has been proven in studies involving high-risk patients (history of trophic ulcers), but has not been confirmed in low-risk groups. Table 2 provides comparative indicators of the use of orthopedic shoes. In the recommended design, almost no complaints and pain in the process of wearing shoes.

TABLE 2.INDICES OF USE OF ORTHOPEDIC FOOTWEAR

	The number of complaints for everyday and pain when wearing shoes	
	During the week	During the month
Footwear	12	37
Recommended shoes	-	2

At the same time, patients did not complain about injuries and pain in their feet. The design allows the uniformity of the load across the entire surface of the foot.
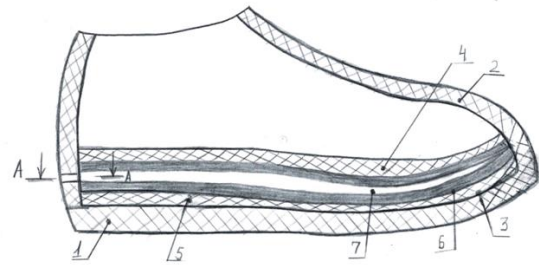
The design can be used for all kinds of shoes.

A – A
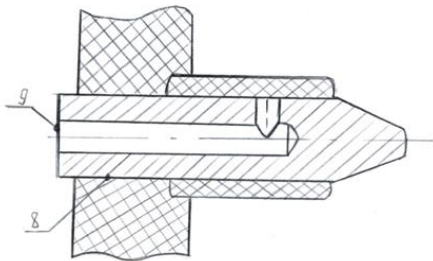
Expended

Fig.1. Orthopedic shoes for patients with diabetes mellitus

CONCLUSION

According to the data of a randomized clinical trial, the risk of relapse of trophic ulcers decreased by 45% for 1 year of wearing "shoe by ready-made shoe". Qualitative orthopedic footwear significantly (by 2-3 times) reduces the risk of diabetic foot syndrome - that is, it has a more effective preventive effect than most drugs prescribed for this purpose.

REFERENCES

Crook, C. (1996). *Computers and the collaborative experience of learning*.

Frehywot, S., Vovides, Y., Talib, Z., Mikhail, N., Ross, H., Wohltjen, H., … Scott, J. (2013). E-learning in medical education in resource constrained low- and middle-income countries. *Human Resources for Health*, *11*(1), 4. https://doi.org/10.1186/1478-4491-11-4

Granich, R., Gilks, C., Dye, C., Lancet, K. D. C.-T., & 2009, undefined. (n.d.). Universal voluntary HIV testing with immediate antiretroviral therapy as a strategy for elimination of HIV transmission: a mathematical model. *Elsevier*. Retrieved from https://www.sciencedirect.com/science/article/pii/S0140673608616979

Greil, P., Lifka, T., Society, A. K.-J. of the E. C., & 1998, undefined. (n.d.). Biomorphic cellular silicon carbide ceramics from wood: I. Processing and microstructure. *Elsevier*. Retrieved from https://www.sciencedirect.com/science/article/pii/S0955221998001563

Chentsova K.I. Stop and rational shoes. - Moscow: Light Industry, 2000

Gurdjian A.S. Preventive footwear for diabetics / A.C. Gurdjian, S.P. Aleksandrov, 3. Kaspar // Vestn. guild prosthetic orthopedists. 2002. - №2 (8)

Dedov I.I. Syndrome diabetic foot: a clinic, diagnosis, treatment and prevention / IIDedov, MBAntsiferov.

Khodjaeva, D. N., Kharabara, G. I., & Akhmedov, S. A. (2001). Suicide prevention in Uzbekistan. *Mental Health Reforms*, *6*(2), 16–17. Retrieved from http://ovidsp.ovid.com

Mukhtarov, F., Fox, S., Mukhamedova, N., & Wegerich, K. (2015). Interactive institutional design and contextual relevance: Water user groups in Turkey, Azerbaijan and Uzbekistan. *Environmental Science and Policy*, *53*, 206–214. https://doi.org/10.1016/j.envsci.2014.10.006

Nei, M., of, W. L.-P. of the N. A., & 1979, undefined. (n.d.). Mathematical model for studying genetic variation in terms of restriction endonucleases. *National Acad Sciences*. Retrieved from http://www.pnas.org/content/76/10/5269.short

Razakov Sh, A., & Shakhgunova, Gs. (2001). [Current malaria situation in the Republic of Uzbekistan]. *Med Parazitol (Mosk)*, (1), 39–41. Retrieved from http://www.ncbi.nlm.nih.gov/pubmed/11548313

Sahadeo, J., & Zanca, R. (2007). *Everyday life in Central Asia: Past and present*.

Seiple, C. (2005). Uzbekistan: Civil society in the Heartland. *Orbis*, *49*(2), 245–259. https://doi.org/10.1016/j.orbis.2005.01.011

W. Anderson, P. (1954). A Mathematical Model for the Narrowing of Spectral Lines by Exchange or Motion. *Journal of the Physical Society of Japan*, *9*(3), 316–339. https://doi.org/10.1143/JPSJ.9.3161.

Antsiferov M.B. Syndrome of diabetic foot. M.B. Antsiferov, G.R. Galstyan, A.Yu.

Vitenson A.S. Biomechanical and neurophysiological regularities of normal and pathological walking rights. Medical Biomechanics: Tez. doc. Intern. Conf. on problems of biomechanics.

Orthopedic footwear shoe wooden. Technical conditions. TU 213 of the RSFSR 1-204-84.

Pressure distribution under the feet on the treadmill walking with unstable Shoes and regular running shoes in different conditions. Soňa Jandová, *, Petr Volf, Ladislav Nagy. ScienceDirect.2015
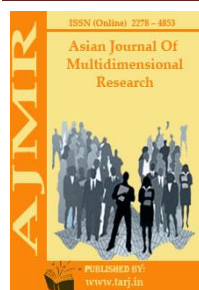
LOCAL PEOPLES' PERCEPTIONS TOWARDS THE SOCIO-ECONOMIC IMPACTS OF COASTAL TOURISM: A CASE STUDY OF DIGHA-SHANKARPUR PLANNING AREA IN WEST BENGAL, INDIA

Anirban Baitalik*; Sankar Majumder**

*Research Scholar,
Palli Charcha Kendra,
Visva-Bharati, Santiniketan,
West Bengal, INDIA.
Email id: anirbanbaitalik@gmail.com

**Professor of Economics,
Palli Charcha Kendra (Dept. of Rural Studies)
Principal, Institute of Rural Reconstruction,
Visva-Bharati, Santiniketan, West Bengal, INDIA.
Email id: kgp_smprmnp@yahoo.com

_____

ABSTRACT

This study is an attempt to understand the impact of coastal tourism on local socio-economic development. Perceptions or opinions of local people or residence are recognised as valuable components to assess the impact of any kind of tourism development activities in a specific area. Digha- Shankarpur Planning Area is famous for its beach tourism, which is considered as coastal tourism in this study. Various planning and policy have been taken to promote local development through tourism in this area. A five point Likert Scale is used as the response format to measure the socio-economic impact of coastal tourism. A t-test was conducted to measure the respondent's agreement or disagreement with a particular statement related to impact of coastal tourism and mean scores obtained by each groups were worked out and subjected to ANOVA. The findings of this study indicate that local peoples of the study area perceived both positive and negative socio-economic impacts of coastal tourism development and there are statistically significant differences of perceptions among the groups, which indicating the complex dynamics of coastal tourism development in the study area.

KEYWORDS: *Coastal Tourism, Development, Local People, Perception, Socio-Economic Impact.*

_____

1.0 INTRODUCTION

Tourism is treated as one of the diversified and fastest growing industry in the world. It was once an uncertain, risky and hazardous event, but now it is a very easily planned and coordinated adventure. It has been revolutionized since middle of last century by vast improvements of technology in terms of general and air transportation, computer application, and networks of international communication etc. Over time, an increasing numbers of destinations have opened up and large investment is coming in this sector. Modern tourism is becoming a key driver for socio-economic development. Therefore, tourism is now recognized as an emerging, diverse and profitable industry everywhere in the world as well as India and West Bengal.

West Bengal is a land of splendid destinations with rich cultural and historical heritage, flora & fauna, spectacular beaches, mangroves, mountains & wildlife. The coastal area of West Bengal is over 0.82 million hectares and extends about 350 km. (Paul, 2002) long along the coast of Bay of Bengal. The coastline of Digha-Shankarpur Planning Area is famous for its virgin beaches along with sand dunes, casuarinas trees, cashew trees, red crabs, and fishing harbours etc. All these components make this coastal area as a popular tourism destination in the state of West Bengal. Over time, government has taken various development policies to boost tourism in this area. Outsider developers and investors are also involving in the tourism development process. Therefore, various initiatives are bringing fruitful results in terms of employment, infrastructural development, standard of living etc. On the other side negative socio-economic impacts have also been created by this tourism development process. Present study is an attempt to assess the socio-economic impact of coastal tourism development through local peoples' perceptions in the given study area.

2.0 REVIEW OF LITERATURE

Coastal tourism has become a major facet of modern life. Further, tourism development in the coastal areas has become a constant since the end of World War II. Well-known examples are found on the coastlines and islands of Europe, North and South America, Africa, and Asia (Miller and Auyong, 1991a and 1998a; Conlin and Baum, 1995; Lockhart and Drakakis-Smith, 1997). The study of coastal tourism is a subset of studies on general tourism. Marine and coastal tourism is one of the fastest growing areas within the world's largest industry. Yet despite increased awareness of the economic and environmental significance of marine and coastal tourism it is only in recent years that a substantial body of research has emerged (Hall, 2001). Coastal tourism systems involve interactions between people and place in destinations that include small communities and villages, self-contained resorts, and cosmopolitan cities. From a sociological perspective, coastal tourism systems have three kinds of actors - 1) tourism brokers, 2) tourism locals, and 3) tourists (Miller and Auyong, 1998). Following are the literatures regarding the socio-economic impact of coastal tourism in a given area.

Bagchi (2013) made a comparative assessment about the impact of tourism on economic development and environmental degradation with special reference to three selected beach resorts, viz. Mandarmoni, Bakkhali-Frasurganj and Digha in West Bengal. Her study showed that occupational pattern of local communities and peoples engaged with beach activities is very much influenced by tourism development.

Bickert, Goler and Lehmeir (2011) argued that the economic impact of coastal tourism is not limited to only accommodation, but there are many possibilities to earn a living in other branches

connected to the tourism industry, i.e. transport and communication sector, food production sector, infrastructural development sector etc.

Diedrich (2006) made a broad assessment about the impacts of tourism development on coastal communities in Belize. He found that tourism is having positive impacts on coral reef conservation awareness and support. The results of this study also showed that it is having some negative impacts on the reef ecosystem, especially more touristic areas. Additional data analysis associated with the research project showed that negative socio-cultural and economic impacts are also increasing with tourism development in the study communities.

Miller and Auyong (1991) noted the potentialities of coastal tourism development helps to transform both society and natural environment rapidly and permanently.

Soontayatron (2010) studied on socio-cultural changes in Thai beach resorts with special reference to Kho Samui Island in Thailand. According to the author local people believed that Isan migrant workers were responsible for the majority of socio-cultural impacts in Koh Samui including demographic changes, rise in crime, drug abuse, alcoholism, overcrowding, demonstration effects, prostitution and AIDS, infection and increased poverty and slums areas.

Tsartas (2003) studied on the impact of tourism development on socio-cultural condition in Greek insular and coastal areas. He identified two key areas which are rapidly changed due to development of tourism: viz. changes of a social nature (social changes in tourist region) and changes of an institutional nature (priorities and choices of tourism polices). This study outlines several locally integrated tourism development models and the protection of the environment and sustainable development.

UNEP (2009) made a broad assessment about the role of tourism activities on coastal communities. This study showed that communities of the coastal area certainly benefit from tourism development through the creation of employment opportunities, the improvement of infrastructural facilities, the raising of revenue, improvements in health and safety conditions, enhancements of aesthetic and ethical standards, etc. This study also outlines the negative impacts of tourism in the coastal areas, viz. unplanned urbanization, ecological losses, pressure of mass tourism through the lateralization phenomenon (ribbon development).

3.0 OBJECTIVES

1. To know the demographic profile of local peoples or residences in the study area.
2. To assess the impact of coastal tourism on local socio-economic development in the study area.

4.0 HYPOTHESIS

1. Development of coastal tourism has significant impact on the local socio-economic conditions in the study area.

5.0 STUDY AREA

Digha-Shankarpur Planning Area is situated in the South–Western corner of Purba Medinipur District in the state of West Bengal. It is a sandy and loamy coastal tract along the Bay of Bengal in the south and bordering Orissa in the west, covering an area of 37.00 sq. Km. This planning area is a huge potential site for tourism development in India extending from 87°29'21.05"E to 87°37'30"E longitude and 21°36'28.43" N to 21°41'59.52"N latitude. Digha-Shankarpur planning area is connected to Kolkata via SH-4, NH-41 and then NH-6. The alternative access to

Digha is to travel along NH-6 up to Kharagpur and take the road to Digha via Egra and Depal (SH-5). With the opening of railway line between Tamluk and Digha under South-Eastern railway division, this planning area now has a railway station namely Digha linking it by rail to Kolkata and Kharagpur and there from to the southern, northern and western part of India. Location of the study area is presented in figure – 1.

Figure – 1: Location of the Study Area (Digha-Shankarpur Development Authority)

DIGHA-SHANKARPUR PLANNING AREA
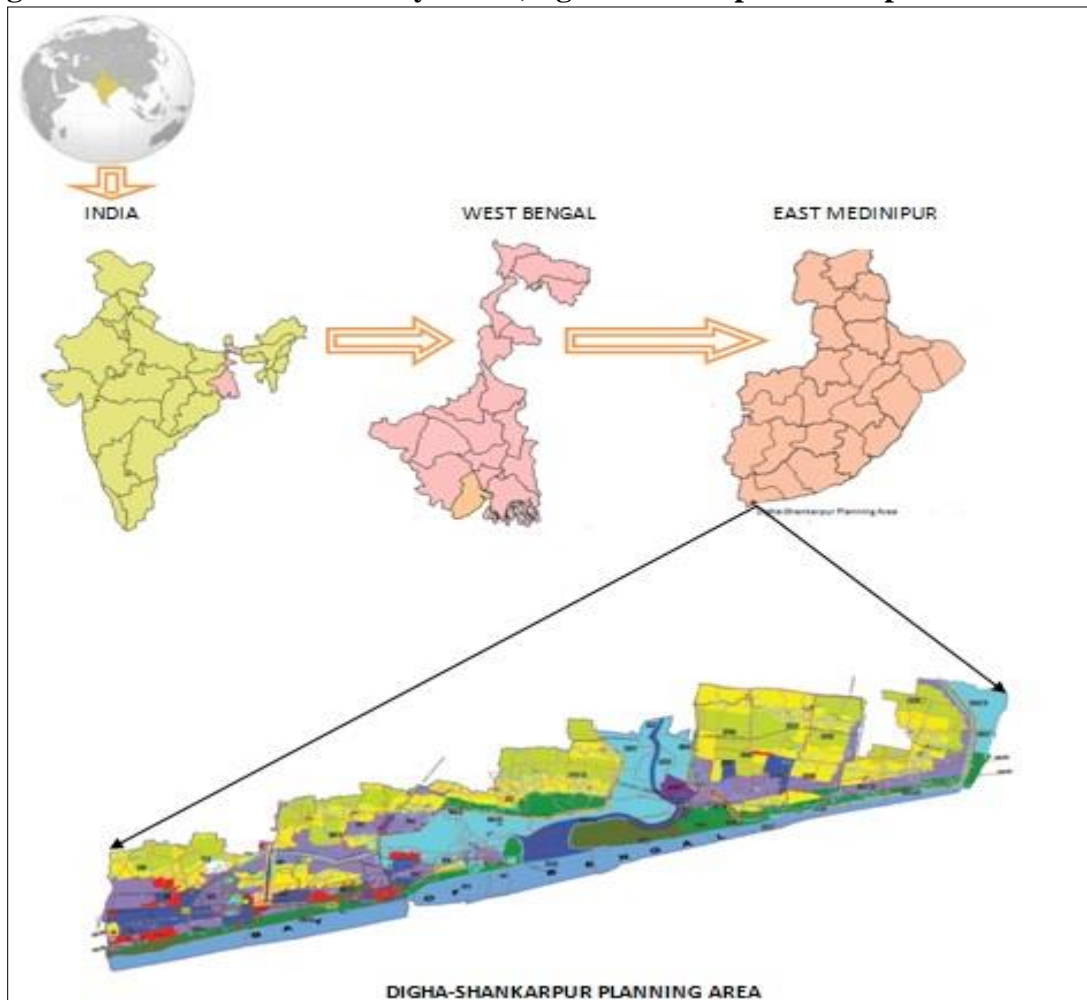
6.0 DATABASE AND METHODOLOGY

The study was conducted at three popular coastal tourism centres, viz. Digha, Shankarpur and Mandarmoni within the Digha-Shankarpur Planning Area of Purba Medinipur district in West Bengal. The whole methodology used in this research followed by three basic steps, (i) selection of survey area, (ii) data collection and (iii) data processing and analysis.

6.1. SELECTION OF SURVEY AREA - To fulfil the objectives of this study, three popular coastal tourism destinations of Digha-Shankarpur Planning Area were purposively selected for primary survey. These three tourist centres are Digha, Shankarpur and Mandarmoni. Four Mouzas of Mandarmoni (Dadanpatra, Sona Muhi, Silampur and Mandarmoni); four mouzas of Shankarpur (Jhawa, Kiagoria, Chandpur and Shankarpur); and six Mouzas of Digha

(Khadalgobra, Gobindabasan, Jagadishpur, Ghersai, Digha and Raypur) were purposively selected for primary survey, where the concentration of tourism activities were maximum.

6.2. DATA COLLECTION - Semi-structured face to face interviews were conducted with the local peoples of the study area for evaluating the perceptions regarding the existing tourism conditions, its socio-economic and environmental impact of the respective area. Total 110 local people/residents were interviewed from 14 selected Mouzas of the study area.

6.3. DATA PROCESSING AND ANALYSIS - Appropriate statistical tools, like tables, averages, dispersion, etc. were used with the help of SPSS 17.0 for the analysis socio-economic impact of coastal tourism in the given study area. In addition, a t-test was conducted to measure the respondent's agreement or disagreement with a particular statement related to impact of coastal tourism on local socio-economic environment in the study area. Mean scores obtained by each groups were worked out and subjected to ANOVA to determine the significance difference among three or more independent groups.

7.0 RESULTS AND DISCUSSION

Tourism development should focuses on developing tourism from people's perspective by involving local Panchayats and local communities at various stages. This will help in understanding the social, cultural and environmental impacts of tourism projects on local communities enabling the development of tourism in a sustainable manner (GOI, 2011). Thus, to get an idea about the impact of coastal tourism development on socio-economic environment of the study area, perceptions of local peoples were assessed based on pre designated questionnaire. The respondents' impact assessment was graded into five classes: strongly disagree, disagree, agree, strongly agree and undecided was recorded. A five point Likert scale (after Rensis Likert, 1932) was used as the response format with assigned values ranging from 1 = strongly disagree, 2 = disagree, 3 = undecided, 4 = agree, 5 = strongly agree. The mean values were calculate and subjected to t-test and ANOVA test to bring out the significant difference between the variables. The entire study is based on 5% significance level. Cornbach's alpha coefficients were calculated to measure the reliability of five constructs of measurement scale proposed in this study. It was 0.782 for fourteen selected items (positive socio-economic impacts) and 0.667 for 12 selected parameters (negative socio-economic impacts).

7.1. PROFILE OF SAMPLE POPULATION

General profile of the sample population (Local People) of the study area is furnished in table - 1. Total 110 nos. of local people were selected purposively, among them 82.7% and 17.3% were male and female respectively. Age groups of the surveyed population were divided into six categories, i.e. up to 20 (0.9%), 21-30 (12.7%), 31-40 (38.2%), 41-50 (25.5%), 51-60 (12.7%), and above 60 (10.0%). Educational qualifications of the surveyed local peoples were not good. Majority of them fall under up to 10th category (80.9%) and very few (5.5%) have completed their under graduate degree. Agriculture (31.8%) was the main occupation of local peoples followed by business (27.3%), transport (14.5%), fishing (10.9%), government employee (7.3%), hotel employee (4.5%), student (1.8%), and others (1.8%). Majority (47.3%) of local peoples had monthly income of Rs.5001-Rs.10000. Nearly 30.9% had monthly income of Rs.10001-Rs.15000. About 8.2% of the local peoples had monthly income of above Rs. 20000. Only 2.7% had monthly income of up to Rs.5000 and 3.7% were unemployed.

TABLE – 1: GENERAL PROFILE OF SAMPLE POPULATION (LOCAL PEOPLE) OF THE STUDY AREA

		Frequency	Percentage (%)
Gender	Male	91	82.7
	Female	19	17.3
Religion	Hindu	106	96.4
	Muslim	4	3.6
Age	Up to 20	1	0.9
	21-30	14	12.7
	31-40	42	38.2
	41-50	28	25.5
	51-60	14	12.7
	Above 60	11	10.0
Education	Up to 10th	89	80.9
	12th	11	10.0
	UG	6	5.5
	PG and Above	4	3.6
Occupation	Student	2	1.8
	Govt. Employee	8	7.3
	Business	30	27.3
	Agriculture	35	31.8
	Fishing	12	10.9
	Hotel Employee	5	4.5
	Transport	16	14.5
	Others	2	1.8
Monthly Income	Up to 5000	3	2.7
	5001-10000	52	47.3
	10001-15000	34	30.9
	15001-20000	9	8.2
	20001-25000	4	3.6
	Above 25000	4	3.6
	Unemployed	4	3.6

Source: Field Survey (2016 – 2017)

7.2. RESPONSES ON POSITIVE SOCIO-ECONOMIC IMPACTS

Table - 2 presents the perceptions of respondents obtained from the field survey regarding the positive socio-economic impacts of coastal tourism in the study area. Majority of local peoples were agreed or satisfied with several positive socio-economic impacts of coastal tourism, which includes earn greater income from transport and business (61.9%); creates new business opportunities (64.6%); improvement of infrastructure (70.9%); promotes employment opportunities (71.8%); increase the demand of local production (55.4%); increase market facility (60.9%); improves quality of life (73.6%); increase population density at backward coastal areas (69.1%). Majority of local peoples were also perceived that few positive socio-economic impacts of coastal tourism have not been improved till field survey, such as, increase diversity of economic activities (58.2%); reduces the risk of income (73.6%); safety and security (61.9%);

positive changes in values and customs (82.7%);   improve understanding between different communities (91.8%); and community participation (82.7%).

TABLE – 2: NUMBER OF RESPONDENTS (LOCAL PEOPLE) SHOWING POSITIVE SOCIO-ECONOMIC IMPACTS OF COASTAL TOURISM OF DSDA PLANNING AREA

Sl. No.	Statements	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	Local peoples earn greater income (e.g. from transport, business, hotel)	2 (1.8%)	14 (12.7%)	26 (23.6%)	62 (56.4%)	6 (5.5%)
2	Creates new business opportunities	1 (0.9%)	23 (20.9%)	15 (13.6%)	64 (58.2%)	7 (6.4%)
3	Improves infrastructure facilities (e.g. road, transport, lighting etc.)	0	6 (5.5%)	26 (23.6%)	59 (53.6%)	19 (17.3%)
4	Provides opportunity for employment	1 (0.9%)	11 (10.0%)	19 (17.3%)	69 (62.7%)	10 (9.1%)
5	Increases diversity of economic activities	0	9 (8.2%)	55 (50.0%)	44 (40.0%)	2 (1.8%)
6	Increases the demand of local production (e.g. food, handicrafts etc.)	2 (1.8%)	13 (11.8%)	34 (30.9%)	57 (51.8%)	4 (3.6%)
7	It increases market facility	8 (7.3%)	21 (19.1%)	14 (12.7%)	60 (54.5%)	7 (6.4%)
8	It reduces the risk of income	13 (11.8%)	36 (32.7%)	32 (29.1%)	24 (21.8%)	5 (4.5%)
9	Improves quality of life/Standard of living	0	16 (14.5%)	13 (11.8%)	70 (63.6%)	11 (10.0%)
10	Improves safety and security condition	0	40 (36.4%)	28 (25.5%)	22 (20.0%)	20 (18.2%)
11	Increase population density at backward coastal areas	0	10 (9.1%)	24 (21.8%)	64 (58.2%)	12 (10.9%)
12	Positive changes in values and customs	2 (1.8%)	24 (21.8%)	65 (59.1%)	18 (16.4%)	1 (0.9%)
13	Improve understanding of different communities	0	34 (30.9%)	67 (60.9%)	9 (8.2%)	0
14	Increased community participation	0	31 (28.2%)	60 (54.5%)	18 (16.4%)	1 (0.9%)
	Total	**29**	**288**	**478**	**640**	**105**
	Total Score	**29**	**576**	**1434**	**2560**	**525**

Source: Field Survey (2016 – 2017), Processed by SPSS

7.3. RESPONSES ON NEGATIVE SOCIO-ECONOMIC IMPACTS

Local peoples of the study area also equally bothered about the negative socio-economic impacts of coastal tourism which are furnished in table - 3. Major negative socio-economic impacts of coastal tourism, such as, increase price of land and housing (91.8%); increase price of goods and services (90.9%); increase cost of living (97.3%); competition of lands with other economic uses (58.2%); seasonal risk of employment (69.1%); excessive drinking and alcoholism (96.4%); increase overcrowding (70.9%); pressure on civic amenities (72.7%); illegal encroachments or vendor establishments (87.2%) were recognised by the local peoples of the study area.

TABLE – 3: NUMBER OF RESPONDENTS (LOCAL PEOPLE) SHOWING NEGATIVE SOCIO-ECONOMIC IMPACTS OF COASTAL TOURISM OF DSDA PLANNING AREA

Sl. No.	Statements	Strongly Disagree	Disagree	Undecided	Agree	Strongly Agree
1	Increases price of land and housing	0	2 (1.8%)	7 (6.4%)	75 (68.2%)	26 (23.6%)
2	Increases price of goods and services	0	1 (0.9%)	9 (8.2%)	77 (70.0%)	23 (20.9%)
3	Increases local residents cost of living	0	0	3 (2.7%)	89 (80.9%)	18 (16.4%)
4	Competition of land with other economic uses	0	1 (0.9%)	45 (40.9%)	47 (42.7%)	17 (15.5%)
5	Cost for additional infrastructure	0	1 (0.9%)	5 (4.5%)	92 (83.6%)	12 (10.9%)
6	Seasonal tourism creates high risk, under or unemployment issues	0	0	34 (30.9%)	56 (50.9%)	20 (18.2%)
7	Excessive drinking, alcoholism, crime etc.	0	0	4 (3.6%)	74 (67.3%)	32 (29.1%)
8	Increased overcrowding	0	0	32 (29.1%)	58 (52.7%)	20 (18.2%)
9	Unwanted lifestyle changes	0	34 (30.9%)	53 (48.2%)	23 (20.9%)	0
10	Increase of child labour	1 (0.9%)	79 (71.8%)	24 (21.8%)	6 (5.5%)	0
11	Increased pressure on civic amenities	0	0	30 (27.3%)	58 (52.7%)	22 (20.0%)
12	Illegal encroachment/vendor establishment	0	0	14 (12.7%)	60 (54.5%)	36 (32.7%)
	Total	**1**	**118**	**260**	**715**	**226**
	Total Score	**1**	**236**	**780**	**2860**	**1130**

Source: Field Survey (2016 – 2017), Processed by SPSS

7.4. T-TEST FOR SOCIO-ECONOMIC IMPACTS OF COASTAL TOURISM

7.4.1. T-TEST FOR POSITIVE IMPACTS

A T-test was conducted to measure the respondent's agreement or disagreement with particular statement/parameters regarding positive socio-economic impacts of coastal tourism on the locality of the study area. Fourteen statements/parameters were considered in this regard. Since there are 14 parameters, and it is a 5 point Likert scale, the maximum score of positive socio-economic impact is 70 and the minimum score is 14. The centre value or test value is 42 (t value obtained as 7.887 with degrees of freedom 109). The total score is 5124 and the mean value is 46.5818 (with standard deviation 6.09313 and standard error 0.58096). Here mean value is higher than the centre value. So, it can be concluded that the opinions/perceptions of the local respondents regarding the positive socio-economic impacts are very strong among the local people/residence of the study area. Result of the t- test is presented in table - 4.

TABLE – 4: T TEST FOR SOCIO-ECONOMIC IMPACTS (POSITIVE) OF COASTAL TOURISM

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Positive Socio-Economic Impact	110	46.5818	6.09313	.58096

One-Sample Test						
	Test Value/Centre Value = 42					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Positive Socio-Economic Impact	7.887	109	.000	4.58182	3.4304	5.7333

Source: Field Survey (2016 – 2017), Processed by SPSS

7.4.2. T-TEST FOR NEGATIVE IMPACTS

A T-test was conducted to measure the respondent's agreement or disagreement with particular statements/parameters regarding negative socio-economic impacts of coastal tourism on the locality of the study area. Twelve statements/parameters were considered in this regard. Since there are 12 parameters, and it is a 5 point Likert scale, the maximum score of positive socio-economic impact is 60 and the minimum score is 12. The centre value or test value is 36 (t value obtained as 29.252 with degrees of freedom 109). The total score is 5007 and the mean value is 45.5182 (with standard deviation 3.41269 and standard error 0.32539). Here mean value is higher than the centre value/test value. So, it can be concluded that the opinions of the local respondents regarding the negative socio-economic impacts are also very strong among the local people/residence of the study area. Result of the t-test is presented in table - 5.

TABLE – 5: T TEST FOR SOCIO-ECONOMIC IMPACTS (NEGATIVE) OF COASTAL TOURISM

One-Sample Statistics				
	N	Mean	Std. Deviation	Std. Error Mean
Negative Socio-Economic Impact	110	45.5182	3.41269	.32539

One-Sample Test						
	Test Value = 36					
	t	df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Negative Socio-Economic Impact	29.252	109	.000	9.51818	8.8733	10.1631

Source: Field Survey (2016 – 2017), Processed by SPSS

7.5. ANOVA TEST ON IMPACTS OF COASTAL TOURISM

An ANOVA test was conducted to find out the divergence of opinion among the respondents of the study area on the basis of location, occupation and educational level. Total 110 local peoples were interviewed in this study belonged to three locations, viz. Digha-40, Shankarpur-30 and Mandarmoni-40 and eight occupations, viz. student - 2, Govt. employee - 8, business - 30, agriculture - 35, fishing - 12, hotel employee - 12, transport - 16 and others - 2. Educational level wise respondents were up to 10th - 89, 12th - 11, UG - 6, PG and above - 4. The mean values of each group is calculated and subjected to ANOVA. The mean values and ANOVA results are discussed in the following sections.

7.5.1. POSITIVE SOCIO-ECONOMIC IMPACT (CATEGORY WISE)

The location-wise mean values of positive socio-economic impacts are presented in table - 6. Location-wise, Digha marked the highest score with 51.95. This was followed by Mandarmoni (46.78) and Shankarpur (39.17). There was significance difference between the locations. Highest mean value of Digha indicates that perceptions regarding positive socio-economic impacts of coastal tourism development are high at Digha compared to the other two spots.

TABLE – 6: LOCATION WISE MEAN SCORE OF RESPONSES ON POSITIVE SOCIO-ECONOMIC IMPACTS OF COASTAL TOURISM

Location	Number of Respondents	Mean	Std. Error
Digha	40	51.9500	.63342
Shankarpur	30	39.1667	.55932
Mandarmoni	40	46.7750	.47025
Total	**110**	**46.5818**	**.58096**

ANOVA Table					
Classification	Sum of Squares	df	Mean Square	F	Sig.
Between Groups	2803.722	2	1401.861	120.671	.000
Within Groups	1243.042	107	11.617		
Total	**4046.764**	**109**			

Source: Field Survey (2016 – 2017), Processed by SPSS

Educational level wise mean values of positive socio-economic impacts are presented in table - 7. The table clearly shows that educational qualification with PG degree and above gave very high score regarding the positive socio-economic impacts, whereas others acknowledge the same positive socio-economic impacts. There was no significance difference among the groups.

TABLE – 7: EDUCATION WISE MEAN SCORE OF RESPONSES ON POSITIVE SOCIO-ECONOMIC IMPACTS OF COASTAL TOURISM

Education	Number of Respondents	Mean	Std. Error
Up to 10th	89	46.3146	.59933
12th	11	46.6364	2.73121
UG	6	46.0000	2.38048
PG and Above	4	53.2500	2.17466
Total	**110**	**46.5818**	**.58096**

ANOVA Table					
Classification	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	186.277	3	62.092	1.705	.170
Within Groups	3860.486	106	36.420		
Total	**4046.764**	**109**			

Source: Field Survey (2016 – 2017), Processed by SPSS

Occupation wise mean values of positive socio-economic impacts are presented in table - 8. The table clearly reveals that the Govt. employee, hotel employee, transport sector employee and others indicated high positive socio-economic impacts; whereas student, businessman, fisherman etc. indicated the medium positive socio-economic impacts. The difference among the groups is significant.

TABLE – 8: OCCUPATION WISE MEAN SCORE OF RESPONSES ON POSITIVE SOCIO-ECONOMIC IMPACTS OF COASTAL TOURISM

Occupation	N	Mean	Std. Error
Student	2	45.0000	9.00000
Govt. Employee	8	52.1250	1.58607
Business	30	45.0333	1.24613
Agriculture	35	45.1714	.77729
Fishing	12	45.2500	1.76723
Hotel Employee	5	51.0000	2.58844
Transport	16	49.1250	1.41090
Others	2	50.5000	1.50000
Total	**110**	**46.5818**	**.58096**

ANOVA Table					
Classification	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	645.451	7	92.207	2.765	.011
Within Groups	3401.313	102	33.346		
Total	**4046.764**	**109**			

Source: Field Survey (2016 – 2017), Processed by SPSS

7.5.2. NEGATIVE SOCIO-ECONOMIC IMPACT (CATEGORY WISE)

Table – 9 presents the location-wise mean values of negative socio-economic impacts of coastal tourism in the given study area. Location-wise, Digha marked the highest score with mean value 47.50. This was followed by Mandarmoni (45.03) and Shankarpur (43.53) that indicates Digha has experienced the negative impacts of tourism development for a longer period than other destinations. There was significance difference between the locations.

TABLE – 9: LOCATION WISE MEAN SCORE OF RESPONSES ON NEGATIVE SOCIO-ECONOMIC IMPACTS OF COASTAL TOURISM

Location	Number of Respondents	Mean	Std. Error
Digha	40	47.5000	.51640
Shankarpur	30	43.5333	.38873
Mandarmoni	40	45.0250	.52926

ANOVA Table					
Classification	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	285.022	2	142.511	15.490	.000
Within Groups	984.442	107	9.200		
Total	**1269.464**	**109**			

Source: Field Survey (2016 – 2017), Processed by SPSS

Table – 10 presents the educational level wise mean values of negative socio-economic impacts of coastal tourism. The table clearly shows that respondents with the UG and PG degree opined that the negative impacts were very high whereas respondents who were 12th standard and below indicated low negative socio-economic impacts. The difference between the groups is significant.

TABLE – 10: EDUCATION WISE MEAN SCORE OF RESPONSES ON NEGATIVE SOCIO-ECONOMIC IMPACTS OF COASTAL TOURISM

Education	Number of Respondents	Mean	Std. Error
Up to 10th	89	45.0562	.32174
12th	11	45.6364	1.07257
UG	6	49.6667	1.38243
PG and Above	4	49.2500	2.83945

ANOVA Table					
Classification	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	178.116	3	59.372	5.767	.001

Within Groups	1091.348	106	10.296		
Total	**1269.464**	**109**			

Source: Field Survey (2016 – 2017), Processed by SPSS

Table – 11 presents the occupation wise mean values of negative socio-economic impacts of coastal tourism. The table clearly shows that the Govt. employee and hotel employee indicated high negative socio-economic impacts with mean values 50.25 and 50.0 respectively; whereas student, businessman, fisherman, transport sector employee and others indicated the medium negative socio-economic impacts. The difference among the groups is significant.

TABLE - 11: OCCUPATION WISE MEAN SCORE OF RESPONSES ON NEGATIVE SOCIO-ECONOMIC IMPACTS OF COASTAL TOURISM

Occupation	Number of Respondents	Mean	Std. Error
Student	2	44.0000	.00000
Govt. Employee	8	50.2500	1.92493
Business	30	45.0333	.53279
Agriculture	35	44.2571	.48219
Fishing	12	44.9167	.63315
Hotel employee	5	50.0000	.89443
Transport	16	45.9375	.68598
Others	2	46.5000	.50000

ANOVA Table					
Classification	**Sum of Squares**	**df**	**Mean Square**	**F**	**Sig.**
Between Groups	355.957	7	50.851	5.678	.000
Within Groups	913.507	102	8.956		
Total	**1269.464**	**109**			

Source: Field Survey (2016 – 2017), Processed by SPSS

8.0 RECOMMENDATIONS

Lots of suggestions/recommendations have been gathered from the local peoples of the study area to maximise the socio-economic impacts of coastal tourism, which includes setting up a supermarket for local productions, improve the government support from tourism, improve the new attractions, new promotional campaign, improve safety and security etc. Local peoples of the study area were also expressed some other types of opinion to boost tourism, such as, develop bars and night clubs in the hotels. But it is not possible in terms of sustainable tourism development process. Thus those suggestions have to defeat. Other possible solutions to overcome the negative socio-economic impacts of coastal tourism in the study area are presented in table – 12.

TABLE – 12: POSSIBLE SOLUTIONS TO OVERCOME THE NEGATIVE SOCIO-ECONOMIC IMPACTS OF COASTAL TOURISM

Negative Socio-Economic Impacts of Coastal Tourism	Possible Solutions
Increases price of goods, services, land, housing and	Adjust pricing to balance supply and demand, charge the actual cost, regular monitoring market price of daily useful

local residents cost of living	goods and services.
Competition of land with other economic uses	Sustainable land use policy and planning should be adopted, preparation of appropriate zoning land use map on the basis of environmental laws and regulations.
Cost for additional infrastructure	Public agencies should be encouraged to involvement in the development of profitable tourism infrastructure that can generate a profit within a short period of time. Quality of tourism infrastructure must be improved for long term stability that can minimise the maintenance cost.
Seasonal risk employment	Extending tourist season, offering different attractions, revamping the destination, making destination unique and prestigious, adding non-conventional recreational attractions etc.
Excessive drinking, alcoholism, crime etc.	Enforcement of social policy and criminal laws, regular monitoring liquor licensing, awareness programme regarding impact of alcoholism among tourists as well as local peoples.
Increased overcrowding	Spread visitors geographically across sites through promote less visited attractions, develop new routes and attraction, and regulate accommodation supply, tourist flows during peak season.
Increase of child labour	Advocacy and awareness programme regarding the dangers and consequences of child labour should be implemented among the stakeholders of tourism.
Increased pressure on civic amenities	Expansion and improvement of civic infrastructural facilities in order to increase carrying capacity and maximise absorb power of visitors flow.
Illegal encroachment/vendor establishment	Improved zoning and building codes for any type of constructions, enforcement of Coastal Regulation Zone Notification (1991).

Source: Field Survey (2016 – 2017)
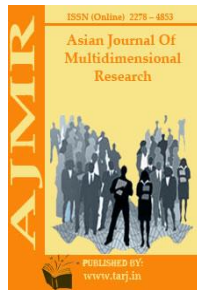
9.0 CONCLUSION

This research has taken an effort to identify and asses the major positive and negative socio-economic impacts of coastal tourism with special reference to Digha-Shankarpur Planning Area. The identified socio-economic impacts are earn greater income from transport and business, creates new business opportunities, infrastructural improvement, promotes employment opportunities, increase the demand of local production, increase market facility, improves quality of life, increase population density at backward coastal areas etc. The study also identified the negative socio-economic impacts, such as, increase price of land, housing, goods and services; increase local resident's cost of living; competition land with other economic uses; cost for additional infrastructure; seasonal risk of employment; excessive drinking and crime; pressure on civic amenities; and illegal encroachment on beaches etc. It is strongly suggested that community awareness and active participation, education and capacity building programmes, community empowerment are highly important areas to minimize the negative socio-economic impacts and optimise the positive socio-economic impacts for long term sustainability of coastal tourism in the study area. The ecological and social footprint of existing

coastal tourism needs to be measured and adaptive management policy must be established to ensure that tourism is developed in sustainable way. Therefore, governments and local authorities those who are engaged in tourism development process should be adopted an integrated sustainable tourism development as well as coastal management plan in this regard.

REFERENCES

Bagchi, J. (2013) 'Impact of Tourism on Economic Development and Environmental Degradation – A Comparative Study among Mandarmoni, Bakkhali and Digha', Department of Geography, University of Calcutta, Kolkata, West Bengal, India

Bicker, M., Goler, D. and Lehmeir, H. (2011) 'Coastal Tourism in Montenegro – Economic Dynamics, Spatial Developments and Future Perspectives', Hrvatski Geografski Glasnik 73(1), 165–180

Conlin, M.V. and Baum, T. (1995) 'Island Tourism: Management Principle and Practice', John Wily and Sons, New York, NY 10158

Diedrich, A. (2006) 'Assessment of the Impacts of Tourism Development in Coastal Communities in Belize', University of Rhode Island

GOI (2011) Report of the Working Group on Tourism, 12th Five Year Plan 2012-2017, Ministry of Tourism, Government of India, New Delhi

Hall, C.M. (2001) 'Trends in Ocean and Coastal Tourism: The End of the Last Frontier?' Department of Tourism, Otago Business School, University of Otago

Likert, R. (1932) 'A Technique for Measurement of Attitudes', Archives of Psychology, 140:1-55

Lockhart, D.G. and Drakakis-Smith, D. (1997) 'Island Tourism: Trends and Prospects', London: Pinter

Miller, M.L. and Auyong, J. (1991) 'Coastal Zone Tourism: A Potent Force Affecting Environment and Society', Marine Policy, 15(2), 75-99

Miller, M.L., and Auyong, J. (eds.) (1998a) 'Proceedings of the 1996 World Congress on Coastal and Marine Tourism: Experiences in Management and Development', Washington Sea Grant Program and the School of Marine Affairs, University of Washington and Oregon Sea Grant College Program, Oregon State University, Seattle, WA

Paul, A.K. (2002) 'Coastal Geomorphology and Environment', ACB Publications, Kolkata 700012, West Bengal

Soontayatron, S. (2010) 'Socio-Cultural Changes in Thai Beach Resorts: A Case Study of Koh Samui Island, Thailand', Bournemouth University

Tsartas (2003) 'Tourism Development in Greek Insular and Coastal Areas: Socio-cultural Changes and Crucial Policy Issues, Journal of Sustainable Tourism, Vol. 11, No. 2 & 3, pp. 116-132

UNEP (2009) 'Sustainable Coastal Tourism: An Integrated Planning and Management Approach', ISBN: 978-92-807-2966-5, www.unep.org/scp

THE EFFECTIVENESS OF BRIEF COGNITIVE-BEHAVIORAL THERAPY ON GUILT FEELINGS OF DEMENTIA CAREGIVERS.

Shahnawaz Mushtaq*; Rakesh Kumar Gaur**; Zeenat Fatima***

*Research Scholar,
Aligarh Muslim University, INDIA.
Email id: bhatshahpsy001@gmail.com

**Professor,
Aligarh Muslim University, INDIA.
Email id: rkg12_@gmail.com

***Research Scholar,
Aligarh Muslim University, INDIA.
Email id: rukhbashir02@gmail.com

_____

ABSTRACT

This study aims to investigate the effectiveness of brief cognitive-behavioral therapy on guilt feeling among family caregivers of patients with Dementia. This research was a quasi-experimental study wherein the pre-test and post-test control group design was employed. The statistical population of this study consisted of the family caregivers of the Dementia patients who came to Psychiatry OPD of Jawaharlal Nehru Medical College, Aligarh Muslim University from March 2017 to November 2017. Among this population, 45 volunteers were selected via convenience sampling method and then, were randomly assigned to experimental and control groups. The participants of both groups filled in the guilt feeling questionnaire developed by Alavi 2006, contains 38 items and caregiver guilt questionnaire developed by Salkovskis, contains 22 items and three subscales in both the pre-test and post-test stages. The therapy program lasted for 06 sessions. Multivariate regression analysis and covariance analysis were used to analyze the data. The results showed that the levels of overall guilt and caregiver guilt had significantly decreased in the experimental group after the exposure of this group to brief cognitive-behavioral group therapy as compared to the pre-test and control group.

KEYWORDS: *Brief Cognitive-Behavioral Therapy, Guilt Feelings, Caregivers, Dementia*

INTRODUCTION:

The population of older people is increasing day by day due to the decrease in mortality rate as a result of development in medical sciences and the advances of better healthcare services. As the older population is increasing the risk of dementia also increases. In a study by the 10/66 Dementia Research Group, showed that in 2001 approximately 24.3 million persons suffered from dementia globally; and 60.1% of all people with dementia lived in developing countries (Ferri, et, al., 2005). In India, the prevalence rate of dementia lies from 1.8% to 3.6% among people aged 60 to 65 years and above (Vas, et, al., 2001; Shaji, Bose and Verghese, 2005; Rajkumar, Kumar and Thara, 1997).

Dementia is a term used for a decline in mental ability severe enough to interfere with daily life. Patients need full assistance as the illness stages. Early dementia or later course of the illness comprises of neuropsychiatric symptoms that are associated with higher level of morbidity and a decrement in quality of life of the patient, on the other hand, an increased level of burden and depression among caregivers (Shin, et, al., 2005) and higher costs of care (Herman, et, al., 2006).

Attention deficit, decision-making disorder, planning disorder, nonfigurative thinking, semantic memory dysfunction, personality change, and delusions also exist in dementia patients (Pocket, Rossier, Antonietti& von Gunten, 2013). The Alzheimer's disease patients sometimes hold a sarcastic view of the carers and show aggressive behavior to them. With the advancement of this disease patients faces a large number of problems of challenging management and in such situation, it is very stressful on the part of the caregivers to provide care for such patients (Butcher, Hooley & Mineka, 2013).

The care provided to the individuals diagnosed with dementia is mostly provided by close family members, relatives, and friends. It was found that 70% of dementia patients receive support and care within their families (Wimo, Winblad, and Jönsson, 2005).

Caregivers of the dementia patients are often called as the invisible second patients as they have to manage increasing demands by restricting their lives to caregiving activities which leads to social isolation on the part of the caregiver (Mausbach, Patterson, & Grant, 2008). Research shows that the caregivers of dementia patients suffer from depression more often, perceive their workload as heavier and are in less good health, report intake of more medication, feel isolated and experience pressure on their socio-economic life as compared to others.Maintenance of mental health is also challenging for many caregivers, and high levels of mood disorders such as anxiety and depression have also been found among family carers of people living with dementia (Li, Cooper, Bradley, Shulman & Livingston, 2012).

Incidences of depression is very common among the caregivers of the dementia patients (Sörensen, Duberstein, Gill, and Pinquart, 2006), negative effects on immune system functioning (Damjanovic et al., 2007; Kiecolt-Glaser, Dura, Speicher, Trask, & Glaser, 1991; Mausbach, Känel, et al., 2007), cardiovascular disease (Känel et al., 2008; Mausbach, Patterson, Rabinowitz, Grant, & Schulz, 2007), and increased risk of mortality (Schulz & Beach, 1999). Thus with all these worsening of emotional and physical functioning, the value of family relationships also affects.

Various studies estimate the fact that caregivers are more prone to develop cardiovascular disease (CVD) as compared to non-caregivers. In a longitudinal study of over 8000 U.S. adults (aged 50 and over), it was found that caregivers were at 35% increased risk for developing

cardiovascular disease, even after controlling for demographic and health risk factors (Capistrant, Moon, Berkman, &Glymour, 2012). A potential study of over 50,000 U.S. women identified that caregivers with a higher level of daily care responsibilities were at nearly twice the risk for developing coronary heart disease (CHD) comparing to non-caregivers (Lee, Colditz, Berkman, &Kawachi, 2003). Male caregivers of the patients are also at higher risk than non-caregivers for developing CHD (Vitaliano et al., 2002).

Evidence from research studies suggests that psychological and non-psychological burden can be reduced by social support (Han, et, al., 2014), it also protects against new dementia occurrences (Kuiper, et, al., 2015), social isolation and loneliness, and promotes social assimilation (Thompson, et, al., 1993; Lilly, Richards, and Buckwalter (2003).

It was also found that a sense of guilt feeling develops among the family caregivers of Alzheimer's disease patients due to a long duration of providing care. A large amount of work has been done in this regard whose findings (Brodaty & Donkin, 2009; Gonyea, Paris, & de Saxe Zerden, 2008; Croog, Burleson, Sudilovsky, & Baume, 2006), evaluated a high level of guilt that leads to increased care burden in the caregivers of patients with Alzheimer's disease. Worries, concerns about others and self and the undertaken actions result in an increase in the guilt feeling. It is associated with self-blame and the need for punishment (Egan, Wade, &Shafran, 2011). Bruno, Lutwak, &Agin (2009) studied the guilt feeling as a maladaptive emotion that produces stress, self-consciousness, and severe psychological trauma to people and it cannot be corrected easily. In another study, Beck has argued that when compared to anxiety and depression, guilt feeling is a strong predictor of intrusive thoughts and urges (Beck, 1967).

Researchers have devised many methods for providing help, support and awareness to the caregivers of the dementia patients like education, psycho-education, and counseling (Elvish, Lever, Johnstone, Cawley & Keady, 2013, Gallagher-Thompson & Coon, 2007; Parker, Mills & Abbey, 2008).

The cognitive behavioral approach can be the most useful intervention programme in case of adults in order to reduce the negative effects of guilt feeling on people's mental health and provide treatment (Seligman, Schulman, & Tryon, 2007). Cognitive-behavioral group techniques help in identifying and modifying false, pessimistic, intense and unrealistic beliefs in patient's emotions and behaviors (Bieling, McCabe, & Antony, 2006).

The findings of various studies carried out in order to evaluate the impact of cognitive behavioral group therapy on guilt feeling (Ikeda, Hayashi & Kamibeppu, 2014; Hedman, Ström, Stünkel, & Mörtberg, 2013; Karlin et al. 2012) stated the effectiveness of cognitive-behavioral group therapy on guilt feeling.

A number of studies have been conducted in order to evaluate the impact of treatment on guilt feeling but still, there is a lack of research in this regard. Thus, the present study was carried out to contribute to this research gap. This study aimed to assess the effectiveness of cognitive-behavioral group therapy on the overall guilt feeling among family caregivers of patients with Alzheimer's disease.

METHOD:

This research was a quasi-experimental study, in which the pre-test and post-test control group design was employed. The target population of this study consisted of the primary caregivers of the Dementia patients who were registered in a psychogeriatric clinic at the Jawaharlal Nehru

Medical College Hospital Aligarh Muslim University, Aligarh 2017. The sample size of 18 participants for each group (control and experimental groups) was found to be suitable. In addition, considering an effect size equivalent to α=5% and 0.6 and a test power equivalent to 91, the sample size was calculated. Thus, a total of 36 participants were considered for the study.

For sample selection, the available caregivers who volunteered to attend the therapy sessions completed the questionnaire. Among these respondents, 36 subjects who had responded to the questionnaire well and had satisfied the inclusion criteria were selected as the sample units. Written informed consent was obtained from Caregivers. Then, they were randomly assigned to the experimental group (under brief cognitive-behavioral group therapy) and control group in equal numbers. The participants were ensured that the information would be kept strictly confidential and that the results of the study would be released in the form of general conclusion and statistics.Ethics committee of Jawaharlal Nehru Medical College and Hospital granted ethical approval to undertake this research.

Inclusion criteria

➢ Caregivers of a person with Dementia who is living with the patient at least for six months.
➢ Age range from 18 to 60 yrs.
➢ Both the genders.
➢ Who give consent for study

Exclusion criteria

➢ Age range below 18 above 60 yrs.
➢ Caregivers who are not living with the patient.
➢ Caregivers having a history of the psychiatric/ neurological disorder.
➢ Caregivers having an intellectual disability.
➢ Caregiver who do not give consent.

TOOLS:

Guilt feeling questionnaire was used to assess the overall guilt feeling. This questionnaire has been developed and validated by Alavi (2006) and contains 38 items. It evaluates guilt feeling in two subscales, namely pathologic guilt feeling and non-pathologic guilt feeling. Items in the questionnaire were based on a five-point Likert scale (strongly agree, agree, neutral, disagree, and strongly disagree). Scoring is done in such a way that the five alternatives (strongly agree, agree, neutral, disagree, and strongly disagree) are assigned 5, 4, 3, 2, and 1 scores, respectively for the sentences in line with the question's objective. In this questionnaire, the questions numbered 37, 4, 5, 8, 11, 14, 17, 18, 20, 24, 27, 31, and 2 were nonaligned and the other questions were aligned. The score of 125 represented the maximum pathologic guilt feeling while the score of 50 represented the absence of any pathologic guilt feeling. Cronbach's alpha coefficient of this questionnaire equaled 0.75, which represented its stability and internal consistency.

Caregiver Guilt Questionnaire (CGQ) was used to assess guilt feeling among the caregivers. This is a researcher-constructed questionnaire rooted in Salkovskis's cognitive theory, and its main focus was on the impact of caregivers' excessive sense of responsibility. Salkovskis believed that the maladaptive schema of excessive responsibility in patients acts as a continuing factor of the vicious circle disorder. Guilt feeling and sense of responsibility are experienced together and the people who feel responsible because of their negative thoughts or for the non-prevention of the

damage associated with these thoughts are likely to experience feelings of guilt for holding such thoughts (Salkovskis, 1989). The scale contains 22 items and three subscales, namely caregiver's guilt about the care recipient, caregiver guilt about other family members, and guilt about self-care. The items numbered 1, 4, 5, 6, 7, 8, 9, 10, 12, 13, 14, 17, and 20 represent the subscale of caregiver's guilt about the care recipient. In addition, the items numbered 2, 15, 16, 18, and 19 represent the subscale of caregiver's guilt about other family members. Finally, the items numbered 3, 11, 21, and 22 represent the subscale of guilt about self-care.

