Volume 6, Issue 2 (XXXVII)
April - June 2019

ISSN 2394 - 7780

International Journal of
Advance and Innovative Research

Indian Academicians and Researchers Association
www.iaraedu.com

International Journal of Advance and Innovative Research

Volume 6, Issue 2 (XXXVII): April - June 2019

Released on 12th June 2019

International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June 2019

ISSN 2394 - 7780

Journal - 63571

UGC Journal Details

Name of the Journal :	International Journal of Advance & Innovative Research
ISSN Number :	
e-ISSN Number :	23947780
Source:	UNIV
Subject:	Multidisciplinary
Publisher:	Indian Academicians and Researchers Association
Country of Publication:	India
Broad Subject Category:	Multidisciplinary

International Journal of Advance and Innovative Research

Volume 6, Issue 2 (XXXVII) : April - June 2019

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Research Papers

International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019
ISSN 2394 - 7780

ASSAMESE NOVEL: INCEPTION AND GRADUAL DEVELOPMENT

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ABSTRACT
There was no any remarkable development was done in the writing of novel in Assamese literature after Second World War. The lack of expectation after the war and the busy mechanical life after the independence has made Assamese novelists realistic and socially responsible. The disappointment of the middle class ideology created a cultured middle class with a self-governing ideology. Economical despair increases our social problems and corruptions that crept in to our social practice. In modern period the writers have turn their attention to the unique social values and attempt to the realistic themes. There are some such kinds of novels as: Jibanar Batat written by Bina Baruah, Seuji Patar Kahini and Nadai are written by Dinanath Sharma. Hitesh Deka also wrote some such kinds of novels as: Ajir Manoh, Mati Kar and Bhara Ghor. In this backdrop Syed Abdul Malik attempted to write his novels and short stories and wrote the largest number of novels and short stories amongst them. His most outstanding novels are: Aghori Atmar Kahini, Surajmukhir Swapna, Adharsila, Dr. Arunabar Asomporna Jivani, Chabi Ghor, Matir Caki etc.

Keywords: Assamese novel, Growth and Development, Syed Abdul Malik, Assamese culture & Society, Assamese literature.

INTRODUCTION
Assamese novel appeared towards the later part of the nineteenth century; some writers emerged and endeavored in this field. They reflected the socio-cultural issues in their writings. *Bahire Rang Cang Bihitare kowa Bhaturi* of Hem Chandra Baruah and *Sudharmar Upakhjan* of Padma Devi Phukanani are considered as the best social novels in Assamese. Hem Chandra Baruah depicted Assamese society nicely in his novel so that it has a great important in Assamese literature. Devi Phukanani's novel was based on the maxim that "truth prevails" and "the virtuous comes out victorious". The worth mentioning point is that it is estimable that a woman of 19th century of the Assamese society attempted to write novel.

Syed Abdul Malik is regarded as the most prominent and productive novelist in modern Assamese literature who started writing under a critical circumstances. During that time some other writers also appeared as Mohammad Pear, Premnarayan Dutta and Hitesh Deka who over flooded the realm of Assamese novel with their writings but Malik wrote the largest number of novels and short stories. From that perspective the study of Malik's works in detail have become a necessity to understand the nature and scope of novel and short stories of the period. Besides, the establishment of humanism as a permanent characteristic of the novel of the time is also a major concern of this study. The study of Malik as a humanist in the present day framework is a source of absorbing interest for the people of Assamese language and literature.

BEGINNING OF ASSAMESE NOVEL AND ITS GRADUAL DEVELOPMENT
Assamese novel had come into existence in the end of the nineteenth century by appearance of the western process of education that was started by the British Governance. According to the law of the treaty of *Yandabu* (1826), Assam came under the British Government and therefore the Western method of education started. The British were completely unknown about the local language, and under the impact of some appointed people from outside the region, Bengali language is introduced by the British as the language of Court, Offices and the medium of instruction of schools and colleges of Assam. In 1836 Assamese language was thrown out from the offices and schools and Bengali language was introduced in its place. It was a dark period for Assamese people while new development in the History of Assamese literature began under the patronage of the American Baptist Missionaries. The missionaries have come to Assam to propagate Christianity. With this purpose, two notable members of the American Baptist mission, Nathan Brown and Oliver T. Cutter came to Assam along with their families. They were followed by Miles Bronson and other Baptist missionaries. The missionaries felt the value of the local language in achieving their goal and tried for its restitution. They were collaborated by some local intellectuals including Ananda Ram Dhekial Phukan (1829-59) who had performed important role for sake of Assamese language by writing "*A few remarks on the Assamese Language and on vernacular education in Assam"* (1855).The missionaries earned the knowledge of the Assamese language and history, They wrote school text books and spread other literary works in Assam. They fought for rebirth of Assamese language by indicating the important regarding the feature and nature of Assamese language. As a result N. Brown published "*Grammatical noteson the Assamese Language*" in 1839, Miles Brown published "*Asamiya aru Engraji Abhidhan*" (Assamese English Dictionary1867) etc. In fact the missionaries gave a new birth to