The above-mentioned questionnaire has been developed based on a Likert scale such that each participant should select an alternative from one of the five options, namely always, often, sometimes, hardly, and never. Scoring is done in such a way that the alternatives, i.e., always, often, sometimes, hardly, and never, are assigned 5, 4, 3, 2, and 1 scores, respectively, for the sentences in line with the question's objective. In this questionnaire, the items numbered 3, 6, 11, and 22 are non-aligned and the other items are in line with the question's objective. In CGP, the scores 110 and 34 were the maximum and minimum possible scores of the scale, respectively. The score 34 indicated the absence of caregiver guilt. For the assessment of the validity of the scale, the face validity and content validity of the scale were found to be acceptable using the opinions of some relevant specialists and experts. A demographic questionnaire was used in order to obtain the individual information of the participants.

The participants responded to guilt-related questionnaires before the initiation of the treatment (pre-test). Then, the caregivers in the control and experimental groups were asked to respond to guilt scales after the passage of 3 months from the start of the therapeutic sessions (post-test). The quasi-experimental intervention of Brief cognitive-behavioral therapy was applied to the experimental group at the department of psychiatry, Jawaharlal Nehru Medical College Aligarh Muslim University while the control group received no intervention. It was notable that Three members of each group resigned from participation in the sessions for personal reasons during the therapy sessions. The Brief cognitive therapy session for the caregivers in the experimental group was as follows:

First session: It contained the following: acquaintance with the members and the statement of the rationale and objectives of the training sessions, description of Dementia disease and its impact on the caregivers' lifestyle in the form of chronic stress, discussion on the roots and internal and external factors causing stress, and explanation of the guilt feeling as an internal cause of failure and a stressor to the members.

Second session: The relationship of thoughts with feelings, behavior, and physical reactions was explained to the members. Then, the members began to fill out the worksheets in this relation.

Third session: The methods of recognizing extreme and unrealistic thoughts were taught to the caregivers, as well as the cognitive errors and their role in the production of guilt feelings.

Fourth session: The advantages and disadvantages of perfectionist thoughts and fight with musts and absolutism were explained. They were taught how to overcome the guilt feeling via the assessment of the severity of behaviors, determination of personal responsibility.

Fifth Session: Problem-solving methods and appropriate responses to the patient's maladaptive behavior were discussed. Then, the members discussed and exchanged their experiences in this field. Anger perception and management, Time management was taught with the emphasis on goal setting, daily to-do list, nursing responsibilities in regard to patients, spending time with

family and friends, leisure and office tasks, prioritization based on importance and urgency, self-care and behavioral activation, and weekly planning on the barriers to time management.

Sixth Session: The variety of social supports and understanding of their benefits were explained, and the personal resources and community resources were also discussed with the aim of the group's understanding of the importance of the social resources that constructively assist the individual in sadness, progress, etc. This session also included an overview and practice of the skills learned in previous sessions.

RESULTS AND DISCUSSION:

The data in this study were analyzed using SPSS21 software via descriptive statistics (central and dispersion indexes such as mean and standard deviation) and inferential statistics (ANCOVA and MANCOVA).

As per the figures in **Table 1**the mean scores of caregiver guilt and overall guilt were distinctive between the pre-test and post-test in the experimental group. In the control group, the mean scores of guilt subscales were close to each other in the two stages, before and after implementation of the treatment. This indicates that there is no significant difference between the pre-test and post-test scores of the participants in this regard. **Table 2**shows that all the three tests are significant at the significance level of 0.01.

TABLE 1. MEAN AND SD OF CGQ AND GUILT FEELING QUESTIONNAIRE IN THE PRE-TEST AND POST-TEST

	Phase	Experimental Group		Control Group	
		Mean	SD	Mean	SD
	Pre-test	96.47	11.424	96.60	06.909
Caregiver guilt	Post-test	59.34	10.741	98.20	08.243
	Follow-up	54.60	03.901	115.18	07.905
Overall guilt feeling	Pre-test	116.56	20.080	110.12	13.942
	Post-test	81.42	`3.050	114.20	12.213

TABLE 2. MANCOVA COMPARISON OF THE MULTIVARIATE EFFECT OF THE EXPERIMENTAL AND CONTROL GROUPS ON THE INTERACTION OF GUILT VARIABLES

Test	Statistic	F	Df 1	Df 2	Sig.
Wilk's lambda	0.048	105.74	3	15	0.001
Pillai's trace	0.987	105.74	3	15	0.001

Hotelling's trace	23.224	105.74	3	15	0.001

In **Table 3**, analysis of covariance was used distinctly to compare the treatment and comparison groups in terms of caregiver guilt, overall guilt, and its components, i.e., pathologic and non-pathologic guilt feeling. According to the tabular data, it is concluded that there has been a significant difference between the control and experimental groups in all four components distinctly. Hence, it can be concluded that brief cognitive-behavioral therapy proves useful in the decline of overall guilt feeling and caregiver guilt.

TABLE 3. COVARIANCE ANALYSIS OF THE DEPENDENT VARIABLES: OVERALL GUILT FEELING IN THE POST-TEST

Variables	Source	Sum of squares	Df	Mean square	F	Sig.	Eta squared
	Pre-test	246.182	1	246.182	3.90	0.075	0.129
Pathologic	Group	5644.106	1	5644.106	79.15	0.001	
	Error	1760.231	24	73.34			
	Pre-test	4.257	1	4.257	0.275	0.706	0.013
Non-pathologic	Group	131.870	1	131.870	8.895	0.008	0.264
	Error	368.112	24	15.338			
	Pre-test	172.475	1	172.475	1.537	0.273	0.056
Overall guilt	Group	7604.920	1	7604.920	60.231	0.014	0.721
	Error	3018.220	24	125.759			
	Pre-test	490.517	1	490.517	33.141	0.001	0.634
Caregiver guilt	Group	3920.510	1	3920.510	246.435	0.001	0.936
	Error	292.712	19	15.405			

CONCLUSION:

Various studies have been pointed out that family caregivers of dementia patients suffer from high level of guilt feeling. But there are very few researchers that have been focused on the interventions that can minimize these guilt feelings. This particular research study has been conducted with an objective of evaluating the effectiveness of cognitive-behavioral group therapy in the overall guilt feeling and caregiver guilt among family caregivers of dementia patients. One such research study has been done by Mahmoudi, Mohammadkhani, Bonab and

Bagheri in 2017 to examine the effectiveness of cognitive-behavioral group therapy on guilt feeling among family caregivers of patients with Alzheimer's disease. They did a quasi-experimental pre and post-test designs on 32 caregivers who were divided into experimental and control groups and cognitive behavioral therapy in 14 sessions were given to them. The results revealed that the levels of overall guilt and caregiver guilt had significantly decreased in the experimental group after the exposure of this group to cognitive-behavioral group therapy as compared to the pre-test and control group.

This study focused on identifying unreasonable and dysfunctional thoughts that result in feelings of guilt. The caregivers increase their understanding of replacing irrational thoughts with more logical thoughts. The severity of behavior can be improved by determining personal responsibilities and the behavioral strategies such as time management skills, anger management, etc. (Antoni, Ironson & Schneiderman, 2007), all these strategies were used in this study. This study has attempted to prove the effectiveness of cognitive-behavioral group therapy to overcome feelings of guilt and prevent more extensive damage. The alteration of cognitive evaluation and training of learned techniques to apply in real life situations could lead to reduced guilt feeling in caregivers.

Although this study proved beneficial in evaluating the effectiveness of cognitive behavioral therapy it lacks generalization of these results to other parts of the country due to the inclusion of more females as compared to male participants considering the study location as well. The unavailability of follow-up phase due to time constraints was another limitation of this study. Therefore, in order to provide generalizability of the results, there is a need to conduct more comparative studies between male and female family caregivers on larger samples in other regions of the country with the inclusion of the follow-up phase. In this way, a higher degree of generalizability of the results can be ensured.

REFERENCES:

Antonin, M. H., Ironson, G., & Schneiderman, N. (2007). *Cognitive-behavioural stress management: Workbook*. Oxford: Oxford University Press. doi: 10.1093/med: psych/9780195327908.001.0001

Beck, A. T. (1967). *Depression: Clinical, experimental, and theoretical aspects*. University of Pennsylvania Press.

Bieling, P. J., McCabe, R. E., & Antony, M. M. (2006). *Cognitive-behavioral therapy in groups*. New York: Guilford Press.

Brodaty, H., &Donkin, M. (2009).Family caregivers of people with dementia. *Dialogues in clinical neuroscience, 11*(2), 217-28.

Bruno, S., Lutwak, N., &Agin, M. A. (2009).Conceptualizations of guilt and the corresponding relationships to emotional ambivalence, self-disclosure, loneliness and alienation. *Personality and Individual Differences, 47*(5), 487–91.

Butcher, J. N., Hooley, J. M., Mineka, S. M. (2013). *Abnormal psychology*. New Jersey: Pearson Education.

Capistrant, B. D., Moon, J. R., Berkman, L. F., &Glymour, M. M. (2012).Current and long-term spousal caregiving and onset of cardiovascular disease. *Journal of Epidemiology & Community Health*, 66, 951-956.

Croog, S. H., Burleson, J. A., Sudilovsky, A., & Baume, R. M. (2006). Spouse caregivers of Alzheimer patients: Problem responses to caregiver burden. *Aging & Mental Health, 10*(2), 87–100.

Dassel, K. B., & Schmitt, F. A. (2008).The impact of caregiver executive skills on reports of patient functioning.*The Gerontologist*, 48, 781–792.

Damjanovic, A. K., Yang, Y., Glaser, R., Kiecolt-Glaser, J. K., Nguyen, H., Laskowski, B., et al. (2007). Accelerated telomere erosion is associated with a declining immune function of caregivers of Alzheimer's disease patients. *The Journal of Immunology*, 179, 4249–4254.

Egan, S. J., Wade, T. D., &Shafran, R. (2011). Perfectionism as a Trans-diagnostic process: A clinical review. *Clinical Psychology Review, 31*(2), 203–12.

Elvish, R., Lever, S. J., Johnstone, J., Cawley, R., &Keady, J. (2013). Psychological interventions for carers of people with dementia: a systematic review of quantitative and qualitative evidence. *Counselling and Psychotherapy Research*, 13(2), 106–125.

Ferri, C. P., Prince, M., Brayne, C., Brodaty, H., Fratiglioni, L., Ganguli, M., et al. (2005). Global prevalence of dementia: a Delphi consensus study. *Lancet,* 366, 2112-7.

Gallagher-Thompson, D., & Coon, D. W. (2007).Evidence-based psychological treatments for distress in family caregivers of older adults.*Psychology and Aging*, 22(1), 37–51.

Gonyea, J. G., Paris, R., & de Saxe Zerden, L. (2008). Adult daughters and aging mothers: The role of guilt in the experience of caregiver burden. *Aging & Mental Health, 12*(5), 559– 67.

Han, J. W., Jeong, H., Park, J. Y., Kim, T. H., Lee, D. Y., Lee, D. W., et al., (2014).Effects of social supports on burden in caregivers of people with dementia.*Int. Psychogeriatric*. 26, 1639–1648.

Hedman, E., Ström, P., Stünkel, A., &Mörtberg, E. (2013). Shame and guilt in social anxiety disorder: Effects of cognitive behavior therapy and association with social anxiety and depressive symptoms. *PLoS ONE, 8*(4), 61713.

Herrmann, N., Lanctot, K. L., Sambrook, R., Lesnikova, N., Hebert, R., McCracken, P., et al. (2006). The contribution of neuropsychiatric symptoms to the cost of dementia care.*Int J Geriatr Psychiatry*, 21(10), 972–6.

Ikeda, M., Hayashi, M., &Kamibeppu, K. (2014).The relationship between attachment style and postpartum depression.*Attachment & Human Development, 16*(6), 557–72.

Känel, R. v., Mausbach, B. T., Patterson, T. L., Dimsdale, J. E., Aschbacher, K., Mills, P. J., et al. (2008). Increased Framingham coronary heart disease risk score in dementia caregivers relative to non-caregiving controls. *Gerontology*, 54, 131–137.

Karlin, B. E., Brown, G. K., Trockel, M., Cunning, D., Zeiss, A. M., & Taylor, C. B. (2012). National dissemination of cognitive behavioral therapy for depression in the department of veterans affairs health care system: Therapist and patient-level outcomes. *Journal of Consulting and Clinical Psychology, 80*(5), 707–18.

Kiecolt-Glaser, J. K., Dura, J. R., Speicher, C. E., Trask, J., & Glaser, R. (1991). Spousal caregivers of dementia victims: Longitudinal changes in immunity and health. *Psychosomatic Medicine*, 53, 345–362.

Kuiper, J. S., Zuidersma, M., Oude Voshaar, R. C., Zuidema, S. U., van denHeuvel, E. R., Stolk, R. P., et al., (2015). Social relationships and risk of dementia: asystematic review and meta-analysis of longitudinal cohort studies, *Ageing Res. Rev*. 22, 39–57.

Lee, S., Colditz, G. A., Berkman, L. F., &Kawachi, I. (2003). Caregiving and risk of coronary heart disease in U.S. women: A prospective study. *American Journal of Preventive Medicine*, 24, 113–119.

Li, R., Cooper, C., Bradley, J., Shulman, A., & Livingston, G. (2012). Coping strategies and psychological morbidity in family carers of people with dementia: a systematic review and meta-analysis. *Journal of Affective Disorder*, 139(1), 1–11.

Lilly, M., Richards, B. S., Buckwalter, K. C. (2003). Friends and social support in dementiacaregiving: assessment and intervention. *J. Gerontol. Nurs*. 29, 29–36.

López, J., López-Arrieta, J., & Crespo, M. (2005). Factors associated with the positive impact of caring for elderly and dependent relatives. *Archives of Gerontology and Geriatrics*, 41, 81–94.

Mahmoudi, M.,Mohammadkhani, P., Bonab, B. G., Bagheri, F. (2017). Effectiveness of Cognitive-Behavioural Group Therapy on Guilt Feeling among Family Caregivers of Patients with Alzheimer's Disease. JPCP, 5(3), 203-210.

Mausbach, B. T., Känel, R. V., Aschbacher, K., Roepke, S. K., Dimsdale, J. E., Ziegler, M. G., et al. (2007). Spousal caregivers of patients with Alzheimer's disease show longitudinal increases in plasma level of tissue-type plasminogen activator antigen. *Psychosomatic Medicine*, 69, 816–822.

Mausbach, B. T., Patterson, T. L., Rabinowitz, Y. G., Grant, I., & Schulz, R. (2007). Depression and distress predict time to cardiovascular disease in dementia caregivers. *Health Psychology*, 26, 539–544.

Mausbach, B. T., Patterson, T. L., & Grant, I. (2008). Is depression in Alzheimer's caregivers really due to activity restriction? A preliminary mediational test of the Activity Restriction Model.*Journal of Behavior Therapy and Experimental Psychiatry*, 39, 459–466.

Papastavrou, E., Kalokerinou, A., Papacostas, S., Tsangari, H., &Sourtzi, P. (2007). Caregiving for a relative with dementia: family caregiver burden. *Journal of Advanced Nursing*, 58(5), 446–457.

Parker, D., Mills, S., & Abbey, J. (2008). Effectiveness of interventions that assist caregivers to support people with dementia living in the community: a systematic review. *International Journal of Evidence Based Health Care*, 6(2), 137–172.

Pinquart, M., & Sorensen, S. (2006). Helping caregivers of persons with dementia: which interventions work and how large are their effects? *International Psychogeriatrics*,18, 577-595.

Pocnet, C., Rossier, J., Antonietti, J.-P., & von Gunten, A. (2013). Personality features and cognitive level in patients at an early stage of Alzheimer's disease. *Personality and Individual Differences, 54*(2), 174–9.

Rajkumar, S., Kumar, S., Thara, R. (1997). Prevalence of dementia in a rural setting- a report from India. *Int J Geriatr Psychiatry*, 12, 702-7.

Schoenmakers, B., Buntinx, F., &Delepeleire, J. (2010).Factors determining the impact of care-giving on caregivers of elderly patients with dementia.A systematic literature review.*Maturitas,* 66, 191–200.

Schulz, R., & Beach, S. R. (1999). Caregiving as a risk for mortality: The Caregiver Health Effects Study. *Journal of the American Medical Association*, 282, 2215–2219.

Seligman, M. E. P., Schulman, P., & Tryon, A. M. (2007).Group prevention of depression and anxiety symptoms.*Behavior Research and Therapy, 45*(6), 1111–26.

Shaji, S., Bose, S., Verghese, A. (2005). Prevalence of dementia in an urbanpopulation in Kerala, *India. Br J Psychiatry*, 186, 136 -40.

Shin, I. S., Carter, M., Masterman, D., Fairbanks, L., & Cummings, J. L. (2005). Neuropsychiatric symptoms and quality of life in Alzheimer disease. *The American journal of geriatric psychiatry*, *13*(6), 469-474.

Sink, K. M., Covinsky, K. E., Barnes, D. E., Newcomer, R. J., &Yaffe, K. (2006). Caregiver characteristics are associated with neuropsychiatric symptoms of dementia. *Journal of the American Geriatrics Society*, 54, 796–803.

Sörensen, S., Duberstein, P., Gill, D., & Pinquart, M. (2006). Dementia care: Mental health effects, intervention strategies, and clinical implications. *The Lancet Neurology*, 5, 961–973.

Thompson, E. H., Futterman, A. M., Gallagher-Thompson, D., Rose, J. M., Lovett, S. B. (1993). Social support and caregiving burden in family caregivers of frailelders, *J. Gerontol*. 48, S245–S254.

Vas, C. J., Pinto, C., Panikker, D., Noronha, S., Deshpande, N., Kulkarni, L., & Sachdeva, S. (2001). Prevalence of dementia in an urban Indian population. *International psychogeriatrics*, *13*(4), 439-450.

Vitaliano, P. P., Scanlan, J. M., Zhang, J., Savage, M. V., Hirsch, I. B., &Siegler, I. C. (2002).A path model of chronic stress, the metabolic syndrome, and coronary heart disease.*Psychosomatic Medicine,* 64, 418-435.

Wimo, A., Winblad, B., &Jönsson, L. (2005).An estimate of the total worldwide societal costs of dementia in 2005.*Alzheimer's and Dementia*, 3, 81–91.

FOOD SECURITY: A REVIEW ON ITS DEFINITION, LEVELS AND EVOLUTION

Haripriya Dutta*; Ashifuddin Ahmed Saikia**

*Research Scholar,
Department of Business
Administration, Tezpur University, Assam, INDIA.
Assistant Professor (Accountancy),
Pandit Deendayal Upadhyaya Adarsha Mahavidyalaya,
Tulungia, Assam. INDIA.
Email id:haripriyadutta@gmail.com

**Research Scholar,
Department of Business Administration,
Tezpur University, Assam, INDIA.
Email id: ashifsaikia@gmail.com

_____

ABSTRACT

In this paper the concept of food security is addressed by defining its various dimensions- food accessibility, food affordability, food utilization and others which basically include food stability and vulnerability. The concept is also explained at individual/households, national and global context. Further, a brief review of the history of food security is produced in this paper. The description of the study is based on available literature in this line. It is expected to highlight the areas of food security while addressing the issue form this article.

KEYWORDS: *Dimensions, Evolution, Food Security, Levels Of Food Security, Vulnerability*

1. INTRODUCTION

Access to adequate food, cloth and shelter are prerequisite for human survival. Among them, food is a metabolic requirement. In spite of that, the real scenario is that more than 870 million people across the world are food insecure. In recent years, food security has headed the list of main topics on the international agenda in view of the volatility of agricultural product prices, the increasing demand of food grains, growing malnutrition, and the challenges posed by the affects of climate change etc.

It must be agreed with Simon (2012) that the present condition of food security in terms of food availability is tallied neither with the prediction of Thomas Malthus of 1798, i.e. the population growth would unavoidably supersede the food production or Dr. Aurelio Peccei who forecasted 40 years ago about the end of natural resources including food to people. Yet, a crucial state of food insecurity can be invariably witnessed all over the world. Before enquiring on the reason there is a need to understand the concept of food security both at the national and international level. It will highlight the areas to be emphasized for effective food security. This paper is therefore prepared to conceptualize the meaning, evaluation of food security and its dimensions both in national and global context. This paper is purely theoretical and based on various literatures of this line.

2. FOOD SECURITY-CONCEPT AND DEFINITION

Food security is a flexible concept. Many attempt to define it in different ways to fulfil their purpose as researchers or policy maker. . By 1990's, there are approximately 200 definitions and 450 indicators of food security (Hoddinott, 1999). Among these, the definition accepted by the World Food Summit (WFS), 1996 is considered to be the most comprehensive one. The definition was promulgated by Food and Agriculture Organization (FAO). According to the definition "Food security exists when all people, at all times, have physical, social and economic access to sufficient, safe and nutritious food which meets their dietary needs and food preferences for an active and healthy life". The term 'social' was added to this definition in the year 2002.The World Economic Forum (2009) has defined food security as- "A condition that exists when all people, at all times, are free from hunger." According to the United States Department of Agriculture (USDA)-"Food security for a household means access by all members at all times to enough food for an active, healthy life. Food security includes at a minimum (1) the ready availability of nutritionally adequate and safe foods, and (2) an assured ability to acquire acceptable foods in socially acceptable ways (that is, without resorting to emergency food supplies, scavenging, stealing, or other coping strategies)." The three facets of food security namely- food availability, food access, and food use were firstly introduced by World Health Organization (WHO), of which, food availability implies the availability of sufficient quantities of food on a consistent basis; whereas, food access means having sufficient resources, both economic and physical, to obtain appropriate foods for a nutritious diet. Lastly, food use stands for the appropriate use of food based on knowledge of basic nutrition and care, as well as adequate water and sanitation.

Mckeown (2006) examined the different definitions of food security. He had brought forth a broader definition of food security in terms of answers to questions about the production, distribution and consumption of food in the society. According to him the definition of food security essentially answer the following five specific questions.

a. Who should get the food?- Everyone/all people (Universality)

b. When?- At all times/sustained access (Stability)

c. How?- Through normal food channels/ not from emergency food assistance programs (Dignity)

d. How much food?- Enough/ enough for a healthy active life (Quantity)

e. What kind of food?- Safe and nutritious (Quality) Culturally appropriate (Quality)

Produced in environmentally sustainable ways that promote strong communities (Quality)

2.1.THE THREE DIMENSIONS OF FOOD SECURITY

In this section, the three dimensions of food security are discussed. These dimensions are considered to be the useful tool for various food security analyses both at national and international levels.

2.1.1. FOOD AVAILABILITY

Food availability or food sufficiency is "the amount of food that is present in a country or area through all forms of domestic production, imports, food stocks and food aid" (WFP, 2009). In the same way, United States Department of Agriculture (USDA) also describes food security as the ready availability of nutritionally adequate and safe foods. This definition of food availability is not talked in terms of countries or areas, but also described in micro levels i.e. villages and households level. Availing food thus focuses two major condition of food security as- food in sufficient quantity and food at consistent basis. To fulfil these conditions there must sufficient production of food or otherwise sufficient stock procured from elsewhere through trade or aid in a given area. Initially, the availability of food was considered as the synonymous to food security. If it were so, then the food insecurity problem would have already been out of the scene because during last 50 years the agricultural production has continuously grown more quickly and satisfactorily across the globe. Furthermore, if it is considered that the food security problem is still persist, then also the solution to the problem would have been much easier i.e. to increase food production. Advancement of science and technology along with government aids are always at the support of this movement.

2.2.2. FOOD ACCESSIBILITY

Prof. Amartya Sen introduced the concept of access to food in the early 1980's. However, many attempts to relate the access dimension of food to its economic or financial dimension, especially after the Niger food crisis in 2005 and the World food prices crisis in 2008. In the definition of World Food Summit (WFS 1996) three elements of access to food are being alluded as- physical, social and economic access of food. The World Food Programme (WFP 2009) defines the food access as "A household's ability to acquire adequate amount of food regularly through a combination of purchases, barter, borrowings, food assistance or gifts". This definition emphasizes on the food affordability i.e. people must be able to acquire adequate quantities of food, through purchase, home production, borrowing or import, food stock, food aid, barter, gifts in a regular manner (FAO, WFP 2009).The USDA definition of food security also shows the access to food as an important dimension of food security.

In nutshell, access to food implies the ability to acquire adequate and acceptable food by the people or households without intervention of the continuity of the access through socially accepted ways like- purchases, barter, borrowings, food assistance, gifts or combination of them Resorting to emergency food supplies, scavenging, stealing, or other coping strategies

(Labadarios et al. 2011) are not considered as the socially accepted ways of accessing food to achieve food security. It is more a micro level understanding of food security as food accessibility can be studied in terms of people or the household, the smallest unit in the studies regarding to food security. Thus, Simon (2012) identifies three elements of the access to food as-Physical, Financial or economical and socio-cultural.

The physical accessibility of food is almost symmetrical to food availability, which means food must be available at the immediate vicinity of the people or the households. It embraces the logistical function of food supply. Access to means of production such as- land, water, improved seeds and plants, appropriate technologies and farm credit go hand in hand with the concept of physical food accessibility (Krishnaraj, 2005). Food accessibility can be improved by increasing such means of production.

The financial or economic element deals with the ability or food affordability without resorting to socially unacceptable means by the people or household to acquire adequate amounts of food to meet their requirements in a regular basis.

The food habit of the people largely depends upon the socio-cultural norms of the society from where they belong. These norms sometimes stand as socio-cultural barriers to access food by the people. For example, in some society non-vegetarian foods are totally barred, which not necessarily means that there is dearth of non-vegetarian food at that particular locality. Instead, due to certain socio-cultural norms or traditions of that particular society, people belonging to that society do not take such food items.

2.2.3. FOOD UTILIZATION

Apart from the food availability and accessibility, food must have a positive nutritional impact on people, thereby contributing a healthy nation at large. That is how the food utility dimension has got its relevance. A number of elements entails with this dimension such as- the selection of quality and safe food, hygiene practices for preparation and preservation of food along with safe drinking water, feeding and sharing practices within the household and also includes sanitation and health care etc. In the WFS definition, this dimension is referred to as "safe and nutritious food which meets their dietary needs".

WFP of population living observed that striving from malnutrition, which is mainly because of a non-correct utilization of the food commodities rather than food accessibility (Conte et al., 2002). The effects of early experiences on children's health, including their development, can last a lifetime (McCain & Mustard, 1999). Therefore, adequate nutritious food, safe living spaces, nurturing and responsive care giving, age appropriate stimulation, and opportunities for play (Mckeown 2006) are certain utilities must be provided for every child. Appropriate food utilization ultimately leads to proper absorption of nutrients in order to get an active and healthy life. Malnourishment or improper absorption of nutrients can make people physically and/or mentally disable. Such children are less able to concentrate in school. Consequently, when they reach at the age of adult, they are less able to work efficiently. This leads to lower productivity and economic growth for the nation.

2.2.4. OTHER DIMENSIONS

Food stability can be highlighted as the fourth dimension of food security. The phase 'at all time' in the definition of WFS calls for this forth this dimension. At the first instance, the food stability seems to be similar with above mentioned three dimensions of food security. But, when it is

observed that sustainability of food security as essential domain for food security, then food stability emerge as fourth dimension of this study. Simon (2012) explains this dimension of food security in terms of chronic and transitory food insecurity. According to him, "chronic food insecurity is a long term or persistent inability to meet minimum food requirements and transitory food insecurity is a short term or temporary food deficit". There is another type of food insecurity called as cyclical food insecurity, for example seasonal food shortage etc (Hart 2009).

We often come across the word 'vulnerability' while discussing the issue of food security. The literal meaning of vulnerability is the inability to withstand the effects of a hostile environment. In the context of food security, it is a state of individuals, households, nations; exposing to the risk factors responsible for food insecurity. FAO defines vulnerability as the presence of factors that place people at risk of becoming food insecure or malnourished including those factors that affect their ability to cope. It is also defined as "Conditions that increase a household's susceptibility to the effects of hazards. It is a function of a household's exposure to a hazard and its coping capacity to mitigate the effect of that hazard" (WFP, 2009).

The extent to which an individual, a household, or a nation is vulnerable in terms of food security is dependent upon two things-one is the intensity of the risk factors and second is their ability to cope with the risk (Fafchamps 1999). Therefore, vulnerability is the function of risk and ability to cope the risk. Again, ability to cope up with the risk are of two type- (a) Proactive(ability to reduce or withstand the risk before the risk factors occur) and (b) Reactive (ability to respond to the risk after occurrence).Generally, proactive actions are more preferred to reactive actions. In the present context, dealing with the factors responsible for inadequate food accessibility is a reactive action. Studies suggest that world food production must increase 70% by 2050 to meet the needs of a growing global population. Furthermore, 90% of this increase must come from developing countries' (FAO, 2009). Actions taken in this direction will be a proactive one.

The vulnerability implies risk, hence the term perceived to be as a probability. Therefore, it may be measured, but in relative terms. As there are no unique indicators to measure the three food security dimensions: availability, access and utilization, hence there is no unique indicator to measure vulnerability (Simon, 2012) as well.

3. FOOD SECURITY AT DIFFERENT LEVELS

As per Rome Declaration on World Food Security and the World Food Summit Plan of Action (1996) food security can be viewed as- food security at the individual, household, national, regional and global levels. Understanding these paths will lead to better understanding of the food security problem, which will lead to achieving overall goal of food for all, at all times. Thus, it can be said that these are the different vistas of the same common objectives. FAO (1996) suggest "each nation must adopt a strategy consistent with its resources and capacities to achieve its individual goals and, at the same time, cooperate regionally and internationally in order to organize collective solutions to global issues of food security. In a world of increasingly interlinked institutions, societies and economies, coordinated efforts and shared responsibilities are essential."

3.1. INDIVISUAL AND HOUSEHOLD LEVEL FOOD SECURITY

Indivisual and household level Food securityimplies availability and accessibility of food in a regular manner by the households with desired utilities of the food, that is consumed by all the

members of the households. If a household is said as food secured, it means the household has adequate source of food with sufficient ability to aquire them for maintaining adequate nutritional intake for active and healthy life for each member. The source of food may either in the form of own production with sufficient means of production or the market or the combination of both or may be govermental assistance e.g, subsidised food or any other socially acceptable sources. The food security of a household is dependent on various factors like-number of the members of the household, number of adults and children, girl children in the household, livelihood of the members, types of works that the women member of the household do, pregnancy or lactation status of the women if any etc. Green (1986) suggests three important elements in determining household securities- (a) the average level of income, (b) the magnitude and (c) probability of seasonal and annual fluctuations around the average and the value and form of stocks a household.

3.2. NATIONAL FOOD SECURITY

Accordng to Smith et al. (1992) national food security can be viewed as"a function of the ability of the country's production, marketing, trade and institutional system to provide a continuously adequate supply of food to inhabitants even in times of adverse domestic production and international market condition". Factors like internal food production, income generation and distribution, foreign exchange earning capacity, provision on availibility of storage and transportation, distribution facilities for meeting seasonal and emergency food needs plus other factors that effecting the maintenance and improvement of per capita food consumption are therefore critical in this context.National food security is the nation's ability to ensure uninterrupted arrangements of food supply so that the dimensions of food security are accessible to all citizens in both normal and emergency situations if any. Uninterrupted arrangement will includes necessary measures taken by the government to ensure continuous flow of food production, strengthening the supply side (i.e. Public Distribution System), increasing the purchasing power, creating awareness on healthy diet and preference of food with an eco-friendly approach. According to Barraclough and Utting (1987), food system offering food security should have the following characteristics- " (a) the capacity to generate sufficient internal food supply(via production, adequate storage or stocks and imports) to meet the basic food needs of all social groups and also of expanding effective demand; (b) have a maximum of autonomy and self determination, reducing vulnerability to international market fluctuations and external political pressure (autonomy does not imply autarky, however, but rather dependability while taking prudent advantage of gains to be had from specialization); (c) be reliable so that seasonal and cyclical variations in access to food are minimized; (d) possess long term sustainability (i.e. the production base (the ecosystem) should be preserved and improved); and (e) finally, it should ensure equity, meaning, as a maximum dependable access to adequate food for all social classes, groups and strata".

3.3. GLOBAL FOOD SECURITY

Global food security is the assurance of an adequate food supply and/or access for all the humun on the earth. Global food security beckons the coherent and conglomerate actions towards food security of all the nations across the globe. It essentially means equal distribution of food along the nations irrespective of their economic status, regional disparities and socio-cultural variations in a sustainable and eco-friendly manner. Each nation should have sufficient autonomy and self-determination in respect to take decision on food security of the nation concern. It is for the

benefit of food deficit countries, the international trade and tariff should be made ease so that these countries can have access to food surplus countries.

Thus, the food security concept can be viewed from the prospective of various levels. Understanding the meaning of food security given by various authors on the issue are prerequisite to go to the depth of the issue. The issue has universal implications. It has gained its importance since the wartime. Nevertheless, food is the prime requirement for human survival. Since, the primitive time to the date, 'food' is the primary reason for most of the human activities. Proper and good diet ensures good health, which is directly related with the productivity of the human as a resource. At present, the topics of food trade, food market, supply chain management for food, food inflation, price volatility in the food market at local, national, regional and global level has emerged with the evolution of food security. All these drag the attention of the researchers to go more and more into the issue and thereby achieve a permanent solution to the problems of food security.

4. EVOLUTION OF FOOD SECURITY

The evolution of food security is traced back from more than 75 years ago and is divided into four phase for better understanding of world food situation by D. John Shaw in 2007 in his book "World Food Security: A History since 1945". In this section, we basically tried to summarize his work on the history of food security across the globe.

4.1. POST WORLD WAR I PERIOD (1930 – 1945 A.D.)

During this period food security came up as a global issue at the initiation of the League of Nations. According to Shaw (2007), Sir John Boyd was the first person, who wrote about such issues. Initially, importance of food for health was recognized by the Health Division of the League of Nations at the proposal of its member country Yugoslavia, in the early 1930's. All the member countries submitted their respective food status to the League, which was indeed the first report ever in the history in addressing the issue of global food security. He further explains the report of the survey on "Nutrition and Public Health" conducted by the League of nation in the year 1935. This report showed the picture of extreme food shortage in the poor countries. A concert affords on nutrition and health issue by all the members was prescribed as the solution to that situation, which is described as the "marriage of health and agriculture' (Boyd Orr, 1966 as mentioned in Shaw, 2007). 'This marriage represents probably the premises of the story of modern food security born from the difficult and unequal relations between health and agriculture' – as explained by Simon (2012). He describes the initiations of US as a leading nation to take steps on improving productivity through tools like- price control, credit control, export support etc., during 18th century. It is how the first big scale food aid operation took place in the history between 1919 and 1926. US shipped more than 6 million tons of food commodities to Europe during those periods. The Agricultural Adjustment Act and a Grain stabilization Board was enacted for providing subsidy to agricultural export in the year 1933. Commodity Credit Corporation (CCC) was created for trading agricultural product, controlling price and dispense loan to the producers. At present, CCC procures food from the market to provide food aid to abroad. The establishment of Food and Agriculture Organization (FAO)of the United Nations in 1943 was a remarkable event of this period. As the period was hostile due to numbers of famines and more devastatingly with wars, the food availability dimension was the major concern of the nations.

4.2. POST WORLD WAR II (1945-1970 A.D.)

According to Simon (2012) the nations during post world war period necessarily concerns more on food productivity and supply. Governments of the nations like European nations focused on supporting agricultural sector and food production to bring self-sufficiency. During this period in most of the countries, although the main occupation of the peoples is cultivation, in some instance rural population seemed to migrated to semi urban and urban areas. The wind of industrialization may be the reason behind.

The first WFS (World Food Summit) was convened by FAO in 1946 to enquire about the food availability for enough energy or micronutrients (calories) to all the people on the earth. This summit ended with the conclusion that one third of the world population was deprived of sufficient energy contents in their diet. Soon after such conclusion, the agricultural sector was given due attention and food production drastically increase to a level of surplus production, especially in Europe and North America. Suddenly, the focus of FAO has changed towards the consequence of overproduction and use of the surplus food grains. In 1952, Committee on Commodity Problems (CCP) came into being; which recommended a set of principles or a code of conduct to govern the disposal of agricultural surpluses and recommended a permanent committee to deal with commodity problems. The provision of Food Surpluses to Food-Deficit people through the United Nations Systems (UN, 1961) was passed by UN general assembly and led to the establishment of World Food Programme (WFP). WFP recognized that the ultimate solution to the problem of hunger laid in the economic development of developing countries. In 1961, the joint Codex Alimentations Commission to regulate the food safety by establishing international standards was established by the World Health Organization (WHO) and FAO jointly.

During this period the first International wheat Agreement had been signed in 1962. This is the period when food stock in Indian sub-continent had decreased and the demand increased at the same time. India had to suffer from situation of food inflation. On the other hand the countries like US, Canada etc had achieved the level of self-sufficiency and hence were very much eager to supply food to food deficient countries. The world has witnessed the increase of food production more than 50 percent and per capita production by more than 20 percent during 1950-60.

4.3. FOOD CRISIS (1970-1990)

The agricultural growth suddenly bend down when world moved towards 1970's. Simon (2012) explains that the cereal production was dropped by 3 percent from earlier production, due to the climatic condition in several countries across the globe. The adversity had increased when Organization of the Petroleum Exporting Countries (OPEC) countries had increased the petroleum price. This situation had led the price of cereals grow very high. Consequently, food deficit countries suffered as commercial imports became more expensive. In addition to that, the food aid of cereals had also dropped from about 17 to some 7 million tons during the time. In 1974, The United Nations World Food Conference was taken with a view to eliminate food insecurity within a decade. This conference had become the pioneer platform, from where the issues relating to food demand and supply, hunger, malnutrition are being discussed under the rubric of "food security". A major afflux of refugees from Afghanistan and Cambodia, in 1979-80 and drought of Africa in 1983 – 1985 drought forced international community to deal with

food security in the face of vulnerability. The attention was again diverted from concentrating nutritional value of food to the food availability and logistic dimension.

To fight against these catastrophes, the International Fund for Agricultural Development (IFAD), Committee on Food Security (CFS), The Global International Early Warning System (GIEWS), the World Food Council, the Committee on Food Aid Policies and Progrmme (CFA), The International Emergency Food Reserve (IEFR) were established during the time. CFS has now become the world focal point for food security governance and IEFR becomes one of the major sources of funding of WFP's emergency operations in today's date. FAO established a Food Security Assistance Scheme in 1976 for assisting short term food supply and prevention of food losses. In the year 1979, FAO conference approved a Food Security Action Programme after several years of discussions to assist food deficit developing countries in importing and storing food commodities (FAO, 1979). In 1983 and 1985, the FAO came up with a resolution on World Food Security and World Food Security Compact respectively. They have emphasized on food security for all with physical and economic access of food and freedom from hunger as fundamental right to everyone. Moreover, Malthusian theories were also denied during this period in the light of two World Food Surveys conducted by FAO in 1977 and 1987.

One new concept on food security was also introduced by Prof. Amartya Sen in 1981 out of his research on famines. His major argument was that in most cases of starvation and famines in the world resulted not from people being deprived of what they were entitled but rather from people not being entitled to adequate means of survival in the existing legal and social systems they were living. Thus, the food accessibility dimension came into the debate of food security based on this approach.

4.4. GOLDEN YEARS OF FOOD SECURITY (1990 ONWARDS)

Simon (2012) describes the period from 1990 onwards as the golden years of food security. The concept of food security has been discussed and viewed from multidisciplinary dimensions from then onwards. The Rome World Food Summit formally recognized the food accessibility dimension of Sen in 1996. It was because of the WFS 1996, many countries are now able to draft their food security strategies in their respective countries. It is practically put into practice by food security practitioners only after the Niger crisis, 2005 and the world food prices crisis, 2008. The joint International Conference on Nutrition organized by FAO and WHO in Rome was the significant event in progress of the concept of food security. Eliminating hunger and reducing all forms of malnutrition are main proposals in the conference. In the conference, accessibility, availability and utilization dimensions of food along with food as a right to every individual are recognized. The conference approved an ambitious Plan of Action for inter-sectoral co-operation and co-ordination between all actors concerned (FAO/WHO, 1992). WHO has different view toward the food issue and considers food security alone cannot prevent malnutrition, which directly affects the health of the individuals. Therefore, they address the nutritional security rather than food security at large and works for the "marriage of health and agriculture".

The year 1996 is also important because in that year, European Commission had approved the new Food Security and Food Aid Regulation to improved tools to deal with food insecurity, to utilize these resources more efficiently. In 2000, the United Nations Millennium Summit met in New-York and approved the ever discussing Millennium Development Goals (MDGs). As per

the goals set as MDGs, Extreme Poverty and Hunger are to be eradicated from the world by 2015. However, progresses have been seen mild in this regard.

Though, food security is in its golden period, the world has got to witness crisis like Niger in 2005 and World Food Price crisis in 2008. In the crisis of Niger grain deficits soared to around 224,000 million tonnes. As per the report, 3.3 millions of people were under the crisis out of which 800,000 were children under age five in some 3,815 villages. The malnutrition rate was reported as 13.4 percent in the southern Niger. This crisis unveiled some specific issues of food security. In the affected areas food was there; but the food affordability was missing among the millions of food insecure people in those places. The food prices were very high which affected the food accessibility by the people. Sen's opinion in this regard seems relevant. Likewise, the world food prices crisis of 2008 also showed the impact of price volatility on the people. This crisis, which last for few months rose with the dramatic increase in prices of cereal commodities up3-4 times. This made impossible for many to access food. This crisis could be the consequence of2006 price spikes, droughts in grain-producing nations and rising oil prices. With the increasing of oil prices, the costs of fertilizers, food transportation, and agriculture had also increased. Use of bio fuel by the developing countries and increasing demand for varied diet across the expanding middle-class populations of Asia were also the two major causes of the crisis. Both of these latest crises in the history of world were happened due to the excessive increase in the price of food. However, factors affecting the increase of food price were different. This led many economists, development economists, agro-economists, etc. that there was an active role for them to play within a multidisciplinary food security. The World Food Programme published the third report of the World Hunger Series entitled: "Hunger and Markets" in 2009. In that report food accessibility, especially economic accessibility is given importance. Thus, the food security concerns are now leaning towards its accessibility dimension. Furthermore, utility of food dimension has also gaining attention in the international level. WHO has emphasized the nutritional value of food and essentially taken measures to overcome malnutrition problem across the globe.

5. CONCLUSION

If food security is discussed in the context of today, then it is seen that the price volatility in the commodity market is creating 'a new face of hunger' (Sheeran, 2008). Kattumuri (2011) cited the news on BBC (2008) which said that due to hike in fuel cost around 40%, budgets were inadequate to tackle the global malnutrition of 2008. Many evidences show the climatic change as a cause in increasing food price during that period. In 2010, Russia temporally banned the exports of some major food products to balance own food reserve. At that time, the destabilization of the reserve was due to the effect of the abnormally high temperature in the domestic production. This ultimately led to rise of price, create inflationary situation in Russia. In that year, BBC had reported that the impact of extreme weather would cause devastation to millions of lives and food supply in countries like Pakistan, China, Russia, North Korea and India.

India's rank in the global Hunger Index is 16th in the year 2013.Forty eight percent of children under the age of five years are malnourished in India, which is over a third of the world's 150 million malnourished under-fives. Over half of all women aged between 15 and 49 years are anaemic, and 30% of children are born underweight. It is estimated that 3% of GDP is lost by physical impairments caused by malnutrition in Asian countries (The Economist 2010, cited by Kattumuri, 2011). Therefore, the time comes for acknowledging the need to address the causes

of-unexpected price hikes and volatility, insufficient market transparency, growing linkage with outside markets. Financing at all levels viz., production, storage, distribution in the current and future market is also a matter of concern. Moreover, keeping in mind the fact that food insecurity exists even in the case of no hunger, food utilization aspects also gains importance at present. Such insecurity may be in terms of food price volatility in the market. This arises the need of innovative mechanism and multidimensional outlook to the problem of food security.

REFERENCES

Barraclough, S. and Utting, P. (1987), "Food Security Trends and Prospects in Latin America" Working Paper 99, Kellogg Institute for International Studies

Conte, Annalisa and Morrow, Nathan, (2002), Mali: Rural Community and Household food Security Profiles, Vulnerability Analysis and Mapping, World Food Programme report, Rome,

FAO and WFO (2009). Joint Guidelines for Crop and Food Security Assessment Mission

FAO and WHO, (1992), Final Report of the International Conference on Nutrition, Rome and Vienna 1992.

FAO, (1979), Plan of Action on World Food Security, FAO Council Resolution 1/75

FAO, (1996), World Food Summit: Rome Declaration on World Food Security and World Food Summit Plan of Action, Rome, 1996

Fafchamps, M. (1999), "Rural Poverty, Risk and Development" Report submitted to the Food and Agriculture Organization (FAO)

Hart, T. (2009) "Exploring Definitions of Food Insecurity and Vulnerability: Time to Refocus Assessment" Agrekon, Vol 48, No 4

Green, R.H. (1986). "Sub Saharan Africa: Poverty of Development, Development of poverty" Discussion Paper 218, Institute of Development Studies, Brighton

Hoddinott, J. (1999), "Choosing Outcome Indicators of Household Food Security" International Food Policy Research Insititute, 2033 K Street, N.W. Washington, DC, USA

Kattumuri, R. (2011), "Food Security and Targeted Public Distribution System in India" Working paper prepared for London School of Economics, Asia Research Centre, London: United Kingdom

Labadarios et al. (2011), Food Security in South Africa: A Review of National Survey" Bull World Health Organ; 89:891-899/doi: 10.2471/BLT.11.089243

McKeown, D. 2006. Food security: implications for the early years. Background paper, Public Health, Toronto, Canada (online available at http://www.toronto.ca/health/children/pdf/fsbp_final.pdf)

McCain MN, Mustard JF. Reversing the real brain drain: Early years study. Council for Early Child Development; 1999.

Sheeran, J. (2008). "The New Face of Hunger" Key note address at UN World Food Programme, Centre for Strategic and International Studies, Washington, DC

Smith, M.,et al (1992) "Household Food Security, Concepts and Definitions: An Annotated Bibliography," mimeo, IDS, Brighton

Simon, G. (2012), "Food Secuirty: Definition, Food Dimensions, History" Basic reading as an introduction to Food Security for students from the IPAD Master, SupAgro, Montpellier attending a joint training programme in Rome from 19-24 March 2012.

Smith, M., Pointing, J. and Maxwell, S.(1993). "Household Food Security, concepts and Definitions: An annotated Bibliography". Brighton, Institute of Development Studies

WFP, (2009)."Hunger and Markets", World Hunger Series, WFP, Rome and Earthscan, London, 2009.

World Food Summit (WFS) (1996). "Report of the World Food Summit", held from 13-17 November 1996, FAO, Rome.

WFP (2009). "Emergency Food Security Assessment Handbook" World Food Programme (WFP), Food Security Analysis Service, United Nations

PREVALENCE OF TOBACCO CONSUMPTION AMONG THE TRIBAL MALE ADOLESCENTS AND THEIR FAMILY MEMBERS: IS THERE ANY ASSOCIATION BETWEEN FAMILY MEMBERS AND THE ADOLESCENTS?

Samarpita Koley*; Parikshit Chakraborty**

*Ph.D. Research Scholar,
Dept. of Anthropology, Vidyasagar University,
Midnapore, West Bengal, INDIA.
Email id: samarpitakoley@gamil.com

**Junior Research Fellow,
Anthropological Survey of India,
Ranchi Field Station, Ranchi, Jharkhand, INDIA.
Email id:parikshitchakraborty1@gmail.com

_____

ABSTRACT

The frequency of tobacco consumption among the tribal youths is high. The objective of the present study has been aim to the prevalence and pattern of tobacco use, and is there any association between tobacco consumption of family members and tobacco use by adolescents. A cross-sectional study has been conducted into two tribal villages in rural areas of Paschim Medinipur district of West Bengal, India. Data has been collected by interview from 180 adolescent and their respective family members by home visits. The study demonstrates that tribal adolescent boy's comparatively starting smoking with leaving the primary level of education. Bidi was commonly used for smoking, while pan masala and gutka were the preferred smokeless tobacco. Almost all smokers were also using smokeless tobacco. Moreover, the prevalence of tobacco consumption was high in the tribal adolescents compare to their parents.

KEYWORDS: *Frequency Of Tobacco Consumption, Tribal Youths, Adolescents, Smoking, Smokeless Tobacco.*

INTRODUCTION:

The use of tobacco by the general population is widely prevalent all over the world and even in India. Tobacco smoking and chewing are one of the main reasons cancer diseases like lung cancer and oral cancer. Tobacco smoking and chewing are the second major causes of death in the world. At every 6.5th second, a person dies because of a tobacco related disease, globally. The prevalence of tobacco use in India is continuously increasing. The most susceptible period for tobacco use in India is during adolescence and early adulthood (15-24 years). The theme for 'World No Tobacco Day-2008'- Tobacco Free Youth focuses on adolescents and called for the formation of youth groups and awareness building.

India's Tobacco prevention initiatives as well as National Tobacco Control Cell give importance to tobacco prevention activities in the schools and colleges. As per Indian Council of Medical research (ICMR), almost 50 percent of all cancers among males and 25 percent of cancers among females are related to use of tobacco in India3. According to Cancer Foundation of India, maximum number of lung cancers reported from west Bengal as more than 75% of the population use some form of tobacco. In West Bengal more than 57% of the students are smoker. According to Cancer Foundation of India study an average age of smoking is 13 years. The highest causes of oral cancer patient from India, which is mostly associated with use of chewing tobacco use and India is the second largest consumer of tobacco products in the world. However, cigarettes use as the leading form of tobacco use in much of the world, whereas, smokeless tobacco such as Gutka, Pan Masala, Khaini and many others and smoking of bidis are the foremost forms of tobacco consumption in India. Tobacco use is much more prevalent among men than among women.

The Medical Anthropology Quarterly has demonstrated that tobacco use is one of the most significant health-compromising behaviors practiced by adolescents. It is estimated that every day in the United States over 6,000 teenagers try their first cigarette and that over 3,000 adolescents become new regular smokers (National Cancer Institute 2000; USDHHS 2001). Nationwide, 34.5 percent of high school students use some form of tobacco (USDHHS 2001). Tobacco use in any form and of any type is traditionally rooted in the Indian culture and the general consequences, problem, effects and impact mentioned by various studies. Tobacco was easily assimilated into the cultural rituals of many societies and especially into tribal societies.

There are few studies which represent the prevalence of tobacco consumption in the tribal adolescents. Hence, the present study has been showed to tobacco uses among the tribal adolescents in rural areas of Paschim Medinipur district of West Bengal, India.

OBJECTIVES OF THE STUDY:

In the above background the present researchers aim to collect data on educational status of the tribal adolescents who are the addicted to tobacco and pattern or types of tobacco consumption among adolescents and also collect the family data which means any of the family member are addicted on tobacco consumption.

MATERIAL AND METHODS:

The present study has been conducted among the adolescents' tribal boys and their respective family members distributed over two tribal villages in Kankabati Gram Panchayet under Midnapore Sadar Block in the district of Paschim Medinipur, West Bengal, India. The villages are namely Jamshol and Panjashol.

For the purpose of sampling, the author used purposive sampling method among the adolescents' tribal boys into two trbial villages under study area and the sample adolescents' tribal boys 180 individuals has been used in this study. After the sampling of the respondents a door to door survey was made to locate the specific resident of each sampled person. A predesigned structured interview schedule was used to collect data. The schedule was pilot tested prior to data collection. The final schedule consists of questions related to educational information, tobacco use and its types; are the family member use tobacco.

Definition of adolescent: The World Health Organization defined "*adolescence*" as being between the ages of 10-19 years, encompassing the entire continuum of the transition from childhood to adulthood. However, early adolescent period has been defined as age group of 11 to 13 years and middle adolescent as age group of 14 to 16 years and late adolescent period has been defined as the age group of 17 to 19 years.

Data has been collected from 150 adolescent and their respective family members and the data interpret through statistical analysis by using percentage and the Chi square test.

TABLES AND DISCUSSION:

<div align="center">TABLE: 1</div>

VARIABLES	NO. OF PERSONS (N) 180	PERCENTAGE (%) 100
Age Group wise Distribution of Tribal adolescent boys:		
Early adolescent (10-13 years)	60	33.33
Middle Adolescent (14-16 years)	68	37.78
Late adolescent (17-19 years)	52	28.89
Education Status		
Illiterate	25	13.89
Literate	52	28.89
Middle School	69	38.33
High School and above	34	18.89
Adolescent use Tobacco		
Yes	150	83.33
No	30	16.67
Pattern of Tobacco consumption among Adolescents		
Smokeless form of tobacco	34	22.67
Smoke form of tobacco	54	36.00
Both forms of tobacco	62	41.33
Type of Tobacco consumption among Adolescents		
Betel nut	7	4.67
Khaini	14	9.33
Gudaku	5	3.33
Pan Masala	10	6.67
Bidi	15	10.00
Cigarette	6	4.00
Betel nut & khaini	11	7.33
Betel nut & khaini & Gudaku	9	6.00
Above all except smoking	13	8.67

Above all except khaini and Gudaku	16	10.67
Above all except Bidi	12	8.00
Above all except Bidi and Gudaku	14	9.33
Above all	18	12.00
Age of beginning of consumption		
5-9	23	15.33
10-14	59	39.33
15-19	68	45.33
Reasons for starting of Tobacco habit		
Family influence	42	28.00
Friend influence	23	15.33
Relief from toothache	11	7.33
Peer influence	21	14.00
To concentrate on work	16	10.67
No particular reason	37	24.67
Family member use Tobacco		
Yes	158	94.00
No	22	6.00

In the present study, Table – 1 deals with the age group wise distribution of tribal adolescent boys under study area. From this table it is revealed that there were 60(33.33%) boys belongs into early adolescent group i.e. 10-13 years of age; 68(37.78%) boys belongs into middle adolescent group i.e. 14-16 years of age; whereas, 52(28.89%) boys belongs into late adolescent group i.e. 17-19 years of age among the total number of respondents. However, in case of educational status of the adolescent the table demonstrates that a majority of the adolescents were educated upto middle school i.e. 38.33%, followed by high school 18.89% and merely 13.89% were illiterate under study area.

From the table – 1, in case of uses of tobacco out of the total number of respondents majority of the adolescent had addicted by tobacco use i.e. 83.33%, whereas, only 16.67% adolescent did not take the any types of tobacco. However, followed by the tobacco consumption among adolescent boys 22.67% adolescent taken smokeless form of tobacco but 36% adolescent taken smoke form of tobacco; whereas, 41.33% adolescent taken both the form of tobacco.

From this table, it was observed that the minimum age of initiation of the tobacco consumption among the tribal male adolescents was 5-9 years of age who were15.33%. There was a noticeable prevalence of tobacco consumption at an early age. Out of the 150 male adolescents, in 59(39.33%) boys was initiated at 10-14 years of age; whereas, in 68 (45.33%) adolescents tribal boys initiated at 15-19 years of age.

Finally, it's also exposed from the table – 1 that reasons for starting of tobacco consumption indicates family influence (28%) were the major factors which influenced the tobacco intake among the adolescents. No particular reason (24.67%) was the factor which was next to the family influence. Peer pressure and friend influence both were the third most factor for tobacco intake among the adolescents. Moreover, the table also illustrates that in case of tobacco consumption by the family members out of the total adolescents of their respective family members were majority were taking tobacco which 94% and rest 6% family members were not taking any types of tobacco.

TABLE: 2 ASSOCIATION BETWEEN TOBACCO CONSUMPTION OF FAMILY MEMBERS AND TOBACCO USE BY ADOLESCENTS

Adolescents use Tobacco	Family History of tobacco use	
	Yes	No
Yes	141 (131.67) [0.66]	9 (18.33) [4.75]
No	17 (26.33) [3.31]	13 (3.67) [23.76]
Chi Square Test: χ^2=32.48, p<0.001; Significant		

In the present study, Table – 1 deals with the association between tobacco consumption of family members and tobacco use by adolescents. Where, the table illustrates that major portion of the studied adolescent boys taking tobacco whose parents also had the habit of tobacco consumption. The habits of the family members are easily transmitted to their children, which were seen in this study and in other studies. Therefore, the chi-square statistic is 32.48. The p-value is < .00001. The result is significant at p < .01.

CONCLUDING REMARKS:

Addiction is one of the foremost social challenges at present day, especially tobacco addiction among the adolescents. In the field of social sciences particularly in the field of anthropology it's one of the essential social challenges to study tobacco addiction among the adolescents. Therefore, this study provides prevalence of tobacco consumption among the tribal adolescents and their family members.
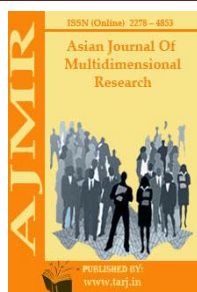
Moreover, the present study concludes that prevalence of tobacco consumption was high in in the tribal adolescents. A majority of the adolescents consumed a smokeless and smoke both the form of tobacco. Starting of tobacco consumption by the family members were the major contributing factors for the tobacco consumption in adolescents. Therefore, the consumption of tobacco among the family members significantly (p<0.001) increased the tobacco use among the adolescents.

In addition, the present study may be helpful to raise the different issues like restricts tobacco promotion and the sale of tobacco products to adolescents children and protects non-smokers in public places.

REFERENCES:

1. Abdullah, A.S. Husten, C.G. 2004. *Promotion of smoking cessation in developing countries: a framework for urgent public health interventions*, 59/7:623-30.
2. Chaudhary, Kishor. 2009. Tobacco control in India. *50 years of cancer control in India*, 196-211.
3. Chaudhry, K. Prabhakar, A.K. and Luthra, U.K. 1990. 'Tobacco control in India–Search for strategies.' In: Durston B, Jamrozik K, editors. *The Global war; Proceedings of the seventh world conference on tobacco and health, Perth, Health Department of estern Australia: Conference proceedings*, 363-6
4. Global Youth Tobacco Survey (GYTS). 10th July 2010. *Fact Sheet: South-East Asia Regional Office (SEARO).*
5. Gupta, P.C. 1996. 'Survey of socio-demographic characteristics of tobacco use among 99,598 individuals in Bombay,' *Tobacco control*; 5:114-20.
6. International Work Group for Indegenous Affairs. *Indegenous people in India*.

7. Janakiram, C., Joseph, J., Vasudevan, S., Taha, F., Deepan, K.C.V., Venkitachalam, R., Antony B., Sanjeevan, V. and Varghese, N.J. 2016. 'Prevalence and Dependency of Tobacco Use in an Indigenous Population of Kerala, India'. Journal of Oral Hygiene and Health, 4(1):1-4.

8. *Journal of the National Cancer Institute*, 2000. 92(8), 589, https://doi.org/10.1093/jnci/92.8.589.

9. Prashant, V., Deepak, S., Pradeep K. K. 2018. A study on prevalence of tobacco consumption in tribal district of Madhya Pradesh, *International Journal of Community Medicine and Public Health*, 5(1):76-80.

10. Quazi, S. Z., Abhay, G., Shilpa, B., Khatib, N., Sanjay, Z. 2011. 'Prevalence and pattern of tobacco use among tribal adolescents: Are tobacco prevention messages reaching the tribal people in India?' Annals of Tropical Medicine and Public Health, 4(2), 74-80.

11. Selvan, M.S. and Kurpad, A.V. 2004. 'Primary prevention: Why focus on children and young adolescents?' *Indian Journal Medicine Research*, 120:511-518.

12. Sharma, K. 2003. 'Adivasis- the forgotten India.' *The Hindu.* Online edition, India.

13. Singh, S. K. 2012. 'Prevalence and factors associated with tobacco use during pregnancy in rural Pakur district, Jharkhand, India.' *Achutha Menon Centre for Health Science Studies,* Thiruvananthapuram, Kerala, India.

14. U.S. Department of Health and Human Services (USDHHS). 2001. Mental Health: Culture, Race and Ethnicity—A Supplement to Mental Health: A Report of the Surgeon General. Rockville, MD: U.S. Department of Health and Human Services, Public Health Service, Office of the Surgeon General.

15. W. H. O. 10th July 2010. *Report on Tobacco control in India*.

16. West Bengal Health Statistics Population, (Census 2011).

17. *World No Tobacco Day* 2008. http://www.who.int/entiti/tobacco/wntd/2008/en/index.html.

OVERVIEW OF GOODS AND SERVICE TAX AT THE CENTRE AND STATE LEVEL

Sarabjeet Kaur*

*Assistant Prof in Commerce,
G.G.N Khalsa College Ludhiana, INDIA.

_____

ABSTRACT

Goods and Service Tax or GST as it is known is all set to be a game changer for the Indian economy. The Finance Minister in his budget speech of Budget 2015 has announced time and again that the tax will be introduced on 1 April, 2016. VAT or Value Added Tax was first introduced in France somewhere in 1954. The concept of VAT is applying a tax only on the value added by each person at each stage; by allowing the person input credit of taxes paid up to his stage of procurement. Thus the tax is expected to reduce the concept of 'tax on tax', increase the gross domestic product of the economy and reduce prices. Overall it is known to be beneficial to both the consumer, business and the Government. In India, there are different indirect taxes applied on goods and services by central and state government. GST is intended to include all these taxes into one tax with seamless ITC and charged on both goods and services. Thus excise duty, special additional duty, service tax, VAT to name a few will get repealed and will be added into GST. For this, GST will have 3 parts – CGST, SGST and IGST. The central taxes like excise duty will be subsumed into CGST and state taxes like VAT into SGST. For the introduction of GST in the above form, the Government needs to get the Constitution Amendment Bill passed so that the proposed objective of subsuming all taxes and allowing states to tax subjects in Union list and vice versa is achieved. Without these powers it is not legally possible to move towards GST. Thus going forward on all transactions of both goods and services, only one tax will apply which is GST comprising of CGST and SGST. IGST would be applied instead of SGST for interstate transactions. Input credit of all these taxes will be available against all the respective outputs.

KEYWORDS: GST: - *Goods and Service Tax, VAT:-Value Added Tax, CGST :-Central Goods and Service Tax, SGST:-State Goods and Service Tax, IGST:-Integrated Goods and Service Tax, ITC :-input tax credit*

INTRODUCTION OF GST

Taxes at the Centre and State level are being subsumed into GST are as follows:-

At the **Central** level, the following taxes are being subsumed:

1. Central Excise Duty,

2. Additional Excise Duty,

3. Service Tax,

4. Additional Customs Duty commonly known as Countervailing Duty, and

5. Special Additional Duty of Customs.

At the **State** level, the following taxes are being subsumed:

1. Subsuming of State Value Added Tax/Sales Tax,

2. Entertainment Tax (other than the tax levied by the local bodies), Central Sales Tax (levied by the Centre and collected by the States),

3. Octroi and Entry tax,

4. Purchase Tax,

5. Luxury tax, and

6. Taxes on lottery, betting and gambling.

The major chronological events that have lead to the introduction of GST

GST is being introduced in the country after a 13 year long journey since it was first discussed in the report of the Kelkar Task Force on indirect taxes. A brief chronology outlining the major milestones on the proposal for introduction of GST in India is as follows:

1. In 2003, the Kelkar Task Force on indirect tax had suggested a comprehensive Goods and Services Tax (GST) based on VAT principle.

2. A proposal to introduce a National level Goods and Services Tax (GST) by April 1, 2010 was first mooted in the Budget Speech for the financial year 2006-07.

3. Since the proposal involved reform/ restructuring of not only indirect taxes levied by the Centre but also the States, the responsibility of preparing a Design and Road Map for the implementation of GST was assigned to the Empowered Committee of State Finance Ministers (EC).

4. Based on inputs from Govt of India and States, the EC released its First Discussion Paper on Goods and Services Tax in India in November, 2009.

5. In order to take the GST related work further, a Joint Working Group consisting of officers from Central as well as State Government was constituted in September, 2009.

6. In order to amend the Constitution to enable introduction of GST, the Constitution (115th Amendment) Bill was introduced in the Lok Sabha in March 2011. As per the prescribed procedure, the Bill was referred to the Standing Committee on Finance of the Parliament for examination and report.

7. Meanwhile, in pursuance of the decision taken in a meeting between the Union Finance Minister and the Empowered Committee of State Finance Ministers on 8th November, 2012, a 'Committee on GST Design', consisting of the officials of the Government of India, State Governments and the Empowered Committee was constituted.

8. This Committee did a detailed discussion on GST design including the Constitution (115th) Amendment Bill and submitted its report in January, 2013. Based on this Report, the EC recommended certain changes in the Constitution Amendment Bill in their meeting at Bhubaneswar in January 2013.

9. The Empowered Committee in the Bhubaneswar meeting also decided to constitute three committees of officers to discuss and report on various aspects of GST as follows:-

(a) Committee on Place of Supply Rules and Revenue Neutral Rates;

(b) Committee on dual control, threshold and exemptions;

(c) Committee on IGST and GST on imports.

1. The Parliamentary Standing Committee submitted its Report in August, 2013 to the Lok Sabha. The recommendations of the Empowered Committee and the recommendations of the Parliamentary Standing Committee were examined in the Ministry in consultation with the Legislative Department. Most of the recommendations made by the Empowered Committee and the Parliamentary Standing Committee were accepted and the draft Amendment Bill was suitably revised.

2. The final draft Constitutional Amendment Bill incorporating the above stated changes were sent to the Empowered Committee for consideration in September 2013.

3. The EC once again made certain recommendations on the Bill after its meeting in Shillong in November 2013. Certain recommendations of the Empowered Committee were incorporated in the draft Constitution (115th Amendment) Bill. The revised draft was sent for consideration of the Empowered Committee in March, 2014.

4. The 115th Constitutional (Amendment) Bill, 2011, for the introduction of GST introduced in the Lok Sabha in March 2011 lapsed with the dissolution of the 15th Lok Sabha.

5. In June 2014, the draft Constitution Amendment Bill was sent to the Empowered Committee after approval of the new Government.

Based on a broad consensus reached with the Empowered Committee on the contours of the Bill, the Cabinet on 17.12.2014 approved the proposal for introduction of a Bill in the Parliament for amending the Constitution of India to facilitate the introduction of Goods and Services Tax (GST) in the country. The Bill was introduced in the Lok Sabha on 19.12.2014, and was passed by the Lok Sabha on 06.05.2015. It was then referred to the Select Committee of Rajya Sabha, which submitted its report on 22.07.2015. **GST be administered in India?**

Answer: Keeping in mind the federal structure of India, there will be two components of GST – Central GST (CGST) and State GST (SGST). Both Centre and States will simultaneously levy GST across the value chain. Tax will be levied on every supply of goods and services. Centre would levy and collect Central Goods and Services Tax (CGST), and States would levy and collect the State Goods and Services Tax (SGST) on all transactions within a State. The input tax credit of CGST would be available for discharging the CGST liability on the output at each

stage. Similarly, the credit of SGST paid on inputs would be allowed for paying the SGST on output. No cross utilization of credit would be permitted.

Question 6.How would a particular transaction of goods and services be taxed simultaneously under Central GST (CGST) and State GST (SGST)?

Answer: The Central GST and the State GST would be levied simultaneously on every transaction of supply of goods and services except on exempted goods and services, goods which are outside the purview of GST and the transactions which are below the prescribed threshold limits. Further, both would be levied on the same price or value unlike State VAT which is levied on the value of the goods inclusive of Central Excise.

A diagrammatic representation of the working of the Dual GST model within a State is shown in Figure 1 below.

Figure 1: GST within State
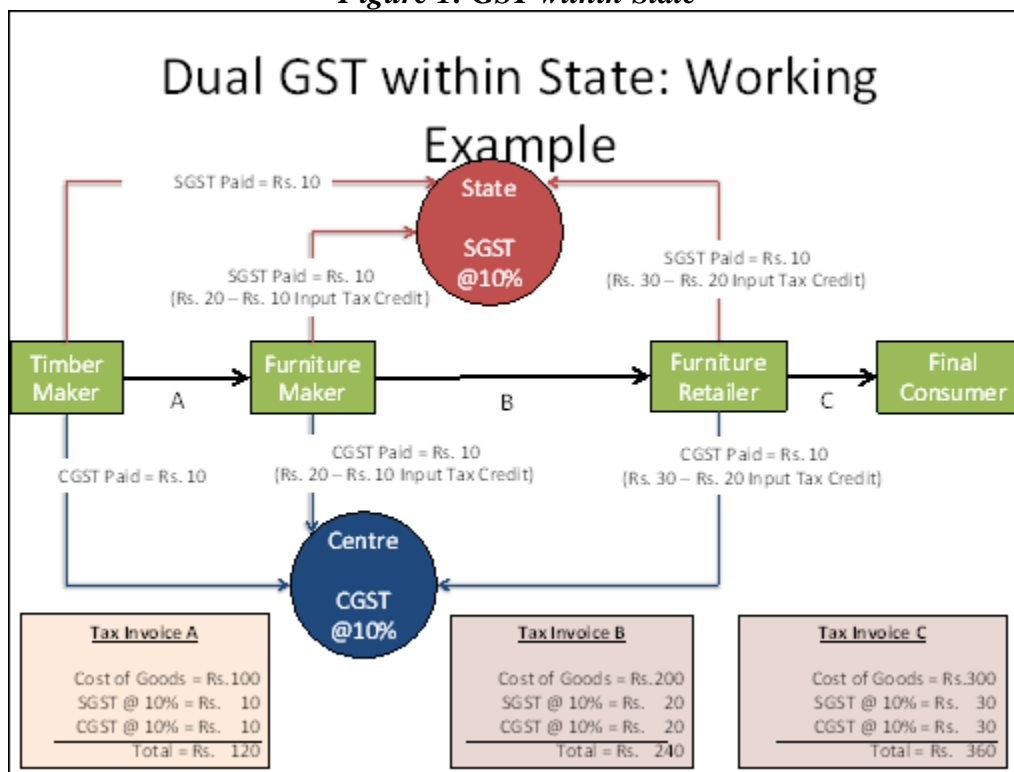
Question 7.Will cross utilization of credits between goods and services be allowed under GST regime?

Answer : Cross utilization of credit of CGST between goods and services would be allowed. Similarly, the facility of cross utilization of credit will be available in case of SGST. However, the cross utilization of CGST and SGST would not be allowed except in the case of inter-State supply of goods and services under the IGST model which is explained in answer to the next question.

Question 8.How will be Inter-State Transactions of Goods and Services be taxed under GST in terms of IGST method?

Answer:In case of inter-State transactions, the Centre would levy and collect the Integrated Goods and Services Tax (IGST) on all inter-State supplies of goods and services under Article 269A (1) of the Constitution. The IGST would roughly be equal to CGST plus SGST. The IGST mechanism has been designed to ensure seamless flow of input tax credit from one State to another. The inter-State seller would pay IGST on the sale of his goods to the Central Government after adjusting credit of IGST, CGST and SGST on his purchases (in that order). The exporting State will transfer to the Centre the credit of SGST used in payment of IGST. The importing dealer will claim credit of IGST while discharging his output tax liability (both CGST and SGST) in his own State. The Centre will transfer to the importing State the credit of IGST used in payment of SGST.Since GST is a destination-based tax, all SGST on the final product will ordinarily accrue to the consuming State.

A diagrammatic representation of the working of the IGST model for inter-State transactions is shown in Figure 2 below.

Figure 2
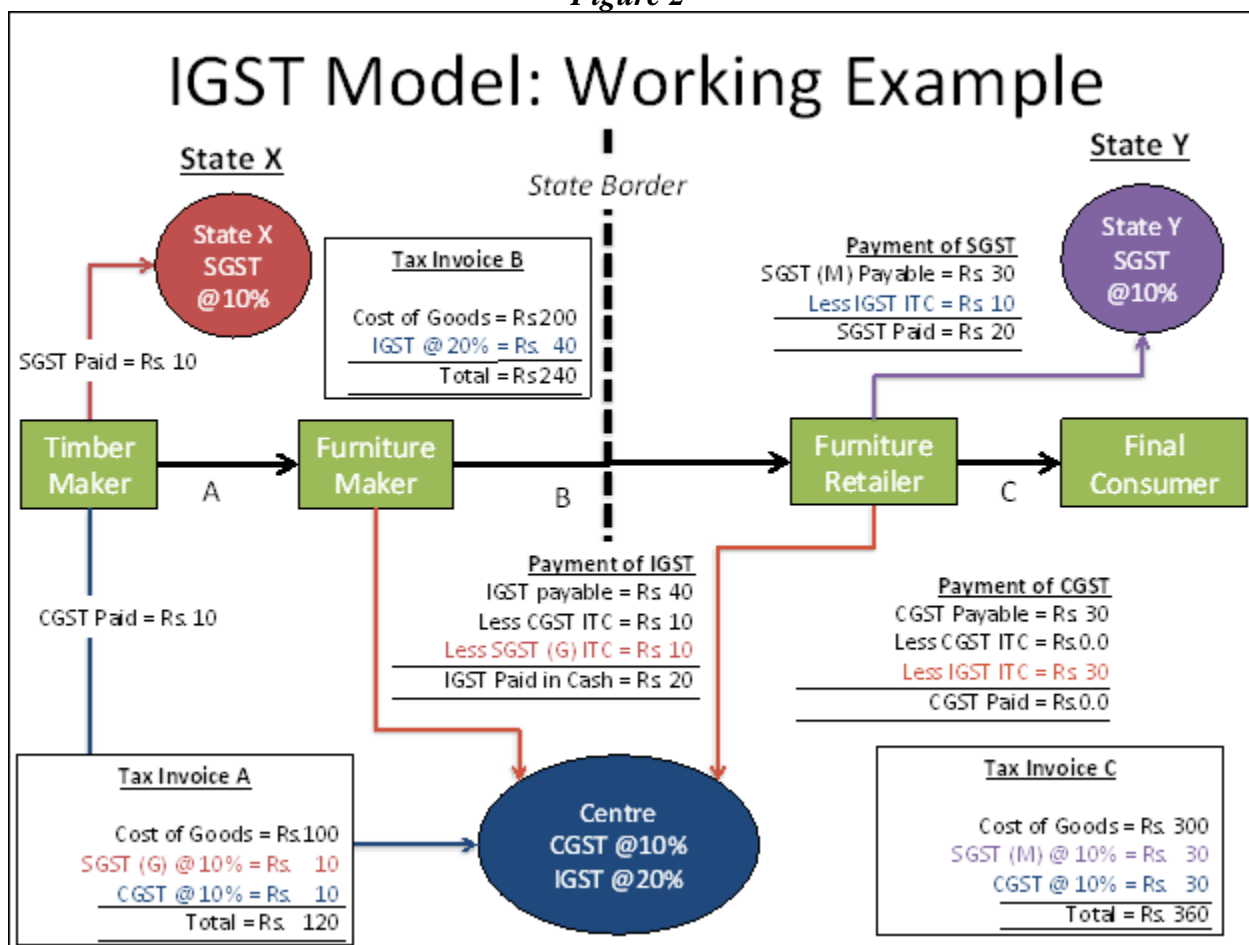
Basics of GST – Implementation in India

INDIRECT TAX STRUCTURE IN INDIA

India currently has a dual system of taxation of goods and services, which is quite different from dual GST. Taxes on goods are described as "VAT" at both Central and State level. It has adopted value added tax principle with input tax credit mechanism for taxation of goods and services,

respectively, with limited cross-levy set-off. The present tax structure can best be described by the following chart:
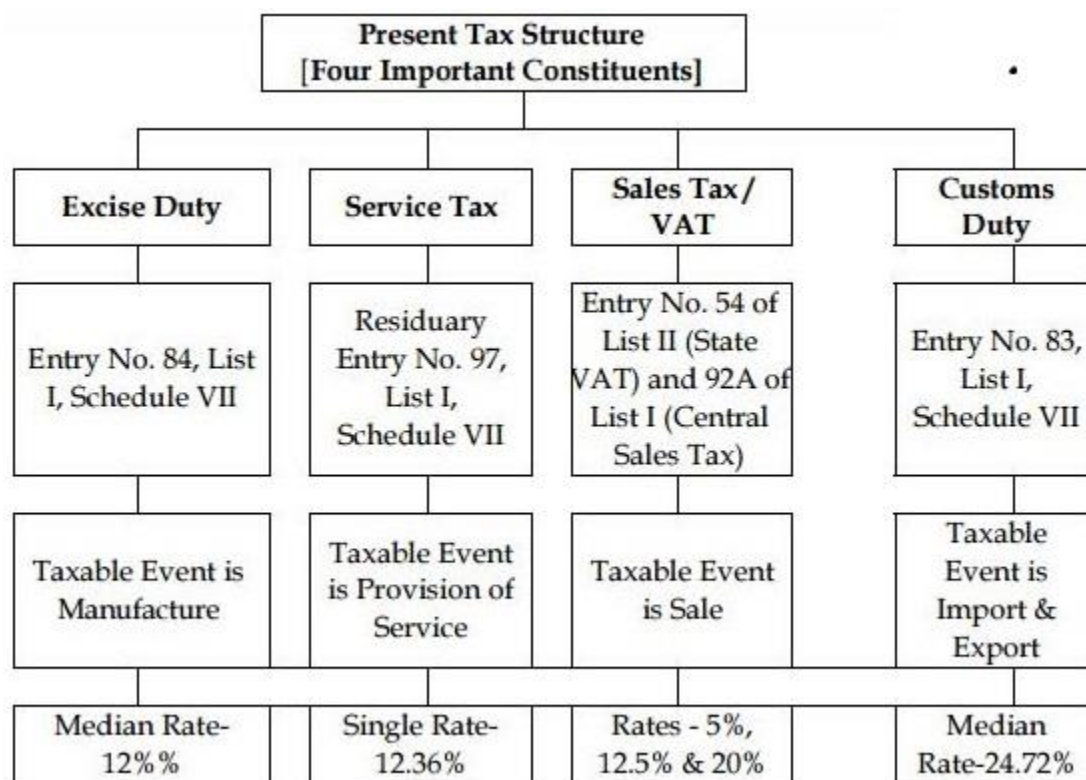
SHORTCOMINGS IN THE PRESENT STRUCTURE AND NEED OF GST

1. **Tax Cascading:** The most significant contributing factor to tax cascading is the partial coverage by Central and State taxes. The exempt sectors are not allowed to claim any credit for the Cenvat or the Service Tax paid on their inputs.

2. **Levy of Excise Duty on manufacturing point :** The CENVAT is levied on goods manufactured or produced in India. Limiting the tax to the point of manufacturing is a severe impediment to an efficient and neutral application of tax. Taxable event at manufacturing point itself forms a narrow base. For example, valuation as per excise valuation rules of a product, whose consumer price is Rs. 100/-, is, say, Rs. 70/-. In such a case, excise duty as per the present provisions is payable only on Rs.70/-, and not on Rs.100/-.

3. **Complexity in determining the nature of transaction** – Sale vs. Service

4. **Inability of States to levy tax on services :** With no powers to levy tax on incomes or the fastest growing components of consumer expenditures, the States have to rely almost exclusively on compliance improvements or rate increases for any buoyancy in their own-source revenues.

5. **Lack of Uniformity in Provisions and Rates**

6. **Fixation of situs** – Local Sale vs. Central Sale

7. **Interpretational Issues:** whether an activity is sale or works contract; sale or service, is not free from doubt in many cases.

8. **Narrow Base**

9. **Complexities in Administration**

GST (Goods and Service Tax)

GST means Goods and Service Tax. It is an indirect tax levied on sale of goods and services. The reformists believe that GST is one of the most awaited law which upon introduced will boost the economic growth in the country. This law if passed by the parliament may come into force from April 2016. As everyone is talking about it now, let's get into the basics of the proposed law in this article.

Present system – This can be better explained through an example. Suppose you buy soap for Rs.50 per piece, it includes Excise Duty, VAT or CST, Customs duty on the imported raw materials, etc. So, currently you will have to pay multiple taxes on the same product. Let's take another example; the food you buy at hotels will have VAT as well as Service Tax.

Complexities in the present system – The taxes are levied by central government as well as state governments. So, the businessman has to maintain accounts which will comply with all the applicable laws. It is perceived to be a complex system. Hence, worldwide over 150 countries have adopted GST, a simple tax system. Though it is late, India is catching up with the global trends.

Is it easy to implement in India? Not really. Today states have autonomy in collecting state taxes. They have the feeling of losing their rights! They want liquor, fuel to be out of GST tax system. They are also worried about Central government sharing GST revenue with the states. If India becomes one common market, then the states will have to share their powers of taxing with the union government. (Which means states can't increase the taxes as and when, as much as they want)

If the GST bill is passed; will it come into effect immediately? NO. The earliest day we can see GST in India will be in **April 2016**. Again implementation depends upon the initiative and involvement of state governments. Some of the states may act quickly and some of them may take time to implement.

GST Rate- Today, one pays Excise Duty of 12%, VAT of 14% on goods (totaling to 26%). 12% service tax on services. So, the rates may be anywhere between 12% and 26%. The average worldwide GST rate is around 18%.

Administration of GST in India

Keeping in mind the federal structure of India, there will be two components of GST – Central GST (CGST) and State GST (SGST). Both Centre and States will simultaneously levy GST across the value chain. Tax will be levied on every supply of goods and services. Centre would levy and collect Central Goods and Services Tax (CGST), and States would levy and collect the State Goods and Services Tax (SGST) on all transactions within a State. The input tax credit of CGST would be available for discharging the CGST liability on the output at each stage. Similarly, the credit of SGST paid on inputs would be allowed for paying the SGST on output. No cross utilization of credit would be permitted.

FEATURES OF AN IDEAL GST

The main features of GST are as under:-

(a) GST is based on the principle of value added tax and either "input tax method" or "subtraction" method, with emphasis on voluntary compliance and accounts based system.

(b) It is a comprehensive levy and collection on both goods and services at the same rate with benefit of input tax credit or subtraction of value of penultimate transaction value.

(c) Minimum number of floor rates of tax, generally, not exceeding two rates.

(d) No scope for levy of cess, re-sale tax, additional tax, special tax, turnover tax etc.

(e) No scope for multiple levy of tax on goods and services, such as, sales tax, entry tax, octroi, entertainment tax, luxury tax, etc.

(f) Zero rating of exports and inter State sales of goods and supply of services.

(g) Taxing of capital goods and inputs whether goods or services relatable to manufacture at lower rate, so as to reduce inventory carrying cost and cost of production.

(h) A common law and procedures throughout the country under a single administration.

(i) GST is a destination based tax and levied at single point at the time of consumption of goods or services by the ultimate consumer.

ROLE OF INFORMATION TECNOLOGY IN THE IMPLEMENTATION OF GST

For the implementation of GST in the country, the Central and State Governments have jointly registered Goods and Services Tax Network (GSTN) as a not-for-profit, non-Government Company to provide shared IT infrastructure and services to Central and State Governments, tax payers and other stakeholders. The key objectives of GSTN are to provide a standard and uniform interface to the taxpayers, and shared infrastructure and services to Central and State/UT governments.

GSTN is working on developing a state-of-the-art comprehensive IT infrastructure including the common GST portal providing frontend services of registration, returns and payments to all taxpayers, as well as the backend IT modules for certain States that include processing of returns, registrations, audits, assessments, appeals, etc. All States, accounting authorities, RBI and banks, are also preparing their IT infrastructure for the administration of GST.

There would no manual filing of returns. All taxes can also be paid online. All mis-matched returns would be auto-generated, and there would be no need for manual interventions. Most returns would be self-assessed.

MODELS OF GST

There are three prime models of GST:

- GST at Central (Union) Government Level only

- GST at State Government Level only

- GST at both, Union and State Government Levels

Three Prime Models of GST

Central GST	State GST	Dual GST
GST to be levied by the Centre	GST to be levied by the States	GST to be levied by the Centre and the States concurrently
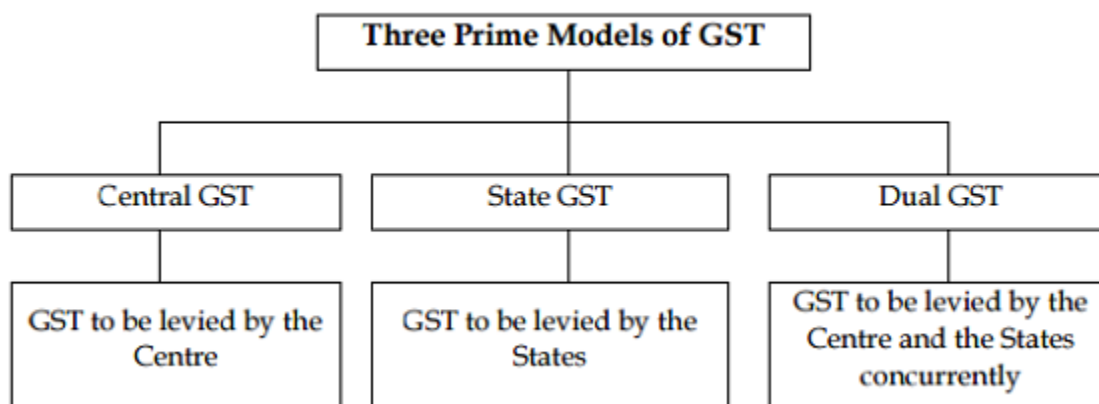
EXPECTED MODEL OF GST IN INDIA- DUAL GST

In India, the GST model will be "dual GST" having both Central and State GST component levied on the same base. All goods and services barring a few exceptions will be brought into the GST base. Importantly, there will be no distinction between goods and services for the purpose of the tax with common legislations applicable to both.

For Example, if a product have levy at a base price of Rs. 100 and rate of CGST and SGST are 8% then in such case both CGST and SGST will be charged on Rs 100 i.e. CGST will be Rs 8 and SGST will be Rs.8.

Interestingly, As per the recommendations of **Joint Working Group (JWG) appointed by the Empowered Committee in May 2007,** the GST in India may not have a dual VAT structure exactly but it will be a quadruple tax structure. It may have four components, namely – (a) a Central tax on goods extending up to the retail level; (b) a Central service tax; (c) a State-VAT on goods; and (d) a State-VAT on services.

The significant features of Dual GST recommended in India, in conjunction with the recommendations by the JWG, are as under:

1. There will be Central GST to be administered by the Central Government and there will be State GST to be administered by State Governments.

2. Central GST will replace existing CENVAT and service tax and the State GST will replace State VAT.

3. Central GST may **subsume following indirect** taxes on supplies of goods and services: Central Excise Duties (CENVAT) · Additional excise duties including those levied under Additional Duties· of Excise (Goods of Special Importance) Act, 1957. Additional customs duties in the nature of countervailing duties, i.e.,· CVD, SAD and other domestic taxes imposed on imports to achieve a level playing field between domestic and imported goods which are currently classified as customs duties. Cesses levied by the Union viz., cess on rubber, tea, coffee etc. · Service Tax· Central Sales Tax – To be completely phased out· Surcharges levied by the Union viz., National Calamity Contingent Duty,· Education Cess, Special Additional Duties of Excise on Motor-Spirit and High Speed Diesel (HSD).

4. State GST may subsume following State taxes: Value Added Tax· Purchase Tax· State Excise Duty (except on liquor) · Entertainment Tax (unless it is levied by the local bodies) · Luxury Tax· Octroi Entry Tax in lieu of Octroi· Taxes on Lottery, Betting and Gambling·

5. The proposed GST will have two components – Central GST and State GST – the rates of which will be prescribed separately keeping in view the revenue considerations, total tax burden and the acceptability of the tax.

6. Taxable event in case of goods would be 'sale' instead of 'manufacture'.

7. Exports will be zero rated and will be relieved of all embedded taxes and levies at both Central and State level.

8. The JWG has also proposed a list of exempted goods, which includes items, such as, life saving drugs, fertilizers, agricultural implements, books and several food items.

9. Certain components of petroleum, liquor and tobacco are likely to be outside the GST structure. Further, State Excise on liquor may also be kept outside the GST.

10. Taxes collected by Local Bodies would not get subsumed in the proposed GST system.

As per the proposed GST regime, the input of Central GST can be utilized only for payment of CGST & the input of State GST can be utilized only for payment of SGST. Cross- Utilization of input of CGST in payment of SGST and vice-a- versa will not be allowed. 2009)

Railways and Construction Sector **might be** included in GST

– Liquor, Petro Sector, Taxes of Local Bodies might be out of GST

– Stamp Duty – It has not yet been decided whether stamp duty will be part of the GST or not.
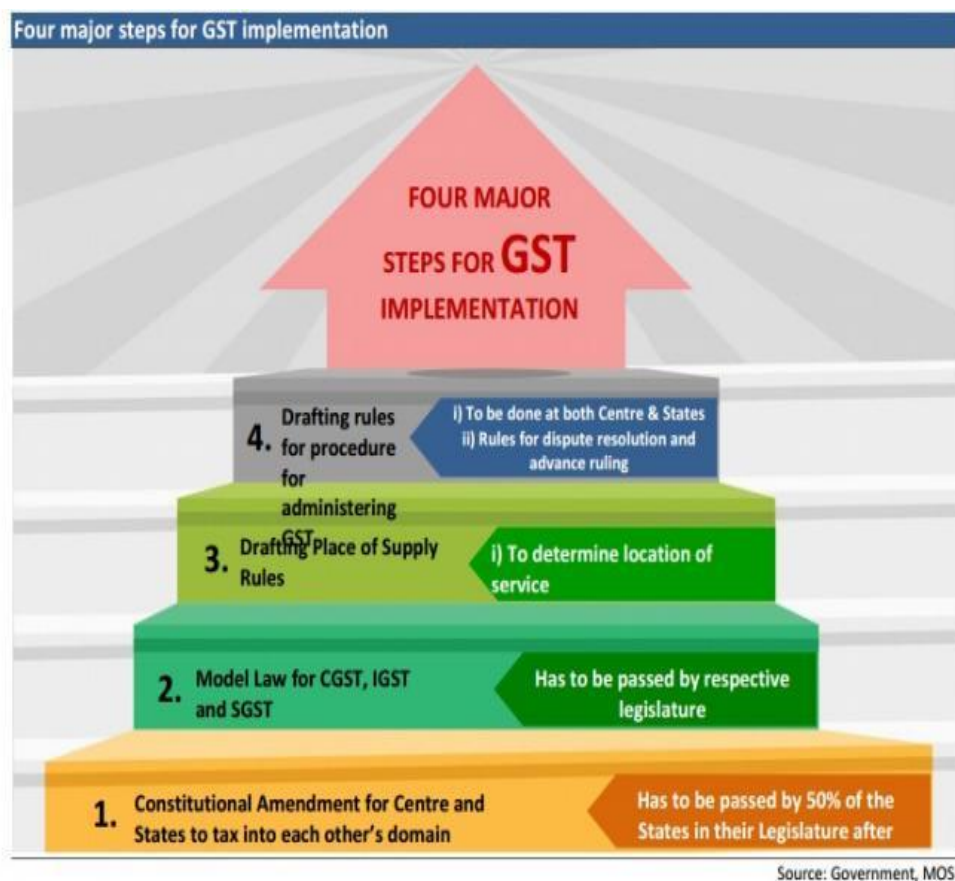
BENEFITS OF GST

The benefits of GST can be summarized as under:

1. for business and industry

O **Easy compliance:** A robust and comprehensive IT system would be the foundation of the GST regime in India. Therefore, all tax payer services such as registrations, returns, payments, etc. would be available to the taxpayers online, which would make compliance easy and transparent.

O **Uniformity of tax rates and structures:** GST will ensure that indirect tax rates and structures are common across the country, thereby increasing certainty and ease of doing business. In other words, GST would make doing business in the country tax neutral, irrespective of the choice of place of doing business.

O **Removal of cascading:** A system of seamless tax-credits throughout the value-chain, and across boundaries of States, would ensure that there is minimal cascading of taxes. This would reduce hidden costs of doing business.

O **Improved competitiveness:** Reduction in transaction costs of doing business would eventually lead to an improved competitiveness for the trade and industry.

o **Gain to manufacturers and exporters:** The subsuming of major Central and State taxes in GST, complete and comprehensive set-off of input goods and services and phasing out of Central Sales Tax (CST) would reduce the cost of locally manufactured goods and services. This will

increase the competitiveness of Indian goods and services in the international market and give boost to Indian exports. The uniformity in tax rates and procedures across the country will also go a long way in reducing the compliance cost.

2. For Central and State Governments

O **Simple and easy to administer:** Multiple indirect taxes at the Central and State levels are being replaced by GST. Backed with a robust end-to-end IT system, GST would be simpler and easier to administer than all other indirect taxes of the Centre and State levied so far.
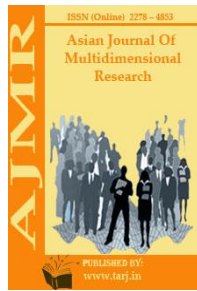
O **Better controls on leakage:** GST will result in better tax compliance due to a robust IT infrastructure. Due to the seamless transfer of input tax credit from one stage to another in the chain of value addition, there is an in-built mechanism in the design of GST that would incentivize tax compliance by traders.

- **Higher revenue efficiency:** GST is expected to decrease the cost of collection of tax revenues of the Government, and will therefore, lead to higher revenue efficiency.

3. for the consumer

o **Single and transparent tax proportionate to the value of goods and services:** Due to multiple indirect taxes being levied by the Centre and State, with incomplete or no input tax credits available at progressive stages of value addition, the cost of most goods and services in the country today are laden with many hidden taxes. Under GST, there would be only one tax from the manufacturer to the consumer, leading to transparency of taxes paid to the final consumer.

o Relief **in overall tax burden:** Because of efficiency gains and prevention of leakages, the overall tax burden on most commodities will come down, which will benefit consumers.

ROLE OF ACHIEVEMENT MOTIVATION IN RELATION TO ACADEMIC ACHIEVEMENT OF SCHOOL GOING ADOLESCENCE

Mrs. Arpita Sarkar*; Dr. Shreekant Gour**

*Research Scholar,
Department of Education,
University of Kalyani, INDIA.
Email id: arpisarkar09@gmail.com

**Associate Professor,
Department of Education,
University of Kalyani, INDIA.
Email id: shreekantgour.19@gmail.com

_____

ABSTRACT

In the present day world, it has been observed that lack of motivation increase among the school going adolescence towards their academics. At this stage their attention is diverted and divided among many things like peer group, heterogeneous relations, fashion, internet chatting and ceaseless entertainment and this hampers their academic performance. The psychological construct achievement motivation affect on students' academic success and academic performance. The concept of achievement motivation is closely related to academic achievement. In the present study researcher has tried to find out some strategies and techniques which are helpful to generate motivation in learners. Thereafter, some motivation techniques are presented for increasing the of achievement motivation. Through this article researcher also tried to explain that achievement motivation can be treated as an important psychological predictor of school going students' future success or failure.

KEYWORDS: *Academic Achievement, Motivation, Achievement Motivation, School Going Adolescence, Peer Group*

INTRODUCTION:

Motivation can be defined as the driving force behind all the action of an individual. The influence of an individual's needs and desires both have a strong impact on the direction of their behaviour. Motivation is based on your emotions and achievement- related goals. It is argued that the need for achievement is particularly important because it is an unconscious motive that drives individuals to perform well or to improve their performance (McCllel and, 1985). Source: (1)There are various forms/types of motivation including extrinsic, intrinsic, physiological, and achievement motivation. Achievement motivation can be defined as the need for success or the attainment of excellence. Individuals will satisfy their needs through different means, and are driven to succeed for varying reasons both internal and external. The purpose of the study was to find out the role of achievement motivation relation to academic achievement of school going students.

OBJECTIVE OF THE STUDY:

1) To find out the relationship between academic achievement and achievement motivation.
2) To observe the role of motivation in the academic field of the students.
3) To find out the techniques which enhance motivation in the learners?
4) To identify the some achievement motivation theories which are related to academic success of the students.
5) To find out some classroom strategies of fostering different forms of motivation

MOTIVATION:

The term 'motivation' has been derived from the word 'motive'. Motive may be defined as an inner state of our mind that activates and directs our behavior. Motivation is a psychological phenomenon which generates within an individual. It makes us move to act. It is always internal to us and is externalized via our behavior. Motivation refers to the dynamics of our behavior, which involves our needs, desires, and ambitions in life. A person feels   the lack of certain needs, to satisfy which he feels working more. Motivation is one's willingness to exert efforts towards the accomplishment/ fulfillment of his/her goal. It is the basic drive for all of our actions. It is important because it affects our lives every day. Let us consider a few important definitions on motivation that will help us understand the meaning of motivation more evidently.

SOME DEFINITIONS ARE DISCUSSED AS FOLLOWS:

FRED LUTHANS:

He defined motivation as a "process that starts with a physiological or psychological deficiency or need that activates behaviour or a drive that is aimed at a goal or incentive".

STEPHEN P. ROBBINS

According to him "motivation is the willingness to exert high levels of efforts toward organisational goals, conditioned by the effort ability to satisfy some individual need".

BERELSON AND STEINER:

"A motive is an inner state that energizes, activates, or moves and directs or channels behaviour goals."

LILLS:

"It is the stimulation of any emotion or desire operating upon one's will and promoting or driving it to action."

DUBIN:

"Motivation in the complex of forces starting and keeping a person at work in an organization."

VITILES:

"Motivation represents an unsatisfied need which creates a state of tension or disequilibrium, causing the individual to make in a goal-directed pattern towards restoring a state of equilibrium by satisfying the need."

(SOURCE:)

FROM THE FOLLOWING DEFINITIONS SOME INFERENCES CAN BE ATTAINED:

1. Motivation is an inner feeling which activates a person to work more.
2. It prompts the person emotions or desires for doing a particular work.
3. There are unsatisfied needs of a person which disturb his equilibrium.
4. Through the motivation a person moves to fulfill his unsatisfied needs by conditioning his energies.

ACHIEVEMENT MOTIVATION:

Achievement motivation is based on reaching success and achieving all of our aspirations in life. Achievement goals can affect the way a person performs a task and represent a desire to show competence. (Harackiewicz, Barron, Carter , Lehto , & Elliot, 1997)

 Achievement motivation can, therefore, be defined as the striving to increase or to keep as high as possible, one's own capabilities in all activities in which a standard of excellence is thought to apply and where the execution of such activities can, therefore either succeed or fail. (Heckhausen, 1967, p. 4-5) .

Accordingly, the term ''achievement motivation'' denotes processes leading to behaviour that aims to achieve a certain criterion or standard. The criterion can be any goal or objective, formal or informal, set by an individual or by others, in any professional or leisure domain (e.g., school, sports, work, music, gardening, even social relationships and moral conduct), which provides a guide for evaluating success and failure.

ACADEMIC ACHIEVEMENT:

Academic achievement is the extent to which a student, teacher or institution has achieved their short or long-term educational goals. It also refers to the level of schooling student have successfully completed and the ability to attain success in their studies. It is commonly measured through examinations or

There are some individual factors which successfully predict academic performance, elements such as test anxiety, environment, motivation etc.

(SOURCE-http://en.m.wikipedia.org>wiki>Academia Achievement)

SCHOOL GOING ADOLESCENCE:

The term adolescence is derived from a Latin word 'adolescere' meaning 'to grow', 'to mature'. Now this term primarily implies to emerge or to 'achieve identity'. It is very difficult to define exactly the period of life which constitutes adolescence. No sharp chronological boundaries may be fixed to this period. Generally speaking, it covers a period of seven or eight years, normally from 12 to 18 or20 with large variations in many cases. Twelve or thirteen may be considered as the normal period for boys in India and even for girls when adolescence begins. It is best defined in relation to puberty. This is the period which begins with puberty and ends with general cessation of physical growth; it emerges from the later childhood stage and merges into adulthood.

A.T. Jersild says, "Adolescence is that span of year during which boys and girls move from childhood to adulthood mentally, emotionally, socially and physically."

According to Dorthy Rogers, adolescence is "a process rather than a period, a process of achieving the achieving the attitudes and beliefs needed for effective participation in society."

Stanley Hall observed that it is a stage of storm and stress and also stage of anxiety of conflict and strife.

The World Health Organization (WHO) defines an adolescent as any person between ages 10 and 19. Adolescence can be broken into three stages: early adolescence, middle adolescence, and late adolescence. Each stage has its own characteristics. Here school going adolescence refers to class VIII to XII students.

(SOURCE: http://en.m.wikipedia.org>wiki>Adole......

http://www.britannica.com>science>a...

Aggarwal, J. C. (2009). *Psychological, Philosophical and Sociological Foundation of Education.* Delhi: Shipra Publication.

SOME ACHIEVEMENT MOTIVATION THEORY RELATED TO ACADEMIC ACHIEVEMENT

Many psychologist mentioned different theories of motivation. Name of some of theories which related to academic field of the student are given below:

1) Maslow's Self-actualization Theory

2) Weiner's Attribution Theory

3) McClelland's & Atkinson's Achievement Motivation Theory

4) Freud's Psycho-analytic Theory of Motivation

5) McDougall's Theory of Instinct

Sl. No.	Name of the Psychologist	Name of the Theory	Year of Publication	Name of the book in which theory was published
1	Abraham Maslow	Maslow's Self-actualization Theory	**1954**	Motivation and Personality

2	Bernard Weiner	Weiner's Attribution Theory	1985	Psychological Review
3	Prof. David C. McClelland and John William Atkinson	McClelland's & Atkinson's Achievement Motivation Theory	1961	Achieving Society
4	Freud	Freud's Psycho-analytic Theory of Motivation	1953	An Outline of Psycho-analysis
5	William McDougall	McDougall's Theory of Instinct	1908	Social Psychology

In the above theories mainly first three theories impact reflected in the educational field.

SOME RELATED CONSTRUCTS OF MOTIVATION THEORIES:

TABLE 1 MOTIVATION THEORIES THE DUALISTIC NATURE OF MOTIVATION THEORIES AND RELATED CONSTRUCTS

Construct with an Intrinsic Orientation	Constructs with an Extrinsic Orientation
Learning goals	Performance goals
Intrinsic motivation	Extrinsic motivation
Non-competitive	Competitive
Task- involvement	Ego-involvement
Student independence	Student dependence
Self- directed learning	Teacher-directed learning
Criterion- reference evaluation	Norm-referenced evaluation

(From Clinkenbeard, 1994, p. 190)

IMPORTANCE OF ACHIEVEMENT MOTIVATION FOR FUTURE ACADEMIC SUCCESS:

It is essential for both parents and teachers to know about the importance of academic motivation from an early age of students. At the any age of students academic success academic motivation is very important for them. Because students develops their self-concepts, values, and beliefs about their abilities at a young age. So the development of early academic motivation has significant implications for later academic careers for students. Many researchers have established these facts that students high in academic motivation are more likely to have increased levels of academic achievement and have lower dropout rates. At this point, it should be clear that the significance of early academic motivation to future academic Success.

Achievement motivation facilities students by caring and safe environment which promote a meaningful relationship between and among adults and children. In which children gave/put emphasis on personal development and collaboration rather than on competition and social comparison. Through achievement motivation students are encouraged to pursue their interests and to learn from mistakes, and in which feedback is geared towards learning and not merely evaluation.

(SOURCE: Pintrich, P. R., & Schunk, D. (2002). Motivation in education: Theory, research and applications (2nd ed.). Upper Saddle River, NJ: Prentice-Hall.

HOW TO FOSTERING MOTIVATION IN STUDENTS IN THE CLASS ROOM SITUATION:

Some strategies teacher should follow in the classroom for fostering different forms of motivation.

TABLE 2 FOSTERING MOTIVATION CLASSROOM STRATEGIES THAT SEEM TO FOSTER DIFFERENT FORMS OF MOTIVATION

Fostering Learning Goals	Fostering Performance Goals
Teacher modelling learning goals and task • Involvement	Public grading/record keeping
• Biographical studies	• Comparing students' performance
• Independent projects	• Norm-referenced (ability-based) Evaluation
• Self-evaluation	• Testing atmosphere in class
• Criterion-referenced or improvement-based evaluation	• Competition and contests in class
• Student choice of some activities and assignments	• Use of prizes, rewards
• Attributing interest to the class	• High level of teacher control
• Focus on thinking and research skills	• Labelling students in term of ability
• Appropriately challenging work	• Over-emphasis on right answers at the expense of process
• Individualised instruction	• Work that is either too easy or too challenging
• Student and teacher design task cooperatively	• Rewarding the 'best' performance in the class
• Real world projects	• Timed tests/tasks
• Projects with no grades	• Displaying graded student work
• Use of mentors and experts	
• Grading via conference	
• Keeping portfolios so students can see progress	
• Encouraging student goal-setting, contracting	

(From Clinkenbeard 1994, p. 196)

TECHNIQUES OF ENHANCING LEARNER'S MOTIVATION: The teaching-learning process aims at maximum learning in a minimum period of time. It is therefore, essential that children should be properly motivated and the teacher should be acquainted with important ways of motivation children. Following techniques are teacher use for enhancing motivation in class room.

1) **LEARNER –CENTRED APPROACH:** The learner is the focal point in the learning process. So, while planning for their education teachers should keep in mind the needs, interests and aptitudes of learner

2) **LAW OF ASSOCIATION:** It is true that if the learner thinks he knows all that is required as a base for new learning, he is easily motivated to learn new knowledge. This enables him to master new facts and acquire knowledge.

3) **PROGRESSIVE METHODS OF TEACHING:** The teacher should use new methods of teaching like the Montessori Methods, the K.G. Method, the Project Method and the Dalton Plan. All these methods are learner-centred and based on psychological principles.

4) **USE OF TEACHING-LEARNING AIDS:** To create interest in learning the teacher should introduce various aids and devices of teaching like audio-visual aids, radio, television, etc. These will motivate children in griping and assimilating new learning.

5) **ELEMENT OF SUCCESS:** It is true that feeling of success will motivate the learner for future achievement and success. Therefore the teacher should divide new learning into smaller and smaller tasks and assign them to the different students of the class. Learner will complete them in a short period of the time and will have a feeling of success.

6) **LEARNING BY DOING:** Students are active by nature. When students do something with their hands then the need of the students is satisfied. Satisfied students are always well-motivated students.

7) **SENSE OF ACHIEVEMENT IN THE CHILD:** The teacher should maintain a proper progress record of every student and should inform his pupil about the success achieved by them, after two or three months. This will develop a sense of achievement among the pupils. It will also lead to achievement-motivation.

8) **GROUP WORK:** Teacher should divided students into various groups. Group work leads to quicker, better, and easier learning.

9) **VALUE OF LEARNING:** The teacher should highlight the value of learning among his pupil. Therefore they should realise that 'knowledge is power' and can be helpful in life and will make them successful.

10) **EGO- INVOLVEMENT:** Ego-Involvement is also helpful for develop personality of the child. It should give its due recognition.

11) **HEALTHY ENVIRONMENT:** A healthy environment of the classroom is one of the greatest motivating forces of learning process.

12) **CONSTRUCTIVE AND CREATIVE DISCIPLINE:** The teacher's attitude towards his students should be sympathetic but strong. This attitude should help to develop constructive and creative discipline in the students.