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Assamese language and literature. The missionaries established printing press in Sibsagar and published many books and journals for the growth and development of Assamese language and literature. The way of modern Assamese literature was opened by the publication of the missionary journal *Orunodai* in 1846. Missionary's contributions for the resurgence of the Assamese language can be considered as the beginning of the ground work of the Assamese literature. The contribution of the missionaries encouraged many Assamese writers and their literary output to produce a new enthusiasm to the Assamese language and literature. The real fact is that, the writers of *Orunodai* are the pioneers of modern Assamese literature.

The Missionaries used literature as the best medium for their religious preaching. They knew that there is no alternative way for preaching Christianity among the local people except literature and so they used prose literature to reach their goal. The missionaries established press, published book and journals, compiled dictionary and wrote grammar; in this way they made the way for the modern Assamese literature .It was during this time that Assamese novel grew .The efforts of the missionaries to preach by casting the nobility of Christian religion into the Assamese would lead to the publication of novel. With a view to publicity the ideas of Christian religiosity, Brown endeavored the translation of the John Bunyan's "*The Pilgrim's progress*" and the Assamese version appeared entitled "*Yatrikar Yatra"*, some parts of this were serialized in the *Orunodai* during 1851. Being over idealistic it could not keep the necessary features of a novel accept for its story. But by the "*Yatrikar Yatra*", novel writing slowly came into vogue in Assamese novel literature.

Some novels were appeared following "*Yatrikar-Yatra*" like "*Elokeshi Bessiyar Visay"*, "*PhulmoniAru Karuna"* by Mrs. Gameyand *"kaminikantar Coritra"* by Mr. Garney. *Elokeshi Bessiyar Visay* (1877) narrates the wide experience of young widow girl. The young woman was seduced, lives her first life as a kept woman and then as a prostitute and finally returns to holy life by taking shelter in the Christian religion. The story holds powerful scope of a full-fledged novel.

"*Kaminikantar Caritra*" (1877) is another novel written by A.K. Gamey at about the same time. The novel based on a couple who are attracted by the Christianity. The pivotal point of this novel is to establish the sovereignty of Christianity and thereby to turn the Hindus to the Christians. Kaminikanta, the hero deserts his faith in Hinduism and embraces Christianity. At the end that the conversion impression has been created that Christianity is not only spiritually ennoble but also economically enrich. In spite of the limitation, *kaminikantar Charitra* is the first novel where an effort has been made to depict character and depicted Sarala's character indicates a good beginning of Assamese novel. Mrs. Garney also translated Mrs. Muller's original Bengali "*Phoolmoni-o-Karuna*" in to Assamese entitled" *Phoolmoni Aru Koruna*", a imaginative story of two native Christian women, The story exhibited centering round "*Phoolmoni Aru Koruna*" and concluded with the preaching technique of the Christian ideal to make the Christian Religion attractive. Although social themes were adopted for the stories, their utmost aim was to have religious benefit.

At about the same time Hem Chandra Baruah published his famous work "*BahireRang-Chang Bhitare Kowabhaturi*" in (1876). Kowabhatori is a satirical story, not a religious work. There is no attempt at any plot construction here. After the publication of Kowa Bhatori, Padmavati Devi Phukanani published "*Sudharmar Upakhyan*" in 1884. The significance of the novel was to depict the result of religious and non-religious works. The fact that there is no specific use of religious idealism this novel that used in the stories of the missionaries. But artificial events have removed the story from the reality.

In fact Assamese novel developed during the romantic period of Assamese literature. Though particular characteristics of novel were drawn in the stories written by the missionaries before the romantic period, during this period novel was emerged in a specific form of literature. Padmanath Gohai Baruah' (1871-1946) published "*Bhanumati*" in 1890 and Laksminath Bezbaruah (1868-1938) published "*Padum Kuwari*" in 1891. These two novels are considered as the key way of modern Assamese novel literature. They are followed by a number of writers including Rajani Kanta Bardoloi (1867-1939) who left major contributions to the development of Assamese novel. All these writers tried to write and develop historical novel as developed by Sir Walter Scott in English and Bankim Chandra in Bengali. Assamese youths who were at Calcutta for higher education were highly inspired by the historical novels of Walter Scott and Bankim Chandra and attempt to develop Assamese literature in such trend. Their motivation mostly came through the journal "*Jonaki*" published from Calcutta in 1889.

By the direct literary efforts of the educated youths the *Jonaki* brought to light a powerful literary revolution both in form and subject. It concentrated freely and sensible about the form and subject of the western, especially English literature. The Jonaki has been the most adjusting and modernizing influence in our literature. All the writers of this period wrote novels in historical issues. There are pointed causes for which they

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wrote novels with historical settings. The first reason is, the writers of said period were highly inspired by the rising subject of nationalism, and tried to inject national feeling into the minds of the readers .Secondly at that time the readers thought of some eventful story whenever novel or a drama was mentioned.

In the last of 19th century some Assamese Students went to Calcutta for higher education. Amongst them Laksminath Bezboroah, Hemchandra Goshwami, Chandra Kumar Agarwala, Padmanath Gohain Boroah, Sattanath Bora, Ramakanta Borokakati were distinguished. These college students consist "*Asomiya Basha UnnotiSadini Sobha''* a literary association in 1888 A. D. to develop Assamese language and literature, the main purpose of this association was to develop Assamese language and literature. Initially the association published a journal namely '*Jonaki'* under the editorship of Chandra Kumar Agarwala. This journal saw the seeds of Rumantism in Asamese literature, which was followed in Western literature. The ethical and moral thoughts and style of Western literature especially English literature were imported to Assamese literature through the journal '*Junaki'*. The writers were expressed all parts of the Assamese literature in romantic style through the *Jonaki*. At all by the influence of Jonaki, Assamese literature got newness and developed slowly. Some novels, poetries were published in the magazine Jonaki.

Four novels had written in the last decade of nineteenth century which were regarded as the pioneers of Assamese novel. These four novels are respectively: *Bhanumati (1890), Padom Kunwari (1891), Lahari (1892) and Miri Jiori* (*1894*). *Bhanumati* (1890) and *Lahari* (1892) were written by Padmanath Gohai Baruah. Both novels have written on the back ground of the Ahom period. Though novels did not base on historical issues, neither novel deals with any history. The first novel Bhanumati is set against the back-ground of the Moamaria Rebellion during the Ahom role. The main theme of the novel is love affairs of *Charu Ghohai* and *Bahanumati*. Baruah's second novel *Lahari* is set on the back ground of Brumes invasion. "*Padom Kunwari"* written by Laxminath Bezburuah (1868-1938), the theme of the novels is the love affairs of Padum kunwari and Surya kumar and "*Miri jiori*" written by Rajanikanta Bordolio, the social novel of Bordoloi is a love tragedy.

Rajanikanta Bardaloi made his contributions to historical novels also while he wrote seven historical novels. "*Manomati*" (1900) is the first historical novel of Bardaloi is written against the background of the down fall of Ahom role and the third Burmese attack on Assam, the novel deals with the love story of Laksmi Kanta and Manomati. "*Dandua Droh*" (1909) is the second historical novel of Bordoloi, the novel sets in the peasant revolt of 1880 against the Ahom Governor-general. Bordoli's rest of the historical novels are respectively: *Rangili* (1925), *Radha-Rukmini* (1925), *Nirmal Bhakat* (1926), *Tamreshwarir Mandir* (1926) and *Rahdai Ligiri* (1930). All of these historical novels were written in some dark historical background related to Burmese invasions and Moamoria Revolt. The story of the novels deals with the love affairs connected with the historical events. Sequence of events making and character study are the main things of Bordoloi's technique; so it is not surprising, Bordoloi has improved the standard of Assamese historical novels.