13) **STIMULUS VARIATION AND THE TEACHER:** It has been generally noticed that students are not able to attend to one thing for a very long period. In such situation effectiveness of the teaching-learning process depends on the stimulus variations behaviour of the teacher. Some common variation behaviours follow by teachers like-

a) Teacher movement

b) Teacher gestures

c) Changes in speech pattern

d) Changes in sensory focus

e) Changes in postures

14) **REINFORCEMENT :PRAISE AND BLAME:** Two type of reinforcement like-

Positive Verbal Reinforcement and Positive Non-Verbal Reinforcement also help to motivate the students in learning process.

CONCLUTION:

Regarding this study, students' academic achievement requires coordination and interaction between different aspects of motivation. After above discussion it can be concluded that achievement motivation is one of the crucial psychological factors determining future academic success. This paper discussed the influence of different motivation theory, motivation enhancing techniques and motivation fostering strategies for future academic success of school going adolescence.

REFERENCES:

1) http://www.sciencedirect.com>pii>pdf

1). Heckhausen, H. (1967). *The anatomy of achievement motivation*. New York: Academic Press.

2) Harackiewicz, J. M., Barron, K. E., Carter, S. M., Lehto, A. T., & Elliot, A. J. (1997). Predictors and consequences of achievement goals in the college

3) Clinkenbeard, P. (1994). Motivation and highly able students: Resolving paradoxes. In J.B.Hansen & S.M. Hoover (Eds.), *Talent development:Theories and practice* (pp.187-202). Dubuque:Kendall/Hunt.

4) Pintrich, P. R., & Schunk, D. (2002). Motivation in education: Theory, research and applications (2nd ed.). Upper Saddle River, NJ: Prentice-Hall.

5) http://en.m.wikipedia.org>wiki>Academia Achievement)

6) Aggarwal, J. C. (2009). *Psychological, Philosophical and Sociological Foundation of Education.* Delhi: Shipra Publication.

7) http://en.m.wikipedia.org>wiki>Adole......

8) http://www.britannica.com>science>a...

ENTREPRENEURSHIP AND MICRO LOANS IN INDIA

Swati Garg*; Sarvjeet Kaur**

*Student,
Kurukshetra University kurukshetra,
Faridabad, Haryana, INDIA,
Email id: swatigarg618@gmail.com

**Student,
Kurukshetra University kurukshetra,
Haryana, INDIA,
Email id: sainisarvjeet111@gmail.com

_____

ABSTRACT

Poverty, unemployment and social unrest are the leading evils of Indian society. If these evils are studied in depth, they are found to be inter-related as unemployment creates poverty which enforces social unrest such as theft, murder and many more. To eradicate these evils one obvious solution is generation of income. India being a developing country with less of capital, cannot provide employment to all its huge population practically. In this situation, the concept of entrepreneurship can be implemented. [1]Entrepreneurship has been traditionally defined as a process of designing, launching and running a new business which typically begins with a small business such as a startup company, offering a product, process or service. It has been defined as the capacity and willingness to develop, organize and manage a business venture along with risk in order to reap profits. The definition has now been expanded as to explain how and why some individuals or teams identify opportunities, evaluate them as viable and then decide to exploit them whereby others do not. An entrepreneur is usually seen as a business leader, an innovator of new ideas and a business processor. These are mainly seen as small, medium and large in size[1]. For starting an enterprise by poor section of Indian society raising of funds is not an easy task. Banks give loans by identifying the financial soundness of the respective borrower. But what about a major segment of India which do not have any financial identity? Their financial soundness cannot be judged due to absence of collateral. Hence, they cannot access any financial or credit facility through which they can improve their lives. Indigenous lenders provide them financial grant without any paper work and collateral but in return, they charge huge interest amount. Here, the notable point is that these small entrepreneurs are overburdened

with huge interest payments and a major part of their earnings is transferred in the hands of indigenous money lenders. To curb this, the concept of micro loans has been evolved.

KEYWORDS: *Poverty, Traditionally, Opportunities, Willingness, Indigenous*

_____

INTRODUCTION:

OBJECTIVE:

The objective of this article is to study the facility micro loans in India in context of entrepreneurship. This article focuses on finding out the actual growth of funding through micro credit in rural and urban India.

CONCEPT OF MICRO LOAN:

Micro loan is basically a small amount of currency which is given as loan to poor entrepreneurs who cannot access bank loans due to absence of any financial identity. [2]It is an element of the term micro financing which is not just limited to finance but also includes insurance, savings, fund transfers etc. Financial inclusion is anew substituting term coined in the market nowadays for the micro financing concept. This work on the principle that the job of government is to enable financial service, not to provide them. Historically, it was introduced by Muhammad Yunus in 1970s. The Grameen Bank of Bangladesh has inspired the world with its work based on micro loans. In the middle of 1800,a theorist, Lysander Spooner has also written about the benefits of small credits to entrepreneurs and famers as a way of getting the people out of poverty. In 1974, Ela Bhatt has initiated SEWA Cooperative Bank in Ahmedabad, Gujrat, India as a micro loan provider for the poor women[2].

FUNDING METHODOLOGY:

Micro loans in India are provided to borrowers jointly. [3]Here, 10-20 individuals form a group and make their regular savings of fixed amount in a common fund for some months and then the group is linked to an institution as to avail credit. These groups are named as self- help groups (SHGs). Theseborrowers are sanctioned the loan amount collectively and the obligation of repayment also rest with the entire group. Sanctioned amount generallyvaries between Rs. 10,000- Rs. 50,000. Default by any of the member is considered as the default of the entire group and it does not remain eligible to take loans in future[3]. This explains that India follows group model for lending micro loans. There is a social pressure for repayments on every group member and that is why chances of defaults are minimized. The amount saved in common fund points out the ability to make repayments and serves as collateral for them. An individual may use loan amount for either consumption purpose or to meet other priority needs.The need to increase the pace of outreach and for establishing astructure, government identified NABARD as a developmentinstitution, vesting the power to create a structure formicrofinance delivery mechanism and to refinance theInstitutions to ensure the continuity of services.In an attempt to link the poor to the formal banking sector,NABARD in 1992 promoted the Self- help groups (SHG) -Bank linkage programand is one of the largest and the predominant microfinancemodel in India (Microfinance and Women Empowerment:Self Perception of Beneficiaries - A Studywith Reference to Gandhinagar District ofGujarat, January, 2016).

As per NABARD reporting on status of microfinance in India during the year 2016-17, 85.77 lakh self-help groups were reported during the year. There was a net addition of 6.73 lakhs

savings linked self-help groups during this year with 70.40% savings from priority states indicating the urge for connecting the poor households in less developed states. At present more than 100 scheduled banks, 349 district cooperative central banks, 27 state rural livelihood missions and over 5,000 NGOs are engaged in promoting self- help groups. Savings of these groups are recorded as highest during this year i.e., Rs. 16114.22 crore. The data indicates rapid growth in savings which are linked with banks under self- help groups- bank linked program.

MICROLOANS FOR LIVELIHOOD:

National Rural Livelihood Mission (NRLM) was launched on June, 2011 with the goal of providing self- employment to villagers through formation of self- help groups. As per the reports of NABARD, approximately, 24.91 lakhs self- help groups have an outstanding loan worth Rs. 29994.43 crores as on 31 March, 2017, which is 48.70% of total outstanding loan amount sanctioned for self- help groups. National Urban Livelihood Mission (NULM) was launched with the main aim to provide access to self- employment opportunities for people. As per the reports of NABARD, approximately, 3.18 lakhs self- help groups have an outstanding loan worth Rs. 4133.29 crores as on 31 March, 2017, which is 6.711% of total outstanding loan amount sanctioned for self- help groups.   The table below shows the amount of loan disbursement to self- help groups for self- employment generation during the years 2015-16 and 2016-17.

Particulars	2015-16		2016-17	
	No. of Self- help groups (in lakh)	Amount (Rs. in crores)	No. of Self- help groups (in lakh)	Amount (Rs. In crores)
Total Number of self- help groups	18.32	37286.90	18.98	38781.16
Self- help groups under NRLM	8.16	16785.78	8.86	17336.26
Self- help groups under NULM	1.11	2620.22	1.06	2675.77

(Source- NABARD report as on 31-03-2017)

As per this report it may be observed that, the number of self- help groups has been increased with 3.6% in the year 2016-17 with 4.1% increase in the amount of loan disbursement despite of demonetization implementation in India. There are 8.86 lakh self- help groups who are covered under National Rural Livelihood mission where as 1.06 lakh are covered under National Urban Livelihood Mission out of the total number of self- help groups. There is a significant increase in rural self- help groups by 8.58% with3.28% increase in amount of distributed loan. 4.5% decline is measured in the urban self- help group contribution with respect to previous year with an increase of 2.12% in the distributed loan amount.

Micro finance institutions in India are lending for both consumption and productive purposes. It is believed that poor people use their loans for their emergency and consumption needs more than for livelihoods. In 2015, RBI regulation stipulated that a minimum of 50% of the loans are to be deployed for income generating activities. Analysis of the loan portfolio held by reporting for the year 2016-17, shows that the proportion of income generation loan to non-income generation loan is 85:15 (Bharat Micro Finance Report, 2017). This means that 85% of the loan is given for income generation activities by micro finance institutions and remaining for non-income generation activities.Income generation activities include agriculture, animal husbandry,

trading, transportation, cottage and handicraft work etc. whereas loan for education, housing, medical and water is considered as loan for non- income generation activities. The figure shows income generation loan sanctioned under different sub- sectors by micro finance institutions.
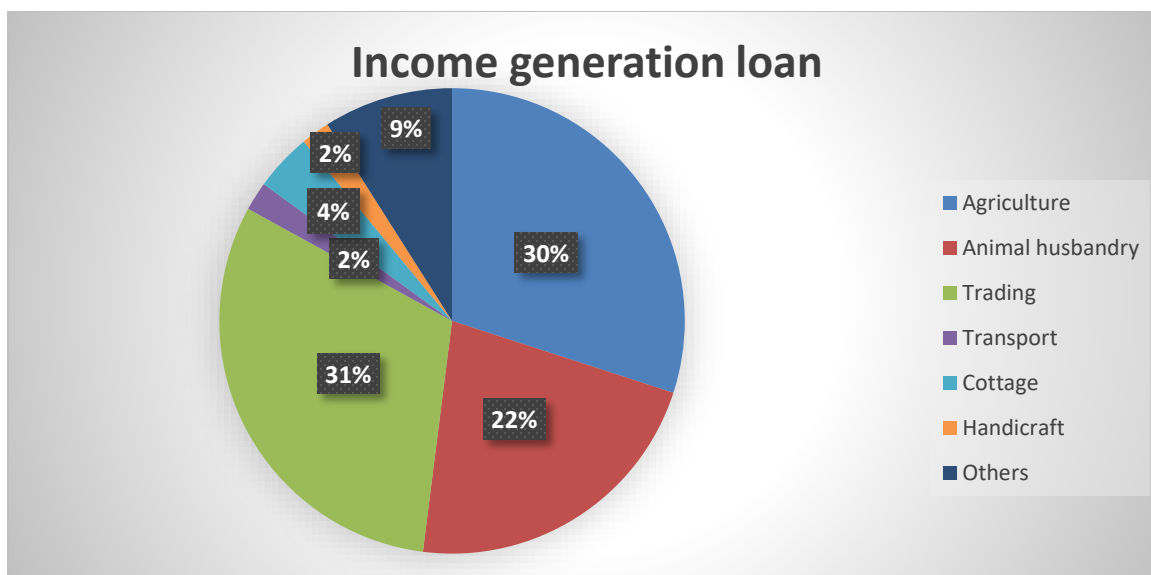
(Source- Bharat Micro Finance Report for the year 2017)

The above figure depicts that the majority of loan is given for trading purpose which is followed by agricultural activities. Micro loan facility is also promoting animal husbandry, handicraft and cottage work among poor India.

FUNDING AGENCIES:

[4]The Reserve Bank of India has given freedom to banks to formulate their own lending norms keeping in view ground realities.They have been asked to frame appropriate loan and savings products and the associated terms and conditions such as loan size, maturity period, margins, etc. This credit is granted not only for consumption and production loans for various farm and non-farm activities of the poor but it also includes their other credit needs such as housing and shelter improvements [4].It is fact that eight MFI have approval to open small finance bank by reserve bank of India and one MFI has already worked as bank. The MFI in India generally covered those areas which are not now covered by main stream financial institution and for those it playing a vital role for financial inclusion. Now microfinance programs have the take up the worldwide campaign to provide credit to poor by designing product and channels that fulfills the needs of the poor. The economic situation and increasing earning of microfinance institution reveal that poor had great repayment potential (Role of Microfinance and Entrepreneurship Development in India, September 2016).

There are some kind-hearted personalities in India who have initiated micro financing set up of their own at initial level without any government help. Some examples of these personalities are presented in this article.[5]Vedika Credit Capital Limited of Jharkhand was started in year 1995 with a partnership of four members namely, **Mr. Praveen Kumar Chatuvedi, Mr. Ummed Mal Jain, Mr. Gutam Jain and Mr. Vikram Jain** with a mission of their partnership in the growth of micro entrepreneurship. It is also working in West Bengal, Uttar Pradesh and Bihar states of India.Annapurna Pariwar of Pune and Mumbai was started in the year 1993 by

Dr.MedhaPuraoSamant. Initially, Rs. 9000 was the loan amount given to borrowers and with the passage of time the amount has significantly increased. Bandhan bank was started in the year 2001 as a trust by **Mr.**Chandra Shekhar Ghosh with a aim independence of poor people from money lenders. In the year, 2014 it was constituted as a banking body with branches all over India. The main aim of these institutions is to empower the poor India by developing confidence among them through credit facility[5].That is why, interest rate is kept lower as compared with indigenous lenders. Borrowers may repay the loan within a week, fortnight or on monthly basis and the penalty is also not charged in case of defaults made by them.[6] Payme India, CrediFiable, Credy, InstaPaisa are some funding agencies whoare providing instant small loans facility to salaried professionals at minimum rate of interest[6].

CONCLUSION:

It is a socio- economic development equipment. Also, the amount of currency so raised from this facility needs to be refunded and that is why it is distinguished from charity. The above observations simply state that Indian economy is working on providing self- employment as the loan amount has been increased with rise in savings during the year. The status of micro finance in India and Bharat micro finance report for the year 2016-17, points out the growth of loan disbursementwhich is comparatively more than that of previous years. For further improvement, along with financial support, micro loan should also impart education among borrowers related to key operational activities of a business such as production, marketing, finance, human resource and other managerial activities as the knowledge of these activities is also essential for running a successful business. This type of education will enhance the productivity of work and will also help in taking strategic decisions.

REFERENCES:

1. You tube, https://www.youtube.com/watch?v=7uDD7xXHyaA, 06/06/2018, 12:51 P.M.

2. Wikipedia, https://en.wikipedia.org/wiki/Microfinance, 07/06/2018, 3:30 P.M.

3.Enterslice,https://enterslice.com/learning/lending-process-microfinance-company/, 07/06/2018, 4:00 P.M.

4. GKTODAY, https://www.gktoday.in/gk/microcredit-in-india/, 13/06/2018, 11;12 A.M.

5. You tube, https://www.youtube.com/watch?v=0DvBfbbpiS0, 07/06/2018, 4:30 P.M.

6. NewsBytes, https://www.newsbytesapp.com/timeline/Business/24610/112008/these-start-ups-offer-micro-loans-to-professionals, 13/06/2018, 12:00A.M.
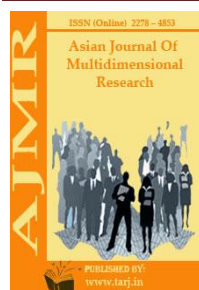
TO STUDY ON THE PROFILE OF WOMEN IN INFORMAL SECTOR WITH REFERENCE TO THENI DISTRICT

Mrs. K. Ragina Begum*; Prof. Dr. K.Saleem Khan**

*Research Scholar,
Department of Commerce,
Mother Teresa Women's University,
Kodaikanal, Tamil Nadu, INDIA.
Email id: reginazar54@gmail.com

**Research Head and Co-ordinator,
Commerce Research Centre,
HKRH College, Uthamapalayam,
Tamil Nadu, INDIA.
Email id: dr.saleemkhan@rediffmail .com

_____

ABSTRACT

The informal sector encompasses all jobs which are not recognized as normal income sources, and on which taxes are not paid. The term is sometimes used to refer to activity, such as an individual who earns wages but does not claim them on his or her income taxes, or a cruel situation where people are forced to work without pay. The present study attempted to identify the profile of women of in informal sector and profile of socio economic features of Then District. The study was undertaken with the total of 432 respondents, 167 saleswomen, 152 teachers and 113 nurses. This study includes the factor of age, educational qualification size of the family and number of children of respondents. It is finally concluded that the most significant consequences which are endorsed by a majority of working women were risers and strain, irritability and outburst and martial conflict.

KEYWORDS: *Informal Sector, Women Educational Qualification, Conflict, Family.*

INTRODUCTION:

Informal sectors are the part of an economy that is not taxed, monitored by any form of government or included in any gross national product (GNP), unlike the formal economy. The Resolution concerning statistics of employment in the informal sector, adopted by the fifteenth international conference of labour statisticians in, 1993 defined the informal sector as sector which is regarded as a group of household enterprises or unincorporated enterprises owned by household that includes. It is clear from the literature that informal sector is multi – situation syndrome. It is characterised by non – uniformity in the nature, characteristics and conditions of jobs. The informal sector consists of regular workers and casual workers, self – employed and those working for others, illiterate to semi – educated, in all age, groups. This combination of differentiated and distinct characters is more pronounced when we talk of informed sector in the urban areas; of a country like, India.

STATUS OF WOMEN IN SOCIETY

In most of the human societies, social discrimination between the sexes, the male and female existed and majority of the women were assigned in inferior position. Women who constitute one – half of the human population live in perpetual subordination to the other half the men. The indispensability of women as reproducers of human societies has become an instrument of their enslavement. This biologically anchored but culturally reinforced feminine roles gave birth to sexual divisions of labour in society.

In the modern industrial societies the status of women deteriorated still further. According to Marx the distinction can be explained in terms of values. The values are of two types, use values and exchange values. The values are two types, use values and exchange values. Men started producing most for selling and they become producers of exchange value, while women confine to be the producers of use value. Though women works at home, they were not paid for it, and hence they are 'unemployed' and called 'dependent'. The man as the producer of exchange value called as 'breadwinner'.

In order to understand the status of women in India we have to study the problem from socio-cultural perspective. The Hinduism assign a lower status to women. The life of an ideal Hindu wife is to be spent in the service of her husband, she ought to be a "pativrata". She is expected to be an obedient daughter, faithful wife and devoted mother. Marriage is the single important event in her life. Religions like Jainism, Buddhism, Veershaivism, and Sikhism under took reform movements to improve the conditions of women. However, the status of women continued to be similar to that of Hinduism.

Islam as religion in theory accepted social equality to men and women but it could no be exposed in practice.

Classical Christianity does not accept equality to women but it emphasizes monogamy and nuclear family. Christian women are still not given equality in the religious matters and property rights. Thus the position of women in India has largely been that of a subordinate to men. They expected to play different roles as daughter, sister, wife, daughter – in – law, and mother with submission and docility in all household tasks.

After independence, Indian government has enacted several progressive laws and provided equality to men and women and also gave special protection to women to realise, their interests effectively Empowerment of women became the primary objective and all attempts were made

for the convergence of existing services, available in both, women specific and women related sectors. The World Bank describes the picture of Women's Status in India as : "Women are a vital part of the Indian economy, constituting, one-third of the national labour force and a major contributor to the survival of the family."

REVIEW OF LITERATURE:

According to united Nation Development Programme (UNDP), Report (2000) women are involved in doing 67 percent work of world; still they are socially and economically deprived. They are receiving only 10 percent of the universal income and have one percent part in global assets. This discrimination also persists in their work place in unorganised sector : In informal sector, women workers don't get same wages for same nature of work for same hours done by men. They are exploited at work place. Due to improper implementation of laws governing women's safely, they are forced to work and live in miserable anditimr in organised sector.

Mitra (1957) analyses the causes and comes to same important conclusions: 'Relationship between women and job could be perceived as one of women in full gladged professions, medicine, law, academics etc., and another in the semi – professional – like nursing, teaching, clerks etc. Karl (2009) stated that literature review slows more focus on married working women than on unmarried working women. It is also seen that focus is more organised sector rather than unorganised sector.

Azadeh Baratietial (2015) reported in their research article that according to Eggins (1977) providing more facilities to women in the workplace is an important part of development strategy as well as an act of social justice. The comments of Somjee (1989) was also quoted in their article as saying that in the history of women's studies, which in not very story, a variety of approaches have been adopted in order to understand women's problems and find solutions to them. Such approaches range from how women are perceived in various cultures and historical setting, given their biological functions and what nature 'intended' them to do, to their define power and status vis – a – vis men in the complex social evolution, to a widely shared emphasis on the need to make women equal through the economic and legal route which treats them as individuals rather than those having the role responsibility for looking after the family.

OBJECTIVES OF THE STUDY:

1. To study the profile of women in informal sector.
2. To study the profile of socio economic features of Theni District.

RESEARCH METHODOLOGY

Sketching a suitable methodology is essential for a meaningful analysis of any research problem. This section elaborates methodology which includes sampling procedure, collection of data and frameworks of analysis.

Data collection constitutes the integral element of the research work. This study employed in – depth personal interview using well structured and tested interview schedules to collect primary data from teachers, nurses and saleswomen in Theni District. Besides, open and close ended questions were used to elicit information on nature, sources, consequences of role conflict of women employees, strategies adopted to solve role conflict. The Reponses on statements were collected on 5 point Likert Scales by 'Strongly Agree' to 'Strongly Disagree') to express the degree of agreement and disagreement.

Books, research journals, research projects, thesis, news papers, reports of government and non – government organisations (NGO's) and websites were referred to collect secondary data. The present study is both descriptive and analytical in its content and based on both primary and secondary data. Sample survey method was employed to collect the required primary data.

Morgan Table was employed to determine the sample. As per the table at 5% significance level, a sample of 384 was taken for the study. Based on the objectives of the study, percentage analysis was used to analyse the data in the study.

PROFILE OF STUDY AREA – THENI DISTRICT

It is basically an agricultural area, covering on area of 3242.3 sq.kms. It was formed by the bifurcation from the Madurai District on 7.7.1996. Consequent to the formation of the new district, Theni municipal town was graded as Taluk and District Headquarters on January 1st 1997. It is known as the 'Second Manchester of South India, as it is well known for Cotton Trade. The district situated at 295 ft above sea level and the foot of Western Ghats and situated between 39'00 and 10'30'0 north latitude. It has boundary on North by Dindigul District, east by Madurai District south by Virudhunagar district and west by the Kerala State. The following table – 1 shows the Socio – Economic Snapshot of Theni District.

TABLE - 1 SHOWS THE SOCIO – ECONOMIC SNAPSHOT OF THENI DISTRICT

S.No.	Particulars	Number
1.	Total population (as per 2011 censes) Male Female	12,45,899 6,25,683 6,20,216
2.	Total number of households	2,72,033
3.	No. of households below poverty line	65,862
4.	Old age pensioners	33,466
5.	Revenue administration Divisions Talks Villages Municipalities Panchayat union Town Panchayat Village Panchayat	 2 5 113 6 8 22 130
6.	Workers Total workers Male workers Female workers Agricultural labourers Other workers	 5,91,642 3,68,900 2,22,742 2,75,585 2,05,921
7.	Total cultivated are (in hec)	1,27,396
8.	Major Crops	Rice, Coconut, Banana, Grapes, Onion, Tomatoes, Sugarcane, Mango and other cereals
9.	Major Rivers	Periyar, Vaigai, Manjalar,

		Suruliyar, Varaganathi
10.	Live stock and poultry	1,37,665
11.	Forest Area (in hec)	47,156
12.	Electricity generation (in M units) Hydro Wind mill	 578 12.5
13.	Large scale industry (including public sector underlings)	15
14.	Total child population	1,19,661
15.	Literacy rate Male Female	 76.62% 62.99%

It is evident from the table 1 that the total population of Theni District in 12,45,899 out of that male is 6,25,683 and female is 6,20,216. Total number of households are 2,73,033.The revenue administration of Theni District is 130 village panchayat, 114 villages and 22 town panchayats. The major crops of this district in Rice, Coconut, Banana, Grapes, Onion, Sugarcane, Mango and other Cereals. The literacy rate in 76.62% for males and 62.99% for females.

TABLE - 2 AGE OF RESPONDENTS

S. No.	Age	Saleswomen		Teachers		Nurses		Total	
		Number	%	Number	%	Number	%	Number	%
1.	Upto 25 years	81	48%	85	56%	53	47%	219	51%
2.	Above 25 years	86	52%	67	44%	60	53%	213	49%
	Total	**167**	**100%**	**152**	**100%**	**113**	**100%**	**432**	**100%**

It is understand form Table 2 that among sample respondents 432, 51% and 49% belong to the age category of 'upto 25' and 'above 25' respectively.

Within the individual sample size, 43% and 52% of saleswomen, 56% and 44% of teachers and 47% and 53% of nurses belong to the age category of 'upto 25 years' and 'above 25 years' respectively.

TABLE - 3 EDUCATIONAL QUALIFICATION AND RESPONDENTS

S. No.	Educational Qualification	Saleswomen		Teachers		Nurses		Total	
		Number	%	Number	%	Number	%	Number	%
1.	Schooling	61	37%	64	42%	37	33%	162	37.5%
2.	Degree / Diploma	106	63%	88	58%	76	67%	270	62.5%
	Total	**167**	**100%**	**152**	**100%**	**113**	**100%**	**432**	**100%**

It is understand form Table - 3 that among sample respondents 432, 37.5% and 62.5% belong to the educational category of 'schooling' and 'Degree / Diploma' respectively.

Within the individual sample size, 37% and 63% saleswomen, 42% and 58% of teachers and 33% and 67% of nurses belong to the age category of 'schooling' and 'Degree / Diploma' respectively.

TABLE - 4 SIZE OF FAMILY AND RESPONDENTS

S. No.	Size of family	Saleswomen		Teachers		Nurses		Total	
		Number	%	Number	%	Number	%	Number	%
1.	Up to 3	48	29%	43	28%	33	29%	124	29%
2.	Above 3	119	71%	109	72%	80	71%	308	71%
	Total	**167**	**100%**	**152**	**100%**	**113**	**100%**	**432**	**100%**

It is understand form Table - 4 that among sample respondents 432, 29% and 71% belong to the size of family category of 'up to 3' and 'above 3' respectively.

Within the individual sample size of family, 29% and 71% saleswomen, 28% and 72% of teachers and 29% and 71% of nurses belong to the age category of ''up to 3' and 'above 3' respectively.

TABLE - 5 NUMBER OF CHILDREN AND RESPONDENTS

S. No.	Number of children	Saleswomen		Teachers		Nurses		Total	
		Number	%	Number	%	Number	%	Number	%
1.	One	92	55%	84	55%	60	53%	236	55%
2.	2 and above	75	45%	68	45%	53	47%	196	45%
	Total	**167**	**100%**	**152**	**100%**	**113**	**100%**	**432**	**100%**

It is understand form Table - 5 that that among sample respondents 432, 55% and 45% belong to the number of children category of 'one' and '2 and above' respectively.

Within the individual sample size 55% and 45% of saleswomen, the similar percents of teachers and 53% and 47% of nurses belong to the number of children category of ''one' and '2 and above' respectively.

FINDINGS

➢ It is found from the overall sample size of 432 work women 39%, 35% and 26% belong to the occupational sample size category of 'saleswomen', 'teachers' and 'nurses' respectively.
➢ It is found from the profile of respondents that
▪ A majority of 51 belong to the age category of 'up to 25 years'.
▪ A majority of 62.5% belong to the educational category of 'degree/diploma'.
▪ A majority of 71% belong to the family size category of above 3.
▪ A majority of 55% belong to the number of children category of one.
▪ A majority of 53% belong to the monthly family income category of 'between Rs.15,000 and Rs.30,000'.

SUGGESTIONS

➢ The inability of women employees to withstand the strain of work both at home and at work place being the major causes for their role conflicts, it is suggested in this regard that.
▪ They have to work within a strict time schedule and arrange things more systematically.

- They have to set priorities among and within roles being sure that certain demands and always met (for example, the needs of sick children) while others may have lower priority (such as cleaning the house).
- They have to come out of the feeling that they are neglecting wifely and motherly duties by comparing with non – working women.

CONCLUSION:

The study corporate the findings of the earlier studies that the severity of role conflict would be less if women here higher level of education and less stressful job with reduced working hours. The study also underlines that the proper sharing of household responsibilities between husband and wife avoiding meshing of work and family resulting in less / avoid role conflict. It is, therefore, expected that the couple as a unit may negotiate an optimal allocation of roles in order to reduce the pressure endemic to their situation. Since the role conflict problems are living and dynamic in nature, there can be no final and permanent solution to these problems.

REFERENCE

1. United Nations Development Progremme (UNDP) Report 2000, Retrieved on 20th October 2015.
2. w.w.w.workingwomenforces.org
3. Karl.M. 'Inseparable : The crucial role of women in food security revised women in Action No, 2009.
4. Azadesh Bharati Rooh, Ollah : Syed Saadat Maroum', "Challenges and Problems Faced by Women Workers in India". Human Resources Management ISSN 1230 – 9667, 2015 P-78.
5. 'The Informal Economy: Fact finding study', department for Infrastructure and economic co-operation. Retrieved on 20 November, 2015.
6. Lewis, William, 'The Theory of Economic Growth', Allen al Linwin publishers, London, 1955.
7. International Labour Office, 'Report of the 15th International conference of Labour statisticians' Geneva, 1993.

OPERATIONS ANALYTICS: CALL CENTER OPTIMIZATION

Mrs. Richa Kalpesh Saxena*; Mr. Sandeep Aggarwal**; Ms. Anupama Aggarwal***

*Assistant Professor,
NMIMS Anil Surendra Modi School of Commerce
Mumbai Campus, INDIA.
Email id: richaks04@gmail.com

**Consultant,
Telecommunications,
Email id: sandy_aruna@hotmail.com

***Student
NMIMS Anil Surendra Modi School of Commerce,
Mumbai Campus, INDIA.
Email id: anupamaaggarwal@hotmail.com

_____

ABSTRACT

India's service industry has boomed in the past 20 years, and a major chunk of this boom is attributed to the BPO industry in the country. Call centers have made it possible for many foreign companies to cut their costs by outsourcing sales calls to India. Today's call centers face several operational decision making tasks. One of the most common challenges is determining the staffing levels per hour to ensure customer satisfaction and 100% call attendance while also keeping the cost of staffing minimal. The objective of this paper is to analyze the problem of optimal staffing by using deterministic and stochastic operations research techniques. A real life data of call center is taken to formulate and solve the linear programming problem and queuing problem. The optimal solution indicates that at any hour maximum number of staffing staff joining is less than 20 which also minimizes waiting time to zero and queue length of maximum 3 customers per server at a given period.

KEYWORDS: *Call Centers, Optimization, Deterministic Model, Linear Programming, Simplex Method, Stochastic Models, Queuing Theory.*

1. INTRODUCTION

The term Business Process Outsourcing (BPO) refers to outsourcing in all fields. A BPO service provider usually administers and manages a particular business process for another company. (Outsourse2India, 2017). India is one of the leading destination for business process outsourcing and is getting business from IT and IT-enabled services from the US and Europe. According to a survey, the BPO industry provides employment to around 0.7 million people across the country. The yearly revenue amounts to around $11 billion with a share of around 1 % of the annual Gross Domestic Product (GDP) (India, 2015). Seventy percent of the revenues of the Indian Business Process Outsourcing (BPO) industry, according to estimates by Mckinsey (www.nasscom.org) come from Call Center. These Call Centers work towards answering customer centric queries or to give technical support or works as actual sales vehicle. The rapid growth in Call Center service business has brought several managerial challenges like recruitment, staffing, training, and retention of workers and managers with the requisite skills and abilities to provide quality service. These service providers are looking for better staffing techniques so that they can optimise the number of calls received.

Operations research (OR) emerged around World War II, but in the present scenario, it helps in handling a very diverse range of problems. Operations research can be used to find optimal solution for the business problems that can be expressible in numbers or quantities.

The use of operations research in business is not entirely new. It has been in existence since a long time and is used on: people, machines, material and money. From last 100 years OR is addressing the problems of production, supplies, manpower, transportation, finance and markets.

OR provides various theories which help the organisation reach optimization i.e. maximum productive work done with minumum cost and recourse utilisation. Examples of such theories are linear programming, simulation and queuing theory.

2. BPO Industry in India

Business process outsourcing is the act of contracting business tasks (such as delivery, human resources, customer relations, et cetera) to a third party service provider. Companies in the west usually use outsourcing as a cost saving tool by outsourcing secondary activities such as handling calls and sales. They outsource such process to countries like India and Vietnam where cost of Call Center staff is much lower than that in the domestic country.

Business Process Outsourcing was introduced in India around 1990 and reached its peak till 2009. Huge cost savings (estimated 30-50 percent) coupled with rapid developments in both information technology and software development, and availability of a large number of trained professionals speaking fluent English, has resulted in India becoming the preferred destination for BPO. At present, over 400 of the Fortune 500 companies either have their own centres in India, or outsource to Indian firms. Further, it is estimated that India controls 44 percent of world outsourcing business. (Budhwar, 2009)

Operational research is used extensively in the BPO sector especially in Call Centers. Few tasks that require OR are matching call types and the agent's skill level, routing logics, time optimization, realistic modeling and queuing approximations in call volume management.

3. SIGNIFICANCE OF THE STUDY

Call arrival pattern in call center may fluctuate during peak and non-peak hours. Call volumes differ from week to week, day-to-day and hour-to-hour. Efficiently handling spikes in call volumes is the leading challenge faced by Call Centers. The peaks could be:

- **Planned:** Advertisement in traditional media like TV or magazines
- **Unplanned:** An unexpected feature on a talk show or blog
- **Seasonal:** Sales pitches increase manifold during festive seasons such as Diwali and Christmas.
- **Due to an event:** Sales also increase during the launch of a product or during specific events. For example if the product is being advertised during IPL.

More often than not the increased volume of incoming calls drastically reduces the productivity of the center. The spikes unavoidably translate into higher on-hold times, which in turn leads to increase in the number of abandoned calls. These calls are a loss in sales for the organization. Many managers attempt to tackle this by over staffing and having the employees work over time.

This paper attempts to suggest OR techniques for the management to device a plan for managing the staff and reducing idle time.

Operational research helps the organizations in effectively and optimally deploying their resources while keeping in mind all related constraints so as to reduce wastage and increase productivity. Increased productivity means maximizing number of calls attended per hour and minimizes number of employees, idle time, waiting time and number of customers waiting in the queue.

4. RESEARCH OBJECTIVES

The objective of this paper is to identify the applications of OR techniques required to analyze the traffic of calls in a call center and the optimal amount of time required to handle the calls at both, peak and non-peak call arrival hours. This research aims at using deterministic and stochastic models of OR to analyze the staff requirement for the certain and uncertain arrival pattern. Particularly:

1. To identify the optimal number of employees joining per shift.
2. To study the average expected number of customers waiting in the system
3. To analysis of number of employees and waiting time trade off.

5. RELATED LITERATURE

Use of operations research in CallCenter management is not new. In the past several researches have been conducted. SoonHooSo identified the KPI (key performance indicators) for call Center using non parametric approach called Data Envelopment Analysis (DEA) which was based on linear programming.(So, 2007).

Mandelbaum and Zeltyn studied asymptotically optimal staffing of many-server queues with abandonment. A call Center is modelled as an M/M/n + G queue, which is characterized by Poisson arrivals, exponential service times, n servers, and generally distributed patience times of customers. Our asymptotic analysis is performed as the arrival rate, and hence the number of servers n, increases indefinitely. (S., 2009)

Borst, Mandelbaum and Reiman developed a framework for asymptotic optimization of a queueing system. The staffing problem of motivation in call centers,was modelled as M/M/N queues with N, the number of agent.(Borst S., 2004)

Gurvich, Luedtke and Tezcan used mixed integet programming and simulation models to solve problem of staffing call centers with multiple customer classes and agent types operating under quality-of-service (QoS) constraints and demand rate uncertainty.(Gurvich I., 2010)

Arthur, et al used simulation to create an optimal staffing plan for a call center for Nationwide Mutual Insurance Company based in Columbus, Ohio.(Conover A., 2016)

SomchanVuthipadadon used integer programming to study the problem of assigning inbound calls to customer service representatives (CSRs) and sequencing the calls waiting for each CSR in call centers. (Vuthipadadon, 2009).

Lawrence Brown, Noah Gans, Avishai Mandelbaum, AnatSakov, Haipeng Shen, Sergey Zeltyn and Linda Zhao used queuing models to analyze a unique database of call-by-call data from a relatively small telephone call center(Brown L., 2006).

Koole and Mandelbaum used queuing theory to make several staffing models for call centers (Mandelbaum, 2001)

6. Operations Research Approach

Operations Research models are broadly divided into two types: deterministic models like linear programming, integer programming and probabilistic or stochastic models like queuing theory and simulation.

Deterministic models are used in the scenario where the optimal solution can be obtained with certainty. This research will attempt to optimise the staffing requirements of a call center using linear programming model. The linear programming problem is formulated using the real data of a call center and an optimal solution is determined by simplex method using solver.This model is suitable for the weekly prediction as the level of fluctuations is not much.

Stochastic models are used in situations where future predictions are uncertain in nature. Queueing theory, a branch of operations research is the mathematical study of analysing the overcrowding and delays of waiting in line. Queuing theory examines every component of waiting in line to be served, including the arrival process, service process, number of servers, number of system places and the number of customers. Queuing theory is used to develop more efficient queuing systems that reduce customer wait times and increase the number of customers that can be served.

Simulation is yet another stochastic technique that deals with the uncertain call patterns.

7. Applying Operations Research in Real World Scenario: A Case Study

The weekly data regarding call arrival pattern is taken from a large call center company in India.

TABLE 1 CALL ARRIVAL PATTERN AT A CALL CENTER

Time	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
00:00	2	2	2	2	2	2	2
01:00	1	1	1	1	1	1	1
02:00	0	0	0	0	0	0	0
03:00	0	0	0	0	0	0	0
04:00	0	0	0	0	0	0	0
05:00	0	0	0	0	0	0	0
06:00	1	1	1	1	1	1	1
700	1	9	8	8	6	7	1
800	3	53	41	44	38	36	14
900	7	121	90	96	89	90	40
1000	25	142	120	127	115	114	60
1100	30	153	127	140	122	126	74
1200	32	152	131	135	125	122	77
1300	34	155	134	135	130	125	84
1400	31	148	129	131	126	118	78
1500	27	138	125	121	124	116	74
1600	26	142	127	127	120	111	63
1700	23	123	109	111	98	91	54
1800	20	83	78	75	80	60	36
1900	17	69	69	64	66	51	31
2000	16	63	57	56	58	43	25
2100	10	47	41	42	41	31	18
2200	7	11	11	9	11	9	6
2300	2	3	3	3	3	4	3
Total Call Volume	316	1,620	1,407	1,431	1,360	1,258	743

7.1 THE DETERMINISTIC APPROACH

The objective of the linear programming problem is to determine a daily employee worksheet which satisfies the requirement with the least number of staff.

From the data given in table 1 a linear programming problem is formulated to identify the number of employees joining at each shift to maximize the service rate.

TABLE 2: 24 HOUR MINIMAL REQUIREMENT FOR CALL CENTER EMPLOYEES

Period of the day (24-hour Clock)	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 (2300 – 0300)	1	1	1	1	1	1	1
2 (0300 – 0700)	1	2	1	1	1	1	1
3 (0700 – 1100)	4	20	17	18	16	16	10
4 (1100 – 1500)	5	20	17	17	17	16	11

| 5 (1500 – 1900) | 4 | 18 | 14 | 14 | 13 | 12 | 7 |
| 6 (2000 – 0000) | 2 | 8 | 8 | 7 | 8 | 6 | 4 |

Let x_{ij} be the number of employees required at a given period (1 to 6) and on a particular day of a week (Sunday to Saturday). The linear programming problem is:

$\text{Minimize} Z = x_{11} + x_{12} + \cdots \ldots \ldots + x_{17}$

$$+ x_{21} + x_{22} + \cdots \ldots \ldots + x_{27}$$

$$+ x_{31} + x_{32} + \cdots \ldots \ldots + x_{37}$$

$$+ x_{41} + x_{42} + \cdots \ldots \ldots + x_{47}$$

$$+ x_{51} + x_{52} + \cdots \ldots \ldots + x_{57}$$

$$x_{61} + x_{62} + \cdots \ldots \ldots + x_{67}$$

Subject to the constraints

$$x_{11} + x_{12} \geq 1$$

$$x_{12} + x_{13} \geq 1$$

$$x_{13} + x_{14} \geq 1$$

$$x_{14} + x_{15} \geq 1$$

$$x_{15} + x_{16} \geq 1$$

$$x_{16} + x_{17} \geq 1$$

$$x_{11} + x_{17} \geq 1$$

$$x_{21} + x_{22} \geq 2$$

$$x_{22} + x_{23} \geq 1$$

$$x_{23} + x_{24} \geq 1$$

$$x_{24} + x_{25} \geq 1$$

$$x_{25} + x_{26} \geq 1$$

$$x_{26} + x_{27} \geq 1$$

$$x_{21} + x_{27} \geq 1$$

$$x_{31} + x_{32} \geq 20$$

$$x_{32} + x_{33} \geq 17$$

$$x_{33} + x_{34} \geq 18$$

$$x_{34} + x_{35} \geq 16$$

$$x_{35} + x_{36} \geq 16$$

$$x_{36} + x_{37} \geq 10$$

$$x_{31} + x_{37} \geq 4$$

$$x_{41} + x_{42} \geq 20$$

$$x_{42} + x_{43} \geq 17$$
$$x_{43} + x_{44} \geq 17$$
$$x_{44} + x_{45} \geq 17$$
$$x_{45} + x_{46} \geq 16$$
$$x_{46} + x_{47} \geq 11$$
$$x_{41} + x_{47} \geq 5$$
$$x_{51} + x_{52} \geq 18$$
$$x_{52} + x_{53} \geq 14$$
$$x_{53} + x_{54} \geq 14$$
$$x_{54} + x_{55} \geq 13$$
$$x_{55} + x_{56} \geq 12$$
$$x_{56} + x_{57} \geq 7$$
$$x_{51} + x_{57} \geq 4$$
$$x_{61} + x_{62} \geq 8$$
$$x_{62} + x_{63} \geq 8$$
$$x_{63} + x_{64} \geq 7$$
$$x_{64} + x_{65} \geq 8$$
$$x_{65} + x_{66} \geq 6$$
$$x_{66} + x_{67} \geq 4$$
$$x_{61} + x_{67} \geq 2$$

Also,

$$\forall\, x_{ij} \geq 0$$

The given problem is solved using simplex mothed in solver. The following solution is obtained:

TABLE 3: NUMBER OF EMPLOYEES JOINING AT EACH PERIOD

Period of the day (24-hour Clock)	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
1 (2300 – 0300)	1	1	1	1	1	1	1
2 (0300 – 0700)	0	1	0	8	0	0	0
3 (0700 – 1100)	4	19	17	10	16	16	10
4 (1100 – 1500)	2	10	6	7	5	6	3
5 (1500 – 1900)	2	8	8	7	8	6	4
6 (2000 – 0000)	0	0	0	0	0	0	0

The solution suggests that for any given period the maximum number of employees joining shall not exceed 19. Now, this data can be used to understand queuing pattern in the given call center.

7.2 The Stochastic Approach

Queuing Theory is the study of waiting and is very helpful in determine how to operate a queuing system in the most effective way. Call centers queuing model is based on the premise that the waiting time for every single customer is minimized to zero. The objective of the queuing problem for the call center is

- To analyses the queue length in peak and non-peak hours given a number of employees attending the call
- To peak waiting time in the queue and the system equals to zero

Some operating characteristics of a queuing model are as follows:

P_n = Probability of exactly n customers in queuing system

L = Expected number of customers in queuing system

$$= \sum_{n=0}^{\infty} nP_n$$

L_q = Expected queue length

$$= \sum_{n=0}^{\infty} (n-s)P_n$$

W = Waiting time in system (includes service time) for each individual customer

W_q = Waiting time in queue (excludes service time) for each individual customer.

λ = mean arrival rate of calls in the system of a given shift and a given day of week

μ = system service rate for the overall queuing system when there are n customers in the system

ρ = λ/μ

Suppose that that each employee can attend 8 calls every hour and work of an 8-hour shift. Considering the 30-minutes lunch break and other breaks the service rate can be assumed to be 56, where the number of customers mostly is more than number of servers.

M/M/s model assumes that all interarrival times are independently and identically distributed according to an exponential distribution (i.e. the input process is Poisson), that all service times are independent and identically distributed according to another exponential distribution, and the number of servers is s (any positive integer) (Hillier F., 2012).

This model when applied to the call pattern and staff requirement data it can be seen that no more than 3 customers are waiting in the system including the peak hour timings. This analysis also indicates the values of L_q and W_q are equals to zero. Average time per customer in system is 1.2 minutes.

TABLE 4: EXPECTED NUMBER OF CUSTOMERS IN THE QUEUING SYSTEM (L)

M/M/s System	Sunday	Monday	Tuesday	Wednesday	Thursday	Friday	Saturday
2300-0300	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0300 - 0700	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000	0.0000
0700 - 1100	0.3036	2.1071	1.5176	1.8214	1.6250	1.6429	0.8392
1100 - 1500	0.5536	2.6607	2.3036	2.3214	2.2679	2.1607	1.4107
1500 - 1900	0.3923	1.8750	1.7140	1.6964	1.6250	1.4107	0.8214
2000 - 0000	0.1617	0.5536	0.5000	0.5000	0.5176	0.3929	0.2321

The probability distribution of this system during peak is:
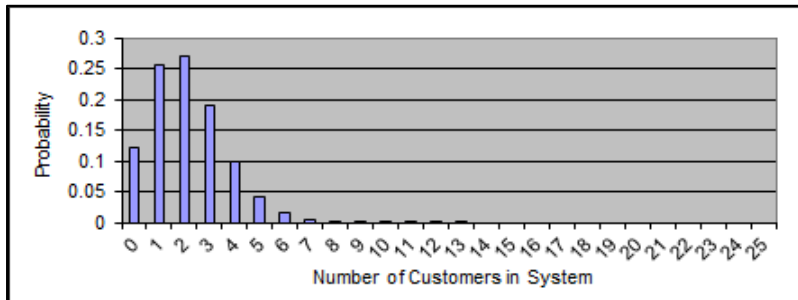
Figure 1 Probability of Number of Customers in a System

7.3 ANALYSIS

The two models explained earlier are purely theoretical and works on assumptions and probabilities. When the actual application takes place, many factors such as tea breaks and blank calls come into picture. The call centers take every possible factor while scheduling employee shifts and hence the number of employees required during peak hours is calculated using queuing theory.

TABLE 5: THE NUMBER OF EMPLOYEES REQUIRED DURING PEAK HOURS

	Calls Forecast (A)	Forecast Average Handle Time in Seconds (B)	Handle Minutes ((A*B)/60)	Forecast Productive Minutes	Avg Occupancy	Employees Required (Actual)
Sunday	316	508	2,677	2,677	66%	9
Monday	1,620	508	13,706	13,706	66%	44
Tuesday	1,407	508	11,902	11,902	66%	38
Wednesday	1,431	508	12,107	12,107	66%	39
Thusday	1,360	508	11,509	11,509	66%	37
Friday	1,258	508	10,650	10,650	66%	34
Saturday	743	508	6,285	6,285	66%	20

Using past data such as call arrivals, service arrivals and number of customers, the company is able to forecast the number of employees that is required to effectively manage calls during peak hours. They are also able to calculate the average occupancy based on real data considering tea breaks, lunch breaks and other idle time.

To schedule the staffing, let's look at data from Sunday. In reality, shifts change every 15 minutes and volume statistics are measured every 15 minutes. For ease of calculation, data on hourly basis is considered.

But the number of calls starts increasing from 10:00 hours (10 am) and starts declining at about 17:00 hours (5pm). Hence maximum amount of staff, i.e. 9 employees (from table 2) is required between 10 am and 5 pm. Here, each employee can handle 4 calls in 1 hour. Each shift is 8 hours long and can only start at the beginning of an hour. The first shift starts from 9 am. Therefore number of employees required in that hour is number of calls arrived divided by number of calls handled by 1 employee.

The peak time for call arrivals in this scenario (from table 1) is 34 calls at 13:00 hours (1 pm). The staffing schedule should be as follows:

TABLE 6: THE STAFFING SCHEDULE

Time	Shift 1	Shift 2	Shift 3	Shift 4	Shift 5	Shift 6	Shift 7	Total Required	Total Staffed
00:00					3	1		1	4
01:00					3	1		1	4
02:00						1		1	1
03:00							1	1	1
04:00							1	1	1
05:00							1	1	1
06:00							1	1	1
07:00							1	1	1
08:00							1	1	1
09:00	2						1	2	3
10:00	2	5					1	7	8
11:00	2	5	1					8	8
12:00	2	5	1					8	8
13:00	2	5	1	1				9	9
14:00	2	5	1	1				8	9
15:00	2	5	1	1				7	9
16:00	2	5	1	1				7	9
17:00		5	1	1				6	7
18:00			1	1	3			5	5
19:00				1	3	1		5	5
20:00				1	3	1		4	5
21:00					3	1		3	4
22:00					3	1		2	4
23:00					3	1		1	4

When staffing starts at 9 am, manager employed 2 employees, as that was the need of the hour. 7 calls were to be routed to 2 employees. Every hour he made sure that the number of employees required for the hour was met. But at 2 pm there is overstaffing. This is because at 1 pm 9 employees were required due to peak hour but suddenly at 2 pm only 8 employees were required. At 1 pm a new employee's shift started. Each shift is for 8 hours so every employee must complete that shift. Hence the 12 slots marked in red are over staffed due to peak hour. This schedule ensures 66% occupancy and ensures that no call goes unattended.

8. CONCLUSION

Even though the occupancy is 66% and overstaffing takes place, call centers are able to efficiently make sure that all calls (which are potential sales) are attended to. Many Call Centers resort to overstaffing as that ensures that all calls are attended. By over staffing, they incur costs in terms of payment of salaries but that is a small price to pay as opposed to a scenario if they left calls unattended.

In the present study, linear Programming schedule was able to construct a sound queuing system. It will, however, interesting so extend this study to the systems that are highly unpredictable.

Quantitative approaches to decision making ensures that the Call Center is working at it's full potential and maximizing it's profits while minimizing it's cost, while also considering various human factors such as lunch breaks, sick leaves and public holidays. Without the application of OR in a Call Center, many calls would be abandoned or go unattended while employee idle time may increase depending on the traffic of calls, incurring huge losses for the company.

BIBLIOGRAPHY

(CONDOR), C. O. (1988). Operations Research: The Next Decade. *Research Society of America*, 619-637.

Borst S., M. A. (2004). Dimensioning Large Call Centers. *Operations Research, Vol. 52, No. 1 (Jan. - Feb., 2004)*, 17-34.

Brown L., G. N. (2006). *Statistical Analysis of a Telephone Call Center:A Queuing Theory Perspective.* Chapel Hill: Department of Statistics and Operations Research.

Budhwar, V. M. (2009). Insights into the Indian Call Centre Industry: Can Internal Marketing help? *Journal of Services Marketing*.

Conover A., S. J. (2016). Ohio: Mathematical Association of America (MAA) and Society for Industrial and Applied Mathematics (SIAM).

Gurvich I., L. J. (2010). Staffing Call Centers with Uncertain Demand Forecasts: A Chance-Constrained Optimization Approach. *Management Science, Vol. 56,No. 7*, 1093-1115.

Hillier F., L. G. (2012). *Introduction to Operations Research.* New Delhi: McGrae Hill Education (India) private Limited.

India, B. M. (2015). *BPO Companies in India.* Business Maps of Inida.

Mandelbaum, G. K. (2001). *Queueing Models of Call Centers.* Amsterdam.

McCloskey, J. F. (1987). The begining of Operations Research: 1934-1941. *Operations Research*, 143-152.

Outsourse2India. (2017). *BPO in India.* Outsourse2India.

S., M. A. (2009). Staffing Many-Server Queues with Impatient Customers: Constraint Satisfaction in Call Centers. *Operations Research, Vol. 57, No. 5 (Sep. - Oct., 2009)*, 1189-1205.

Sandblom, H. E.-L. (2012). *Springer Texts in Business and Economics.* Springer-Verlag Berlin Heidelberg.

Sandjai Bhulai, G. K. (2008). Simple Methods for Shift Scheduling. *Manufacturing & Services Operations Management*, 411-420.

So, S. (2007). An Empirical Analysis on the Operational Efficiency of CRM Call Centers in Korea. *IJCSNS International Journal of Computer Science and Network Security, VOL.7 No.12,*, 171-178.

Vuthipadadon, S. (2009). *Scheduling inbound calls in call centers.* Iowa: Graduate Theses and Dissertations, Iowa State University.