Hiteswar Barbaruah has written the famous novel entitled "*Malita''* in 1914.The novel has written on the disputes of between the Ahom and Kachari King .The novel also deals with the love affairs of Abhoy and Malita who faced many hindrance in the journey of love because of their ethnic difference. Following the Shakespeare's *Romeo and Juliet* Barbaruah designed several scenes. Due to enmity between the Ahoms and Kacharies their love has been obstructed. There were some other historical novels appeared in that period as " *Citra Darshan*" written by Hari Narayan Datta Baruah in 1933, " *Fool"* written by Dandinath Kalita in 1908 and " *Panipath*" written by Sarat Chandra Goswami. All these three novels were written in historical settings and the main plots are based on the love affairs of some young men and women.

In the early stage most of the novels were written in historical issues, but there were some novelists in that period who attempt to write in social themes. That period was the period of "*Indian National Movement*" led by M.K.Gandhi; so the writers of that period were highly inspired by the principles and ideal of Gandhiji and endeavored to bring about social reform through their novels. Dandinath Kalita and Daiva Chandra Talukdar both of them wrote novels in social events. Daiva Chandra Talukdar's social novels are: *Apurna, Dhunwali-Kkunwali, Agneogiri, Bidrohi, Adarsapath and Duniya*.

The improvement of Assamese novels was limited and it did not reach to zenith till World War II. In the modern period of Assamese novels, old style has gone up and several new trends and tendencies are welcomed. In modern period the writers have turn their attention to the unique social values and attempt to the realistic themes. There are some such kinds of novels as: *Jibanar Batat* written by Bina Baruah, *Seuji Patar Kahini* and *Nadai* are written by Dinanath Sharma. Hitesh Deka also wrote some such kinds of novels as: *Ajir Manoh, Mati Kar* and *Bhara Ghor*. Chandra Kanta Gogoi's "*Sonar Nangal"*, Adyanath Sharma's "*Jivanor Tini Adhaya*". Govinda Mahanta's "*KrisakarNati*". All these outstanding novels are based on social themes. Jogesh Das, the

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prolific novelist of modern period, has written three famous novels as: "*Davar aru Nai*" (clouds no more), *Sahari pai* and *Jonakir Joi*, on ethics and human behaviors.

Some psychological novels appeared during the modern period and have made technical depiction and realistic value in human hearts. These novels are Prafulla Datta Goswami's "*Keca patar Kapani"*, Radika Mohan Goswami's "*Chaknaiya*" (The vortex) and Ba-Marata (The whirlwind), Birendra Kumar Bhattacharya's "*RajpatheRingiyai*" and "*Ai"* (Mother), Syed Abdul Malik's *Rathar Cakari Ghure, Chabi Ghor* and *Surajmukhir Swapna.* In all of these novels the writers go through psychological treatment.

Amongst all the novelists, Syed Abdul Malik is considered the most distinguished, who made significant contributions in the development of Assamese literature. He left a major contribution in the field of novel and occupied a unique position. Undoubtedly, the novel in Assamese reached its zenith on the hand of Abdul Malik. He wrote about 67 (sixty Seven) novels and most of his novels are related to the problems of poor and middle class people. His novels are full with the problems of every type of people. His most outstanding novels are: *Aghori Atmar Kahini, Surajmukhir Swapna, Adharsila, Dr. Arunabar Asomporna Jivani, Chabi Ghor, Matir Caki etc*.

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The novel "*Jiwanar Batat*" (On the way of life, 1945) by Bina Barua is considered the first social novel in Assamese literature. The novel deals with a real picture of various issues of the social life of Assam. The novel focuses a real picture of Assamese rural society. His second novel "*Seuji Patar Kahini"* (The story of the green leaves, 1959) is also based on tea garden society. The novel is written on the background of tea garden workers and their lives with a humanistic appeal. The theme of the both novel centers round the sufferings and misfortunes, success and failures of the common people and society. Bina Borua beautifully depicted all the events of everyday life with a romantic style in his novels.

During this period some novels were written by Md. Piar to explain the problems of poverty and social inequality as- "*Priti -upahar" (1947), "Sangra" (1948), "Jiwan Nair Jaji" (1949) and "Heroa Swarga" (1952).* All these novels deal with the problems and life style of lower middle class family of the urban society and especially the Muslim society. The novels focus the general situations of the society and different social customs of the Muslim Community of that time.

Hitesh Deka is another novelist of this period, who has written on the rural problems. His novel *"Ajir Manuh"* (Man of the age) is a realistic production of problems occurred in the modern society. The novel explains the painful life of a young idealistic lover. His novel "*Natun Path"* (The New Way) is romantic. The thematic

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aspects of both novels are same; not much difference between the two main characters. Both novels uphold the principle of idealistic living. Deka's novels deal with exploitation, greediness, hunger, poverty and peasantry problems, evil custom of the society. His novels are not only realistic but also a document for social change.

Some psychological novels appeared during the modern period and have made technical depiction and realistic value in human hearts. These novels are Prafulla Datta Goswami's "*Keca patar Kapani"*, Radika Mohan Goswami's "*Chaknaiya*" (The vortex) and *Bamarali* (The whirlwind), Birendra Kumar Bhattacharya's "*RajpatheRingiyai*" and "*Ai"* (Mother), Kumar Kishor's two novels "Sikhar-Kapani" (The Shimmering Tremble of the Flame) and "Satabdir Swapna" (The Dream of the Century), both the novels focus the illegal sexual relation of men and women in modern society. In all of these novels the writers go through psychological treatment.

CONCLUSION

The Assamese novels are in fact issue of big attention for Assamese culture and society. The common themes of the Assamese novels are the pain and suffering of the neglected people, social inequalities and gender discrimination in the society. Through the novels the writers depicted love, sympathy, moral values, humanity, emotions and feelings towards the man and woman. The clear picture of the rural society is also a major component of his artistic composition. Almost all novelists generally deals with romantic love and his powerful passion and sensation play a significant role in painting romantic characters. They tried to show the enticement with simple picture by the simple pleasure and grief of common men and women. Particularly their imageries are wonderful for growing love among youngsters. Their rhythmical and elegant style led the reader ahead without any logic of limitation. They have accomplished extensive success in the description of both character and situation and made a momentous contribution to the Assamese novel literature.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019
ISSN 2394 - 7780

BUDDHISM IN KASHMIR

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ABSTRACT
Kashmir has been a country, where different religions and sects flourished side by side without any violent conflicts in ancient times. Though the kings and queens were followers of Shavism and Vishnuism, they extended their patronage to Buddhism also. The introduction of Buddhism to Kashmir by the Indian emperor Ashoka makes the watershed in the religious history of Kashmir. Buddhism entered its golden age in the time of Kushana rulers. Buddhism became a prominent religion of the valley from the days of Kanishka. The kings and queens built many Buddhist Viharas and stupas. Ancient Kashmir brought up Buddhism nearly nine centuries. Buddhism has left deep rooted marks on the religious life of people. Kashmir is one of the most important and most famous lands in the spread and development of Buddhism. The spread of Buddhism in china, Tibet and other countries goes to Kashmiri scholars and monks.

Keywords: Majjhantika, Hiuen Tsang, Kushanas, Hinayana, Menander, Bhiksus, Khotan, Nagasena.

INTODUCTION
Kashmir is known as the paradise on earth. It has been acclaimed as a land of bliss, peace and contentment. It may be noted that after its exile from the place of its birth, Buddhism found its refuge in Kashmir. "The influence of Kashmir was very marked, especially in the spread of Buddhism beyond India. From Kashmir it penetrated into Qandahar and Kabul and thence over Bactria: Tibetan Buddhism has also its essential origin from Kashmir; so great is the importance of this region in the history of this religion".

The history of Buddhism in Kashmir has not been much different than its history in the rest of the country. When it came it harbingered its doctrine of love, piety, universal brotherhood, spiritual discipline, high morals, equality and liberty for all classes and for both sexes. When did actually the spread of Buddhism start in Kashmir? Historians have various theories and ideas. It is commonly believed that Buddhism came to Kashmir in the region of Ashoka. But that is not correct. The new faith had travelled to happy valley much earlier. Buddhism was prevalent in Kashmir in the time of the native king Surrendra. He belonged to a dynasty whose members are known for their religious endowment. His father Khagendra had created two such endowments, one of them having left its name to the existing village of Khoamuh near Pampore. True to the family tradition, Surrender erected the first *Vihara* at Soura in Kashmir. His reign can be fixed in the middle of the Ist century B.C. Kalhana says that there were *Viharas* in Kashmir before Ashoka. Moreover we are told that Ashoka invited Buddhist missionaries from Kashmir to participate in his religious council. It is thus clear that there existed Buddhism in Kashmir before the reign of Ashoka. *Nilmatapurana* testifies the existence of Buddhism in Kashmir side by side with Naga cult and Vaisnavism. *Nilmatapurana* describes the celebration of Buddha's birthday with great rejoicing in the bright half of the month of vaisakha. Buddha's *Caityas* were decorated with beautiful paintings and Buddha's images were offered water, scents, flowers and jewels. For three days worship continued with the chanting of holy verses.