IMPACT OF TELEVISION ADVERTISING ON SOCIAL AWARENESS OF CHILDREN

Mrs. Richa K Saxena*; Ms. Shubhi Goel**; Mr. Somin Raiyani***;
Mr. Siddharth Jain****; Ms. Soumya Agarwal*****; Ms. Swastika Thakur******

*Assistant Professor,
NMIMS, ASMSOC,
Mumbai Campus, INDIA.
Email id: richaks04@gmail.com

**Student,
NMIMS, ASMSOC,
Mumbai Campus, INDIA.
Email id: missgoelshubhu@gmail.com

***Student,
NMIMS, ASMSOC,
Mumbai Campus, INDIA.
Email id: sominr1999@gmail.com

****Student,
NMIMS, ASMSOC,
Mumbai Campusm, INDIA.
Email id: jainsiddharth4999@gmail.com

*****Student,
NMIMS, ASMSOC,
Mumbai Campus, INDIA.
Email id: soumyaagarwaal@gmail.com

******Student,
NMIMS, ASMSOC,
Mumbai Campus, INDIA.
Email id: swastikathakur10@gmail.com

ABSTRACT

Kids' mindsare just like wet clay whose shape is dependent upon the skills of the adults – parents and family, teachers and the environment in which they breathe. Due to advancement in technology and increased affordability, almost every family today in our nation owns a television

set and a connection. As a result, they are openly exposed to many programs and advertisements are aired on the channels, which may have a positive or a negative impact on the child's mind. Thus, it is very necessary to find out how far television commercials have been successful in playing a role to shape the young minds. The purpose of this research paper is to accomplish two objectives – to understand various influences of television advertising on children aged between 6 to 11 years and to investigate the relationship of these influences to social awareness of children. The literature concerning major influences of television in children was systematically reviewed and then statistically tested using step-wise regression. It was found that advertising is positively and as well as negatively influencing the young minds. On one hand social awareness has a high relation with hygiene related knowledge, it is also encouraging children to demand a particular commodity to improve academic performance or develop better physical attributes. The result of this study may be very useful with the advent of other non-traditional medium and increased use of mobile and internet amongst children and other personal variables like lifestyle.

KEYWORDS: *Advertising, Social Awareness, Television, Hygiene*
_____

1. INTRODUCTION

An average child is exposed to over 40,000 advertisements through TV every year. Researches in the past have supported the fact that children prefer watching television over video games and streaming TV shows on mobile devices (Moses, 2014). According to one such survey conducted in 2010, 72% of the children did not have any restriction regarding the amount of TV they can watch and 52% reported that they had the freedom to see any type of content that they wanted.(Maansi, 2017) These two trends, i.e. the increase in the reach of advertising channels for children and the unsupervised media use have made a huge increase in commercials directly intended towards children.

Children are skeptical about the marketing aspect of advertisements. For them, these commercials are merely facts or in-fact truths and hence they tend to misinterpret the advertisements. Marketers spend more than $12 billion per year to reach the young audience. (American Psychological Association, n.d.) Advertising makes the kids aware of the new products available in the market. It increases their knowledge about the latest innovations in the field of technology. There are certain advertisements which focus on honesty and goodness bring about values in children. It has an abiding effect on children's opinion on certain brands and makes them inflexible to an extent. On average kids of age 8 and above spend one and a half hour on computers where they are exposed to advertisements and 87% of the popular children websites carry advertisements so reaching the young population is not a specifically laborious task for marketers. Autonomous access to TV shows has resulted in 40% of children's ad exposure coming from non-children shows. (Moses, ADWEEK, 2014)

Due to the vast exposure of advertisements in the modern world, the negative impact of them on children has long been neglected. Major concerns are children imitating dangerous stunts shown in TV advertisements, exposure to sexually suggestive advertisements and explicit flashy advertisements affecting personal preferences. On one hand, convincing advertisements which revolve around healthy food products, can help improve the diet of children, but on the other hand, there has been an increase in the promotions of unhealthy food products or beverages

along with premium offers which induce the youngsters to consume such detrimental products which then results in obesity, diabetes, heart problems among young children. In addition to that certain advertisements promoting unrealistic beauty standards for the young population have led to insecurity issues among them.

Unhealthy behaviour among children has also been pushed due to the advertising of alcoholic and tobacco products. It is a known fact(Maansi, 2017) that underage consumption of liquor products has increased widely which has led to children missing school and getting into fights so there is a need to investigate and look into the ethical impact of advertisements on children. Since this topic is not taken into consideration, it has yet to attract as many studies as it should. This research is an attempt to understand the positive and negative effects of advertisements on children and on their overall social awareness.

2. OVERVIEW AND LITERATURE REVIEW

Marketing ethics are dimensions that portray marketers' morality attitude behind marketing or advertising. Additionally, it is also subjected to the way of marketers conducting advertisements that determine whether it will bring positive or negative values to the targeted consumers. If an advertisement targeted to children violates its credibility, transparency, integrity or privacy of the children, it is recognized as unethical conducts. What we will attempt to do is evaluate the ethical impacts of advertising, with a special focus on children.

The interactive media strategies and digital tools have enabled advertisers to target children with promotional offers and creative appeals(Aikat, 2014). Approximately 88% of children between the ages of 5 and 14 use computers, and 53% have access to the Internet. The research study sheds light on the fact that online advertising to children, in contrast to traditional advertising vehicles, is characterized by (a) a vibrant visual metaphor, (b) surfeit of animated content, (c) interactive features, (d) myriad product types, and (e) creative content for a mixed audience of adults and children.

Television advertising had a greater impact on minds of the consumers irrespective of the age group. (Kamalun Nabi, 2016). In a study, out of the 60 respondents of age group of 20-30, 38.34% got the information from TV. 35.90% of the age group of 30-50 also got information from TV and in case of the age group of 50 and above it is 32.26%. Radio as a source of information comes second. Newspaper, friends, relatives and others come next.

These researches have highlighted that whatever the medium may be, great care should be taken that the information in the advertisement is not misleading. Another important finding (Chinnasamy, 2014) is that FMCG Advertisements are successful in creating responses among the young-aged and middle-aged than the old aged consumers. These products are endorsed by celebrities who have a great influence on the minds of young children. From the study, it can be inferred that Advertisements on FMCG products should not be false and misleading and the quality of these advertisements should be improved. It is critical to know that where the advertisements were construct through ethical values and what is the impact of ethical and unethical advertisements in respondents particularly, children and women.(Halamata, 2013)

Past researches have also emphasized on the increasing requirement of a legal framework to guide ethical issues, principles, code of conduct that the advertisers use in advertising their products and services(Singh, 2014). Advertising associations such as National Advertising

Review Council (NARC) and Advertising Standards Council of India (ASCI) can be referred to safeguard the advertisements and fulfill the legal requirements.

It is important that advertisers use the prospective ethical value to communicate their message to the audience and treat with the honesty, truthfulness, integrity with the target audience and use high ethical standardstodifferenttypeofconsumersandaudiencesuchas men, women, children, senior citizens etc. Also, they should fully disclose the prospective thical issues in their advertising to win the confidence of the audience and to meet the government legal & ethical frame work.

Therefore, it is vital to understand how consumers judge advertisements so advertisers can approach the creation of an advertisement with an idea of how it will be received.An advertisement may be acceptable to one culture but extremely offensive in another based off of the beliefs and norms of the people in that culture. (Grace Gunnels, 2014)

In a study conducted (Singh D. A.), the responses were collected from 250 people of Jaunpur and Varanasi, who were selected on the basis of convenience sampling with the objective of presenting a normative set of recommendations for elevating the practice of marketing ethics. The respondents felt that the marketing companies generally access information from the websites where one has provided their personal information, for the purpose of sales leads. The marketing companies have now targeting schools to gain access to their parents' information for product placements. The respondents have had security issues, and refrain themselves from disclosing personal information on the websites. This perhaps is one of the reasons where the internet survey is disliked by the people.

In Indian markets (Neha Munjal, 2016), surrogate advertising, puffery, unverified claims, woman stereotype, comparative advertising and the use of children in advertisement are some of the concerns. However, it is also a fact that, the number of unethical and obscene advertisements are increasing in numbers instead of decreasing. This clearly shows that implementation of the laws controlling advertisement is not properly done. The lacks of implementation of the laws are leading to more and more unethical and obscene advertisements. Hence, it is an urgent need for proper implementation of the laws in our country.

American children examined the effects of marketing on children, focusing on how children of different ages perceive commercials in different ways at different stages of cognitive development. (Sandra L. Calvert, 2008). The researcher has found that Children have both their own disposable income and influence over what their parents buy, and marketers attempt to determine how those dollars are spent. Marketing practices such as repetition, branded environments, and free prizes are effective in attracting children's attention, making products stay in their memory, and influencing their purchasing choices. Moreover, online environments are now and probably always will be less heavily regulated than more traditional media. Although marketing and advertising fuel the U.S. economy, the cost of that economic success requires considerable scrutiny.

This research paper will focus on the positive and negative influence of advertisements on children in India with the changing digital environment.

3. RESEARCH OBJECTIVES

The research focuses on the influence of television advertising on the social behaviour of children and has following objectives:

1. To understand the level of social awareness amongst children aged 6-11 years in India.
2. To discuss the level of social awareness amongst children in India.
3. To identify the various influences of television advertising on children aged between 6 to 11 years.
4. To measure the impact of these influences of television advertising on the social awareness of children in India.
5. To measure the relative impact of the influences of television advertising social awareness.

4. RESEARCH METHODOLOGY

In order to address the above objective, exploratory study was conducted and research papers and articles published on the similar topic of advertisement ethics were studied to gain greater perspective about the past researches. To understand the level of social awareness, personal interviews were conducted. A control group of 15 parents was formed and they were asked about the level of self-consciousness and cognition in the children. These respondents were the parents of kids aged 6-14.

With the help of the literature review and personal interview, aquestionnaire was prepared with an aim know from the parents as to how their child/children were behaving, responding and reacting to the various advertisements and commercials they were exposed to. A total of 18 parents who have children aged between 6 – 11 years were selected for the pretest. Out of the 18 participants who submitted completesurveys, 77% were females (n = 13); 24% of the participants were males (n = 4). The Cronbach's alpha was found to be around 0.916 which is considered excellent (Mohsen Tavakol, 2011)

After the successful pilot run, the questionnaire was circulated via of social media and multimedia messaging apps (created with the help of Google's Docs) to around 500 parents. The calculation of the sample size is done on 95% level of confidence with 5% confidence interval for a very large population using online sample size calculator. The desired sample size is 384. The fairly extensive response was received which gave us quite a bit of perspective of the common public. Out of the received responses, 408 responses were taken for the further analysis after careful editing.The sampling method used in his research is convenience sampling. 241 fathers and 167 mothers have filled the questionnaire.The descriptive research analysis was conducted on the collected data using statistical techniques.

5. RESEARCH HYPOTHESIS

The level of social awareness i.e. self-cognition or "idea of me"(Philippe Rochat, 2012)is increasing with the growth in the level of exposureamongst children. Most of the past literature has highlighted the fact that there is strong influence of television advertising amongst children. The personal interview also revealed that parents believe that the children today are much more conscious of themselves.

H01: There is no significant self-awareness in children aged between 6 – 11 years in India.

H11: There is a significant level of self-awareness in children aged between 6 -11 years in India.

The secondobjective is to test whether the hypothesized increase in social awareness is due to their exposure to advertisement. The influence of advertising can occur in many different ways and overall can have negative and positive impacts of children.

H02: Advertisements do not influence the Social Awareness of children in India.

H12: Advertisement influence Social Awareness of children in India.

Past researches have highlighted various influences of advertising. These influences are identified as, children imitating the advertisements, they repetitively recitethetaglines, they become aware of beauty trends, celebrity endorsements, sharing incidences and feelings, demanding for a particular commodity to improve academic performance or develop better physical attributes, believing in non-existing abilities of product and changing knowledge about hygiene. All these positive or negative factors can be tested against their social awareness to test the degree of impact.

H03: All factors related to advertising equally influence Social Awareness of children in India.

H13: Factors related to advertising have different degree of influence on Social Awareness of children in India.

6. ANALYSIS

Step I: Description of Variables and Reliability

The following variables were taken as the factors that can define advertising influence.

TABLE 7: LIST OF VARIABLES

S. No.	Influences	Variable
	Imitation of advertisements	IMITATE
	Repetitive recitation of taglines	TAGLINES
	Impact of established beauty trends	BEAUTY
	Influence of celebrity endorsements	CELEB
	Sharing incidences and feelings	SHARING
	Demanding for a particular commodity to improve academic performance or develop better physical attributes.	ATTRI
	Believing in non-existing abilities of product	ABILITIES
	Changing knowledge about hygiene and being socially aware	HYGIENE

These variables are considered as predictor variables and were tested to find the influence on the criterion variable i.e. Social Awareness (SA).

RELIABILITY TEST

To check thereliability of the questionnaires filled by the respondents, Cronbach's Alpha was used. Reliability statistics are –

TABLE 8: RELIABILITY STATISTICS

Cronbach's Alpha	N of Items
.813	10

Cronbach's alpha reliability coefficient normally ranges between 0 and 1. However, there is actually no lower limit to the coefficient. The closer Cronbach's alpha coefficient is to 1.0 the greater is the internal consistency of the items in the scale.(Tayebeh Moradi, 2016). The statistical value of 0.813 proved that the data statistics were reliable.

Step II: Descriptives Studies

TABLE 9: DESCRIPIVES

	Mean	Std. Deviation
SA	3.50	1.250
IMITATE	2.90	1.485
TAGLINES	3.09	1.420
BEAUTY	2.21	1.388
CELEB	3.33	1.470
SHARING	2.94	1.370
ATTRI	2.78	1.447
ABILITIES	2.75	1.425
HYGIENE	3.52	1.289

The mean of the criterion variable i.e. Social Awareness is 3.50 out of 5 which shows a good social awareness of the children. Out of predictor variables, influence on hygiene and social awareness has the highest mean of 3.52 signaling its impact at the early stage. Also, the influence of the Celebrity endorsements and influence of Taglines have relatively high values of 3.33 and 3.05 respectively. Overall, all the predictor variables have well enough mean value to consider them important. These influence are also reasonable homogenous as all the standard deviation values are between 1.25 to 1.48.

Step III: Correlations

PEARSON'S CORRELATION COEFFICIENT

Pearson correlation coefficient is a measure of linear correlation between two variables X and Y. (Muhua Zheng, 2016). All the values of correlation are positive which means that as the value of one variable increases so does the value of the other variable. There exists no negative correlation i.e. because of increase in one variable, another variable won't reduce and vice versa.

TABLE 10: PEARSON COEFFICIENT OF CORRELATIO

	SA	IMITATE	TAGLINES	BEAUTY	CELEB	SHARING	ATTRI	ABILITIES
SA	1.000							
IMITATE	.127	1.000						
TAGLINES	.244	.456	1.000					
BEAUTY	.090	.409	.324	1.000				
CELEB	.249	.426	.438	.398	1.000			
SHARING	.290	.371	.470	.318	.457	1.000		
ATTRI	.284	.371	.409	.392	.474	.432	1.000	
ABILITIES	.154	.440	.415	.489	.439	.394	.478	1.000
HYGIENE	.586	.175	.239	.109	.231	.343	.247	.231

Multicollinearity is an event in which one predictor variable in multiple regression models can be linearly predicted from the others with a substantial degree of accuracy. Here, multicollinearity doesn't exist and co-variables are independent.

In this case, all the correlations are found to be significant at 5% level. Evidently, correlation between variable being socially aware (SA) and changing knowledge about hygiene (HYGIENE)

has a high correlation. A socially aware child would be very conscious and would know about the importance of hygiene and how to maintain it. Additionally, due to the launch of Swachh Bharat Abhiyan, Prime Minister Shri Narendra Modi's led government has successfully been able to create the awareness amongst the masses. However, other variables have low correlational value with Social Awareness. Understandably, there is some correlation between Imitating the advertisements and Repetitive recitation of taglines (TAGLINES), Impact of established beauty trends (BEAUTY) and Influence of celebrity endorsements (CELEB). There is some correlation between these three predictor variables also.

Believing in non-existing abilities of product (ABILITIES)shows highest significant correlation with Impact of established beauty trends (BEAUTY)followed by Demanding for a particular commodity to improve academic performance or develop better physical attributes (ATTRI).

Step IV: Regression

The collected data isfurther analysedusing the stepwise method of regression using SPSS. Stepwise linear regression is a method of regressing multiple variables while simultaneously removing the variables which aren't important.(School of Geography, University of Leeds, n.d.)

TABLE 11: VARIABLES ENTERED/REMOVED

Model	Variables Entered	Variables Removed	Method
1	HYGIENE	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).
2	ATTRI	.	Stepwise (Criteria: Probability-of-F-to-enter <= .050, Probability-of-F-to-remove >= .100).

a. Dependent Variable: SA

Stepwise regression essentially does multiple regression a number of times, each time removing the weakest correlated variable. **(Zaria Tatalovich, 2015)**In the end, the variables that explain the distribution best are left. The only requirements are that the data is normally distributed and that there is no multicollinearity between the variables. (School of Geography, University of Leeds, n.d.)

TABLE 12: MODEL SUMMARY

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate	Change Statistics				
					R Square Change	F Change	df1	df2	Sig. F Change
1	.586[a]	.343	.341	1.014	.343	212.051	1	406	.000
2	.603[b]	.364	.361	1.000	.021	13.171	1	405	.000

a. Predictors: (Constant), HYGIENE

b. Predictors: (Constant), HYGIENE, ATTRI

R is a measure of the correlation between the observed value and the predicted value of the Criterion Variable. In this study this would be the correlation between Social Awareness to our Predictor Variables.

R Square is the square of this measure of correlation and indicates the proportion of the variance in the criterion variable which is accounted for by our model. The given models explains the proportion of the variance for Social Awareness(SA) by our predictor variables changing knowledge about hygiene and being socially aware (HYGIENE)and demanding for a particular commodity to improve academic performance or develop better physical attributes(ATTRI).

In essence, this is a measure of how good a prediction of the criterion variable we can make by knowing the predictor variables. However, R square tends to be somewhat over-estimate the success of the model when applied to the real world, so an Adjusted R Square value is calculated which takes into account the number of variables in the model and the number of observations (participants) our model is based on. This Adjusted R Square value gives the most useful measure of the success of our model. (St. Francis Xavier University)

The Adjusted R Square Values shows the moderate significance of the Predictor Factors – towards Social Awareness (SA). As already concluded earlier, the most significant factor is changing knowledge about hygiene and being socially aware (HYGIENE).

Model 1 explains 34% of the impact and Model 2 explains 36% of the impact, which is reasonably good considering the sensitivity of the nature of the research area.

The F-test of overall significance indicates whether your linear regression model provides a better fit to the data than a model that contains no independent variables. F-tests can evaluate multiple model terms simultaneously, which allows them to compare the fits of different linear models.

Hence our hypothesis that social awareness of children has increased is accepted. It is also proved that factors related to advertising can be significantly attributed to the change in Social Awareness (SA).

The third hypothesis was tested taking level of significance at 5% using an F-test in ANOVA. As per null hypothesis, all factors related to advertising i.e. Predictor Variables changing knowledge about hygiene and being socially aware (HYGIENE) in Model 1 and on changing knowledge about hygiene and being socially aware (HYGIENE)and Demanding for a particular commodity to improve academic performance or develop better physical attributes (ATTRI) in Model 2, equally influence Social Awareness of children in India. For this to be true:

The means should be equal i.e. HYGIENE (Mean = 3.52) = ATTRI (mean = 2.78 and F = 0.

However, the means are not equal i.e. HYGIENE (Mean = 3.52) ≠ ATTRI (mean = 2.78) and F ≠ 0. Also, as seen in the table all the p values are lower than alpha.

Thus the alternate hypothesis i.e. factors related to advertising have different degree of influence on Social Awareness of children in India is accepted.

Hence, there is a relationship and the order of relationship is decided on the bases of their respected means. The order of impact out of these independent variables is first HYGIENE (mean = 3.52), and second ATTRI (mean = 2.88). All the other predictor variables were not significant at 5% level of significant.

TABLE 13: COEFFICIENTS

Model	Unstandardized Coefficients		Standardized Coefficients	t	Sig.
	B	Std. Error	Beta		
1 (Constant)	1.497	.146		10.225	.000
HYGIENE	.568	.039	.586	14.562	.000
2 (Constant)	1.266	.158		8.027	.000
HYGIENE	.533	.040	.549	13.427	.000
ATTRI	.128	.035	.148	3.629	.000

a. Dependent Variable: SA

In this case, SA is the dependent variable and variables HYGIENE and ATTRI are the independent variables. Thus, the regression equations formed are: -

Y_1 (SA) = 1.497+ 0.568 X_1(HYGIENE)

Y_2 (SA) = 1.266+ 0.533 X_1(HYGIENE) + 0.128 X_2(ATTRI)

7. CONCLUSION

This paper clearly highlights the influences of television advertising amongst children. It is evident that advertisements not only help building their social awareness by changing their knowledge about hygiene but also make them demand product and services. Advertisers sometimes use unprincipled courses to promote their product or service and children are generally the effortlessly affected group. So it's a facile task to influence and put an imprint on them. On one hand, advertisements can be helpful in inculcating good habits in children, the number of unethical advertisements being shown is only increasing.Thus, it is the moral responsibility of advertisers to refrain from tediously promoting harmful or unethical products. Moreover, the companies should create advertisements keeping in mind that a huge mass of their viewers are children.

8. LIMITATIONS
- Time Constraints – It took a lot of time to for the respondents to fill up the questionnaire. Additionally, because of pursuing a course along with the research work, it was quite difficult to manage both simultaneously.
- Sample Size could be bigger – Due to a lengthy questionnaire, there weren't many people who were ready to fill up the form.
- Convenience sampling –Because of convenience sampling, the responses which were collected, weren't a true representation of the entire population. And hence, there is a possibility of difference in inference as larger the sample size, more accurate are the results.
- It could have been more holistic –More variables which (might) have a relation with Social Awareness could've been taken into consideration.
- Reaching out to respondents was difficult –Telling a lot of people about the research being conducted and convincing them to fill the questionnaire was difficult.

9. BIBLIOGRAPHY

Aikat, D. '. (2014). Hey Kids, This is Advertising: Metaphors and Promotional Appeals in Online Advertisements for Children. *Laura Robinson , Shelia R. Cotten , Jeremy Schulz (ed.) Communication and Information Technologies Annual (Studies in Media and Communications, Volume 8) Emerald Group Publishing Limited, pp.159 - 194*, 159-194.

American Psychological Association. (n.d.). Retrieved from http://www.apa.org: http://www.apa.org/pubs/info/reports/advertising-children.aspx

Chinnasamy, K. P. (2014). Do Advertisements for Fast Moving Consumer Goods Create Response among the Consumers? – An Analytical Assessment with Reference to India. *International Journal of Innovation, Management and Technology*, 249-254.

Dr. Anuprita Deshmukh, D. S. (2017). Regression: An Efficient Data Analysis Technique. *International Journal of Innovative Research in Computer and Communication Engineering*, 5901-5903.

Grace Gunnels. (2014). *Analyzing Unethical Advertisements and Examining Ethical Business Practices.* Retrieved from Saint Joseph's University: https://sites.sju.edu/arrupe/files/2016/11/Undergrad-Spring-2014-3rd-Place.pdf

Halamata, A. N. (2013). Ethics in Advertisement and Its Impact on Women and Children. *International Journal of Business and Management Invention*, 01-04.

Kamalun Nabi, L. K. (2016). Impact of Advertisement on Consumer Behavior of FMCG in Bhadrak Town: with a Focus on Consumption of Detergent Powder. *International Journal of Recent Advances in Engineering & Technology*, 15-20.

Maansi. (2017, March 16). *Mom Junction*. Retrieved from http://www.momjunction.com: http://www.momjunction.com/articles/negative-side-effects-of-advertising-on-your-children_00385891/#gref

Mohsen Tavakol, R. D. (2011). Making sense of Cronbach's alpha. *International Journal of Medical Education*, 53-55.

Moses, L. (2014). *A Look at Kids' Exposure to Ads*. Retrieved from AdWeek: http://www.adweek.com/digital/look-kids-exposure-ads-156191/

Moses, L. (2014, March 2011). *ADWEEK*. Retrieved from http://www.adweek.com: http://www.adweek.com/digital/look-kids-exposure-ads-156191/

Muhua Zheng, M. Z. (2016, May 25). *Scientific Reports*. Retrieved from https://www.nature.com: https://www.nature.com/articles/s41598-017-02661-9

Neha Munjal. (2016). A STUDY ON ETHICAL ISSUES IN ADVERTISING AND ANALYZING DIFFERENT UNETHICAL ADVERTISEMENTS WITH RESULTS OF ASCI DECISIONS: AN INDIAN PERSPECTIVE. *ECOFORUM Volume 5, Issue 2 (9)*.

Philippe Rochat, T. B. (2012). Social awareness and early self-recognition. *Elsevier* , 1491-1497.

Sandra L. Calvert. (2008). Children as consumers: Advertising and marketing. *Center on Media and Child Health, VOL. 18 / NO. 1 / SPRING 2008*, 205-234.

School of Geography, University of Leeds. (n.d.). Retrieved from www.geog.leeds.ac.uk: http://www.geog.leeds.ac.uk/courses/other/statistics/spss/stepwise/

Singh, D. A. (n.d.). *Ethical issues in marketing research: Encroachment in the personal domain for the purpose of sales leads.* Retrieved from http://www.internationalseminar.org: http://www.internationalseminar.org/XIII_AIS/TS%201%20(A)/13.%20Dr.%20Ashutosh%20Kumar%20Singh.pdf

Singh, M. (2014). Ethical Issues and Principles Related To Advertising . *Abhinav National Monthly Refereed Journal of Research in Commerce & Management*, 100-108.

St. Francis Xavier University. (n.d.). Retrieved from http://people.stfx.ca: http://people.stfx.ca/smackenz/courses/hk396/handouts/Multiple%20Regression%20in%20SPSS.pdf

students, S. h. (2008). *Statistics help for students*. Retrieved from http://statistics-help-for-students.com: http://statistics-help-for-students.com/How_do_I_interpret_data_in_SPSS_for_Pearsons_r_and_scatterplots.htm#.WsymXIhubIU

Tayebeh Moradi, M. J. (2016). *Global Journal of Health Science*. Retrieved from http://www.ccsenet.org: https://doi.org/10.5539/gjhs.v8n3p174

University of North Carolina at Wilmington. (n.d.). Retrieved from http://people.uncw.edu: http://people.uncw.edu/pricej/teaching/statistics/anova.htm

Zaria Tatalovich, L. Z. (2015, October 24). International Journal of Health Geographics. Retrieved from https://ij-healthgeographics.biomedcentral.com: https://ij-healthgeographics.biomedcentral.com/articles/10.1186/s12942-015-0025-5
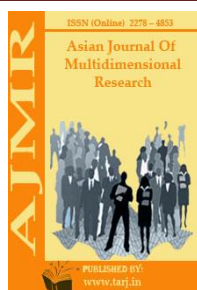
WORKING CAPITAL MANAGEMENT IN A MICRO ENTERPRISE - A CASE STUDY OF SRI SRINIVASA SPUN PIPES COMPANY

Dr. Venkateswararao. Podile*; Dr.K.Sudha Rani**; Dr. Ch. Hema Venkata Siva Sree***

*Professor,
Andhra Loyola Institute of Engineering and Technology,
Opp. Poly Technic Post office, Vijayawada,
Andhra Pradesh, INDIA
Email id:vraopodile@gmail.com

**Associate Professor,
Department of Commerce,
S.D.M.S. Mahila Kalasala, Vijayawada,
Andhra Pradesh, INDIA
Email id:sudharaniguduru@gmail.com

***Co-Investigator, DST Project,
Andhra Loyola Institute of Engineering and Technology,
Vijayawada, Andhra Pradesh, INDIA
Email id:dreamworld7982@gmail.com

ABSTRACT

Working Capital Management refers to management of current assets and current liabilities in an organization. This is an important decision area in financial management. Proper working capital management is required for maintaining the trade-off between liquidity and profitability in any Organization. In this paper, an attempt is made to examine working capital management in Sri Srinivasa Spun Pipes Company. Sri Srinivasa Spun Pipes Company is a Micro Enterprise belongs to Andhra Pradesh state of India. This enterprise is located in Renigunta of Chittoor district. Sri Srinivasa Spun Pipes Company is manufacturing RCC spun pipes and Pre - Stressed Cement Concrete (PSCC) Poles. RCC Spun Pipes and PSCC poles are mostly used for various civil construction purposes. In this paper, an attempt is made to analyze the structure and composition of the working capital during the period of study covering ten years from 2006-07 to 2015-16. Attempt is also made to assess the liquidity position of the organization, to examine gross working capital turnover, to study net working capital turnover and to examine the

efficiency in utilization of various current assets. Chi-square test is used to test the hypotheses formed.

KEYWORDS: *Current ratio, Debtors turnover, Gross working capital turnover, Inventory turnover, Net working capital turnover, Super Quick ratio*

INTRODUCTION

Working Capital Management refers to management of current assets and current liabilities in an organisation. This is an important decision area in financial management. Proper working capital management is required for maintaining the trade-off between liquidity and profitability in any Organization. In this paper, an attempt is made to examine working capital management in Sri Srinivasa Spun Pipes Company. Sri Srinivasa Spun Pipes Company is a Micro Enterprise belongs to Andhra Pradesh state of India. This enterprise is located in Renigunta of Chittoor district. Sri Srinivasa Spun Pipes Company is manufacturing RCC spun pipes and Pre - Stressed Cement Concrete (PSCC) Poles. RCC Spun Pipes and PSCC poles are mostly used for various civil construction purposes. These are generally used in roads, railway culverts and huge buildings. Sri Srinivasa Spun Pipes Company was started in the year 1994. The annual turnover of this Micro Enterprise is 5 Crores as per 2015-16 Accounts. The total Current Assets of the company are Rs.175.28 Lakhs and total current liabilities are Rs. 262.63 lakhs. Major customers of the Enterprise include Larsen and Toubro, Banglore, Sree Constructions, Hyderabad, Som Dutt Builders Ltd., New Delhi and Bhoorathnam Construction Company, Hyderabad.

REVIEW OF LITERATURE

Mishra (1975)[1] studied the efficiency of working capital management in six sample public sector units. The study identified that management of various components of working capital in sample units was highly unsatisfactory. Suk, Seung and Rowland (1992)[2] in their research conducted an in-depth survey to analyze the liquidity practices of ninety four sample Japanese companies operating in the United States. Sivarama (1999)[3] in his study on working capital management in the Indian paper industry, found a close association between profitability and working capital efficiency. Ghosh and Maji (2003)[4] made an empirical study on the relationship between utilization of current assets and operating profitability in the Indian cement and tea industries. Bardia (2004)[5] conducted a study on the issue pertaining to the relationship between working capital management and profitability of a Navaratna steel manufacturing public sector enterprise. Prof. B.P.Singh (2012)[6] investigated the relationship between the components of working capital and profitability. He observed that the telecom industry is operating below average so far as working capital is concerned. Pasupathi (2013)[7] conducted a comparative study of WCM performance in commercial vehicles, passenger cars and multi utility vehicles and two and three wheelers sectors of Indian automobile industry. Utkarsh Goel et al. (2015)[8] conducted a study to explore the impact of corporate governance practices on Working capital Management (WCM) in Indian firms. S. Selvanayaki et al. (2015)[9] focused on evaluating the WCM practices adopted by the rice milling firms and analyzed its impact on profitability. Venkateswararao.P, Surya Chandra Rao.D and Hema Venkata Siva Sree.Ch (2017)[10] examined working capital management in PL Plast Pvt Ltd. Venkateswararao.P, and Hema Venkata Siva Sree.Ch (2018)[11] examined working capital management in Sri Rama Chandra Paper Boards Ltd. Venkateswararao.P (2018)[12] examined working capital management in Tulasi seeds Pvt.Ltd. Venkateswararao.P, and Hema Venkata Siva Sree.Ch (2018)[13] studied working capital

management in Sri Nagavalli solvent oils Pvt. Ltd. Venkateswararao.P, and Hema Venkata Siva Sree.Ch (2018)[14] analysed working capital management in Naga Hanuman Solvent Oils Private Limited.   Venkateswararao.P (2018)[15] examined working capital management in Cuddapah Spinning Mills Ltd. Venkateswararao.P, and Hema Venkata Siva Sree.Ch (2018)[16] studied working capital management in Kristna Engineering Works. Venkateswararao.P, and Hema Venkata Siva Sree.Ch (2018)[17] examined working capital management in Radhika Vegetables Oils Pvt. Ltd. Venkateswararao.P, and Hema Venkata Siva Sree.Ch (2018)[18] examined working capital management in Power Plant Engineering Works in Andhra Pradesh. Venkateswararao.P, Hema Venkata Siva Sree.Ch and N.Janardhanarao (2018)[19] examined working capital management in Nagas Elastomer Works.   It was found that there was no study on working capital management in a Micro Enterprise which is a manufacturing RCC spun pipes and Pre - Stressed Cement Concrete Poles. Hence, this study is taken up.

OBJECTIVES

The general objective of the study is to examine the working capital management in Sri Srinivasa Spun Pipes Company. The specific objectives include the following.

1. To examine the structure and composition of working capital in Sri Srinivasa Spun Pipes Company during the period of study.
2. To analyze the liquidity position of Sri Srinivasa Spun Pipes Company during the period of study.
3. To find the gross working turn over and networking capital turnover in Sri Srinivasa Spun Pipes Company.
4. To examine the efficiency in cash, debtors and inventory management in the Micro Enterprise under study.
5. To offer suggestions for effective working capital management if required.

HYPOTHESES

H_{01}: Current ratio in Sri Srinivasa Spun Pipes Company is uniform during the period of study.

H_{02}: Quick ratio in Sri Srinivasa Spun Pipes Company is uniform during the period of study.

H_{03}: Super quick ratio in Sri Srinivasa Spun Pipes Company is uniform during the period of study.

H_{04}: Gross working capital turnover ratio in Sri Srinivasa Spun Pipes Company is uniform during the period of study.

H_{05}: Net working capital turnover ratio in Sri Srinivasa Spun Pipes Company is uniform during the period of study.

H_{06}: Cash turnover ratio in Sri Srinivasa Spun Pipes Company is uniform during the period of study.

H_{07}: Inventory turnover ratio in Sri Srinivasa Spun Pipes Company is uniform during the period of study.

H_{08}: Debtors turnover ratio in Sri Srinivasa Spun Pipes Company is uniform during the period of study.

H_{09}: Average collection period in Sri Srinivasa Spun Pipes Company is uniform during the period of study.

METHODOLOGY

The present study is mainly based on secondary data. The data is taken from the financial statements including balance sheet, trading account and profit and loss account of Sri Srinivasa Spun Pipes Company. The period of study is ten years covering the financial years from 2006-

07 to 2015-16.The data gathered is analyzed through the technique of percentages and certain appropriate ratios relating to working capital management. The ratios covered includes current ratio, quick ratio, super quick ratio, gross working capital turnover ratio, net working capital turnover ratio, cash turnover ratio, inventory turnover ratio, debtors turnover ratio and average collection period. Chi-square test is used for testing the hypotheses formed.

STRUCTURE AND COMPOSITION OF WORKING CAPITAL

Working capital structure of Sri Srinivasa Spun Pipes Company is presented in table-1. It is observed that Inventory was 88.90 percent of total current assets during 2014. It is the highest percentage during the period of study. It is observed that inventory as a percentage of total current assets varied in between 26.00 during 2007 and 88.90 during 2014. Debtors as a percentage of total current assets varied in between 2.33 during 2007 and 46.02 during 2016. It is also observed that cash and bank balance as a percentage of current assets varied between 0.90 during 2007 and 9.82 during 2010. Loans and advances were maintained only for two years. Loans and advances as a percentage of current assets varied between 5.85 during 2012 and 6.23 during 2013. Other current assets as a percentage of total current assets varied between 0.24 during 2014 and 70.78 during 2007. Sundry Creditors were maintained during the period of study except 2012. They varied between 4.64 during 2007 and 62.69 during 2015. Short-term borrowings occupied the highest percentage during the period of study. They varied between 37.31 during 2015, 2016 and 94.08 during 2007. Short-term provisions by the Business organisation were nil during the period of study. Other current liabilities were maintained only in the years 2007, 2008 and 2012. They varied between 1.28 during 2007 and 24.12 during 2012. It is observed that Net Working Capital in the company varied between Rs.15.36 Lakhs during 2009 to Rs.139.55 Lakhs during 2012. It was maintained at high levels during 2012 and 2013.

TABLE-1: WORKING CAPITAL STRUCTURE (FIGURES IN LAKHS)

Particulars	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Current Assets										
Cash & Bank balances	0.66	0.76	1.17	11.09	6.29	7.46	4.85	2.29	12.26	12.87
% of TCA	0.90	0.99	1.68	9.82	6.58	4.39	3.04	2.09	7.35	7.34
Debtors	1.71	16.69	14.95	23.35	40.17	74.3	69.69	9.61	76.78	80.67
% of TCA	2.33	21.75	21.49	20.69	42.01	43.74	43.68	8.78	46.01	46.02
Loans & Advances	0	0	0	0	0	9.94	9.94	0	0	0
% of TCA	0.00	0.00	0.00	0.00	0.00	5.85	6.23	0.00	0.00	0.00
Other Current Assets	52.02	36.14	34.64	22.31	22.31	27.24	19.28	0.26	1.01	1.06
% of TCA	70.78	47.09	49.79	19.76	23.33	16.04	12.08	0.24	0.61	0.60
Inventory	19.1	23.1	18.8	56.13	26.8	50.92	55.79	97.35	76.83	80.67

	1	6	1		6					
% of TCA	26.00	30.18	27.04	49.73	28.09	29.98	34.97	88.90	46.04	46.02
Total Current Assets (TCA)	**73.5**	**76.75**	**69.57**	**112.88**	**95.63**	**169.86**	**159.55**	**109.51**	**166.88**	**175.28**
Current Liabilities										
Sundry Creditors	2.61	8.2	8.26	26.08	9.11	0	24.99	25.52	47.04	49.39
% of TCL	4.64	16.22	15.24	50.50	28.37	0.00	52.07	47.68	62.69	62.68
Other current liabilities	0.72	0.75	0	0	0	7.31	0	0	0	0
% of TCL	1.28	1.48	0.00	0.00	0.00	24.12	0.00	0.00	0.00	0.00
Short term borrowings	52.9	41.6	45.95	25.56	23	23	23	28	28	29.4
% of TCL	94.08	82.29	84.76	49.50	71.63	75.88	47.93	52.32	37.31	37.31
Short term provisions	0	0	0	0	0	0	0	0	0	0
% of TCL	0.00	0.0	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.00
Total Current Liabilities (TCL)	**56.23**	**50.55**	**54.21**	**51.64**	**32.11**	**30.31**	**47.99**	**53.52**	**75.04**	**78.8**
NWC	**17.27**	**26.2**	**15.36**	**61.24**	**63.52**	**139.55**	**111.56**	**55.99**	**91.84**	**96.48**

Source: Annual Reports of Sri Srinivasa Spun Pipes Company, from 2006-07 to 2015-2016

Current Ratio

The current ratio in the company was maintained at normal level in the company. It has varied between 1.28 during 2009 and 5.60 during 2012 was shown in the table. The current ratio of the company is maintained at normal levels. It is found in the significance test that current ratio is uniform during the period of study.

TABLE-2: CURRENT RATIO (FIGURES IN LAKHS)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Current Assets	73.5	76.75	69.57	112.88	95.63	169.86	159.55	109.51	166.88	175.28
Current Liabilities	56.23	50.55	54.21	51.64	32.11	30.31	47.99	53.52	75.04	78.8
Current ratio	**1.31**	**1.52**	**1.28**	**2.19**	**2.98**	**5.60**	**3.32**	**2.05**	**2.22**	**2.22**

Source: Annual Reports of Sri Srinivasa Spun Pipes Company, from 2006-07 to 2015-2016

Calculated value of χ2 for current ratio = 6.004. The Critical value of χ2 at 9 degrees of freedom at 5% level of Significance is 16.919. Calculated value is less than Critical Value i.e., 6.004<16.919. Hence H_{01} is accepted.

Quick Ratio

The quick ratio of the company as shown in the table has varied between 0.23 during 2014 to 3.92 during 2012. It is found in the significance test that quick ratio is uniform during the period of study.

TABLE-3: QUICK RATIO (FIGURES IN LAKHS)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Liquid Assets	54.39	53.59	50.76	56.75	68.77	118.94	103.76	12.16	90.05	94.61
Current Liabilities	56.23	50.55	54.21	51.64	32.11	30.31	47.99	53.52	**75.04**	78.8
Quick ratio	0.97	1.06	0.94	1.10	2.14	3.92	2.16	0.23	1.20	1.20

Source: Annual Reports of Sri Srinivasa Spun Pipes Company, from 2006-07 to 2015-2016

Calculated value of χ2forQuick ratio =6.328. The Critical value of χ2 at 9 degrees of freedom at 5% level of Significance is 16.919. Calculated value is less than Critical Value i.e., 6.328<16.919. Hence, H_{02} is accepted.

Super Quick Ratio

The super quick ratio of the company as shown in the table has varied between 0.01 during 2007 and 0.25 during 2012. It is found in the significance test that super quick ratio is not uniform during the period of study.

TABLE-4: SUPER QUICK RATIO (FIGURES IN LAKHS)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Cash	0.66	0.76	1.17	11.09	6.29	7.46	4.85	2.29	12.26	12.87
Current Liabilities	56.23	50.55	54.21	51.64	32.11	30.31	47.99	53.52	**75.04**	78.8
Super Quick ratio	0.01	0.02	0.02	0.21	0.20	0.25	0.10	0.04	0.16	0.16

Source: Annual Reports of Sri Srinivasa Spun Pipes Company, from 2006-07 to 2015-2016

Calculated value of χ2 for Super Quick ratio =0.627. The Critical value of χ2 at 9 degrees of freedom at 5% level of Significance is 16.919. Calculated value is less than Critical Value i.e., 0.627<16.919, Hence, H_{03} is accepted.

Gross Working Capital Turnover Ratio

The gross working capital turnover ratio of the company as shown in the table has varied between 0.69 during 2015, 2016 and 2.07 during 2009. It is found in the significance test that net working capital turnover ratio is uniform during the period of study.

TABLE-5: GROSS WORKING CAPITAL TURNOVER RATIO (FIGURES IN LAKHS)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sales	106.70	121.70	143.95	148.02	179.88	220.93	240.31	150.48	114.95	120.70
Gross working capital	73.5	76.75	69.57	112.88	95.63	169.86	159.55	109.51	166.88	175.28
Ratio	1.45	1.59	2.07	1.31	1.88	1.30	1.51	1.37	0.69	0.69

Source: Annual Reports of Sri Srinivasa Spun Pipes Company, from 2006-07 to 2015-2016

Calculated value of $\chi 2$ for Gross Working Capital turnover ratio =1.266. The Critical value of $\chi 2$ at 9 degrees of freedom at 5% level of Significance is 16.919 Calculated value is less than Critical Value i.e., 1.266<16.919, Hence, H_{04} is accepted.

Net Working Capital Turnover Ratio

The net working capital turnover ratio of the company as shown in the table has varied between 1.25 during 2015, 2016 and 9.37 during 2009. It is found in the significance test that net working capital turnover ratio is not uniform during the period of study.

TABLE-6: NET WORKING CAPITAL TURNOVER RATIO (FIGURES IN LAKHS)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sales	106.70	121.70	143.95	148.02	179.88	220.93	240.31	150.48	114.95	120.70
Net Working Capital	17.27	26.2	15.36	61.24	63.52	139.55	111.56	55.99	91.84	96.48
Ratio	6.18	4.6	9.37	2.42	2.83	1.58	2.15	2.69	1.25	1.25

Source: Annual Reports of Sri Srinivasa Spun Pipes Company, from 2006-07 to 2015-2016

Calculated value of $\chi 2$ for Net Working capital turnover ratio =17.689. The Critical value of $\chi 2$ at 9 degrees of freedom at 5% level of Significance is 16.919. Calculated value is greater than Critical Value i.e., 17.689>16.919, Hence, H_{05} is rejected.

Cash Turnover Ratio

The cash turnover ratio of the company as shown in the table has varied between 16.59 during 2016 and 368.79 during 2008. It is found in the significance test that cash turnover ratio is not uniform during the period of study.

TABLE-7: CASH TURNOVER RATIO (FIGURES IN LAKHS)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sales	106.70	121.70	143.95	148.02	179.88	220.93	240.31	150.48	114.95	120.70
Average Cash Balance	0.66	0.33	0.71	0.965	6.13	8.69	6.875	6.155	3.57	7.275
Cash Turnover Ratio	161.67	368.79	202.75	153.39	29.34	25.42	34.95	24.45	32.20	16.59

Source: Annual Reports of Sri Srinivasa Spun Pipes Company, from 2006-07 to 2015-2016

Calculated value of χ2 for Cash turnover ratio =1155.373. The Critical value of χ2 at 9 degrees of freedom at 5% level of Significance is 16.919. Calculated value is greater than Critical Value i.e. 1155.373>16.919, Hence, H_{06} is rejected.

Inventory Turnover Ratio

The inventory turnover ratio of the company as shown in the table has varied between 1.46 during 2015 to 5.80 during 2008. It is found in the significance test that Inventory turnover ratio is uniform during the period of study.

TABLE-8: INVENTORY TURNOVER RATIO (FIGURES IN LAKHS)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sales	106.70	121.70	143.95	148.02	179.88	220.93	240.31	150.48	114.95	120.70
Average Inventory	19.11	20.985	37.47	41.495	38.89	53.355	76.57	87.09	78.75	21.135
Ratio	5.58	5.80	3.84	3.57	4.63	4.14	3.14	1.73	1.46	5.71

Source: Annual Reports of Sri Srinivasa Spun Pipes Company, from 2006-07 to 2015-2016.

Calculated value of χ2 for Inventory turnover ratio =5.458. The Critical value of χ2 at 9 degrees of freedom at 5% level of Significance is 16.919. Calculated value is less than Critical Value i.e. 5.458<16.919, Hence, H_{07} is accepted.

Debtors Turnover Ratio

The debtor's turnover ratio of the company as shown in the table has varied between 1.53 during 2016 to 62.40 during 2007. It is found in the significance test that Debtors turnover ratio is not uniform during the period of study.

TABLE-9: DEBTORS TURNOVER RATIO (FIGURES IN LAKHS)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Sales	106.70	121.70	143.95	148.02	179.88	220.93	240.31	150.48	114.95	120.70
Average debtors	1.71	9.2	15.82	19.15	31.76	57.24	71.99	39.65	43.20	78.73
Ratio	62.40	13.23	9.10	7.73	5.66	3.86	3.34	3.80	2.66	1.53

Source: Annual Reports of Sri Srinivasa Spun Pipes Company, from 2006-07 to 2015-2016

Calculated value of χ2 for Debtors turnover ratio =265.589. The Critical value of χ2 at 9 degrees of freedom at 5% level of Significance is 16.919. Calculated value is greater than Critical Value i.e., 265.589>16.919, Hence, H_{08} is rejected.

Average Collection Period

The average collection period as shown in the table has varied between 6 days during 2007 to 239 days during 2016. It is found in the significance test that Average collection period is not uniform during the period of study.

TABLE-10: AVERAGE COLLECTION PERIOD (FIGURES IN LAKHS)

Years	2007	2008	2009	2010	2011	2012	2013	2014	2015	2016
Days in a year	365	365	365	365	365	365	365	365	365	365
Debtors Turnover	62.40	13.23	9.10	7.73	5.66	3.86	3.34	3.80	2.66	1.53

Ratio										
Average Collection Period	6	28	40	47	64	95	109	96	137	239

Source: Annual Reports of Sri Srinivasa Spun Pipes Company, from 2006-07 to 2015-2016.

Calculated value of $\chi2$ for Average collection period =471.6016. The Critical value of $\chi2$ at 9 degrees of freedom at 5% level of Significance is 16.919 Calculated value is greater than Critical Value i.e. 471.6016>16.919, Hence, H_{09} is rejected.

CONCLUSION

The analysis depicts that all the current assets as a percentage of total current assets in Sri Srinivasa Spun Pipes Company were consistent to some extent during the period of study. The Business organisation has good credit worthiness during the study period.rowings. Short term provisions were nil during the period of study. Current ratio of the company is high which indicates that the company is more likely to meet its current liabilities. Debtors' turnover ratio was comparatively less in last five years of the study which reflects in high Average collection period. Net working capital turnover ratio, Debtor turnover ratio, Cash turnover ratio and Average collection periods are not uniform during the period of study and showed wide fluctuations. Collection of debts and cash utilization was poorly done in the company during the period of study. Current ratio, Quick ratio, super quick ratio, Gross working turnover ratio, Inventory turnover ratio are uniform during the period of study.

REFERENCES

1. Mishra, R.K., *"Problems of Working Capital – with Reference to Selected Public undertakings in India"*, Somaiya Publication, Bombay, 1975.
2. Suk, H., Seung, H. and Rew land, "Working Capital Practices of Japanese Firms in the US", *Financial Practice and Education,* Spring – Summer, Vol.2, No.1, 1992,pp. 89-92.
3. Sivarama PR, "Working Capital Management in Indian Paper Industry", *Unpublished Thesis,* Nagarjuna University, Nagarjuna Nagar, Guntur, 1999.
4. Ghosh SK and Maji SG, "Utlization of Current Assets and Operating Profitability: An Empirical Study on Cement and Tea Industries in India", *Indian Journal of Accounting*, IAA, 2003, pp.81-91.
5. Bardia SC, "Liquidity Management: A Case Study of Steel Authority of Indian Ltd.", *The Management Accountant*, ICWAI, June, 2004, pp.463 – 467.
6. Prof. B.P. Singh, "Working Capital Management and Profitability in the IT and Telecom Industry in India", *Indian Journal of Finance*, Vol.6.No.3, 2004, pp 54-61.
7. Pasupathi "Working Capital Management of Indian Automobile Industry", *Finance India*, Vol-XXVI, No.1, 2004, pp. 163-170.
8. Utkarsh Goel et al., "Impact of Corporate Governance Practices on Working Capital Management Efficiency: A structural Equation Modelling Approach", *Indian Journal of Finance*, Vol: 9, No-1, 2015, pp. 38-48.
9. S. Selvanayaki et al., "Working Capital Management in modern rice milling firms at kangayam Tamilnadu", *Indian Journal of Finance*, vol:9, No:2, 2015, pp. 17-24.
10. Venkateswararao.P, Surya Chandrarao.D and HemaVenkata Siva Sree.Ch, "Working capital Management in P.L.Plast Pvt Ltd", *IOSR Journal of Business Management*, Vol.19,Issue No.4,2017, pp.61-65.

11. Venkateswararao.P, and HemaVenkata Siva Sree.Ch, "Working capital Management in Sri Rama Chandra Paper Boards Ltd", *International Journal of Research in Management, Economics and Commerce*,Vol.8, Issue.2,2018, pp.54-59.

12. Venkateswararao.P, "Working capital Management in Tulasi seeds Pvt.Ltd- A case study in Andhra Pradesh", *International Journal of Research in Management, Economics and Commerce*,Vol.8, Issue.2,2018, pp.262-266.

13. Venkateswararao.P, and Hema Venkata Siva Sree.Ch, "Working capital Management in Sri Nagavalli solvent oils Pvt. Ltd", *IOSR Journal of Business Management*, Vol.20, Issue.2,2018, pp.79-84.

14. Venkateswararao.P, and Hema Venkata Siva Sree.Ch, "Working capital Management in Naga Hanuman Solvent Oils Private Limited- A case study of Andhra Pradesh", *International Journal of Research in Management, Economics and Commerce*,Vol.8, Issue.3,2018, pp.114-119.

15. Venkateswararao.P, "Working capital Management in Cuddapah Spinning Mills Ltd- A case study in Andhra Pradesh", *International Journal of Research in Engineering, IT and Social Sciences*,Vol.8, Issue.3,2018, pp.1-5.

16. Venkateswararao.P, and Hema Venkata Siva Sree.Ch, "Working capital Management in Kristna Engineering Works - A case study in Andhra Pradesh", *International Journal of Research in Engineering, IT and Social Sciences*,Vol.8, Issue.3,2018, pp.61-66.

17. Venkateswararao.P, and Hema Venkata Siva Sree.Ch, "Working capital Management in small enterprise- A case study in Radhika Vegetables Oils Pvt. Ltd", *IOSR Journal of Business Management*, Vol.20, Issue.3,2018, pp.69-74.

18. Venkateswararao.P, and Hema Venkata Siva Sree.Ch, "Working capital Management in Power Plant Engineering Works- A case study of Andhra Pradesh", *International Journal of Exclusive Management Research*, Vol.8, Issue.4,2018, pp.1-7.

19. Venkateswararao.P, Hema Venkata Siva Sree.Ch, and N.Janardhanarao "Working capital Management in a Micro Enterprise- A case study of Nagas Elastomer Works", *International Journal of Scientific Research and Review*, Vol.7, Issue.7,2018, pp.275-282.

RATIO ANALYSIS OF THE SELECTED STOCK BROKING COMPANIES

Dr.S.Kalaiselvi*; Dr.C.Sangeetha**

*Assistant Professor,
Dept of Commerce,
Vellalar College for Women (Autonomous),
Tamil Nadu, INDIA.
Email id:cutekalai_2003@yahoo.co.in

**Head& Associate Professor,
Of Commerce with CA,
Vellalar College for Women (Autonomous),
Tamil Nadu, INDIA.
Email id: sanchand@rediffmail.com

ABSTRACT

Brokerage firms are the business entities that deal with stock trading. India, with an increasing capital market and a growing number of investors, has a number of brokerage firms. The study is an attempt to cover the financial performance of select stock broking firms in India for a period of ten years from 2005-2006 to 2014-2015. The study covers secondary data of 5 stock broking companies and activity and solvency ratios applied for analysis. The findings of solvency ratio analysis explores that all the companies have a significant difference within the study period. The activity ratio analysis explores that except few companies all the companies not have a significant difference within the study period. A stock brokerage is an investment services company that is primarily involved in the business of buying and selling stocks and other financial securities on behalf of its clients in return for a fees or commission. The industry operates under close government regulations that aim to protect the investing public. The SEBI has been set-up to ensure that the stock exchanges discharge their self-regulatory role properly. To prevent malpractices in trading and to protect the investors, the SEBI has assumed the monitoring function, requiring brokers to be registered and stock exchanges to report on their activities. The stock brokerage industry emphasizes client value because clients generally have a long-term relationship with the brokerage.

KEYWORDS: *Monitoring Function, Self-Regulatory, Liquidity, Solvency,*

INTRODUCTION

In Indian retail brokerage industry, the brokerage firms primarily work as agents for buying and selling of securities like shares, stocks and other financial instruments and earn commission for each of the transactions. A comprehensive financial analysis employs (various finance tools) ratios to measure a company's past and current operations and compares the results to its industry. A finance deal with the analysation of the data contained in financial statement in order to provide valuable information for management decisions.

OBJECTIVE OF THE STUDY

❖ To analyze the financial performance of the select stock broking firm in India.

METHODOLOGY OF THE STUDY

Exploratory research design was adopted for present study to analyze and interpret the available information. The study covers ten financial years from 2005-2006 to 2014-2015. Ratio analysis has been classified into four heads viz., liquidity, solvency, activity and profitability. Further, the performance of solvency and activity ratios of the select stock broking companies is found through mean, standard deviation, co-efficient of variation and 't' test analysis. With a view to find the significant difference between the years among the various solvency and activity ratios of selected stock broking companies, a hypothesis has been framed and tested by using 't' test analysis. The firm level audited financial data is collected by using CMIE prowess database. Based on continuous availability of data over the 10 year period between 2004 and 2015 five companies form the sample set for the study. The companies selected were DB (International) Stock Brokers, Jhaveri Credits and Capital, KBS India, NAM Securities Ltd and Stampede Capital.

FINDINGS OF THE STUDY

The financial performance is a challenging task for financial and non financial service sectors, as they face complexities and lack efficiency in taking financial decisions in these sectors. Therefore many companies are encouraged to ensure sound knowledge over financial performance decisions. The major results of this research provide an overview of financial performance status. The solvency and activity analysis are shown in the table 1 and 2 .

Solvency Analysis

- The companies Jhaveri Credits and Capital are not having any significant difference within the debt equity ratio during the study period. On the other hand, the rest of the companies are statistically significant within the debt equity ratio during the study period and the companies like DB (International) Stock Brokers and Nam Securities are of nil value in debt-equity ratio during the study period.
- The findings display a significant difference in terms of fixed assets to net worth and fixed assets to long term funds within the study period of all the select stock broking companies.

Activity Analysis

- The results of the debtor's turnover ratio show that all the companies display a significant difference within the study period except Nam Securities and Stampede Capital.
- All the select companies' working capital turnover ratio exhibits that there is no significant difference during the study period except KBS India and Nam Securities.

- The Total Assets Turnover Ratio showed that all the companies have a significant difference except for Stampede Capital from 2005-06 to 2014-15.
- All the companies displayed a significant difference during the study period in Return on Total Assets except KBS India and Stampede Capital.

CONCLUSION

The demonetization and global volatilities will partly impact the broking volumes by the end of the year 2017.The equity market volumes growth rate for the year 2017 is of 12-15%. The Indian Capital market is undergoing a wonderful phase when the growth rate is on the higher side. In debt equity ratio, the companies Jhaveri Credits and Capital are not having any significant difference within the study period. Fixed assets to net worth ratio, Fixed assets to long term funds ratio and Total Assets Turnover Ratio are showed that all the companies are having significant difference within the study period. In the ratio debtor's turnover ratio, the researcher found all the companies are having significant difference within the study period except Nam Securities and Stampede Capital. In the case of working capital turnover ratio, all the companies are not having significant difference during the study period except KBS India and Nam Securities. Return on total assets indicated that all the companies are having significant difference during the study period except KBS India and Stampede Capital.

TABLE: 1

Solvency Analysis	DB (International) Stock Brokers					Jhaveri Credits and Capital					KBS India				
	M	SD	CV	T test	P value	M	SD	CV	T test	P value	M	SD	CV	T test	P value
Debt equity ratio	0.00	0.00	-	-	-	0.07	0.11	171.30	1.846	0.098 NS	0.23	0.22	96.48	3.278	0.010*
Fixed assets to net worth	0.06	0.03	53.72	5.886	0.000*	0.03	0.01	47.17	6.704	0.000*	0.21	0.15	72.62	4.354	0.002*
Fixed assets to long term funds	0.06	0.03	53.72	5.886	0.000*	0.03	0.01	49.04	6.448	0.000*	0.21	0.15	71.59	4.417	0.002*
Activity Analysis															
Debtor's turnover ratio	35.72	27.81	77.85	4.062	0.003*	1.83	1.68	91.71	2.885	0.028**	0.09	0.09	102.12	3.097	0.013**
Working capital turnover ratio	5.63	12.25	217.54	1.454	0.180 NS	0.89	1.34	151.30	2.090	0.066 NS	0.10	0.09	89.31	3.541	0.006*

| Total Assets Turnover Ratio | 0.49 | 0.25 | 51.81 | 6.103 | 0.000* | 0.26 | 0.15 | 57.32 | 5.517 | 0.000* | 0.03 | 0.01 | 45.48 | 6.953 | 0.0000* |
| Return on Total Assets | 17.38 | 15.94 | 91.72 | 3.448 | 0.007* | 3.22 | 1.97 | 61.26 | 5.162 | 0.001* | 2.21 | 4.96 | 224.32 | 1.410 | 0.192^{NS} |

TABLE: 2

Solvency Analysis	Nam Securities					Stampede Capital				
	M	SD	CV	T test	P value	M	SD	CV	T test	P value
Debt equity ratio	0.00	0.00	-	-	-	0.11	0.11	106.38	2.820	0.022**
Fixed assets to net worth	0.06	0.06	93.04	3.399	0.008*	0.17	0.12	74.17	4.045	0.004*
Fixed assets to long term funds	0.06	0.06	93.04	3.399	0.008*	0.17	0.12	74.17	4.045	0.004*
Activity Analysis Debtor's turnover ratio	2.72	3.92	144.49	2.189	0.056^{NS}	0.69	0.57	82.58	2.422	0.094^{NS}
Working capital turnover ratio	0.13	0.12	93.33	3.388	0.568^{NS}	-13.74	46.15	-335.87	-0.942	0.371^{NS}
Total Assets Turnover Ratio	0.06	0.06	91.31	3.463	0.007*	0.61	1.19	196.62	1.608	0.142^{NS}
Return on Total Assets	0.72	0.70	98.39	3.214	0.011**	-3.71	13.84	-372.73	-0.848	0.418^{NS}

REFERENCES

➢ V.A.Avadhani, A manual on Stock Broking, Himalaya Publishing House, NewDelhi, First Edition,1996.

➢ V.A. Avadhani , Indian capital market , Himalya Publishing House, Mumbai, 1997.

➢ Dun and Bradstreet, "Primary insights", India's Leading Equity Broking Houses, D&B India, 2012.

➢ S.P. Gupta, Statistical Methods, Sultan Chand & sons, New Delhi, Forty third Revised Edition, 2014.

➢ Joginder Singh, Working of security market in India, Reliance Publishing House, New Delhi, 1994.

➢ C.R.Kothari, Research Methodology - Methods and Techniques, New Age International (P) Limited Publishers, New Delhi, 2011.

➢ Dr. S.M. Uvaneswaran, "Operating Efficiency of Public Sector Commercial Banks in India during the First and Second Generation Reforms", Indian Journal of Finance, Vol .5, Issue. 10, pp.28-42, Oct 2011.

➢ Dr.Prasanta Paul, "Financial Performance Evaluation –A Comparative study of some selected NBFCs" , Indian Journal of Finance,Vol .5,Issue.5,p. 13,May 2011.

➢ F. Mokhatab Rafiei et.al,"Financial Health Prediction models using Artificial Neural Networks, Genetic Algorithm and Multivariate Discriminant Analysis: Iranian Evidence" , Expert Systems with Applications, ,Vol .38, Issue. 8, pp. 10210–10217, Aug 2011.

➢ Md. Safiuddin and Md. Mohedul Islam Md. Anisuzzaman," Impact of Financial Structure on Firm's Performance: A Study on Financial and Nonfinancial Sector in Bangladesh ", European Journal of Business and Management , Vol.7, No.3,pp 22-25, 2015.

➢ Nidhi Jain and NehaBothra, "Financial Performance of the Luxury Market Pre and Post the Financial Crisis of 2007-2008", Indian Journal of Finance,Vol .10, Issue.1 ,p. 28, Jan 2016.

➢ Anuradha Rajendran (2009), "Performance Analysis of Private Sector Sugar Companies in Tamilnadu" Bharathiar University, Tamilnadu.

➢ Kimutai, and Irene Jepchirchir (2003), "The Expectation Gap in the Statutory Audits of Quoted Companies in Kenya", Department of Accounting and Finance, Kenyatta university Institutional Repository.

➢ Palaniappan, G (2009),"Financial performance evaluation of large scale iron and steel industry in India with special reference to select companies", Bharathiar University, Tamilnadu.
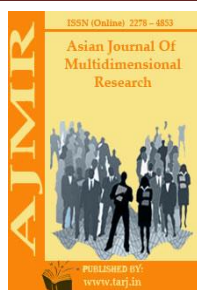
EVALUATION OF WOUND BIOFILM FORMING BACTERIAL PATHOGENS BY CRYSTAL VIOLET BINDING ASSAY

Pramila M*; Meenakshisundaram M**; Prabhusaran N***; Lalithambigai J****; Karthik P*****

*Ph.D Research Scholar,
Department of Biotechnology,
Nehru Memorial College, Tiruchirapalli, INDIA.
Email id: prami.rethinam@gmail.com

**Assistant Professor,
Department of Biotechnology,
Nehru Memorial College, Tiruchirapalli, INDIA.
Email id: prachanna_76@yahoo.co.in

***Associate Professor,
Department of Microbiology,
Trichy SRM Medical College Hospital and Research Centre,
Tiruchirapalli, INDIA.
Email id: leptoprabhu@gmail.com

****Assistant Professor,
Department of Microbiology,
Trichy SRM Medical College Hospital and Research Centre,
Tiruchirapalli, INDIA.
Email id: j.lalithambigai4@gmail.com
*****Professor
Department of Surgery,
Trichy SRM Medical College Hospital and Research Centre,
Tiruchirapalli, INDIA
Email id: karthik.p@gmail.com

ABSTRACT

Background: *In an abnormal environmental conditions or factors, the bacterial pathogens are force to colonize each other, either on abiotic surface/ animal and plant tissues, thus forms a highly resistable structure called biofilm that are largely involving in multiple health issues while using colonized medical equipements. There is a challenge in bacterial pathogenesis to*

determine the degree of biofilm using an simple and effective way. **Aim:** *In order to explore such method and re-confirm the methodology, this study is designed to evaluate the wound biofilm producing bacteria by crystal violet binding assay.* **Methodology:** *The level of biofilm production was calculated by the stain absorbance on the surface of the test tubes.* **Results:** *As a result, among the isolates, the maximum of biofilm producer is Staphylococcus aureus followed by Pseudomonas aeruginosa.* **Conclusion:** *The biofilm formation of the pathogenic bacterial species isolated from wounds showed the importance of understanding the adhesive nature of all the isolates. Further we planned to determine the usefulness of other stains in biofilm determination.*

KEYWORDS: *Bacterial Pathogens, Biofilm, Crystal Violet Binding Assay, Wound, Antibiotic Resistance*

INTRODUCTION

Microbes are ubiquitous in nature and are existing in this world, depends upon their nature, characteristic features and environmental factors. Depends upon their nature, microbes prefers to grow as a planktonic or surface attached bacteria (biofilm producers). In an unfavourable condition, bacteria produce some chemicals/ compounds to protect themselves including biotoxins, catabolic enzymes etc (Costerton *et al.,* 2004 and Metcalf *et al.,* 2013). Comparing the bacterial population of planktonic bacteria, the rate of adhesion on the surface/ materials is low while determining the action of surface attached bacteria (98%) mainly due to its favorable nutritional and autoprotective mechanisms (Cowan *et al.,* 2011 and Omar *et al.,* 2017).

In the hospital environment, management of postoperative wound infections are very seriously observing healthcare delivery mainly due to the emergence of superbugs and high rate of biofilm producing microbial pathogens. Both planktonic and biofilmer are involved in delaying the treating of wound infections, delaying of wound healing and substantial increase in stay of hospital. Possibly these intrinsic factors may directly disturbing the treatment procedures and enhancing the wound extension leads to chronic wound state (Pervical *et al.,* 2015). Newly forming biofilms are highly susceptible than the developed biofilms, due to its lesser development matrix and expression of active phenotype. At the early stage of biofilm formation, a common antibiotics and sometimes the host immune response may have the chance to inhibit the biofilm formation (Wolcott *et al.,* 2010 and Attinger *et al.,* 2012). The understanding of biofilm formation is a complex due to its high viability and invariant virulence expression in living host and are largely different than the laboratory strains (Harmsen *et al.,* 2010).

The chronic state of health issues are observed while the pathogens that are forming biofilm where the state is not easily visualized and determined by routine laboratory investigations. Even microscopy also not much helpful in most of the cases to characterize the biofilm and it's stages. The regulations also highlighted to detect and characterize the biofilm in postoperative wound management (Siah *et al.,* 2012). Bacteria in the entrenched and depositable population are highly resistant to various antibiotics. Initially the bacterial pathogens interact and communicate each other for chemical signaling (quorum sensing) and share their physiological substances including adhesion factors and enzymes, thereby the characters shared among themselves leads to aggregation followed by microcolonies and finally layer or mat formation by biofilm deposits

(Mah *et al.,* 2001; Otoole *et al.,* 2000; Valet *et al.,* 2004; Donlan *et al.,* 2001 and Zabielska *et al.,* 2016).

These biofilms are highly associated with several medical devices including indwelling cannulas and catheters, dental plaques, umbilical clip, pharyngoscope, endoscopes, hemodialyzers, contact lens, bone fixation clench, heart valves, coronary stent etc, that creating high medical errors and clinical issues. The eradication of such biofilms are highly complicated for both gram positive and gram negative bacteria (Stewart *et al.,* 2001; Reid, 1999 and Hassan *et al.,* 2011). Naturally biofilms are very soft and transparent at their early stage of formation, later become most complex biological composition with micro or macro in size. The visualization and quantification of biofilm producing bacterial population is still complicated process.

The influence of genetic modules of antibiotic resistance nature of the microbes and the over all cellular package are highly responsible for forming microbial biofilm. The extracellular polysaccharide substances (EPS) consisting of polysaccahrides, extracellular DNA and proteins are considered as the highly influenced state for the aggregation of bacterial population leads to the provision of house for biofilm matrix (Sutherland, 2001; Branda *et al.,* 2005 and Wei *et al.,* 2013). This mechanism is continuous and steady in hospital environment and also considered as life threatening issue in the management of wound care. Further, nature and factor responsible in the hospital environment for microbial biofilm formation, understanding the possible mechanism, laboratory identification and quantification should be analyzed. Various methods are available to detect the formation of biofilm including tissue culturing, tube analysis, congo red agar diffusion and bioluminescent assay are highly useful but the usage, utilization and standardization in the laboratory are individualistic, and having their own limitations (Zufferey *et al.,* 1988; Mathur *et al.,* 2006 and Klancnik *et al.,* 2015).

The other methods for qualifying and quantifying the biofilm formation are mainly by using imaging and cell counting methods. The staining and fluorescent markers also provide an accurate measures (Romanova *et al.,* 2007 and Curtis et al., 2016). Traditionally, the usage of crystal violet in bacterial staining by Gram's method gave some basic information that the trianiline dye stains both gram positive and gram negative bacterial cells (Toole *et al.,* 2000 and Nithyanand et al., 2017), the major reason to use crystal stain to determine the bacterial biofilm formation. The aim of this study is to analyze the ability of the bacterial pathogens isolated from wounds to from biofilm by crystal violet binding assay.

MATERIALS AND METHODS

SCREENING OF BIOFILM PRODUCING BACTERIAL ISOLATES

The isolation and characterization of wound/ pus bacterial pathogens were characterized by standard direct (microscopy and colony determination) and indirect (biochemical tests) methods. The species level confirmed bacterial isolates were further impregnated for the determination of antibiotic sensitivity test by standard Kirby Bauer method.

DETERMINATION OF BIOFILM PRODUCTION

A qualitative crystal violted bindin assay was done for determining biofilm formation of the antibiotic resistant bacterial isolates. Ten (10) ml of nutrient broth was inoculated with loopful of test bacterial isolates and ATCC control of same test bacterial species from overnight culture plates and incubated for 72 hours at 37°C. After appropriate incubation, the tubes were decanted and washed with sterile distilled water. Then the tubes were allowed to dry and further adhesed

firmly by keeping the tubes at 50ºC for one hour. The dried tubes were stained with 0.1% crystal violet solution. The excess stains were removed and washed with distilled water. All the tubes were dried in inverted position and observed the formation of biofilm. The formation of biofilm was considered positive when a visible film lined the wall. Tubes were examined and the amount of biofilm formation was recorded.

RESULTS AND DISCUSSION

Pathogenic bacteria have the tendency to adhere with the available surfaces and form biofilm, while wet and damp surfaces of indwelling medical devices and medical equipement tubes (Otter *et al,* 2014) and creates serious threats to patients, sometimes leads to untreatable severe infectious mortality by means of multiorgan dysfunction to multiorgan failure (Zabielska *et al,* 2016).

BIOFILM DEVELOPMENT BY GRAM POSITIVE WOUND PATHOGENS

To confirm the gram positive cocci group of bacterial pathogens from the wound samples for biofilm formation showed observable results thereby three clinical isolates of S. aureus were supported the same. One of each isolates showed thin, moderate and thick biofilm respectively. The ATCC (25923) culture of S. aureus considered as moderate biofilmer. The other gram positive bacterial isolates like Micrococcus and Enterococcus showed moderate biofil formation (Table 1, Figure 1 and 2), control (ATCC) strains also supported the same.

TABLE 1: GRAM POSITIVE BACTERIAL STRAINS AND BIOFILMING NATURE

Isolate/ Strain	Reference	Description	Biofilm character
Staphylococcus aureus -1	Clinical isolate	Wound - gangrene	Moderate
Staphylococcus aureus -2	Clinical isolate	Wound – Diabetic foot ulcer	Thin/ weak
Staphylococcus aureus -3	Clinical isolate	Wound – Diabetic foot ulcer	Thick/ Strong
Staphylococcus aureus -4	ATCC 25923	For antibiotic susceptibility	Moderate
Micrococcus sp. -1	Clinical isolate	Wound – Diabetic foot ulcer	Moderate
Micrococcus sp. -2	ATCC 700405	Quality control strain	Thin/ weak
Enterococcus sp. -1	Clinical isolate	Wound – Diabetic foot ulcer	Moderate
Enterococcus sp. -2	ATCC 29212	Quality control strain	Moderate

BIOFILM DEVELOPMENT BY GRAM POSITIVE WOUND PATHOGENS

The biofilm nature of gram negative bacterial isolates were also highlighted in this study thereby, one clinical isolate of P. aeruginosa and ATCC culture of E. coli showed thick biofilm-crystal violet band; clinical isolates of E. coli and K. pneumoniae, and ATCC of K. pneumoniae showed moderate band and others depicted with thin film formation (Table 2, Figure 1 and 2).

TABLE 2: GRAM NEGATIVE BACTERIAL STRAINS AND BIOFILMING NATURE

Isolate/ Strain	Reference	Description	Biofilm character
Escherichia coli -1	Clinical isolate	Wound – Diabetic foot ulcer	Moderate
Escherichia coli -2	ATCC 25922	CLSI control strain	Thin/ Weak
Klebsiella pneumoniae -1	Clinical isolate	Post operative amputation	Thick/ Strong
Klebsiella pneumoniae -2	ATCC BAA 1705	Multidrug testing strain	Moderate
Pseudomonas aeruginosa -1	Clinical isolate	Wound – Diabetic foot ulcer	Moderate

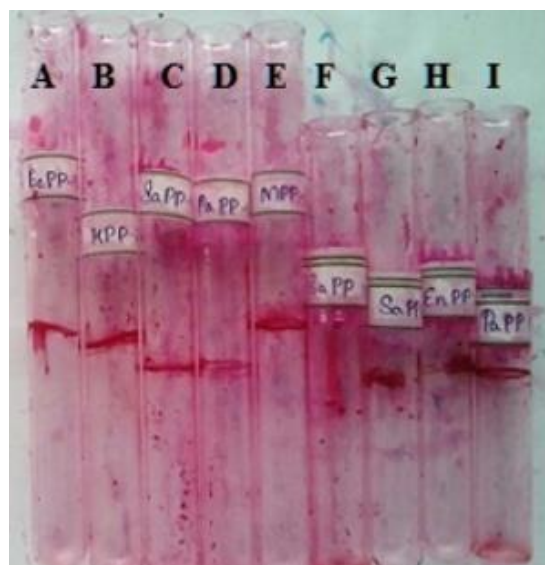| *Pseudomonas aeruginosa* -2 | Clinical isolate | Wound – Diabetic foot ulcer with gangrene | Thin/ Weak |
| *Pseudomonas aeruginosa* -3 | ATCC 27853 | For antibiotic susceptibility | Moderate |

Figure 2: Biofilm formation of bacterial isolates from wound
(A- *E. coli*; B- *Klebsiella* sp; C, F&G- *S. aureus*; D & I- *P. aeruginosa*; E- *Micrococcus* sp; H- *Entercoccus* sp)
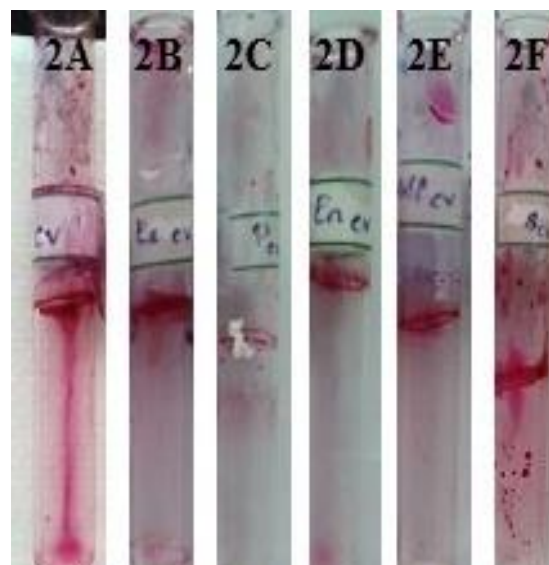

Figure 2: Crystal violet staining of ATCC strains (2A- *Klebsiella* sp; 2B- *E. coli*; 2C- *P. aeruginosa*; 2D- *Entercoccus*sp, 2E- *Micrococcus* sp; 2F- *S. aureus*)

In most of the studies, *E. coli* showed thin/ weak biofilm producer (Shaikh and Musaddiq, 2010); but in this study the test clinical isolate showed moderate and control have thin/ weak deposition. In previous literature it was found that the biofilm ring test was performed to determine the formation of biofilm of *P. aeruginosa* isolated from cystic fibrosis patients but in this study we restricted to post operative cases including diabetic foot ulcer and gangrene. Eventhough tube method is standard, a new ring method also be helful in determining the biofilm nature of the bacterial pathogens based on motility measurement of magnetic micro beads mixed with a bacterial isolates in a polystyrene microplate (Olivares *et al.,* 2016).

Using tube method *P. aeruginosa* (32%)*, K. pneumoniae* (68%) were produced biofilm (Moteeb, 2008), but in this study, maximum moderate level of biofilm formation was observed (Figure 1 and 2). Biofilm producing bacterial isolates are highly resistant to antibiotics, a study stated that, the gram positive resist to penicillin (100% and cephalosporin (100%) and gram negative isolates are resist to ampiciiln (83.78%) and ciprofloxacin (70.27%) was observed (Chandana and Annapurna, 2015); but we did not perform the post biofilm forming antibiotic susceptibility test but viceversa was done.

Another study also reported that the, *S. aureus* shows moderate level of biofilm formation which highly resist rifampicin, ciprofloxacin and vancomycin (Hassan *et al.,* 2011), but in this study *S. aureus* showed different levels of biofilm production; thus it was confirmed that each and every patients' bacterial strains of same species varied in biofilm formation. Using tube method for the detection of biofilm is highly suitable method to determine and differentiate the degree/ level of

biofilm formation like thin or weak, moderate and thick or strong and that also mainly due to the staining procedure especially time of exposure (Bakir and Ali, 2016). Lot of advanced techniques of removing and treating biofilm nature of bacterial pathogens are available, but the degree of resistance also observed due to the chemistry of cytoplasmic membrane (profile of outer membrane protein) and cell wall. This mechanism and principle may arrest the action of drugs that are closely interacting with biofilm nature/ mechatronics of bacterial pathogens (Pushpalatha *et al.,* 2012).
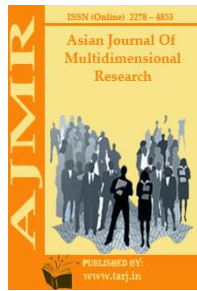
The survival of the pathogen in its environment are largely depends on the adaptation of routine methods to disrupt the biofilm mechanism, non-practice of principles behind the mode of action of the drugs or disinfectants, mechanism of genetic makeup and transferring ability to the progeny (Ashutosh *et al.,* 2017). To overcome this issue, we are need of active drug to target the biofilm forming nature of the bacterial pathogens. But certain nuisance also observed like non-targeting to the drugs, no new drug development, *in vitro* to *in vivo* integrated biocidal confirmation, arresting quorum sensing, novel drugs that target the disbanding of matrix and persister exploration (Beloin *et al.,* 2014). However, the novel drugs should have the newer antimicrobial potential including molecule size, chemical sequence, charge, linear motion of the particle, repellation from a mass of water, arresting the amphipatic moment and angles of inhibition or arresting the biofilm formation.

REFERENCES

1. Ashutosh K, Anwar A, Mamta R, Nasreen ZE, Seyed EH. Biofilms: survival and defence strategy for pathogens. Int J Med Microbiol 2017; 307: 481-489.
2. Attinger C, Wolcott R. Clinically addressing biofilm in chronic wounds. Technol Rep 2012; 1: 127-132.
3. Bakir SH, Ali FA. Comparison of different methods for detection of biofilm production in multi-drug resistance bacteria causing pharyngotonsillitis. Int J Res Pharma Biosci 2016; 3: 13-22.
4. Beloin C, Renard S, Ghigo JM, Lebeaux D. Novel approaches to combat bacterial biofilms. Curr Opi Pharmacol 2014; 18: 61-68.
5. Branda S, Vik S, Friedman L, Kolter R. Biofilms: the matrix revisited. Trends Microbiol 2005; 13: 20-26.
6. Chandana D, Annapurna GS. Comparision of three different methods for the detectionof biofilm in Gram positive Cocci and Gram negative *Bacilli* isolated from clinical specimens. J Pharm Sci Res 2015; 7: 952-955.
7. Costerton JW. A short history of the development of the biofilm concept. Microbial Biofilms 2004; ASM press, Washington: 4-9.
8. Cowan T. Biofilms and their management: From concept to clinical reality. J Wound Care 2011, 20: 222–226.
9. Curtis L, Eric W, Robert J, Matthew P, Ian N, Raymond SA, George TB. A method for rapid quantitative assessment of biofilms with biomolecular staining and image analysis. Anal Bioanal Chem 2016; 408: 999-1008.
10. Donlan RM. Biofilm formation: a clinically relevant microbiological process. Clin Infect Dis 2001; 33: 1387-1392.
11. Harmsen M, Yang C, Pamp SJ, Nielsen TT. An update on *Pseudomonas aeruginosa* biofilm formation, tolerance, and dispersal. FEMS Immunol Med Microbiol 2010; 59: 253-268.

12. Hassan A, Usman J, Kaleem F, Omair M, Khalid A, Iqbal M. Evaluation of different detection method of biofilm formation in the clinical isolates. Braz J Infect dis 2011; 15: 305-311.

13. Klancnik A, Podobnik P, Mozna SS, Raspor P, Bohinc K, Jersek B. Determination of viable biofilm cells in microtiter plates. Int Food Technol Qual Safety 2014; 17: 28-30.

14. Mah TF, Otoole GAO. Mechanisms of biofilm resistance to antimicrobial agents. Trends Microbiol 2001; 9: 34-39.

15. Mathur T, Singhal S, Khan S, Upadhyay DJ, Fatma T, Rattam A. Detection of biofilm formation among the clinical isoaltes of *Staphylococci*: an evaluation of three different screening methods. Ind J Med Microbiol 2006; 24: 25-29.

16. Metcalf DG, Bowler PG. Biofilms delays around healing: A review of the evidence. Burns Trauma 2013; 1: 5-12.

17. Moteeb HS. Quantitative and qualitative assays of bacterial biofilm produced by *Pseudomonas aeruginosa* and *Klebsiella* sp. J Al-AnbarUniv for Pure Sci 2008; 2(3):129-136.

18. Nithyanand P, Karuthapandian S, Kushmaro A, Supayang V, Aruni W. Recent Advances in Biofimology and antibiofilm measures. Biomed Res Int 2017; 2017: ID 5409325.

19. Olivares E, Brechous SB, Provot C, Jaulhac B, Prevost G, Bernardi T, Jehl F. The biofilm ring test: a rapid method for routine analysis of *Pseudomonas aeruginosa* biofilm formation on kinetics. J Clin Microbiol 2016; 54: 657-661.

20. Omar A, Wright JB, Schultz G, Robert B, Nodworny P. Microbial biofilms and chronic wounds. Microorg 2017; 5: 5010009.

21. Otoole GAO, Kolter R. Biofilm formation as microbial development. Ann Rev Microbiol 2000; 54: 49-79.

22. Otter JA, Vickery K, Walker JT, deLancey PE, Stoodley P, Goldenberg SD, Salkeld JAG, Chewins J, Yezli S, Edgeworth JD. Surface attached cells, biofilm and biocide susceptibility: implications for hospital cleaing and disinfection. J Hosp Infect 2014; 89: 16-27.

23. Pervical SL, McCarty SM, Lipsky B. Biofilms and wounds: An overview of the evidence. Crit Rev 2015; 4: 373-381.

24. Pramila M, Meenakshisundaram M, Prabhusaran N, Lalithambigai J, Karthik P. Post-operative wound infection: isolation, characterization and *in vitro* antibiotic susceptibility analysis. Pharm Inno J 2018; 7: 169-175.

25. Pushpalatha N, Wail A, Phat LT, Janet D, Jane ACH, Abdul NH. Garlic ointment inhibits biofilm formation by bacterial pathogens from burn wounds. J Med Microbiol 2012; 61: 662-671.

26. Romanova NA, Gawande PV, Crovko LY, Griffiths MW. Rapid methods to assess sanitizing efficacy of benzalkonium chloride to Listeria monocytogenes biofilms. J Microbiol Methods. 2007;71:231–237.

27. Reid G. Biofilms in infectious disease and on medical devices. J Antimicrob Agent 1999; 11: 223-226.

28. Shaikh AJ, Musaddiq M. Detection and analysis of biofilms production and extracellular polymeric substance in *P. aeruginosa* isolated from clinical specimens. Biosci Biotech Res Comm 2010; 3: 74-78.

29. Siah CJ, Childs CA. A systemic review of the asepsis scoring system used in non-cardiac related surgery. J Wound Care 2012; 21: 124-130.

30. Stewart PS, Costerton JW. Antibiotic resistance of bacteria in biofilms. Lancet 2001; 358: 135-138.

31. Sutherland IW. The biofilm matrix- An immobilized but dynamic microbial environment. Trends Microbiol 2001; 9: 222-227.

32. Toole GO, Kaplan HB, Kolter R. Biofilm formation as microbial development. Ann Rev Microbiol 2000; 54: 49-79.

33. Vallet I, Diggle SP, Stacey RE, Camaara M, Ventre I, Lory S, Lazdunski A, Williams P, Filloux A. Biofilm formation in *Pseudomonas aeruginosa*: Fimbrial cup gene clusters are controlled by the transcriptional regulator MvaT. J Bacteriology 2004; 186: 2880-2890.

34. Wei Q, Mal LI. Biofilm matrix and its regulation in *Pseudomonas aeruginosa*. Int J Mol Sci 2013; 14: 209-214.

35. Wolcott RD, Rambugh K, James G, Schultz G, Phillips P, Yang O, Walters C, Stewart PS, Dowt SE. Biofilm maturity studies indicate sharp debriment opens a time dependent therapeutic window. J Wound Care 2010; 19: 320-328.

36. Zabielska J, Tyfa A, Styczynska AK. Methods for eradication of the biofilms formed by opportunistic pathogens using novel techniques. Folia Biologicaet Oecologica 2016; 12: 26-37.

37. Zufferey J, Rime B, Francioli P, Bille J. Simple method for rapid diagnosis of catheter–associated infection by direct acridine orange staining of catheter tips. J Clin Microbiol 1988; 26: 175-177.

LOW DOSE OLANZAPINE CONTINUATION THERAPY IN ISONIAZID INDUCED PSYCHOSIS: AN INTERESTING CASE REPORT

Ansari MH*; Siddiqui R; Shaan F***

*Senior Resident,
Department of psychiatry,
JN Medical College, Faculty of medicine,
AMU, Aligarh, INDIA.
Email id: mha.snmc@gmail.com

**Assistant Professor
Department of Oral and Maxillofacial Surgery,
Dr ZA Dental College, Faculty of Medicine,
AMU Aligarh, INDIA.
Email id: rubiasiddiqui@gmail.com

***Junior Resident,
Department of psychiatry,
JN Medical College, Faculty of medicine,
AMU, Aligarh, INDIA.
Email id: faisal.shaan5@gmail.com

ABSTRACT

Isoniazid (INH) induced psychosis is great problem in the management of tuberculosis in developing countries like India. Stoppage of INH can lead to resistant and worsening of patient's condition. Here we reported a case of INH induced psychosis which was managed by antipsychotics (olanzapine) without stopping antitubercular drug (INH) contrary to previous recommendation. Olanzapine also has beneficial effect in improving patient general condition.

KEYWORDS: *Isoniazid, Psychosis, Olanzapine, Tuberculosis, Rntcp*

INTRODUCTION:

Isoniazid (INH) is a primary drug of tuberculosis treatment, due to its effectiveness, safety and low cost. It is provided free of cost under Revised National *Tuberculosis* Control *Program* (RNTCP) by government of India. Isoniazid can cause psychosis, apart from obsessive compulsive disorder, mania and loss of memory[1,2]. In contrast to its other side effects, psychosis is not dose dependent. The mechanism of isoniazid induced psychosis is due to deprivation of pyridoxine which in turn leads to a disturbance of normal tryptophan metabolism. Isoniazid also inhibits the activity of brain pyridoxal-5-phosphate, which leads to a decrease in brain gamma-aminobutyric acid (GABA). GABA deficiency results in an increased brain dopamine which is probably responsible for psychotic symptoms[3] like delusions and hallucinations[4].

CASE REPORT:

A 35 year old married female of low socioeconomic status, presented with low grade, continuous fever for one year, dry cough for 3 months, decreased appetite and weight loss for 1 month, with no other significant history. She took various over the counter medicine but not improved. At last she visited to tuberculosis and chest department of JN Medical College, AMU, Aligarh, was diagnosed as a case of pulmonary tuberculosis. Category 1 regimen of RNTCP (Isoniazid, Rifampicin, Ethambutol, and Pyrazinamide) was started which is provided free of cost to the patient. After two days of medication she became abusive, could not sleep at night, fearful, restless and had to be physically restrained by family members. She was then referred to psychiatry department and was admitted there. On mental status examination she was uncooperative, restless, abusive and having auditory hallucination. Patient was conscious alert, oriented to time, place and person. Her Breaf Psychiatric Rating Scale (BPRS) score was 68. We had advised to stop ATT and prescribed injectable olanzapine 10 mg stat at night to sedate the patient.

From day 2, patient was accepting oral feeds and prescribed oral olanzapine 5 mg twice a day. After 4 days patient condition improved and there was more than 30% reduction in BPRS scores. Now patient became co-operative auditory hallucination was no more but still she was suspicious towards her husband and family. Her affordability was poor. So we have again started same regimen under the cover of olanzapine 5 mg twice a day.

On first week follow up, patient was markedly improved, had no delusion or hallucination. She was sleeping well and taking all her medicine regularly. Olanzapine was reduced to 5 mg. After 1 month patient had improved weight and at subsequent follow up olanzapine was further reduced to 2.5 mg. after subsequent follow-up her olanzapine was tried to stop but again she developed decrease sleep and agitation so we again started olanzapine 2.5 mg at night time for entire duration of ATT medication. Patient successfully completed her ATT medication and olanzapine was stopped after her completion of ATT. There was no further episode of psychosis during the course of treatment.

DISCUSSION:

Isoniazid (DOTS regimen) has proven its role in tuberculosis treatment. The association of Isoniazid and psychosis was first highlighted by Jackson in 1957[5]. Since then, there has been growing literature linking Isoniazid to psychosis. There are many case reports on isoniazid induced psychosis.[6,7]

INH-induced psychosis can present with argumentative behavior, depression, euphoria, grandiose ideas, and complex delusions in patients having no previous history of mental illness.[5] In another case report patient presented with emotional instability, restlessness, apprehension, irritability, agitation, and fluctuation in behavior after isoniazid therapy.[6] Our patient was malnourished which make an individual susceptible to psychosis. In a case, reported by Bedi RS, an old man developed restlessness, irritability, aimless activity, and incongruous actions 10 days after starting isoniazid therapy[7] which is similar to our case. Tiwari also reported a case of INH-induced psychosis presenting with disturbed sleep, restlessness, and abnormal behavior.[8]

We have selected olanzapine as an antipsychotic agent, which can alone improves our patient complaints of disturbed sleep agitatation along with low weight problem. Literatures suggested that olanzapine has its role in weight gain and agitation control in anorexia nervosa[9]. Mechanism of olanzapine is supposed to have its ability to block dopaminergic receptors. Patient on antipsychotics, olanazapine has a very high potential to increase the weight[9,10]. According to some case reports, olanzapine has shown considerable weight gain and maintenance and improvements in sleep.[8]

CONCLUSION:

Till now most of case reports and recommendations suggested that in INH induced psychosis offending agent must be stopped and after resolution of psychosis another antitubercular drug can be considered. But in this case we have seen that INH induced psychosis can be treated successfully without stopping the culprit drug by co-administering an antipsychotic (olanzapine), as stopping the ATT could result in worsening of the clinical conditions and development of resistance. Low dose maintenance treatment also has beneficial effect on patient's mental and physical health.

Conflicts of interest: Nil

REFERENCES

1. Dixon GJ, Robert GB, Tyrrell WF. The relationship of neuropathy to the treatment of tuberculosis with isoniazid. Scottish Medical Journal 1956;1:350-4.

2. Janssen G, Boke W. [The increase of optic nerve participation in meningeal tuberculosis during INH and streptomycin therapy]. Klin Wochenschr 1955;33:477-9

3. Girling DJ. Adverse effects of anti- tuberculosis drugs. Bulletin of International Union Tub.1984;53:152.

4. Stahl M S; Stahl's essential psychopharmacology fourth edition Cambridge university press p. 91

5. Jackson SL. Psychosis due to isoniazid. Br Med J. 1957;28:743–5.

6. Agarwala MC, Kansal HM, Gupta RK, Gupta DK, Kumar S. Toxic psychosis due to isoniazid. Indian J Tuberculosis. 1975;3:119–20.

7. Bedi RS. Isoniazid induced pyrexia and psychosis in a single individual. Indian J Tuberculosis. 1994;41:269–70.

8. Tiwari VK, Verma SM. Homicide by a tuberculous prisoner possibly having drug Induced acute delusional psychosis. Indian J Tuberculosis. 1997;44:95–6.

9. Allison DB, Mentore JL, Heo M, Chandler LP, Cappelleri JC, Infante MC, Weiden PJ: Antipsychotic-induced weight gain: a compre-hensive research synthesis. Am J Psychiatry1999, 156:1686-1696.

10. Haberfellner EM, Rittmannsberger H: Weight gain during long-term treatment with olanzapine: a case series. Int Clin Psychop-harmacol 2004, 19:251-253.

AN INVESTIGATION ON STRESS AND EMOTIONAL INTELLIGENCE OF TEACHERS: DOES GENDER MODERATE THE RELATIONSHIP?

Dr. Thiruchelvi Arunachalam*; Dr. Yogesh Palanichamy**

*Assistant Professor,
Department of Management Studies,
CEG Campus, Anna University,
Chennai, INDIA.
Email id: thiruchelvi_y@annauniv.edu

**Associate Professor,
Department of Information Science and Technology,
CEG Campus, Anna University,
Chennai, INDIA.
Email id: yogesh@annauniv.edu

ABSTRACT

This study among 150 college teachers investigated the relationship between emotional intelligence and perceived stress levels, and the moderating effect of gender in this relationship. Differences in stress levels and emotional intelligence have also been studied based on demographic variables like gender, education, age, and experience. Further the moderating effect of gender on the relationship between emotional intelligence and stress has also been studied. The study has found a negative relationship between emotional intelligence and stress levels. The study has proved that gender does not moderate the relationship between emotional intelligence and stress. The results have been analyzed on the light of training.

KEYWORDS: *Emotional Intelligence, Gender, Moderator, Stress, Teachers.*

INTRODUCTION

EI has become a major topic of interest in the scientific circles as well as with the lay public since the publication of a bestseller by the same name in 1995 by Goleman. There is a heightened level of interest in this new idea in the past decade. However, scholars have been studying this construct for the greater part of the twentieth century. The historical roots of this topic can actually be traced back to the nineteenth century. Researchers started showing more interest on the role that emotions play in organizational settings after the publication of Hochschild's 'The Managed Heart' in 1983. Along this line, it is believed that the notion of intelligence should be expanded to include not only cognitive abilities but also the experience and expression of emotions (Barrett and Gross 2001).

The impact of Emotional Intelligence on perception of stress seems to be significant. Emotional intelligence is emerging as a valuable competence for work and life performance. Unaddressed emotions strain the mind and body. One's emotional intelligence skill helps make stress more manageable by enabling one to tackle tough situations before they become unmanageable. Emotional intelligence relates primarily to *emotional management and control* and governs our *ability to deal with emotions so that they work for us and not against us*. People who are adept in this area are able to withstand and effectively cope with stress without losing control. They are typically calm, rarely impulsive and work well under pressure.

Teachers experience a wide range of positive and negative emotions while teaching and interacting with students (Hargreaves, 1998). The nature of their job is highly stressful as the demands of education especially higher education are very high. Teachers perceive their jobs as stressful with reports of increasing pressure (Travers & Cooper, 1993). Indeed, stress and poor emotion management continually rank as the primary reasons why teachers become dissatisfied with the profession and end up leaving their positions (Darling-Hammond, 2001). EI skills are one of the roots of these problems and that emotional skills training for teachers can create a more stable, supportive, and productive learning environment—one that encourages positive social interaction, active engagement, and academic achievement among students. Hence, EI can mitigate stress level of teachers.

REVIEW OF LITERATURE

A recent model of EI is proposed by Goleman, Boyatzis and Mckee (2002). According to this model, EI is considered as a four dimensional structure, where each dimension consists of several competencies. The four dimensions are self awareness, self management, social awareness and relationship management. Self management refers to the understanding of one's own emotions as well as the strengths and weaknesses. It includes the ability to accurately and honestly self assess and use this information to make decisions. Self management refers to the ability to control and regulate one's emotions, ability to stay calm, clear and focused even during unexpected time and failures. It includes keeping impulses in check, displaying honesty and integrity, flexible and remaining optimistic all times. Social awareness is the ability to understand other's feelings, needs and concerns which stem from the awareness of one's own feelings. This includes understanding other's situation, experiencing other's emotions, and acknowledging other's unstated needs. This extends to include organizational awareness and understanding social networks. Relationship management is the ability to manage relationships with others and involves the ability to communicate, influence, collaborate, and work with

others. It also includes influencing others, conflict management, managing change, nurturing teamwork and collaboration.

Recent research has started showing interest on the influence of emotional capabilities in the daily walk of life. Therefore these capabilities are being increasingly considered as personal resources meriting attention. Emotional intelligence (EI) is one of the constructs which explains human behaviour (Extremera, Fernandez-Berrocal & Salovey, 2006). Workplace outcomes affected by EI include: job satisfaction (Thiruchelvi & Supriya, 2009; Joseph et al., 2015), wellbeing (Sánchez-Álvarez, Extremera & Fernández-Berrocal, 2016), job performance (Chien, Seo & Tesluk, 2012), among others. EI however, does not and should not be thought of as a replacement or substitute for ability, knowledge or job skills. In fact, they are complementary in nature. EI is hypothesized to enhance workplace outcomes yet, EI does not guarantee these outcomes in the absence of suitable skills.

Stress is a dynamic condition in which an individual is confronted with an opportunity, constraint, or demand related to what he or she desires and for what the outcome is perceived to be both uncertain and important. Similar conditions can create different stress levels for different individuals. Hence, stress is the result of the relationship between a person and the environment (Lazarus & Folkman, 1984). Individual differences play a vital role in determining how an individual handles stress. EI is one such difference that is likely to impact how an individual handles stress.

Teachers experience a wide range of positive and negative emotions while teaching and interacting with students (Becke et al., 2014; Jiang et al., 2016). The nature of their job requires dealing with their own emotions as well as those of students, parents, colleagues, and administrators create stress. Apart from this, teachers experience high levels of occupational stress because of varied reasons that include bureaucracy, work pressure and work demands (Hasan, 2014; Harmsen et al., 2018). Indeed, stress and poor emotion management continually rank as the primary reasons why teachers become dissatisfied with the profession and end up leaving their positions (Wang, Hall & Rahimi, 2015). There also has been growing alarm at the rate of teacher burnout and the adverse implications this has for the learning environment in schools and the achievement of educational goals (Oberle & Schonert-Reichl, 2016). Moreover, teachers who have difficulty regulating their emotions (and their classrooms) tend to have students who experience more negative emotions in class (e.g., sadness, shame, and guilt) (Oberle & Schonert-Reichl, 2016; Sutton & Wheately, 2003). EI skills are one of the roots of these problems and that emotional skills training for teachers can create a more stable, supportive, and productive learning environment—one that encourages positive social interaction, active engagement, and high academic achievement among students. Increased demands on teachers have led to occupational stress, burnout, and decreased job satisfaction. EI may be foundational to developing competencies that lead to improved psychological health and teaching success and, in turn, positive student outcomes (Joseph et al., 2015; Vesely, Saklofske, & Leschied, 2013).

Nelson, Low and Nelson (2005) indicated the importance and value of emotional intelligence in teacher preparation programs. According to their research, pre-service teacher education, induction experiences with mentoring, and alternative certification programs could be strengthened by providing emotional intelligence training. They also observed EI skills to be linked to both classroom management performance and teacher retention factors for new and novice teachers.

The impact of Emotional Intelligence on perception of stress seems to be significant. EI helps make stress more manageable by enabling one to tackle tough situations before they become unmanageable. Several studies have revealed that Emotional Intelligence is a significant moderator of subjective and objective responses (Mikolajczak, Menil & Luminet,. 2007) to both natural and laboratory stressors. Emotional intelligence, especially emotion perception and emotion management have proved to be important for improving mental and physical health, overall well-being and life satisfaction of an individual (Liu, Wang & Lü, 2013; Vesely, Saklofske & Leschied, 2013). Relationship between Emotional Intelligence and occupational stress among has been established by many researchers and found to have inverse relationship (Zysberg et al., 2017). EI is also found to moderate the relationship between stress and mental health (Ciarrochi, Deane & Anderson, 2002). Higher emotional intelligence will help an individual to cope and appraise the stressful situation as a challenge rather than a threat (Mikolajczak, Menil & Luminet, 2007). The significant paths from trait EI into stress corroborate that high trait EI individuals see themselves as flexible and in control of their emotional reactions (Petrides & Furnham, 2001). Emotion regulation competencies have the ability to facilitate effective stress coping mechanisms (Houghton et al., 2012; Saklofske et al., 2012).

The ability to recognize one's own emotions and identify how others are feeling requires attention to multiple internal and external cues and the analysis of both verbal and nonverbal communication in oneself and others. Devoting adequate time and attention to fostering such emotional awareness is extremely important in optimizing teacher effectiveness in multiple domains. For instance, when teachers are able to recognize how they are feeling throughout the day in different situations, they may better express themselves in and out of the classroom. Emotional self-awareness also may help to predict emotions in various circumstances and to guide one's behaviour. Likewise, the ability to accurately assess the emotions of others can be used to guide the approach a teacher may take to certain lectures and activities, parent-teacher conferences, daily interactions with fellow teachers, and meetings with administrators.

Because emotions influence the way we think and behave, it is important to be able to use this skill effectively and to be able to generate one's own emotional states as well as those of others in order to establish the appropriate emotional conditions for different types of thinking. Experiencing the right emotions at the right times can improve motivation and energy in the teacher and interest and attention in students. To fully understand oneself and others, one must know what causes emotions and be able to articulate a full range of emotions when describing how one self or others may be feeling. These skills are particularly relevant in teaching as it requires constant interaction with others and hence a continuous interplay of emotions. Teaching profession is also becoming more stressful because of the rapid changes in the field of education. Teachers' experience inside the classroom produce positive and negative emotional states which in turn affect their teaching. Hence, emotion management is necessary not only to manage themselves but also of their pupils and to obviate stress levels (Extremera & Fernandez-Berrcoal, 2006). Hence, the ability to manage emotions in oneself and others is a valuable skill for teachers. Depending on the situation, actively dealing with or distracting one from one's own or others' emotions may be more appropriate. Regardless, the frequent implementation of emotion-management strategies is a priceless approach to effective classroom management, stress reduction, functional professional and personal relationships, and overall quality of life. Research has proved a negative relationship between emotional intelligence and stress and burnout for

daycare educators (Zysberg et al., 2017), Chinese middle school teachers (Ju et al., 2015), and Spanish teachers (Rey, Extremera & Pena, 2016).

Studies have also proved that females have higher levels of emotional intelligence when compared to males (Salguero, Extremera & Fernández-Berrocal, 2012; Schutte et al. 1998). Gender differences were noted in the emotional functioning areas like nonverbal sensitivity, emotional expression, and self understanding of emotions (Brody, 1985). The different socialization processes of males and females might result in different kinds of adaptations to the existing socio-cultural pressures and the different roles males and females play in the family may also result in the difference in the stress levels of males and females (Petrides & Furnham, 2006). Extremera et al. (2006) have found a positive correlation between age and EI scores as well as they proved that women scored higher in overall as well as each of the branches of EI than men. As individual ages, he or she becomes more emotionally stable and better socialized. Males and females show differences in the way they experience the work place and its demands (Roxburgh, 1996). Hence the stress experienced by these two genders is also different. Toews et al. (1997) found that women had higher levels of stress. Salguero, Extremera, and Fernández-Berrocal, (2012) have showed that gender moderates the relationship between emotional intelligence and depression. Many gender differences in the workplace stem from differences in the experiences, responsibilities, and types of stressors that pose differential challenges to the two genders. Females, more often than their male peers, are simultaneously exposed to family- and job-related stressors as a result of their dual roles as mothers and professionals (Roxburgh, 1996). They also tend to face gender-specific resistance in their efforts to reach the highest echelons in organizational hierarchies (''glass ceiling effect''; Cotter, Hermsen, Ovadia, & Vanneman, 2001). The gender differences in the stress for various life events were examined. It was found that women scored significantly higher than men in chronic stress and minor daily stressors, somatic symptoms and psychological distress and hence women suffer more stress than men (Matud, 2004).

There is a large body of research that shows women are better able to read unstated information, including feelings from facial expressions and other nonverbal clues (Rosenthal et al., 1979). Brody (1985) while looking into the reason behind the development of higher EI in women states that it might be because of the early child-parent interactions. Brody (1985) established that mothers not only speak more to daughters about feelings but actually display a wider range of feelings to them as well, and with their sons, mothers tend to hold back and to respond less expressively. Brody (1985) also reports that when communicating with their daughters (as compared with their sons) mothers also use more vivid facial expressions, which may help girls to develop better skills at recognizing each other's emotions. Furthermore, recent research has shown that areas of the brain devoted to emotional processing may be larger in women than men, which may also be related to the observed gender differences in EI (Gur et al., 2002).

NEED FOR THE STUDY

Today, the work place has become stressful. If emotional intelligence affects the way in which stress is perceived, it would be of immense use to the educational institutions. As emotional intelligence can be developed in an individual at any point of life time in an individual, to mitigate the evil effects of stress emotional intelligence can be developed for teachers. Stress is one of the major problems not only the teachers but every type of work force faces. If emotional intelligence alters the way stress is perceived by an individual as hypothesized then it makes sense to incorporate emotional intelligence testing in the recruitment process and select those

with a high level of emotional intelligence. Further, if a relationship exists it would be worthwhile investing in development of the emotional intelligence of the teachers so as they can handle the stress more effectively. As teachers face the stress because of the changes that happen in the educational set up , demand posed by the students both academically and behaviorally, increasing work load, and many more , it is imperative for the teachers to develop skills that can help them to handle stress effectively and lead a healthy and happy life.

OBJECTIVES AND HYPOTHESES

The major objective of this study if to find is there any relationship between emotional intelligence and stress levels among college teachers. The study also tries to find the moderating role of gender in the relationship between emotional intelligence and stress.

This current study attempts to test the following hypotheses

H1. Emotional intelligence is negatively related to stress level of college teachers.

H2. There is a significant difference in emotional intelligence based on gender, education, age and experience.

H3: There is a significant difference in stress levels based on gender, education, age and experience.

H4. Gender moderates the relationship between EI and stress.

RESEARCH METHODOLOGY

The study was conducted among 150 college teachers. A total of 90 males and 60 females participated in this study. The participants were explained about the study and their consent was obtained. SSREI inventory was given to the participants and were asked to give their responses in the same inventory. The respondents were given ample amount of time for completion. Of the total 150 responses collected, 3 responses had missing items which were not taken for analysis. Hence for analysis only 147 responses were taken.

The study used the self report questionnaire of Schutte et al. (1998) called as SSREI which has 33 items with three negative items (5, 28, and 33) that has to be reverse scored. This scale was chosen because it has a simple language and offer advantages with respect to scoring, reliability (Gignac et al., 2005). Apart from SSREI, this study has used the Perceived Stress Scale (PSS), which is a 10-item self-report instrument designed to measure the degree to situations in one's life are appraised as stressful (Cohen, Kamarch, & Mermelstein, 1983). Both these instruments use Likert type scale.

RESULTS AND DISCUSSION

To test the reliability of Schutte Self-Report Emotional Intelligence (SSREI) and Perceived Stress Scale (PSS) Cronbach's Alpha was found and the results are given in Table 1.

TABLE 1. RELIABILITY OF PSS AND EI

Scale	Cronbach's Alpha	Number of Items
SSREI	0.843	33
PSS	0.783	10

The Cronbach's Alpha value of the Schutte Self-Report Emotional Intelligence (SSREI) is found to be 0.843 and for the Perceived Stress Scale (PSS) is found to be 0.783. Both the values are found to be greater than 0.6, the scales are also found to be reliable. The profile of the respondents is given in Table 2.

TABLE 2. DEMOGRAPHIC DETAILS

SI.No	Demography	Frequency	%
1	**Age** Less than 25 years 26 – 35 years 36 – 45 years 46 – 55 years More than 55 years	 4 118 23 1 1	 2.7 80.3 15.6 0.7 0.7
2	**Education** Unger Graduates(UG) Post Graduates(PG) Post Graduate with Masters in Philosophy (M. Phil) Doctorates (Ph.d)	 4 80 62 1	 2.7 54.4 42.2 0.7
3	**Gender** Men Women	 90 57	 61.2 31.8
4	**Experience** Less than 3 years 3 – 8 years 9 – 15 years 16 – 20 years Greater than 20 years	 50 54 3 36 4	 34 36.7 2 24.5 2.7

Majority of the respondents are in the age group of 26 -35 years. Only less than 1% of the respondents are in the age group of 46 – 55 years and more than 55 years. 54.4% of the respondents are postgraduates, 42.2% are postgraduates with an additional degree M.Phil. Teachers with undergraduate degree alone constitute a very small amount of response group (3%) and only one of the respondent had a doctorate degree. 61.2% of the respondents are male and 38.8% of the respondents are female. 36.7% of the respondents have an experience of three to eight years while 34% have less than three years of experience. Hence, majority of the respondents aged between 26-35 years, post graduates, male and had experience of 3- 8 years.

To understand the relationship between emotional intelligence and perceived stress levels (Hypothesis H!), correlation was done and the results are given in Table 3. There is a negative correlation (r = -0.771, p < 0.01) between the perceived stress level and emotional intelligence indicating that as the emotional intelligence of the person increases, the stress perceived from a situation decreases. The same results were reported for both the genders.

TABLE 3. CORRELATION-STRESS AND EI

Gender	Pearson Correlation	Mean (Stress)	Mean (EI)
Both male & Female	-.771(**)	15.10	127.17
Male	-0.745(**)	15.76	125.41
Female	-0.850(**)	14.05	129.95

To understand the difference in the levels of emotional intelligence based on demographic variables like gender, age, experience and education (hypothesis H2), ANOVA is done and the results are shown in Table 4.

TABLE 4. ANOVA : EI

Variable / Factors	F	Significance Level
Age	2.051	0.132
Education	0.418	0.259
Gender	4.765	0.031
Experience	3.102	0.051

ANOVA shows that there is no difference in the emotional intelligence based on age, education and experience as $F(2.051, p > 0.05)$, $F(0.418, p > 0.05)$ and $F(3.102\ p > 0.05)$ respectively. But there is a significant differences in the emotional intelligence levels based on gender $F(4.765, p < 0.05)$. As the mean value for emotional intelligence of women (129.95) is greater than men (125.41), it can be concluded that women are more emotionally intelligent than men.

To understand the difference in the levels of stress based on demographic variables like gender, age, experience and education (hypothesis H3), ANOVA is done and the results are shown in Table 5

TABLE 5: ANOVA: STRESS

Variable / Factors	F	Significance Level
Age	1.524	0.221
Education	0.010	0.990
Gender	2.728	0.101
Experience	0.900	0.409

ANOVA shows that there is no difference in the stress levels of individuals based on age, education, gender and experience as F (1.524, $p > 0.05$), F (0.010, $p > 0.05$), $F(2.728, p > 0.05)$, and $F(0.900, p > 0.05)$ respectively. Though many studies have reported gender differences in stress, this study could not establish such a difference. Hence there is a significant correlation between EI and stress levels as well as there is a significant difference in the level of EI based on gender.

To understand whether gender moderates the relationship between EI and stress (hypothesis H4), multiple moderated regression (MMR) is used and the results are shown in Table 6,7 and Figure 1. Table 6 shows the regression results and Table 7 shows the beta values and the ANOVA results for the independent and moderator variables. Figure1 shows the interacting effects.

TABLE 6: MODERATOR-REGRESSION RESULTS

Variables	R	R Square	Adjusted R Square
Model 1 EI	0.771	0.594	0.592
Model 2 EI , Gender	0.771	0.594	0.589
Model 3 EI , Gender, EI * Gender	0.778	0.605	0.597

TABLE 7. MODERATOR - BETA AND F VALUES

Variables	Beta	F	Partial Eta Squared
EI	-0.473*	119.521*	0.455
Gender	0.0153	1.477	0.010
EI * Gender	-0.0244	0.094	0.001

* significant at p <0.01
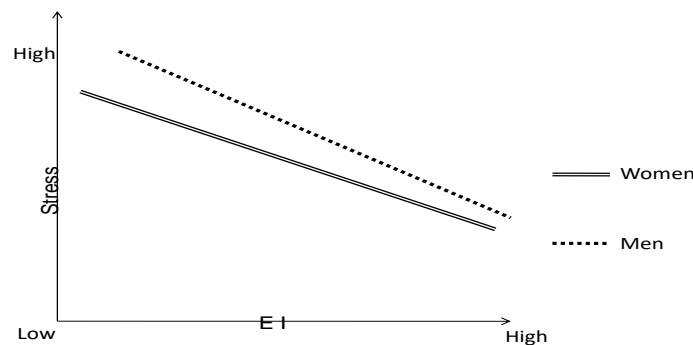
Figure 1: Interacting effect of Stress and EI based on Gender

As gender does not predict ($β = 0.0153$, $p > 0.05$) stress levels as well as gender does not moderate the relationship between EI and stress. The partial eta square value for EI * Gender do not show higher variation in the model. The figure also does not show a greater variation between male and female on the interacting effects between EI and stress. Hence, gender does not moderate the relationship between emotional intelligence and stress.

FINDINGS & RECOMMENDATIONS

EI is an important skill in the teaching profession as the teacher influences the growth of students. This influence is not only being determined by the cognitive intelligence of the teacher but also on the other aspects like emotional intelligence. Hence this study has looked into the construct of emotional intelligence of teachers and their stress. This study adds to the research on the predictive role of emotional intelligence regarding stress.

The results of the study has corroborated with many other studies. The study has found a negative relationship between emotional intelligence and the perceived stress level, which has been evidenced from several other studies (Pau & Croucher, 2003; Ciarrochi, Deane & Anderson, 2002). As emotional intelligence helps an individual to understand and appreciate the problem from the perspective of emotions triggered, a better understanding of the problems is guaranteed. This better understanding of the problem helps an individual to cope with stress effectively. Individuals with high levels of emotional intelligence may have confidence and clarity which might have resulted in approaching the stressful events with positive outlook. Hence higher the levels of emotional intelligence lower the level of stress.

The study has also found women to possess higher levels of emotional intelligence when compared to males, which has also been supported by numerous studies (Salguero, Extremera and Fernandez Berrocal, 2012, Ciarrochi, Chan and Bajgar, 2001; Schutte et al. 1998). The role of women is different from men because of the societal set up. Women need to bring up the children and elders and take care of their needs and demands in the Indian society. This might have made the women to develop EI skills.

The results of the present study have not showed any difference in stress levels of men and women. This result is not in the anticipated direction as expressed by many other studies (Matud, 2004; Toews et al., 1997). Though the women has to balance the dual role of balancing their career as well as the family expectations because of the societal implications, in this study women teachers appear to balance the work and life well and hence they might not have reported higher stress levels.

The study results show that stress levels do not differ based on experience which is measured in terms of years. Experience in this study means the number of years an individual has worked as a teacher. Studies have resulted in differing stress levels based on age (Folkman, Lazarus, Pimley, & Novacek, 1987). As one ages, they gain experience with life and be in a better position to cope with life events which in turn may result in lesser stress. Hence the difference in stress levels is not because of the aging process but because of the experiences one face. As the source of stress has not been taken into account in this study and the experiences the respondents might have faced as teachers would have been similar, effect of age difference on stress levels has not been reported in this study. Gender does not moderate the relationship between emotional intelligence and stress perceived. Irrespective of male or female, higher levels of emotional intelligence helps in lowering the stress levels of an individual.

This research has important implications for administrators and counselors. As there is a direct negative relationship between EI and stress, training on EI is supported for lowering the stress levels. Previous research has showed that EI can be enhanced through training program (Jordan, Ashkanasy, & Hartel, 2002; Goleman, 1997). Additionally, as there is no difference on stress levels for men and women, there is no need for gender specific stress management training designed from the perspective of improving the emotional intelligence. A common program for both the gender will be of great use. The administrators of educational institutes should understand the need for such a training program for teachers as teachers are the most vital representatives of the educational institutes. Further research on this line can be carried out with other personality variables. Further studies can try to understand the influence of EI on stress, while controlling for other personality variables.

REFERENCES

- Barrett, L. F., & Gross, J. J. (2001). Emotional intelligence: A process model of emotion representation and regulation. In T. J. Mayne & G. A. Bonanno (Eds.), *Emotions and social behavior. Emotions: Currrent issues and future directions* (pp. 286-310). New York, NY, US: Guilford Press

- Becker, E.S., Goetz, T., Morger, V. and Ranellucci, J., 2014. The importance of teachers' emotions and instructional behavior for their students' emotions–An experience sampling analysis. *Teaching and Teacher Education*, *43*, pp.15-26.

- Brody, L.R., 1985. Gender differences in emotional development: A review of theories and research. *Journal of personality*, *53*(2), pp.102-149.

- Ciarrochi, J., Deane, F.P. and Anderson, S., 2002. Emotional intelligence moderates the relationship between stress and mental health. *Personality and individual differences*, *32*(2), pp.197-209.

- Ciarrochi, J., Chan, A.Y. and Bajgar, J., 2001. Measuring emotional intelligence in adolescents. *Personality and individual differences*, *31*(7), pp.1105-1119.

- Cohen, S., Kamarck, T. and Mermelstein, R., 1983. A global measure of perceived stress. *Journal of health and social behavior*, pp.385-396.

- Cotter, D.A., Hermsen, J.M., Ovadia, S. and Vanneman, R., 2001. The glass ceiling effect. *Social forces*, *80*(2), pp.655-681.

- Darling-Hammond, L., 2001. The challenge of staffing our schools. *Educational leadership*, *58*(8), pp.12-17.

- Extremera, N., Fernández-Berrocal, P. and Salovey, P., 2006. Spanish version of the Mayer-Salovey-Caruso Emotional Intelligence Test (MSCEIT). Version 2.0: reliabilities, age and gender differences. *Psicothema*, *18*(Suplemento), pp.42-48.

- Farh, C.I., Seo, M.G. and Tesluk, P.E., 2012. Emotional intelligence, teamwork effectiveness, and job performance: The moderating role of job context. *Journal of Applied Psychology*, *97*(4), p.890.

- Fernández-Berrocal, P. and Extremera, N., 2006. LA INVESTIGACIÓN DE LA INTELIGENCIA EMOCIONAL EN ESPAÑA. *Ansiedad y estrés*, *12*.

- Folkman, S., Lazarus, R.S., Pimley, S. and Novacek, J., 1987. Age differences in stress and coping processes. *Psychology and aging*, *2*(2), p.171.

- Gignac, G.E., Palmer, B.R., Manocha, R. and Stough, C., 2005. An examination of the factor structure of the Schutte self-report emotional intelligence (SSREI) scale via confirmatory factor analysis. *Personality and Individual Differences*, *39*(6), pp.1029-1042.

- Goleman, D.P., 1995. Emotional intelligence: Why it can matter more than IQ for character, health and lifelong achievement. New York, Bantam Books.

- Goleman, D., 1997, October. Beyond IQ: developing the leadership competencies of emotional intelligence. In *nd International Competency Conference, London*.

- Goleman, D., Boyatzis, R. and McKee, A., 2002. The emotional reality of teams. *Journal of Organizational Excellence*, *21*(2), pp.55-65.

- Gur, R.C., Gunning-Dixon, F., Bilker, W.B. and Gur, R.E., 2002. Sex differences in temporo-limbic and frontal brain volumes of healthy adults. *Cerebral cortex*, *12*(9), pp.998-1003.

- Hargreaves, A., 1998. The emotional practice of teaching. *Teaching and teacher education*, *14*(8), PP. 835-854.

- Harmsen, R., Helms-Lorenz, M., Maulana, R. and van Veen, K., 2018. The relationship between beginning teachers' stress causes, stress responses, teaching behaviour and attrition. *Teachers and Teaching*, *24*(6), pp.626-643.
- Hasan, A., 2014. A study of occupational stress of primary school teachers. *Educationia confab*, *3*(4), pp.11-19.
- Hochschild, A.R. (1983). The Managed Heart: Commercialization of Human Feelings. Berkeley, CA: University of California Press.
- Houghton, J.D., Wu, J., Godwin, J.L., Neck, C.P. and Manz, C.C., 2012. Effective stress management: A model of emotional intelligence, self-leadership, and student stress coping. *Journal of Management Education*, *36*(2), pp.220-238.
- Jiang, J., Vauras, M., Volet, S. and Wang, Y., 2016. Teachers' emotions and emotion regulation strategies: Self-and students' perceptions. *Teaching and Teacher Education*, *54*, pp.22-31.
- Jordan, P.J., Ashkanasy, N.M., Härtel, C.E. and Hooper, G.S., 2002. Workgroup emotional intelligence: Scale development and relationship to team process effectiveness and goal focus. *Human resource management review*, *12*(2), pp.195-214.
- Joseph, D.L., Jin, J., Newman, D.A. and O'boyle, E.H., 2015. Why does self-reported emotional intelligence predict job performance? A meta-analytic investigation of mixed EI. *Journal of Applied Psychology*, *100*(2), p.298.
- Ju, C., Lan, J., Li, Y., Feng, W. and You, X., 2015. The mediating role of workplace social support on the relationship between trait emotional intelligence and teacher burnout. *Teaching and Teacher Education*, *51*, pp.58-67.
- Lazarus, R.S. and Folkman, S., 1984. Coping and adaptation. *The handbook of behavioral medicine*, *282325*.
- Matud, M.P., 2004. Gender differences in stress and coping styles. *Personality and individual differences*, *37*(7), pp.1401-1415.
- Mikolajczak, M., Menil, C. and Luminet, O., 2007. Explaining the protective effect of trait emotional intelligence regarding occupational stress: Exploration of emotional labour processes. *Journal of Research in personality*, *41*(5), pp.1107-1117.
- Nelson, D.B., Low, G.R. and Nelson, K., 2005. The emotionally intelligent teacher: A transformative learning model. *Manuscript. Retrieved on December*.
- Oberle, E. and Schonert-Reichl, K.A., 2016. Stress contagion in the classroom? The link between classroom teacher burnout and morning cortisol in elementary school students. *Social Science & Medicine*, *159*, pp.30-37.
- Pau, A.K. and Croucher, R., 2003. Emotional intelligence and perceived stress in dental undergraduates. *Journal of dental education*, *67*(9), pp.1023-1028.
- Petrides, K.V. and Furnham, A., 2006. The Role of Trait Emotional Intelligence in a Gender-Specific Model of Organizational Variables 1. *Journal of Applied Social Psychology*, *36*(2), pp.552-569.
- Petrides, K.V. and Furnham, A., 2001. Trait emotional intelligence: Psychometric investigation with reference to established trait taxonomies. *European journal of personality*, *15*(6), pp.425-448.
- Rey, L., Extremera, N. and Pena, M., 2016. Emotional competence relating to perceived stress and burnout in Spanish teachers: a mediator model. *PeerJ*, *4*, p.e2087.

- Rosenthal R, Hall JA, Di Matteo MR, Rogers PL, Archer D (1979). Sensitivity to nonverbal communication: The PONS test. Baltimore: The Johns Hopkins University Press.
- Roxburgh, S., 1996. Gender differences in work and well-being: Effects of exposure and vulnerability. *Journal of Health and Social Behavior*, pp.265-277.
- Saklofske, D.H., Austin, E.J., Mastoras, S.M., Beaton, L. and Osborne, S.E., 2012. Relationships of personality, affect, emotional intelligence and coping with student stress and academic success: Different patterns of association for stress and success. *Learning and Individual Differences*, *22*(2), pp.251-257.
- Salguero, J.M., Extremera, N. and Fernández-Berrocal, P., 2012. Emotional intelligence and depression: The moderator role of gender. *Personality and Individual Differences*, *53*(1), pp.29-32.
- Sánchez-Álvarez, N., Extremera, N. and Fernández-Berrocal, P., 2016. The relation between emotional intelligence and subjective well-being: A meta-analytic investigation. *The Journal of Positive Psychology*, *11*(3), pp.276-285.
- Schutte, N.S., Malouff, J.M., Hall, L.E., Haggerty, D.J., Cooper, J.T., Golden, C.J. and Dornheim, L., 1998. Development and validation of a measure of emotional intelligence. *Personality and individual differences*, *25*(2), pp.167-177.
- Sutton, R.E. and Wheatley, K.F., 2003. Teachers' emotions and teaching: A review of the literature and directions for future research. *Educational psychology review*, *15*(4), pp.327-358.
- Thiruchelvi, A. and Supriya, M.V., 2009. Emotional intelligence and job satisfaction. *Asia Pacific Business Review*, *5*(2), pp.109-115.
- Toews, J.A., Lockyer, J.M., Dobson, D.J., Simpson, E., Brownell, A.K.W., Brenneis, F., MacPherson, K.M. and Cohen, G.S., 1997. Analysis of stress levels among medical students, resident, and graduate students at four Canadian schools of medicine. *Academic Medicine*.
- Travers, C.J. and Cooper, C.L., 1993. Mental health, job satisfaction and occupational stress among UK teachers. *Work & Stress*, *7*(3), pp.203-219.
- Vesely, A.K., Saklofske, D.H. and Leschied, A.D., 2013. Teachers—The vital resource: The contribution of emotional intelligence to teacher efficacy and well-being. *Canadian Journal of School Psychology*, *28*(1), pp.71-89.
- Wang, H., Hall, N.C. and Rahimi, S., 2015. Self-efficacy and causal attributions in teachers: Effects on burnout, job satisfaction, illness, and quitting intentions. *Teaching and Teacher Education*, *47*, pp.120-130.
- Zysberg, L., Orenshtein, C., Gimmon, E. and Robinson, R., 2017. Emotional intelligence, personality, stress, and burnout among educators. *International Journal of Stress Management*, *24*(S1), p.122.

BENEFICIATION STUDIES ON LOW GRADE MANGANESE ORE FINES FROM SANDUR REGION, KARNATAKA, INDIA.

R.V. Vinayak Kumar*; Dr. M.R Patil**; Dr. B.P Ravi***

*Research student,
Dept. Of Mineral Processing
VSK University Nandihalli Sandur Karnataka-INDIA.
Email id: vinayak.rvminpro@gmail.com

**Professor,
Dept. Of Mineral Processing,
VSK University Nandihalli Sandur Karnataka-INDIA.
Email id: krutica.mrp@gmail.com

***Professor,
Dept. Of Mineral Processing
VSK University Nandihalli Sandur Karnataka-INDIA.
Email id: avibelavadi@gmail.com

ABSTRACT

A low grade ferruginous Mn ore assaying 21.77%Mn and 28.53%Fe mines of Sandur region was subjected to amenability to beneficiation process comprising of -wet screening over 10,6,3,1mm - split jigging of screen over sizes in a mineral jig, - crushing of jig tails to -1mm – magnetizing reduction roasting of crushed jig tails and natural minus 1 mm powder 600ºC for 0.5 hour with 10% coal reductant followed by water quenching and wet low intensity magnetic separation to remove ferruginous impurities yielded a composite concentrate assaying 32.36% Mn, 21.53% Fe,1.5 Mn/Fe ratio with 68.7% Mn distribution at 46.2 wt.% yield meets the specifications of metallurgical industry after suitably agglomerating the concentrate.

KEYWORDS: *Ferruginous, Agglomerating, Magnetizing, Specifications*

INTRODUCTION

Manganese ore is a useful and essential constituent of steel. Since no quality steel can be produced without a small amount of manganese, manganese is aptly called 'Achilles heel' of the steel industry. Sandur schist belt comprises: basic igneous rock (meta basalts and pillow lava), ferruginous and manganiferous fillite/shale, younger intrusive banded ferruginous quartzite, iron, manganese ore and laterite. The manganese ore bodies are found to be associated with the phyllites and their altered products. The ore bodies are considered to be syngenetic and the later stage have undergone reconstitution by low grade metamorphism and also the supergene agencies have acted upon them to form superficial deposits at or near the surface. The systematic mining of manganese ore in this belt started as early as 1905 and has been mined from different open-cast mines. Manganese ore occurs at and around Deogiri forming part of the Kumarswamy range and extends further to Ramanadurga range of hills separated by the rivulet Narihalla. The schist belt consists of basic igneous rocks in the form of flows and pillows, phyllited, banded ferruginous quartzites, vein quartz, manganiferous greywackes and thin beds of carbonates.The different blocks identified in this belt are Deogiri, Swamihalli, Subbarayanahalli, Sunderbench, Ramgad, Seshagiri and Donikolla. A number of manganese ore deposits of varying dimensions occur all along the western margin of the Sandur schist belt over a length of 40 km with widths ranging from 0.2 to 1.5 km, which occurs between the Lower Yeshwanth Nagar and Upper Donimalai Formations. The resources is about 10.99 million ton (as on 1.4.2006) and Manganese ore deposits mainly confined to western part of the schist belt and concentrated at Deogiri, Subbrayanahalli mines areas. Recent review of literature indicated that beneficiation studies on utilization of ferruginous manganese ores from Sandur are scanty except the works of Hiremath et.al.(2013) and Gopalkrishna et.al.(2015,2016 and 2017). The authors used slightly higher grade of Mn as compared to low grade ferruginous manganese ore fines that are dumped in SK (Sillukolla) mines area. The amenability of low grade ferruginous manganese ore fines from SK mines, Swamihalli forest will not only pave way for their utilization and conservation of good grade manganese ore fines but also reduces forest land used for dumping low grade ferruginous manganese ore that can be reclaimed and afforested. Amenability of ferruginous Mn samples from Swamimalai forest area (SK mines area) with an aim of improving Mn grade>30% Mn/Fe ratio preferably > 1.5 to beneficiation methods like washing and jigging and as well as magnetizing roast followed by magnetic separation are being attempted.

EXPERIMENTAL

The low grade/waste dump manganese ore fines (-10 mm) samples were collected from SK mines, Sandur, Karnataka for beneficiation study. The sample was then subjected to standard sampling – feed preparation, characterization, physical and chemical beneficiation amenability tests as per the standard practice enumerated.

RESULTS AND DISCUSSION

Characterization studies

The representative samples from SK mines comprised of mostly black coloured fines with chips predominating over powdery material. Some brownish yellow coloured soft friable chips and coated powder grains were noticed. The sample used to soil the fingers. Pyrolusite, psilomelane, manganite and braunite are reported to be the manganese ore minerals while quartz, hematite, limonite, goethite and clay are associated gangue minerals based on microscopic studies The sample analyzed 21.77%Mn, 28.53%Fe, 0.76 Mn/Fe ratio The characterization study indicated

clearly that the sample was low grade ferruginous manganese fines that needs beneficiation for use in local metallurgical purpose after agglomeration.

Sample to size analysis

A representative sample was subjected to wet size analysis and fractions were analysed. The results are given in Table 1.

TABLE-1; SIEVE ANALYSIS OF SK MINES SAMPLE.

Size in mm	Wt% Retained	Assay%		Distn%		Cum Wt% Retained	Assay%		Mn/Fe ratio	Distn. Mn %
		Mn	Fe	Mn	Fe		Mn	Fe		
-20+10	12.16	27.24	25.38	15.22	10.82	12.16				
-10+6	12.01	27.82	26.14	15.35	11.01	24.17	27.40	25.10	1.09	30.57
-6+3	20.87	26.46	26.00	25.37	19.02	45.05	28.19	24.97	1.13	25.37
-3+2	10.96	25.21	26.87	12.69	10.32	56.01				
-2+1	1.05	26.24	26.23	1.27	0.97	57.06	26.91	26.53	1.01	13.96
-1+0.5	13.06	23.37	27.85	14.02	12.75	70.12				
-0.5+0.25	8.11	19.01	27.64	7.08	7.86	78.23				
-0.25+0.15	4.05	15.05	30.62	2.80	4.35	82.28				
-0.15+0.075	9.16	7.62	35.47	3.21	11.39	91.44				
-0.075+0.045	4.80	7.50	38.65	1.66	6.51	96.25				
-0.45	3.75	7.80	38.02	1.34	5.00	100.00	18.60	29.56	0.63	30.10
Head Cal	**100.00**	**21.77**	**28.53**	-	-		**21.77**	**28.53**	0.76	100.0

The results clearly indicate that washing and wet screening has improved the Mn/Fe ratios significantly at size more than 1mm. with yield of 57.06 wt.%. Similar results were obtained by Gopalkrishna et.al.(2015,2016 and 2017) perhaps owing removal of Mn bearing ferruginous clayey slimes. The washed coarse sandy products were black in colour and slimes were dull yellowish black coloured powder. The previous works Hiremath et.al.(2013), Gopalkrishna et.al.(2015,2016 and 2017) and IBM(2011) indicated the jigging of washed chips/ lumps and magnetizing reduction roast followed by magnetic separation of low Mn/Fe ratio sample for ferruginous manganese ores of Sandur region. Hence jigging tests was performed on crushed and natural-10+6 mm-6+3mm and -3+1mm sample fractions separately. The -1mm natural – crushed sample with low Mn/Fe ratio was subjected to reduction roast followed by WLIMS.

Jigging test:

Effect of flow rate; The tests were conducted by using a mineral jig (hartz jig). Feed sample prepared by coning and quartering method and variation of water flow rate using in the experiments to remove the gangue minerals from ore mineral and upgrade. The results pertaining to varying water flow rate is given in Table 2. The results indicate that increase in water flow rate from 3 to 6 lpm decreased the Mn/Fe ratio and increased the wt% yield of concentrate. Optimum results were obtained at 4.5 minutes, 6 lpm water flow rate producing concentrate assaying 32.92%Mn, 22.38%Fe, ~1.5Mn/Fe ratio just meeting the stipulated specification at maximum yield of 51.42% (overall wt.% yield of 12.4 for the chips size).

TABLE -2: EFFECT OF WATER FLOW RATE
CONDITIONS: FEED SIZE: -10+3 MM, TIME: 4.5 MINUTES, APERTURE 1 MM,
STOKE 30MM, 250 RPM

Water Flow Rate	6 lpm	4 lpm	3 lpm
Products	Wt%	Wt%	Wt%
Concentrate	51.42	48.54	40.05
Middling	24.36	24.89	29.30
Tailing 1	18.87	19.76	25.26
Hutch	5.36	6.81	5.38
Head Cal	100.00	100.00	100.00

Effect of split jigging: Jigging tests were carried out for 4.5 minutes, 1 mm aperture, 30mm Stroke, 250 rpm and at 6 lpm water flow rate. The results are given in table 3. The results indicate that the composite sample of split jigging yielded a composite concentrate assaying 33.21%Mn, 22.55% Fe,~1.5 Mn/Fe ratio just meeting the specification at overall wt.% yield of 25 with 38.2%Mn overall distribution with respect to ROM feed. The jig rejects and -1 mm sample constituting final rejects assayed 21.27%Mn, 28.82%Fe, 0.74Mn/Fe ratio at75 wt% yield with 61.8 % Mn distribution.

Reduction roasting; The jig rejects and -1 mm sample constituting final rejects assayed 21.27% Mn, 28.82%Fe, 0.74Mn/Fe ratio at75 wt.% yield with 61.8 %Mn distribution. The samples were stage crushed to -1mm and subjected to magnetizing roasting at $600^{\circ}C$ for 0.5 hour with 10% coal reductant followed by water quenching and wet low intensity magnetic separation to remove ferruginous impurities.   The above process yielded a concentrate assaying 31.33%Mn, 20.34%Fe, ~1.5 Mn/Fe ratio at 21.22 overall wt% yield with overall Mn recovery of. The composite process results are shown in Table 3. The results indicate that the sample is amenable to reduction roasting followed by WLIMS. A combination of wet screening, split jigging of -20+1 mm fraction, followed by stage crushing of jig rejects and -1mm fraction, drying, reduction roasting at $600^{\circ}C$ for 0.5 hour followed by water quenching and wet low intensity magnetic separation yielded a composite concentrate assaying 32.36%Mn, 21.53%Fe, 1.5Mn/Fe ratio with 68.7%Mn distribution at 46.2 wt% yield meets the specifications of metallurgical industry after suitably agglomerating the concentrate. The results are similar to findings previous works.

CONCLUSIONS

The low grade ferruginous Mn ore assaying 21.77%Mn and 28.53%Fe mines of Sandur region is amenable to process of jigging, reduction roasting of crushed jig tails and ore fines followed by WLIMS yielding concentrate with>30%Mn, Mn/Fe >1.5 with 68% Mn recovery, which can be used in metallurgical industry after suitable agglomeration. The ore is amenable to beneficiation.

TABLE-3: SPLIT SIZE JIGGING
CONDITIONS; TIME: 4.5 MINUTES, WATER FLOW RATE: 6 LPM APERTURE 1
MM, STOKE 30MM, 250 RPM

Size range	Products	Wt% (OA Wt%)
-20+6mm	Concentrate	45.03
	Middling	28.45
	Tailing	24.03
	Hutch	2.49
	Head Cal	100.00
-6+3mm	Concentrate	46.40
	Middling	27.20
	Tailing	22.93
	Hutch	3.47
	Head Cal	100.00
-3+1mm	Concentrate	40.00
	Middling	27.14
	Tailing	21.43
	Hutch	11.43
	Head Cal	100.00
Com -20+1 mm	Concentrate Cal	43.81 (25.00)
	Middling Cal	27.60
	Tailing Cal	22.80
	Hutch Cal	5.80
	Head Cal	100.00
	Jig rejects[M+T+H] Cal	56.19 (45.12)
Com -1mm	-1mm rejects	(29.88)
Overall rejects		75.00

TABLE - 4; WET SCREENING, SPLIT JIGGING, CRUSHING TO -1MM, REDUCTION ROAST FOLLOWED BY WLIMS

Products	Wt%	Assay %		Mn/Fe ratio	% Mn Distn
		Mn	Fe		
-20+1mm Jig concentrate	25.00	33.21	22.55	1.5	38.2
-1mm Redn Roast Non mag Concentrate	21.22	31.33	20.34	1.5	30.5
-1mm Redn. Roast Mag tails	53.78	12.67	34.54	0.36	31.3
Head Cal	100.00	21.77	28.53	0.76	100.0
Final Comp Mn Concentrate Cal	46.22	32.36	21.53	1.50	68.7

REFERENCES

1. M S.Hiremath, Vinayak kumar and C Rudrappa, (2013,'Beneficiation Studies On Manganese Ores Of Deogiri Area, Sandur Schitst Belt, Karnataka Craton' IndMin37(1), 161-169.
2. S J Gopalkrishna, BPRavi and UM Reddy (2016),' Improving Mn/Fe ratios of ferruginous manganese ores from Sandur', IJIR,2(9),pp1657-58.
3. S J Gopalkrishna, BPRavi and UM Reddy (2017), 'Jigging studies of ferruginous manganese ore'. Proc MPT 2017 NML Chennai,pp 382-89.
4. IBM(2015), Monograph and vision 2020 of Manganese
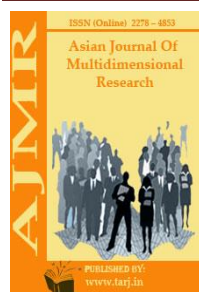
NON-PERFORMING ASSETS: A COMPARATIVE STUDY OF PUBLIC AND PRIVATE SECTOR BANKS

Dr Sukhvir Singh*; Mrs Amrinder Kaur**

*Assistant Professor,
Department of Commerce,
SGTB Khalsa College, University of Delhi, INDIA
Email id: sukhvir_singh@rediffmail.com

**Assistant Professor,
Department of Commerce,
Govt. College, Dera Bassi, Punjab

ABSTRACT

The Indian banking sector has been facing serious problems of raising non-performing assets. Non-Performing Assets is a vital factor in the examination of financial performance of the banks. Today non-performing assets are one of the major concerns of commercial banks in India. It is necessary to cut down NPAs to improve the financial health in the banking sector. In the Present research Paper we tried to compare the Public and Private Sector Banks on the basis of their Gross NPA and Net NPA. The five public banks and five private banks are selected on the basis of net sales namely State Bank of India, Canara Bank, Punjab National Bank, Union Bank of India, Bank of Baroda, Yes Bank, ICICI Bank, HDFC Bank, Axis Bank and Kotak Mahindra Bank.. The annual Published Reports for the period 2008-09 to 2017-18 were taken for the study. On the basis of data analysis we concluded that Yes Bank and Kotak Mahindra bank are really successful to maintain the level of their NPA. We have also concluded that Private Sector Banks were found more efficient to control their NPA as compare to Public Sector Banks for the Study Period.

KEYWORDS: *NPA, Banking Sector, Gross Npa, Public Banks, Private Banks*

1. INTRODUCTION:

The banking sector in India is the combination of both private as well as public sector. Non-performing sector are also called as non-performing loans. It is made by a bank or finance company on which repayment or interest payments are not being made on time. A loan is an asset for a bank as the interest payment and the repayment of the principal create a stream of cash flows. It is from the interest payments that as bank make its profits. Banks usually treat assets as non-performing if they are not serviced for some time.

A Non-performing asset (NPAs) is defined as a credit facility in respect of which the interest and/or installment of principal has remained 'past due' for a specified period of time. In simple terms, an asset is tagged as non-performing when it ceases to generate income for the lender. A non-performing asset (NPAs) is a loan or advance for which the principal or interest payment remained overdue for a period of 90 days. Non-Performing Assets is used by finanacial institutions that refer to loans that are in jeopardy of default the so called NPL. Once the borrower has failed to make interest or principal payments for 90 days the loan is considered to be a non-performing asset. Non-Performing Assets are problematic for financial institutions since they depend on interest payments for income. Troublesome pressure from the economy can lead to a sharp increase in NPLs and often results in massive write-downs.

With a view to moving towards international best practices and to ensure greater transparency, it has been decided to adopt the '90 days' overdue' norm for identification of Non-Performing Assets, from the year ending March 31, 2004. Accordingly, with effect from March 31, 2004, a non-performing asset (NPAs) is a loan or an advance where;

- Interest and/or installment of principal remain overdue for a period of more than 91 days in respect of a term loan,

- The account remains 'out of order' for a period of more than 90 days, in respect of an overdraft/Cash Credit (OD/CC),

- The bill remains overdue for a period of more than 90 days in the case of bills purchased and discounted,

- Interest and/or installment of principal remains overdue for two harvest seasons but for a period not exceeding two half years in the case of an advance granted for agricultural purposes, and

- Any amount to be received remains overdue for a period of more than 90 days in respect of other accounts.

- Non submission of Stock Statements for 3 Continuous Quarters in case of Cash Credit Facility.

- No active transactions in the account (Cash Credit/Over Draft/EPC/PCFC) for more than 91days.

2. REVIEW OF LITERATURE:

Reddy and Rao (2005) made an attempt to identify factors in context of financial sector reforms which could lead to change the position of different bank groups i.e. public sector banks, private sector banks and foreign banks in terms of their share in overall banking industry. The authors found that the share of public sector banks has declined in total assets of banking sector due to

new competitive environment. The researchers further suggested the adoption of customer-oriented banking practices with new technologies for public sector banks to face stiff competition. Shukla (2009) aimed at examining the recent trends in Indian Banking System and its impact on cost and profitability of 27 public sector banks, 27 private sector banks, and 29 foreign banks in India during the period 1991-06. The secondary data used for the study has been collected from annual reports of banks and published material from Reserve Bank of India. The study analysed that in the post-reform period Indian Banking System has become more competitive, more developed and financially viable due to several structural changes. The study evaluated that banks should focus on high operating cost and diversification of activities to remain competitive and profitable. The study evidenced the use of technology based services to intensify competition and to reduce operating cost and achieve higher profitability. The researcher recommended that some critical factors like security and integrity of system should be addressed, and greater emphasis should be given on banking and financial policies to strengthen the banking sector. Prasad and Ravinder (2011) analyzed the profitability of four major banks in India, i.e., State Bank of India, Punjab National Bank, ICICI Bank and HDFC Bank for the period 2005-06 to 2009-10. Statistical tools like arithmetic mean, one-way ANOVA, Tukey HSD Test have been employed for the purpose of study. The profitability of these banks have been evaluated by using various parameters like Operating Profit Margin, Gross Profit Margin, Net Profit Margin, Earning per Share, Return on Equity, Return on Assets, Price Earnings Ratio and Dividend Payout Ratio. The study revealed that State Bank of India performed better in terms of earning per share and dividend payout ratio, while Punjab National Bank performed better in terms of operating profit margin and return on equity. The study found that HDFC Bank outperformed in terms of gross profit margin, net profit margin, return on assets and price Earnings ratio. The study evidenced that ICICI Bank paid highest portion of earning as dividends to shareholders. Analysis ranked HDFC Bank on the top position followed by Punjab National Bank, State Bank of India and ICICI Bank. Goel (2018) studied and compared the management of non-performing assets in public and private sector banks in Haryana from the period 2012-13 to 2016-17. She had used various statistical tools like ANOVA, regression to analyse the impact of Non-Perfoming Assets on profitability, liquidity and solvency of public and private sector banks. He had concluded that there is a growth in the Gross as well as Net NPAs of both bank groups, but percentage of NPAs is more in public sector bank as compared to private sector banks. Gross NPAs percentage in public sector banks was 2.7 % in 2006-2007 which grew up to 9.3 % in 2015-2016. Whereas in private sector banks Gross NPAs was 1.9% in 2006-2007 which grew only up to 2.8 % in 2015-2016.He also concluded that the non-performing assets has the deep impact on the profitability, liquidity and solvency of both sector banks. Further he suggested that Private Banks should rely more on the SARFAESI act for the recovery of NPAs as it has been observed that recovery with the help of SARFAESI act is the most effective method of recovery of NPAs. Banks should strengthen their KYC norms as this will help in knowing the integrity of their borrowers towards repayment of loans. Public sector banks should give regular checks on the client's account.

3. Objectives of the study: The Present Research paper was based on the following objectives.

- To analyze the trend of Gross NPAs, Net NPAs and total Advances
- To compare the NPAs of public and private sector banks.

4. RESEARCH METHODOLOGY

Research methodology shows the various means for data collection for the present study. The study is carried by using secondary data only. The present study provides an easy way to compare the NPAs of both public sector and private sector banks. The data of the study is obtained from the secondary sources such as various websites, journals and magazines, articles that directly or indirectly related to NPAs. The collected data of banks is analyzed with the help of statistical tools. The annual published reports of the banks for the periods 2007-2008 to 2017-2018 were taken for the study.

5. NON-PERFORMING ASSETS

1. Gross **Non-Performing Assets**

2. Net **Non-Performing Assets**

➢ **Gross Non-Performing Assets:** Gross Non-Performing Assets are the sum total of all loan assets that are classified as Non-Performing Assets as per RBI guidelines as on Balance Sheet date. Gross **Non-Performing Assets** reflects the real **Non-Performing Assets** and the quality of the loans made by banks. It consists of all the nonstandard assets like as sub-standard, doubtful, and loss assets.

It can be calculated with the help of following formula:

Gross Non-Performing Assets Ratio = Gross Non-Performing Assets/Gross Advances

➢ **Net Non-Performing Assets**: Net Non-Performing Assets are those type of Non-Performing Assets in which the bank has deducted the provision regarding **Non-Performing Assets**. Net **Non-Performing Assets** is obtained by reducing the provisions from Gross Non-Performing Assets and shows the actual burden of banks.

It can be calculated by following formula:

Net Non-Performing Assets= Gross Non-Performing Assets– Provisions on Gross Advances

6. Calculation of Percentage Increase in Gross Non-Performing Assets, Total Advances and Net Non-Performing Assets of Public Sector Banks

To calculate percentage increase in gross non-performing assets following formulas are used:

Increase in Gross NPAs = Gross NPAs of current year (2017-18) - Gross NPAs of base year (2008-09)

Percentage increase in Gross Non-Performing Assets =increase in gross NPAs / gross NPAs of base year × 100

To calculate percentage increase in total advances following formulas are used:

Increase in Total Advances= total advances of current year (2017-18) - total advances of base year (2008-09)

Percentage increase in Total Advances =increase in total advances/ total advances of base year × 100

To calculate percentage increase in Net non-performing assets following formulas are used:

Increase in Net NPAs = Net NPAs of current year (2017-18) - Net NPAs of base year (2008-09)

Percentage increase in Net Non-Performing Assets = increase in Net NPAs / gross NPAs of base year × 100

6.1 State Bank of India (SBI)

TABLE 1.1: PERCENTAGE INCREASE IN GROSS NPA, NET NPA AND TOTAL ADVANCES OF STATE OF BANK INDIA

Year	Gross NPA (In Cr.)	Total Advances (In Cr.)	Net NPA (In Cr.)
2008-09	15714	542503	9677
2009-10	19535	631914	10870
2010-11	25326	756719	12347
2011-12	39677	867579	15819
2012-13	51189	1045617	21957
2013-14	61605	1209829	31096
2014-15	56725	1300026	27591
2015-16	98173	1463700	55807
2016-17	112343	1571078	58277
2017-18	223428	1934880	110855
Percentage increase (in %)	1322	257	1046

After analyzing the data we found that the Gross NPA, Gross Advances and Net NPA of State Bank of India (SBI) have been increased by 1322, 257 and 1046 Percent respectively during the study period from 2008-09 to 2017-2018. We found the drastic boom in the disbursement of loan advances which represent the clear signal of mismanagement of public funds.

6.2 Canara Bank

TABLE 1.2: PERCENTAGE INCREASE IN GROSS NPA, NET NPA AND TOTAL ADVANCES OF CANARA BANK

Year	Gross NPA (In Cr.)	Total Advances (In Cr.)	Net NPA (In Cr.)
2008-09	2168	138219	1507
2009-10	2590	169334	1800
2010-11	3137	211268	2347
2011-12	4032	232490	3386
2012-13	6260	242177	5278
2013-14	7570	301068	5966
2014-15	13040	330036	8740
2015-16	31638	324715	20833
2016-17	34202	342009	21649
2017-18	47469	381703	28542
Percentage increase (in %)	2090	176	1794

After analyzing the data we found that the Gross NPA, Gross Advances and Net NPA of Canara Bank have been increased by 2090, 176 and 1794 percent respectively during the study period from

2008-09 to 2017-2018. We found the drastic boom in the disbursement of loan advances which represent the clear signal of mismanagement of public funds.

6.3 Union Bank of India

TABLE 1.3: PERCENTAGE INCREASE IN GROSS NPA, NET NPA AND TOTAL ADVANCES OF UNION BANK

Year	Gross NPA (In Cr.)	Total Advances (In Cr.)	Net NPA (In Cr.)
2008-09	1923	98265	326
2009-10	2671	121249	965
2010-11	3623	153022	1803
2011-12	5450	181031	3025
2012-13	6314	211911	3353
2013-14	9564	234332	5340
2014-15	13031	262757	6919
2015-16	24171	277725	14026
2016-17	33712	301684	18833
2017-18	49370	313860	24326
Percentage increase (in %)	2467	219	7362

After analyzing the data we found that the Gross NPA, Gross Advances and Net NPA of Union Bank of India have been increased by 2467, 219 and 7362 percent respectively during the study period from 2008-09 to 2017-2018. We found the drastic boom in the disbursement of loan advances which represent the clear signal of mismanagement of public funds.

6.4 Punjab National Bank

TABLE 1.4: PERCENTAGE INCREASE IN GROSS NPA, NET NPA AND TOTAL ADVANCES OF PUNJAB NATIONAL BANK

Year	Gross NPA (In Cr.)	Total Advances (In Cr.)	Net NPA (In Cr.)
2008-09	2507	154703	264
2009-10	3214	186601	982
2010-11	4379	242107	2039
2011-12	8720	293775	4454
2012-13	13466	308725	7237
2013-14	18880	349269	9917
2014-15	25695	380534	9802
2015-16	55818	412326	19854
2016-17	55370	419493	32702
2017-18	86620	433735	48684
Percentage increase (in %)	3355	180	18341

After analyzing the data we found that the Gross NPA, Gross Advances and Net NPA of Punjab National Bank have been increased by 3355, 180 and 18341 percent respectively during the study

period from 2008-09 to 2017-2018. We found the drastic boom in the disbursement of loan advances which represent the clear signal of mismanagement of public funds.

6.5 Bank of Baroda (BoB)

TABLE 1.5: PERCENTAGE INCREASE IN GROSS NPA, NET NPA AND TOTAL ADVANCES OF BANK OF BARODA

Year	Gross NPA (In Cr.)	Total Advances (In Cr.)	Net NPA (In Cr.)
2008-09	1843	143985.9	449
2009-10	2401	175035.29	602
2010-11	3153	228676.36	791
2011-12	4465	287377.29	1544
2012-13	7983	328185.76	4192
2013-14	11876	397005.81	6035
2014-15	16261	428065.14	8070
2015-16	40521	383770.18	19407
2016-17	42719	383259.22	18080
2017-18	56480	427431.83	23483
Percentage increase (in %)	2965	197	5130

After analyzing the data we found that the Gross NPA, Gross Advances and Net NPA of Bank of Baroda (BoB)have been increased by 2965, 197 and 5130 percent respectively during the study period from 2008-09 to 2017-2018. We found the drastic boom in the disbursement of loan advances which represent the clear signal of mismanagement of public funds.

6.6 Axis Bank

TABLE 1.6: PERCENTAGE INCREASE IN GROSS NPA, NET NPA AND TOTAL ADVANCES OF AXIS BANK

Year	Gross NPA (In Cr.)	Total Advances (In Cr.)	Net NPA (In Cr.)
2008-09	898	81,556.77	327
2009-10	1318	104,343.12	419
2010-11	1599	142407.83	410
2011-12	1806	169759.54	473
2012-13	2393	196965.96	704
2013-14	3146	230066.76	1025
2014-15	4110	281083.03	1317
2015-16	6088	338773.72	2522
2016-17	21281	373069.35	8267
2017-18	34249	439650.3	16592
Percentage increase (in %)	3714	439	4974

After analyzing the data we found that the Gross NPA, Gross Advances and Net NPA of Axis Bank have been increased by 3714, 439 and 4974 percent respectively during the study period

from 2008-09 to 2017-2018. We found that there is a drastic boom in the disbursement of loan advances.

6.7 Kotak Mahindra Bank

TABLE 1.7: **PERCENTAGE INCREASE IN GROSS NPA, NET NPA AND TOTAL ADVANCES OF KOTAK MAHINDRA BANK**

YEAR	Gross NPA (In Cr.)	Total Advances (In Cr.)	Net NPA (In Cr.)
2008-09	689	16,625	397
2009-10	767	20,775	360
2010-11	604	29329.31	211
2011-12	614	39079.23	237
2012-13	758	48468.98	311
2013-14	1059	53027.63	574
2014-15	1237	66160.71	609
2015-16	2838	118665.3	1262
2016-17	3579	136082.13	1718
2017-18	3825	169717.92	1665
Percentage increase (in %)	455	921	319

After analyzing the data we found that the Gross NPA, Gross Advances and Net NPA of Kotak Mahindra Bank have been increased by 455, 921 and 319 percent respectively during the study period from 2008-09 to 2017-2018. We found the drastic boom in the disbursement of loan advances which represent the clear signal of mismanagement of private funds.

6.8. Yes Bank

TABLE 1.8: **PERCENTAGE INCREASE IN GROSS NPA, NET NPA AND TOTAL ADVANCES OF YES BANK**

Year	Gross NPA (In Cr.)	Total Advances (In Cr.)	Net NPA (In Cr.)
2008-09	85	12403	41
2009-10	60	22193	13
2010-11	81	34364	9
2011-12	84	37989	18
2012-13	94	47000	7
2013-14	175	55633	26
2014-15	313	75550	88
2015-16	749	98210	285
2016-17	2019	132263	1072
2017-18	2627	203534	1313
Percentage increase (in %)	2991	1541	3102

After analyzing the data we found that the Gross NPA, Gross Advances and Net NPA of Yes Bank have been increased by 2991, 1541 and 3102 percent respectively during the study period from 2008-09

to 2017-2018. We found the drastic boom in the disbursement of loan advances which represent the clear signal of mismanagement of private funds.

6.9 HDFC Bank

TABLE 1.9: PERCENTAGE INCREASE IN GROSS NPA, NET NPA AND TOTAL ADVANCES OF HDFC BANK

YEAR	Gross NPA (In Cr.)	Total Advances (In Cr.)	Net NPA (In Cr.)
2008-09	1,988	98,883	628
2009-10	1,817	125,831	392
2010-11	1,694	159,983	296
2011-12	1,999	195,420	352
2012-13	2,335	239,721	469
2013-14	2,989	303,000	820
2014-15	3,438	365,495	896
2015-16	4,392	464,594	1320
2016-17	5,886	554,568	1844
2017-18	8,607	658,333	2601
Percentage increase (in %)	333	566	314

After analyzing the data we found that the Gross NPA, Gross Advances and Net NPA of HDFC Bank have been increased by 333, 566 and 314 percent respectively during the study period from 2008-09 to 2017-2018. We found the boom in the disbursement of loan advances which represent the clear signal of mismanagement of private funds.

6.10 ICICI Bank

TABLE 1.10: PERCENTAGE INCREASE IN GROSS NPA, NET NPA AND TOTAL ADVANCES OF ICICI BANK

Year	Gross NPA (In Cr.)	Total Advances (In Cr.)	Net NPA (In Cr.)
2008-09	9649	218,311	4554
2009-10	9481	181,206	3841
2010-11	10034	216,366	2407
2011-12	9475	253,728	1861
2012-13	9608	290,249	2231
2013-14	10506	338,703	3298
2014-15	15095	387,522	6256
2015-16	26221	435,264	12963
2016-17	42159	464,232	25217
2017-18	53240	512,395	27824
Percentage increase (in %)	452	135	511

After analyzing the data we found that the Gross NPA, Gross Advances and Net NPA of ICICI Bank have been increased by 452, 135 and 511 percent respectively during the study period from 2008-09

to 2017-2018. We found the drastic boom in the disbursement of loan advances which represent the clear signal of mismanagement of private funds.

7.   Average Gross NPA of Public Sector Banks and Private Sector Banks

7.1 Average Gross NPA of Public Sector Banks

TABLE 1.11: AVERAGE GROSS NPA OF PUBLIC SECTOR BANKS (IN CR.)

YEAR	State Bank of India	Canara Bank	Union Bank of India	Punjab National Bank	Bank of Baroda
2008-09	15714	2168	1923	2507	1843
2009-10	19535	2590	2671	3214	2401
2010-11	25326	3137	3623	4379	3153
2011-12	39677	4032	5450	8720	4465
2012-13	51189	6260	6314	13466	7983
2013-14	61605	7570	9564	18880	11876
2014-15	56725	13040	13031	25695	16261
2015-16	98173	31638	24171	55818	40521
2016-17	112343	34202	33712	55370	42719
2017-18	223428	47469	49370	86620	56480
Average	70371.5	15210.6	14982.9	27466.9	18770.2

Table 1.11 shows the average Gross NPA of five selected public sector banks. The banks namely State Bank of India, Canara Bank, Union Bank of India, Punjab National Bank and Bank of Baroda have average Gross NPA 70371.5,15210.6, 14982.9, 27466.9 and 18770.2 respectively. The State Bank of India has the highest average Gross NPA followed by Punjab National Bank and Union Bank of India has the lowest average Gross NPA.

7.2 Average Gross NPA of Private Sector Banks

TABLE 1.12: AVERAGE GROSS NPA OF PRIVATE SECTOR BANKS (IN CR.)

Year	Axis Bank	Kotak Mahindra Bank	Yes Bank	HDFC Bank	ICICI Bank
2008-09	898	689	85	1,988	9649
2009-10	1318	767	60	1,817	9481
2010-11	1599	604	81	1,694	10034
2011-12	1806	614	84	1,999	9475
2012-13	2393	758	94	2,335	9608
2013-14	3146	1059	175	2,989	10506
2014-15	4110	1237	313	3,438	15095
2015-16	6088	2838	749	4,392	26221
2016-17	21281	3579	2019	5886	42159
2017-18	34249	3825	2627	8,607	53240
Average	7688.8	1597	628.7	3514.5	19546.8

Table 1.12 shows the average Net NPA of five selected private sector banks. The banks namely Axis Bank, Kotak Mahindra Bank, Yes Bank, HDFC Bank and ICICI Bank have average Net

NPA 7688.8, 1597, 628.7, 3514.5 and 19546.8 respectively. The ICICI Bank has the highest average Net NPA followed by Axis Bank and Yes Bank has the lowest average Net NPA.

8. Average Net NPA of Public Sector Banks and Private Sector Banks

8.1 Average Net NPA of Public Sector Banks

TABLE 1.13: **AVERAGE NET NPA OF PUBLIC SECTOR BANKS (IN CR.)**

Year	State Bank of India	Canara Bank	Union Bank of India	Punjab National Bank	Bank of Baroda
2008-09	9677	1507	326	264	449
2009-10	10870	1800	965	982	602
2010-11	12347	2347	1803	2039	791
2011-12	15819	3386	3025	4454	1544
2012-13	21957	5278	3353	7237	4192
2013-14	31096	5966	5340	9917	6035
2014-15	27591	8740	6919	9802	8070
2015-16	55807	20833	14026	19854	19407
2016-17	58277	21649	18833	32702	18080
2017-18	110855	28542	24326	48684	23483
Average	35429.6	10004.8	7891.6	13593.5	8265.3

Table 1.13 shows the average Net NPA of five selected public sector banks. The banks namely State Bank of India, Canara Bank, Union Bank of India, Punjab National Bank and Bank of Baroda have average Net NPA 35429.6, 10004.8, 7891.6, 13593.5 and 8265.3 respectively. The State Bank of India has the highest average Net NPA followed by Punjab National Bank and Union Bank of India has the lowest average Net NPA.

8.2 Average Net NPA of Private Sector Banks

TABLE 1.14: **AVERAGE NET NPA OF PRIVATE SECTOR BANKS (IN CR.)**

Year	Axis Bank	Kotak Mahindra Bank	Yes Bank	HDFC Bank	ICICI Bank
2008-09	327	397	41	628	4554
2009-10	419	360	13	392	3841
2010-11	410	211	9	296	2407
2011-12	473	237	18	352	1861
2012-13	704	311	7	469	2231
2013-14	1025	574	26	820	3298
2014-15	1317	609	88	896	6256
2015-16	2522	1262	285	1320	12963
2016-17	8267	1718	1072	1844	25217
2017-18	16592	1665	1313	2601	27824
Average	3205.6	734.4	287.2	961.8	9045.2

Table 1.14 shows the average Net NPA of five selected private sector banks. The banks namely Axis Bank, Kotak Mahindra Bank, Yes Bank, HDFC Bank and ICICI Bank have average Net NPA 3205.6, 734.4, 287.2, 961.8 and 9045.2 respectively. The ICICI Bank has the highest average Net NPA followed by Axis Bank and Yes Bank has the lowest average Net NPA.

9.   Average Gross NPA Ratio of Public Sector Banks and Private Sector Banks

Ratio of GNPA (Gross non-performing assets) to gross advances helps to know the overall performance of the assets. Disclosing GNPA in turns of % on gross advances precludes the fear among the public over the safety of banks. For that this ratio helps to understand in a very simple manner. This ratio works as a direct indicator of the credit risk associated with the banks.

9.1 Average Gross NPA Ratio of Public Sector Banks

TABLE 1.15: AVERAGE GROSS NPA RATIO OF PUBLIC SECTOR BANKS

Year	State Bank of India	Canara Bank	Union Bank of India	Punjab National Bank	Bank of Baroda
2008-09	2.9	2	1	1.6	1.28
2009-10	3	2	1.25	1.7	1.37
2010-11	3	1	2	2	1
2011-12	5	2	3	3	2
2012-13	5	3	3	4	2
2013-14	5	2	4	5	3
2014-15	4	4	5	7	4
2015-16	7	9	9	13	10
2016-17	7	10	11	13	10
2017-18	11	12	16	18	12
Average	5.28	4.7	5.53	6.83	4.67

Table 1.15 shows the average Gross NPA Ratio of five selected public sector banks. The banks namely State Bank of India, Canara Bank, Union Bank of India, Punjab National Bank and Bank of Baroda have average Gross NPA Ratio 5.28, 4.7, 5.53, 6.83 and 4.67 respectively. The Punjab National Bank has the highest average Gross NPA Ratio and Union Bank of India has the lowest average Gross NPA Ratio.

9.2 Average Gross NPA Ratio of Private Sector Banks

TABLE 1.16: AVERAGE GROSS NPA RATIO OF PRIVATE SECTOR BANKS

Year	Axis Bank	Kotak Mahindra Bank	Yes Bank	HDFC Bank	ICICI Bank
2008-09	1.1	2.5	0.7	2	4.4
2009-10	1.3	2.4	0.3	1.44	5.2
2010-11	1	1.71	0.2	1	0
2011-12	1	1	0.2	1	0
2012-13	1	1	0.2	1	0
2013-14	1.36	1.6	0.3	1	0
2014-15	1.46	1.6	0.4	1	4
2015-16	2	2.1	1	1	6

2016-17	5	2.2	2	1	9
2017-18	7	2	1	1	10
Average	2.22	1.81	0.63	1.14	3.86

Table 1.16 shows the average Gross NPA Ratio of five selected private sector banks. The banks namely Axis Bank, Kotak Mahindra Bank, Yes Bank, HDFC Bank and ICICI Bank have average Gross NPA Ratio 1.06, 0.98, 0.26, 0.31 and 2.32 respectively. The ICICI Bank has the highest average Gross NPA Ratio and Yes Bank has the lowest average Gross NPA Ratio.

10. Average Net NPA Ratio of Public Sector Banks and Private Sector Banks

Net advances is derived from gross advances after deducting Net NPA as percentage to net advances helps to know the actual credit risk involved in the net advances. This ratio works as an important indicator to evaluate the performance of banks.

10.1 Average Net NPA Ratio of Public Sector Banks

TABLE 1.17: **AVERAGE NET NPA RATIO OF PUBLIC SECTOR BANKS**

YEAR	State Bank of India	Canara Bank	Union Bank of India	Punjab National Bank	Bank of Baroda
2008-09	2	1.09	0.4	0.17	0.31
2009-10	2	1.06	0.4	0.53	0.34
2010-11	2	1	1	1	0
2011-12	2	1	2	2	1
2012-13	2	2	2	2	1
2013-14	3	2	2	3	2
2014-15	2	3	3	4	2
2015-16	4	6	5	9	5
2016-17	4	6	7	8	5
2017-18	6	7	8	11	5
Average	2.87	3.02	3.08	4.07	2.17

Table 1.17 shows the average Net NPA Ratio of five selected public sector banks. The banks namely State Bank of India, Canara Bank, Union Bank of India, Punjab National Bank and Bank of Baroda have average Net NPA Ratio 2.87, 3.02, 3.08, 4.07 and 2.17 respectively. The Punjab National Bank has the highest average Net NPA Ratio and Bank of Baroda has the lowest average Net NPA Ratio.

10.2 Average Net NPA Ratio of Private Sector Banks

TABLE 1.18: **AVERAGE NET NPA RATIO OF PRIVATE SECTOR BANKS**

Year	Axis Bank	Kotak Mahindra Bank	Yes Bank	HDFC Bank	ICICI Bank
2008-09	0.4	1.3	0.33	0.63	2.12
2009-10	0.4	1.3	0.06	0.31	2.09
2010-11	0.8	0.59	0.02	0.2	1
2011-12	0.7	1	0.1	0.2	1
2012-13	0.4	1	0.01	0.2	1
2013-14	0.4	0.9	0.04	0.3	1

2014-15	0.5	0.8	0	0.3	2
2015-16	1	0.9	0	0.3	3
2016-17	2	1.1	1	0.3	5
2017-18	4	0.9	1	0.4	5
Average	1.06	0.98	0.26	0.31	2.32

Table 1.18 shows the average Net NPA Ratio of five selected private sector banks. The banks namely Axis Bank, Kotak Mahindra Bank, Yes Bank, HDFC Bank and ICICI Bank have average Net NPA Ratio 1.06, 0.98, 0.26, 0.31 and 2.32 respectively. The ICICI Bank has the highest average Net NPA Ratio and Yes Bank has the lowest average Net NPA Ratio.

SUMMARY AND CONCLUSION:

To present the clear NPA picture of the selected banks, the average NPA data of ten years (2008-09 to 2017-18) is presented in descending manner.

AVERAGE GROSS NPA OF BANKS

	State Bank of India	Punjab National Bank	ICICI Bank	Bank of baroda	Canara Bank	Union Bank of India	Axis Bank	HDFC Bank	Kotak Mahindra Bank	Yes Bank
GROSS NPA	70371.5	27466.9	19546.9	18770.2	15210.6	14982.9	7688.8	3514.5	1597	628.7
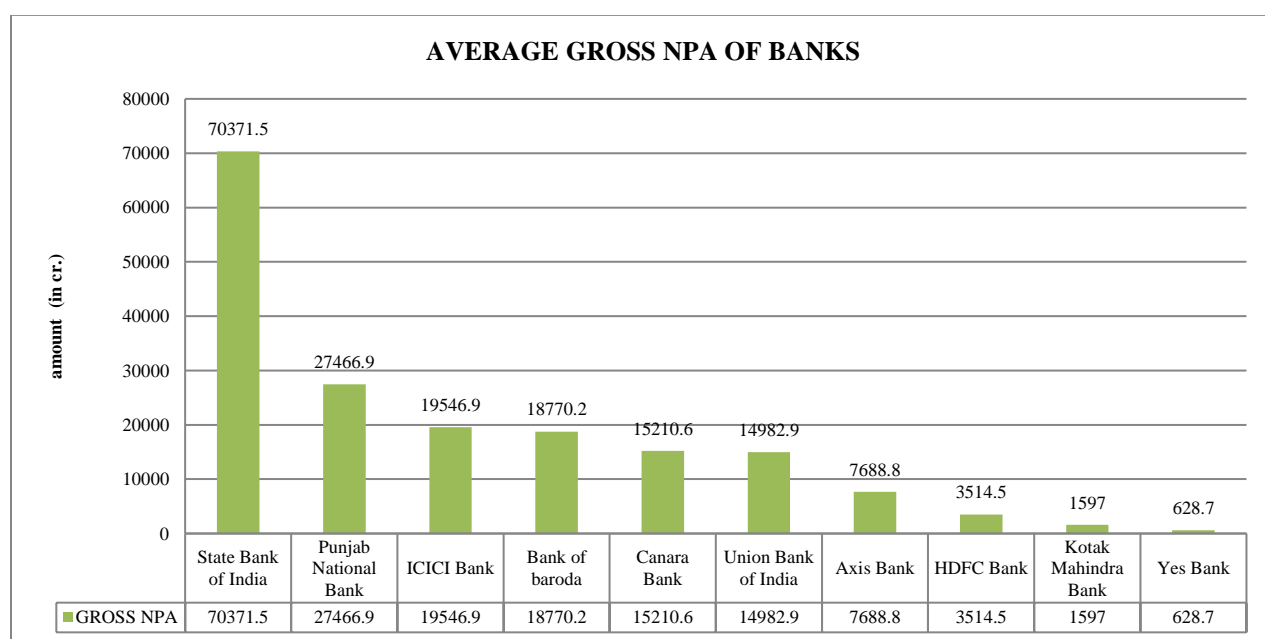
Figure 1.1: Average Gross NPA of banks

AVERAGE NET NPA OF BANKS

	State Bank of India	Punjab National Bank	Canara Bank	ICICI Bank	Bank of baroda	Union Bank of India	Axis Bank	HDFC Bank	Kotak Mahindra Bank	Yes Bank
■ AVERAGE NET NPA	35429.6	13593.5	10004.8	9045.2	8265.3	7891.6	3205.6	961.8	734.4	287.2
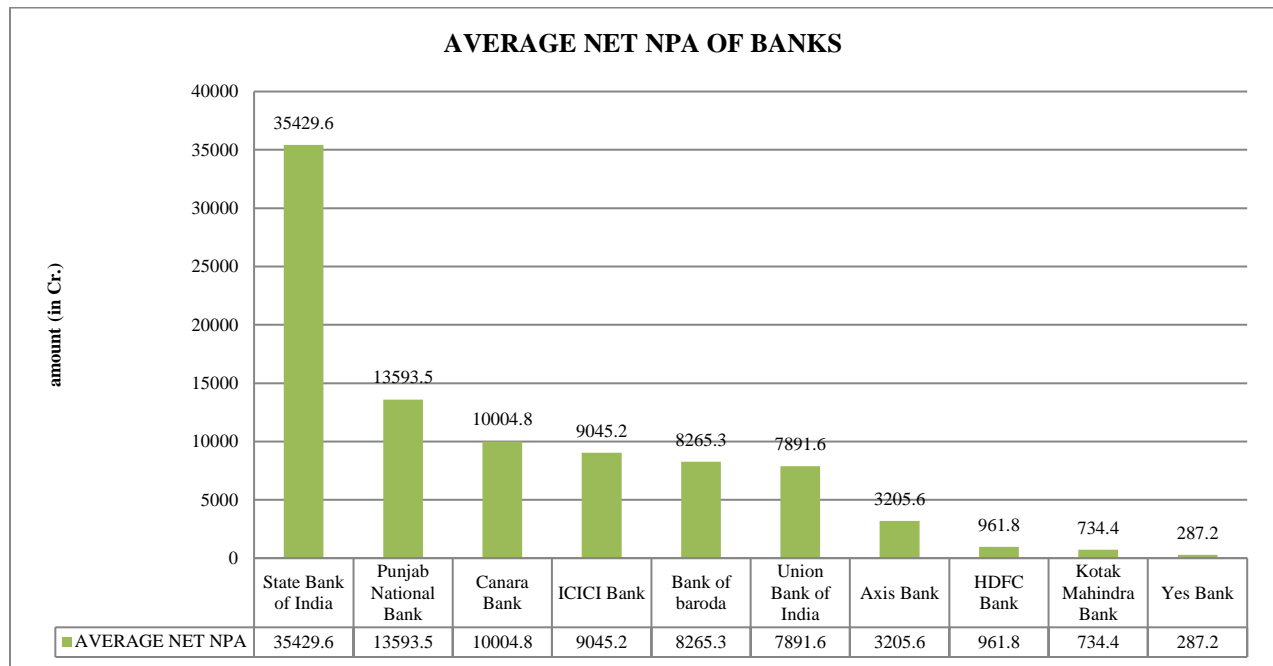
Figure 1.2: Average Net NPA of banks

 figure 1.1 and figure 1.2 reveals that the NPA levels of State Bank was found highest as compare to other banks. On the basis of data analysis we concluded that Yes Bank and Kotak Mahindra are really successful to maintain the level of their NPA. We have also concluded that Private Sector Banks were found more efficient to control their NPA as compare to Public Sector Banks for the Study Period.

REFERENCES:

- Goel (2018))"Comparative study of management of non-performing assets in public and private sector banks in Haryana, A Ph.D. Thesis, Submitted to Maharshi Dayanand University, Haryana.

- Prasad, K.V.N. and Ravinder, G. (2011), "Performance Evaluation of Banks: A Comparative Study on SBI, PNB, ICICI and HDFC", Advances in Management, Vol. 4(2) September, pp. 43-53.

- Reddy, K.S.; and Rao, A.V.S., (2005), "Comparative Evaluation of Different Bank Groups: A Study", *Journal of Managerial Finance and Research*, Vol. I, No.1.

- Shukla P. (2009), A Study of Recent Trends in Indian Banking System and its Impact on Cost and Profitability of Commercial Banks, A Ph.D. thesis submitted to C.S. J. M. University, Kanpur, 2009.

- www.rbi.org.in

MAU MAU MOVEMENT: A LETHAL WEAPON WITH NGUGI WA THIONG'O

Dr Satinder Singh*

*Assistant Professor,
C R Kisan College Jind (Haryana), INDIA
Email id: gogikundu@gmail.com

ABSTRACT

Mau Mau is a socio-political movement but the word had come into use to explain the existence of the Land and Freedom Army during the Emergency period in Kenyan colonial history from 1952-62. Mau Mau was a revolutionary movement, although not a successful one. Another factor came from the tradition of political resistance to colonial rule presented by the Gikuyu/Kenyan Central Association (KCA) and the Kenyan African Union (KAU) after 1946. In A Grain of Wheat, Ngugi shows that the Mau Mau movement is a revolution with a noble cause that needs to be carried out in a culturally specific way.

KEYWORDS: *Mau Mau Movement, Elimination of Ttraitors and Informers, Detention Camp, Colonial Repression, Strategic Hamlets, Guerrilla Warfare, Land and Freedom Army, Colonial Suppression, Political Violence, Idea of Haraambe, Fight Against Colonialism*

INTRODUCTION

Like Chinua Achebi, Ngugi wa Thiong'o believes that the new-imperialistic phase is no different from the colonial one. The complete and comprehensive study of Ngugi wa Thiong's would be incomplete and lopsided if due weightage and reference is not given to the Mau Mau Movement along with its aims and objectives.

The issue of Mau Mau in Ngugi's fiction needs a larger focus. Mau Mau has always had a revolutionary perspective in Ngugi's writings from the revengeful Boro in Weep Not, Child to the messianic Kihika in A Grain of Wheat to the maimed storekeeper Abdullah in Petals of Blood. However, the clearest and most revolutionary focus of Mau Mau is in The Trial of Dedan Kimathi, written by Ngugi and Micere Mugo. Here Ngugi was not only linking the anti-colonial struggles of the past by linking Kimathi to the resistance of Me Katilili, Koitalel and Waiyaki[1], but he was also pointed out the problems of neo-colonialism. Kimathi is presented as a Christ like figure whose spirit must endure four separate trials. Although there is some justified criticism by brain Crow for a racist caricature of the Indian banker in the play, the play's

criticism of both a white colonial administration and a neo-colonial national bourgeoisie is successful.[2]

The origin of the word *Mau Mau* is unclear. Karari Njama relates it to several misconceptions: "Firstly, a mispronunciation of *uma uma* (out out), a Gikuyu reference to oust European rule. Secondly, misperception by European journalists at the Naivasha Trial in 1950 of the expression, *mumumumu* which means whispered voices within an oathing hut. Thirdly, a secondary usage invented after the term became popularized in Swahili, *Mzangu Arudi Uingereza, Mura Africa Apote Uhuru* (Let the European return to England and the African obtain his freedom.")[3] In fact the name Mau Mau did not exist, but the word had come into use to explain the existence of the Land and Freedom Army during the Emergency period in Kenyan colonial history from 1952-62. Mau Mau was a revolutionary movement, although not a successful one. According to David Maughan and Brown, "It was an unsuccessful revolt."[4] It is more than that as, "Ngugi, Maina wa Kinyatti and others have kept it alive through drama, fiction and songs."[5]

The roots of the Mau Mau movement come from the alienation of land from a largely Gikuyu peasantry as well as from the exploitation of surplus labour through the Kipande system. Another factor came from the tradition of political resistance to colonial rule presented by the Gikuyu/Kenyan Central Association (KCA) and the Kenyan African Union (KAU) after 1946.

The arrest and internment of the leaders of the KAU in 1952, including Kenyatta, Kaggia, Koinange, left the Kenyan nationalist movement disoriented. Reorganization in the countryside took place under the new leadership of Dedan Kimathi and Stanley Mathenge. The use of oathing was the key to organizing support for a new guerrilla organization that depended on peasant support. Oathing was not a new method of organization but had been used earlier by both the KCA and the KAU. The betrayal of the oath was seen as a betrayal of the national and tantamount to collaboration with the colonial administration. Besides oathing, other political activities were organized by the Mau Mau including the boycotting of European goods, combating of prostitution and the elimination of traitors and informers.

One of the most important myths, that Mau Mau was primarily a Gikuyu tribalist movement, has been exploded by research by Barnett, Kinyatti and Maughan-Brown. The land alienation affected the Gikuyu the most because of their location in the Central Highlands. While they were the largest group active in Mau Mau, the Cornfield Report also indicates that thousands of Kamba were detained as well. The largest member of detainees at the most infamous detention camp at Hola were Luos.[6] Repression of the Kenyan people by the British colonial administration far out stripped reported Mau Mau atrocities. According to Kinyatti:

By the end of 1954 about 1,50,000 workers, peasants and patriotic elements of the petty-bourgeoisie had been herded without trial into prisons and detention camps where they were to undergo unspeakable tortures. Many died, others lost their limbs, others went insane while, some were even castrated.[7]

After Kimathi's capture in October 1956, colonial repression continued with accelerated confinement of Gikuyu and other people, the creation of strategic hamlets or emergency villages, and the recruitment of forced labour to dig trenches around guerrilla sanctuaries such as Mount Kenya and the Aberdares. The confiscation of livestock occurred as well. Casualty figures vary. According to the official Cornfield Report figure 11,503 Mau Mau guerrillas were killed in the Emergency period. Kinyatti contests these figures and says a conservative estimate is 1,50,000 Kenyans lost their lives; 2,50,000 were maimed for life.[8]

The political consciousness of the movement is rarely discussed. One small, but significant example comes from Njama. After the loss at Ruthaithi in September 1954, the guerrilla forces visited the farm of a Major Own Jeffreys and stole various articles from him when they failed to retrieve guns that he had taken from them. Njama also left a letter whose sentiments confirm a Mau Mau nationalism:

You cannot kill ideas by killing people. Since the declaration of emergency almost two years ago you have neither killed the idea nor won the battle. Our battle is really between right and might. The six million Africans standing for right will definitely beat sixty thousand Europeans standing for the might, irrespective of your army strength.[9]

However, Mau Mau nationalism is of little value to the neo-colonialist governments of Jomo Kenyatta or Daniel Arap Moi. David Maugham and Brown are right when they say, "A whole school of reactionary thinking has formed the basis of study at the University of Nairobi which has reduced the movement to one that is either primitive tribalist or Gikuyu expansionist."[10] The history of traditional resistance movements against colonialism from Waiyaki to Mau Mau will certainly furnish Ngugi with enough inspiration and commitment to continue to communicate with those who oppose the exploitation of neo-colonialism in Kenya.

The Mau Mau movement provides the backdrop to Matigari. Its activists who waged a relentless guerrilla warfare against the British imperialism in Kenya during the 1950's were a terror and a nightmare to the whites. Historically speaking it was started on 20th October 1952 and very soon the Governor of Kenya declared a State of Emergency. It was Dedan Kimathi who led the Mau Mau or the Land and Freedom Army from the forests and mountains. Thousands of men, women and children who actively participated in the movement, fought against the British bravely with courage and fortitude. These activists in thousands were put behind bar, many more were killed in encounters in cold blood. The Homeguards and the middlemen helped the British for mercenary gains and with their generous help the Mau Mau activists were hunted down by the British in the forests of Nyandarua and Mount Kenya. In spite of these setbacks, the movement was sustained by the commitment of the participants. The vision of freedom and the idea of an independent and free Kenya filled their imagination.

The same is the case in India where the revolution of 1857 was declared as mutiny by the Britishers. The opposition between the written and oral sources of history has centered around the fundamental question of whose history we seek to represent. Is it the history of the colonial and neo-colonial bourgeoisie and their ideologues, or it is the history of the masses of the exploited people from whose ranks the Mau Mau emerged? That is why, Ngugi and Micere Mugo decided, for the first time, to turn to the oral tradition, and to elicit a firsthand oral account of Kimaathi directly from the people who had known him as a child, a villager and a guerilla hero. The same orality is to be found in The River Between and Weep Not, Child, where Ngugi delves into the theme of colonialism, alienation from Gikuyu land and peoples' resistance to the politics of occupation.

In A Grain of Wheat, Ngugi shows that the Mau Mau movement is a revolution with a noble cause that needs to be carried out in a culturally specific way. To represent the Mau Mau as a just resistant movement, Ngugi has created two characters who stand in opposition to each other. While Kihika is a voice of the freedom movement, Thompson represents the British occupying power. It is apparent that in the novel Ngugi uses Kihika to defend the terrorist strategy of the Mau Mau. Persuading Mugo to join the movement, Kihika reasons why they have to kill: "We

are not murderers. We are not hang men – like Robson – killing men and women without cause of purpose" (AGW : 185). Kihika is here implicitly drawing a distinction between murderers and political terrorists. A difference between these two groups rests on the fact that while criminals commit a crime out of personal malice, political prisoners carry out their action, no matter how violent, with a clear political end. As Kihika furthers explains to Mugo :

We only hit back. You are struck on the left cheek. You turn the right cheek. One, two, three – sixty years. Then suddenly, it is always sudden, you say: I am not turning the other cheek any more. Your back to the wall, you strike back…. We must kill. Put to sleep the enemies of black man's freedom…. Strike terror in the heart of the oppressor. (AGW : 185-86)

Kihika's explanation leads us to an understanding that there are at least two kinds of violence. While the first kind is carried out to control the subaltern group, the other kind is made in the name of social justice. Ngugi seems to suggest that looking at violence at only its surface is insufficient to determine what kind of violence it is, since what distinguishes these two types of violence lies in the intention of the agents: Violence in order to change an intolerable, unjust social order is not savagery; it purifies man. Violence to protect and preserve an unjust, oppressive social order is criminal, and diminishes man. What is more important is that any judgement or justification of an act of violence will be valid only when the context in which it is made is taken into consideration. By having Kihika talk about violence, Ngugi makes it clear that it is colonial suppression that has caused political violence in Kenya in the first place. The violence of the British authority and that of the Mau Mau are not comparable because while the first is made to take an advantage of a people, the latter is made to protect their own rights and liberties.

Ngugi makes a clear distinction between Haraambe and Mau Mau Movement. Sometimes, it is assumed that the idea of Haraambe has its roots in the goals and aims of the Mau Mau. In <u>Devil on the Cross</u>, the novelist hints that Haraambe is meant for the exploiters and Mau Mau for the exploited, the former is the organization of home guards and imperialists and the latter is the organization of patriots who used to sing these words:

> Great love I found there
>
> Among women and children.
>
> A bean fell to the ground –
>
> We split it among ourselves. (DOC: 39)

The organization of home guards and imperialists used to sing the song like this:

> Self-love and the love of selling out
>
> Among the traitors of the land.
>
> The bean we steal from the people –
>
> We struggle to see who can grab it all. (DOC: 39)

In this way, the Haraambe of home guards and capitalists in disguise of imperialists is an organization designed to encourage bestiality under which a man throws children and the disabled into the fire as he rushes for the debris and left over of the imperialists. The Mau Mau's Haraambe is an idealized organization designed to spread humanitarian for its members used to

offer their own lives in defence of children and the disabled. As the homeguards', Organization aimed to sell our country to foreigners: the Mau Mau's aim was to protect the country.

Ngugi, in <u>Weep Not, Child</u>, is at the apex of Mau Mau Revolution where through the character of Boro, an inherent fighter, he sees no future on the land. He was unable to work in the city either. While his generation's fight against colonialism through Mau Mau was an active progressive cause, Boro as an individual, affected by the loss of a brother and a father, is almost nihilistic in his response to colonial oppression. His passion for revenge because of the death of his father and brother consumed him. Two distinct passages illustrate his alienation from his roots in the soil and his betrayal of his family. Firstly, a verbal exchange with a lieutenant in the Mau Mau:

> Don't you believe in anything?
>
> No. Nothing. Except revenge.
>
> Return of the lands?
>
> The lost land will come back to us may be. But I've lost too many of those whom I loved for land to mean much to me. It would be a cheap victory. (WNC : 102)

To sum up, it is assumed that unlike Indian National Movement, the Mau Mau Movement was not politically patronized. That is why, it could not set the whole nation in one *sutra*. Lacking of mass leadership like Mahatma Gandhi in India and also that of international support as Indian Freedom Army enjoyed, the Mau Mau Movement remained unsuccessful so it was declared by the colonizers as a mere revolt by a handful of guerillas. Most of the Mau Mau revolutionaries had set up their offices and hiding places in forests. The Mau Mau female leaders, to get one or two bullets from the English, scarified their bodies and dignity to the Britishers. Lack of mass movement, lack of national awakening, lack of proper organization and leadership, as there was no longevity of the duration of struggle and lastly lack of financial aid, this movement could not be considered as national movement. But this does not mean that the Mau Mau fighters betrayed their nation. They never betrayed Kenya. When Kenya got freedom, they were betrayed and more exploited by their own black government. The result of their hardships and their sacrifices, and the cost of their blood and sweat perpetuated into their lifelong poverty and exploitation at the hands of black whitemen. Due to wrong and selfish policies of the government, they could not, even after gaining freedom, become the part of the main stream as they remained politically untouchables and socially outcastes. They share their sorrows, sufferings and hardships whenever they meet their counterparts; otherwise they find nobody who may hear their predicaments. Though this belt of Mau Mau could not cover the belly of Kenya, but its members' unity, oathing killing and murdering the colonizers, shook the foundation of the mighty empire and forced the white men to leave their country. But they feel dissatisfied, depressed and dejected when they look at the modern Kenya where like India, the black white men are looting the country twenty four hours a day.

REFERENCES

1 Ngugi wa Thiong'o, <u>Writers in Politics</u> (London : Heinemann, 1981) 51.

2 Brain Crow, "Melodrama and the Political Unconscious in Two African Plays," <u>Ariel</u> 14.3 (1983) : 30.

3 Donald L. Barnett and Karari Njama, <u>Mau Mau from Within</u> (New York : Monthly Review Press, 1966) 51-54.

4 David Maughan and Brown, <u>Land, Freedom, and Fiction : History and Ideology in Kenya</u> (London : Zed Press, 1985) 20.

5 Maina wa Kinyatti, <u>Thunder from the Mountains : Mau Mau Patriotic Songs</u> (London : Zed Press, 1980) 30.

6 David Maughan and Brown, <u>Land, Freedom, and Fiction : History and Ideology in Kenya</u> (London : Zed Press, 1985) 35.

7 Maina wa Kinyatti, "Mau Mau : The Peak of African Political Organisation in Colonial Kenya," <u>Kenya Historical Review</u> 5.2 (1977) : 298.

8 Kinyatti 297.

9 Donald L. Barnett and Karari Njama, <u>Mau Mau From Within</u> (New York : Monthly Review Press, 1966) 387.

10 David Maughan and Brown, <u>Land, Freedom, and Fiction : History and Ideology in Kenya</u> (London : Zed Press, 1985) 56-58.

❖ Ngugi wa Thiong'o, <u>Devils on the Cross</u> (Harlow, Essex : Heinemann, 1987) .

(All the subsequent textual citations are from this edition and page numbers are given in the parentheses following the quotes with DOC)

❖ Ngugi wa Thiong'o, <u>Matigari</u> (Oxford : Heinemann, 1987) .

(All the subsequent textual citations are from this edition and page numbers are given in the parentheses following the quotes with MAT)

❖ Ngugi wa Thiong'o, <u>Weep Not, Child</u> (Harlow, Essex : Heinemann, 1987) .

(All the subsequent textual citations are from this edition and page numbers are given in the parentheses following the quotes with WNC)
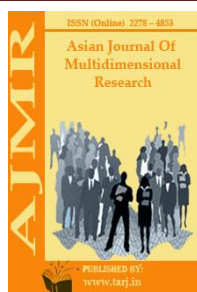
ROLE OF NATIONAL COMMISSION FOR WOMEN IN PROTECTION OF RIGHTS OF WOMEN

Navpreet Kaur*

*Assistant Professor,
LBS College, Barnala, INDIA

ABSTRACT

It is said that the best way to know about as much possible about women. In India, women have come a long way from the rare women scholars and sages of the Vedic age to the women in different sectors of society and civilization today such as the armed forces, art, information technology, politics and a number of similar sectors which have traditionally been male-dominated, while simultaneously balancing the roles of wife, mother and daughter. While Indian women have fought against the patriarchal Indian society and triumphed at many levels, cases of rape, dowry deaths, female infanticide, sexual harassment at workplace, female illiteracy, and similar problems are still rampant in Indian society.

KEYWORDS: *Modernization, Independent, Rigvedi, Illiteracy, Significant.*

INTRODUCTION

It is often said that status and position of women in society is the best way to understand a civilization, its progress and its shortcomings. In case of India women have come a long way from women sages and scholars in the Rigvedic period to women in the armed forces, IT sector, politics, industry and other significant areas while balancing their role as a daughter, wife and mother. This journey towards modernization has not been easy. Women have had to fight the traditional Indian male dominated society to emerge as stronger and independent entity. 'While all these are positive developments, cases of rape, harassment and work place and dowry deaths are rampant. Illiteracy arid ignorance about their rights are still prevalent among majority of women. It was in the background that the Committee on the Status of Women in India

(CSWI) recommended nearly two decades ago, the setting up of a National Commission for Women to surveillance functions, to facilitate redressal of grievances and to accelerate the socioeconomic development of women.[1]

1. National Commission for Women

In January 1992, the National Commission for Women (NCW) was set up as a statutory body under the National Commission for Women Act, 1992,[2] to review the constitutional and legal

safeguards' for women; recommend remedial legislative measures, facilitate redressal of grievances and advise the government on all policy matters affecting women.

As the problems of violence against women, the National Commission for Women (NCW) has adopted a multi-prolonged strategy to tackle the problem. The Commission has initiated generation of legal awareness among women, thus equipping them with the knowledge of their legal rights and with a capacity to use these rights. It assists women in redressal of their grievances through pre-litigation services. To facilitate speedy delivery of justice of women, *Parviarik Mahila Lok Adalats* are organized in different parts of the country to review the existing provisions of the Constitution and other laws affecting women and recommending amendments. There to, any lacunae, inadequacies or shortcomings in such legislations it organizes promotional activities to mobilize women and get information about their status and recommend paradigm right in empowerment of women. The complaints and counseling are of the common processes. The complaints received oral, written or suo moto under Section 20 of the New Act. The complaints received relate to domestic violence, harassment, dowry, torture, desertion, bigamy, rape, refusal to resister FIR, cruelty by husband, deprivation, gender discrimination. Since most women's movements in the country have been effective because of the efforts of NGOs, the NCW interacts and networks with NGOs, state commission, media, social activists and academicians to suggest ways of ensuring due representation of women in the process of ensuring gender equality and empowerment of women.[3]

Owing to the overwhelmingly patriarchal structure of our society, women have been relegated to a secondary status and have been subject to various legal and social discrimination. The framers of the Constitution recognized the need to remove such inequalities, and made special provisions to redress the same. The need was felt for a structure to uphold the right and implement the provisions of beneficial legislations in an organized and institutionalized manner. The National Commission for Women (NCW) is a statutorily constituted body under the National Commission for Women Act, 1990.[4]

Importance of the Commission

Women as a clear neither belong to a minority group nor are they regarded as a backward class. India has traditionally been a partriarchal society and therefore women have always suffered from social handicaps and disabilities. It thus became necessary to take certain ameliorative steps in order to improve the condition of women in the traditionally male- dominated society. The Constitution does not contain any provision specifically made in favour women as such. Though Article 15(3), 21 and 14 are in favour of women; they are more general in nature and provide for making any special provisions for women, while they are not in themselves such provisions. The Supreme Court through interpretive processes has tried to extend some safeguards to women, the courts have tried to improve the social conditions of Indian women but these have hardly sufficed to improve the position of women in India.[5]

Composition of National Commission for Women

Constitution of the National Commission for Women: (1) The Central Government shall constitute a body to be known as the National Commission for Women to exercise the powers conferred on, and to perform the function assigned to it under this Act.

The Commission shall consist of:

a. A Chairperson, committee to the cause of women, to be nominated by the Central Government;

b. Five members to be nominated by the Central Government from amongst persons of ability, integrity and standing who have had experience in law or legislation, trade unionism, management of an industry or organization committed so increasing the employment potential of women, women's voluntary organizations (including women activists) administration, economic development, health, education or social welfare: provided that at least one member each shall be from amongst persons belonging to the

Scheduled Castes and Scheduled Tribes respectively;[6]

A member-secretary to be nominated by the Central Government, who shall be:

i. An expert in the field of management, organizational structure or sociological movement, or

ii.   An officer who is member of a civil service of the union or of an all-India service or holds a civil post under the union with appropriate experience.

The Term of Office and Condition of Service

The term of office of the Chairperson and members has to be of more than three years (if has to be prescribed by the Central Government), though they are free to resign at any time by writing tendered to the Central Government. The Central Government has power to remove a person from the office of Chairperson or member, if that person:

a. becomes an undercharged insolvent;

b. gets convicted and sentenced to imprisonment for an offence which in the opinion of the Central Government involves moral turpitude;

c. becomes of unsound mind and stands so declared by a competent court; (d) refuses to act or becomes incapable of acting;

d. is, without abstaining leave of absence from the commission absent from three consecutive meetings of the commission;

e. in opinion of the Central Government has so abused to position of Chairperson or member as to render that person's continuance an office detrimental to the public interest.[7]

f. In every case of removal, that person has to be given a reasonable opportunity of being

Heard;

Any vacancy caused in commission will be filled by a fresh nomination by the Central

Government;

The members of the commission including the Chairperson are to be paid salaries and allowances, as prescribed by the Central Government.

Officers and other Employees of the Commission

1. The Central Government shall provide the commission with such officers and employees as may be necessary for the efficient performance of the functions of the commission under act.

2. The salaries and allowances payable to and the other terms and conditions of service of, the officers and other employees appointed for the purpose of the commission shall be such as may be prescribed.

Committees of the Commission

1. The Commission may appoint such committees as may be necessary for dealing with such special issues as may be taken up by the commission from time to time.

2. The Commission shall have the power to co-opt as members of committee appointed under sub-section (1). Such member of persons, who are not members of the Commission, as it may think fit and the persons so co-opted shall have the right to attend the meetings of the committee and take part in its proceedings but shall not have the right to vote.

3. The person so co-opted shall be entitled to receive such allowances for attending the meetings of the committee as may be prescribed.[8]

Procedure of Regulated by the Commission

1. The Commission or a committee thereof shall meet and when necessary and shall meet at such time and place as the Chairperson may think fit. .

2. The Commission shall regulate its own procedure of the committees thereof.

3. All orders and decisions of the Commission shall be authenticated by the member- secretary or any other officer of the commission duly authorized by the member- secretary in this behalf.

Functions of the Commission

1. The Commission shall perform all or any of the following functions, namely;

a. the Commission can investigate and examine all matters relating to the safeguards provided for women under the Constitution and other laws;

b. present to the Central Government, annually and at such other time as the commission may deem fit, reports upon the working of those safeguards;

c. make in such reports recommendations for the effective implementation of those safeguards for improving the conditions of women by the union or any state;

d. review, from time to time, the existing provision of the Constitution and other laws affecting women and recommend amendments thereto so as to suggest remedial legislative measures to meet any lacunae inadequacies or shortcomings in such legislation;

e. take up the case of violation of provisions of the Constitution and of other laws relating to women with the appropriate authorities;[9]

f. look into complaints and take *suo moto* notice of matters relating to:

A. deprivation of women's rights;

B. non-implementation of laws enacted to provide protection to women and also to achieve the objective of equality and development

C.   non-compliance of policy decisions, guidelines or instructions aimed at mitigating hardships and ensuring welfare and providing relief to women; and take up the issues arising out of such matters with appropriate authorities;

a. call for special studies or investigations into specific problems or situations arising out of discrimination and atrocities against women and identify the constraints so as to recommend strategies for the removal;

b. undertake promotional and educational research so as suggest ways of ensuring due representation of women in all spheres and identify factors responsible for impeding their advancement, such as, lack of access to housing and basic services, inadequate

Support services and technologies for reducing drudgery and occupational health hazards and for increasing their productivity;

a. Participate and advice on the planning process of socioeconomic development of women;

b. Evaluate the progress of the development of women under the union and any state;

c. Inspect or cause to be inspected a jail, remand home, women's institution or other paces of custody, where women are kept as prisoners or otherwise, and take up with the concerned authorities for remedial action, if found necessary;

d. Found litigation involving issues affecting a large body of women;

e. Make periodical reports to the government on any matter pertaining to women and in particular various difficulties under which women toil and;

f. Any other matter which may be referred to it by the central government.

1. The Central Government shall cause all the reports referred to in clause (b) of sub-section

2. To be laid before each house of Parliament along with a memorandum explaining the action taken or proposed to be taken on the recommendation relating to the union and the reason for non-acceptance, if any, of any of such recommendation.

3. Where any such report or any part thereof relates to any matter with which any state government is concerned the commission shall forward a copy of such report or part of such state government who shall cause it to be laid before the legislature of the state along with a memorandum explaining the action taken or proposed to be taken on the recommendations relating to the state and the reasons for the non-acceptance, if any, of such recommendations.

4. The commission shall, while investigating any matter referred to in clause (a) or sub-clause

(i) Of clause (f) of sub-section (1), have all the powers of a civil court trying a suit and, in particular, in respect of the following matters, namely:

a. Summoning and enforcing the attendance of any person from any part of India and

examining him on oath;

b. Requiring the discovery and oduetion of any document;

c. Receiving evidence on affidavits;

d. Requisitioning any public record or copy thereof from any court of office;

e. Issuing commissions for the examination of witnesses and documents; and

f. Any other matter which may be prescribed.

Bill on Sexual Harassment at Workplace The National Commission for Women took up the task for formulating a comprehensive legislation to deal with sexual harassment at the workplace. A draft bill on sexual harassment was prepared in August 2001 and was widely circulated and discussed. The NCW conducted regional consultations with various groups as well as national meetings in which groups were invited to Delhi to discuss the bill.

A national consultation on the sexual harassment bill was held on the *23rd* and 24th October, 2004, involving organization from across the countiy working on this issue in the earlier proposed bill The Protection against Sexual Harassment of Women Bill, 2005' recognize sexual harassment as the infringement of fundamental right of women to gender equality under Article 14 and her right to life and to live with dignity under Article 21 of the Constitution which includes a right to safe environment, free from sexual harassment.[10] **Suggestions**

The above mentioned causes have its both positive and negative but every shortcomings has its own way out. To overcome the aforementioned shortcomings, it may be useful to incorporate the following suggestions:

1. The commission suggested that Chairperson of NCW be given the status of the Union Cabinet Minister and the members that of Minister of State. This will put more power in the commission's hands and thus its recommendations will have a greater degree of force.

2. The commission must be granted the power to select its own members. If needed a separate body, selected from within the commission should be constituted in order to carry these functions.

3. The commission must be given allocated funds in the Union as well as the State Budget in order facilitate smooth functioning. Currently funds are only allocated at the central level and not the state level.

4. The atrocities in Jammu and Kashmir are common knowledge. Taking these acts into account the commission's presence in the region is quite vital and should be allowed.

We also have to see that how much the government implement the above mentioned clauses and suggestions, more over its not only the duty of the state but also it's the duty of the citizen as a whole to look into if such misconducts in out society is taking place or not. There should be more public awareness and participation for the women oppression so as make the work of the National Commission for Women Justifiable.[11]

Limitations of the NCW

The National Commission for Women is limited by bothe internal and external factors, which adversely affect its efficacy. The NCW can be viewed as merely an advisory body, since its powers are limited to making recommendations, and not implementing them on its own. This

reduces the effectiveness of the NCW' as its functioning becomes greatly dependent on other institutions. The situation is made worse due to a lace of follow-up by the NCW, and a general lack of regard for the recommendation made by it. In order to give more talk to its functioning, the NCW has urged the government to endow it with power appoint its own staff, to appoint a commissioner for women's rights, be given power of prosecution along the lines of the NHRS, and to extend its mandate to the state of Jammu and Kashmir. However, as in the case of the NHRC, the government has not considered the proposals mooted by NCW.[12]

The State Commission for Women, NGOs and other experts are involved in the work of the NCW.

In the short period of the commission has managed to fulfill the mandate, if not completely then a\to a great extent. The achievement mentioned are only few of many similar achievements and they are proof of the popularly and support the commission is *gaining* from the Indian women. There is no doubt about the effectiveness of the commission and about the good work which it is *doing for* the women of India, however, there are certain shortcomings in the working of the commission, which, if rectified would lead to a more efficient and productive commission. It has considered necessary to constitute a commission for women in the state also for the purpose of achieving all-around development of the women's aspects not been covered by the National Commission for women.

REFERENCES:

1. http://www. Nationa lcommission for women. org

2. Act No. 20 of 1990 of Government of India.

3. Padmini Devarajan, "Forge a Healthy Workplace", The Hindu, December 21,2003.

4. National Commission for Women Act, 1990, Section 3, Para 2(a): A Chairperson who is committed to cause of women is to be nominated by Central Government.

5. http://www.ncw.nic.in

6. Gokulesh Sharma, Human Rights and Legal Remedies, Deep Publication, New Delhi, 2000, p. 380

7. Panis Diwan, Women and Legal Protection, Deep Publications, New Delhi, 1994. p. 98

8. S.K. Awasti and R. P. Kataria (eds.), Law Relating to Protection of Human Rights, Orient Publishing Company, 2001, p. 1599.

9. P.C. Sinha (ed.), Global Source Book on Human Rights, Kanishka Publishers, New Delhi, 2000,   p. 315.

10. Shipra Kaushal, Prevention of Sexual Harassment at Work Place, 2006, p. 32.

11. http://www.legalservicindia.com/article/1318-national-commission-for-women.html.

12. The Constitution (Ninety-Fourth Amendment) Bill 2002
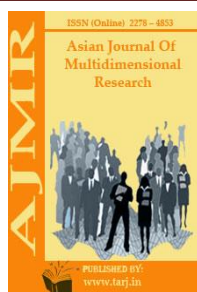
EFFECTS OF LAUGHTER AND SENSE OF HUMOR ON HEALTH

Dr. Vikas Mehta*

*MPEd, NET, SLET, Ph.D.
Head Department of Physical Education,
SGHS College, Sri Jiwan Nagar,
District Sirsa Haryana, INDIA

ABSTRACT

Socioeconomic interaction and competitive human nature have stressed the life quality in the modern world. It causes the influence of negativity on our mental health. Laughter and sense of humor gives the sensational positivity to overcome the stressful life. This therapy can be considered as a kind of behavioral therapies of the cognitive power in mankind which is helpful to make psychological, physical, and social interactions healthier. A good laugh can lighten our mental load as well as change us physically to improve the quality of life. Laughter therapy decreases the hormones of stress making and science has proved that it decreases serum levels of epinephrine, cortisol, and abnormal hormone growth. Depression is known as a disease which creates some wrong mood control circuits in our brain but it can be released easily with laughter therapy. This study concentrates on that the laughter and sense of humor is proved effective and supported towards the healthy mental life.

KEYWORDS*: Humor. Laughter · Social Bonding.*

INTRODUCTION

A famous quote, "Laughter is the best medicine" is heard by everyone. It is proved by medical science that laughter adds mental and physical benefits to the life of human beings. The modern world is full of stress and rushing towards money-making tasks where the human being is unable to find the happiness and charm of its life. There are a big lack of laughter and people are leading a stressful life. Sense of humor and laughter are the two major tools that help people to cope and get through the stresses and situations which are threatened by this busy world. These tools are also helpful to keep run things balance when there are ups and downs in our life. According to Berk and Tan 1996 laughter is the exercise which releases the bad and stressed aspects of emotions which are proved as harmful chemical effects on our body. This exercise of laughter has two stages of laughter, the first one is the arousal phase and the second one is the resolution phase. In the arousal phase the heart rate increases where the heart rate can go 120 per min when we laugh and in the resolution phase our heart rests.

Laughter can balance the blood pressure of human beings and increase the flow of the vascular system. It is also helpful in

boosting the immune system. It also gives us the abdominal, diaphragm, respiration access, and a complete workout to our facial muscles. It is also helpful to release the endorphins in the human brain and can also be called natural pain killers (Wooten 1995). A famous philosopher named John Morreall stated that laughter can be considered as a gesture that shares the relief just after the pass of a threatening. Moreover, researchers believe that it is the connection of human beings that helps them to feel comfortable with each other. It makes the bonding stronger and highlights us in the social settings. Deaf and dumb people also laugh even newborn babies also laugh at themselves whereas they are not much familiar with the world. Being a human being, we find different things in each other. Everybody has their own sense of humor. Kids have their own new findings and experiments to laugh and enjoy. They crack toilet jokes of their own and preteens, adolescents prefer themselves to be felt superior. Mature people find some sense of humor to relax themselves from the stressed and busy life. Being an adult, they experience better sense of humor. It also helps them to communicate in their comforts and bind the strong social bonding.

Laughter mode in different age groups. Figure-1

According to the views of Alikay Wood a good belly laugh makes us feel awesome as there are spiritual benefits of it. Laughter makes our stomach sore just after the best belly laugh sometimes. The best benefits we get from laugh is the physcological benefits (figure 1.). In the modern world the human life is over busy and full of stress, anger, anxiety and negative emotions. We all are working hard to survive but the laughter is the huge beneficial part of our life to maintain our perspectives and release the stress, tensions, anxiety, anger and all the negative emotions from our life. We should part out some time to laugh and crack jokes with humorous friends and we will experience the wonderful feel of relaxation. Laughter can't cure the all ailments but it is helpful to do a lot of positive things to be happened in the life. We can even alone instead of being with someone else. According to the statement of Janet M. Gibson the perspective can be adopted as intentionally that can appreciate the funny

events. Laughing yoga is the best technique to get fit by physically and mentally. It will add the positive physical response to the body

Mood Boosting

Laughter therapy plays an important role to improve our mood. Now a days almost everyone is facing the stressful life and they experience depression because of chronic illness. In this situation a person should accompany a person who has good sense of humor and laugh aloud out of his senses, it will help the patient to feel refreshed and lessen the stress. Laughter therapy will boost the mood improve the power of self-esteem.

1.1. Relieve Pain, Anxiety And Tension

It is known to all of us that if we feel painful or aggressive, we get relief when somebody funny or humorous person passes the funny comments in the situation of serious mode. That humor dispels the aggression, pain, anxiety and tension.

1.2. Helpful To Cope And Gives Sense Of Power

There are a number of things which are out of our control and not able to be changed but if someone has good sense of humor it can be done something good or positive. Laughter and humor have the positive power to handle all kinds of situations around us.

Many of our sufferings which we experience are not the result of our guilt or difficulties but these are aroused just because of the anxiety and stress. People try to find humor and laughter to make themselves free from stress so it can be said that humor is helpful to cope with the problems and gives the sense of power.

1.3. Improves The Immune System

Laughter therapy is helpful to improve the immune system. Negative thoughts create the chemical   in our body which decrease the immunity, on the other hand positive thoughts fight against the stress and relieve us reactions from the anxiety. This therapy also induces the happy feelings and potentially release the depression. Modern medical field discovered that the laughter yoga exercise cures the overall states of mind and is beneficial for the patients suffering from Parkinson's (Hosseinpour 2013).

1.4. Increase The Satisfaction Power And The Sense Of Humor

It also improves the personal satisfaction and make it easier to adjust in critical situations as well as to connect with huge number of people. One should read funny jokes, comics, silly videos or the comedy dramas, all these habits will create the humor in human nature. If we will laugh then world will also laugh with us. It is better to consider the laughter yoga, once you will be forced to laugh and later on you will be turned to laugh naturally.

1.5. Improves The Retention And Learning

Both sides of the brain are stimulated with laughter as people are able to pick the message quickly and keep it in their memory for a long time. Here is the example of kids that they learn better when they are taught in the funny and play way methods. In the modern times the education system is well improved by the government to teach in the smart classrooms so that children would able to learn better. So, the humor improves the retention and learning power in the cognitive sense of human.

Suggestions and Conclusion

Laughter and humor are the art which can be learnt by all. Everyone can work on good sense of humor. There are some suggestions which can make u more laughter and add the humor in your life. First of all, we should learn the real value of humor and analyze that why people laugh without worrying. One should just participate in all types of talks and find something funny to create good humor. Accept all the problems and situations, if there is nothing sense like funny then try to create it by your own. We all do the stupid things and try to laugh to create a humor from any source. A famous writer George Burns says, ""You can't help getting older, but you can help getting old. Chronologically the clock is going to keep on ticking for all of us, but if we take a lick of humor, we can prevent a hardening of the attitudes. If we save humor, humor can be a lifesaver." Our life is full of mistakes like different shades of hues. Instead of repeat and guilt feel on them try to soothe them with sense of humor which will help to free our life out of stress and anxiety otherwise our cognitive power can suffer the illness. So, the life is too short to enjoy, one should cheer and lead a healthy happy life. If we will laugh then world will also laugh with us.

REFERENCES

1. Berk, L., & Tan, S. (1996). The laughter-immune connection. *Humor and Health Journal*, *5*.

2. Wooten, P. (1993). Laughter as therapy for patient and caregiver. *Pulmonary Rehabilitation Guidelines to Success. Philadelphia: Lippincott*, *422*.

3. Keykhai Hosseinpour, A. (2013). Laughter yoga exercises on psychomotor effects of Parkinson's patients. *Faculty of Physical Education and Sports Sciences (Isfahan University)*.

4. Goodman, J. (1995). *Laffirmations: 1001 ways to add humor to your life and work*. Health Communications, Inc.

5. https://theconversation.com/laughing-is-good-for-your-mind-and-your-body-heres-what-the-research- shows-145984

6. http://www.touchstarpro.com/laughbb3.html

Editorial Board

Review Process

Each research paper/article submitted to the journal is subject to the following reviewing process:

1.   Each research paper/article will be initially evaluated by the editor to check the quality of the research article for the journal. The editor may make use of ithenticate/Viper software to examine the originality of research articles received.
2.   The articles passed through screening at this level will be forwarded to two referees for blind peer review.
3.   At this stage, two referees will carefully review the research article, each of whom will make a recommendation to publish the article in its present form/modify/reject.
4.   The review process may take one/two months.
5.   In case of acceptance of the article, journal reserves the right of making amendments in the final draft of the research paper to suit the journal's standard and requirement.

Categories

- Business Management
- Social Science and Humanities
- Education
- Information Technology
- Scientific Fields

Published by

Trans Asian Research Journals

SCO 34, Ist Floor, HUDA Market,
Near Red Cross, Jagadhri - 135 003 (Haryana) INDIA
Website : www.tarj.in