According to *Mahavamsa*, Ashokas adviser, Moggaliputta Tissa sent his missionary Majjhantika to peach Buddhism in Kashmir and Gandhara. Majjhantika won over the ruler and the people of that region on account; it is said, of his supernatural powers. The history of the mission of Majjhantika receives confirmation from traditions recorded in the Tibetan work Dul-va and the account of Hieun T sang. It is reported that Madhyantika brought with him many Bhiksus for settlement and he himself remained in the valley for nearly 20 years . This very Buddhist preacher is supposed to have introduced the forming and also the cultivation of world famous Saffron in the valley.

We learn from Kalhana that Kashmir formed a part of the empire of Ashoka who was follower of "Jina" I.e. Buddha. Kalhana depicts Ashoka as a propagator of religious tolerance. He allowed the people to practice their own religion and follow their own customs and traditions. However he directed his missionaries to propagate his faith of Buddhism. Many Kashmir's readily accepted the four Noble truths and eight rules of right conduct propounded by Buddhism. The emperor built numerous *stupas* and *chaityas*. Four of his *stupas* even existed at the time of Hieun Tsangs visit to the valley in the middle of the 7th century. These are said to have contained Buddhas relics. Ashoka built two Buddhist *stupas* at Hukalitar and Vethavutur, in Badgham and Anantnag. Vethavutur is regarded as the source of the rive Jehlum in Kashmir. Buddhist relics, such as statues have been found at the older site of Srinagar, Pandrathan, and Huklitar. Some of the statues have been brought to the

ISSN 2394 - 7780

government museum, Srinagar. The important contribution of king Ashoka was that he laid the foundation of the city of Shrinagari identified at the site of the present Pandrethan (Kalhana's Purandhisthana). The great emperor, who was zealous always in preaching and disseminating the religion of Buddha throughout the length and breadth of his kingdom and even beyond, seems to have tried his best to spread it in the secluded vale of Kashmir too. Historically speaking Asoka inaugurated the Buddhism in Kashmir when he brought 5,000 Buddhist monks and settled them in Kashmir to popularize the Hinayana Buddhism in Kashmir and adjacent territories. He built several *Mathas*, as he thought Kashmir was an ideal place for pursuing higher studies and spiritual practices.

Asoka was successes by his son Jaloka. It is said that he was not favourable to Buddhism in the beginning. At the instance of Avadhuta, he took a vow that he would follow only Shaivism. He persecuted the Buddhists, and destroyed their *Viharas* ans *Stupas*. But subsequently at the request of Kritya he modified his attitude and later became more friendly towards them and constructed a big *Vihara*, the Krityashrama, in the vicinity of Baramulla.

Menander, who is believed to have ruled towards the end of the second and in the beginning of the first century B.C., was a great scholar and inquirer after truth. He came under the influence of Buddhism. It goes to the credit of Nagasena, to have defeated Menandera in a religious discussion which was held at a place which was only 12 yojnas from Kashmir and as a result of this discussion Menander embraced Buddhism and became Arhat. Their conversations form the subject matter of the celebrated Sanskrit work *Milindapanha*. He built a *Vihara* which was named after him as *Milindevihara*.

With the coming of Kushanas, Buddhism received a tremendous support. There is no dying the fact that during their rule, Buddhism enjoyed royal patronage. Kalhana in his *Rajatrangini* provides historical evidence about the three Kushana rulers, Hushka, Juska, and Kanishka. Each one of the founded here a town after his name, and these were called Huskapura, Juskapura, and Kaniskapura respectively. These Kushana kings were given to acts of piety and built many *Viharas*, *Mathas*, *Caityas* and similar other structures. Amongst these Kanishka is most famous. From the time of Kanishka, the Buddhism of Kashmir entered its golden phase during the reign of Kanishka. He donated the valley to Buddhists. This brought and gathered Buddhist students from all over the country and the world at large. According to a Buddhist tradition, the king Kanishka, on the advice of Parshva convened a Buddhist council in Kashmir . The objective of the council was to prepare commentaries on the canons. The council which sat for six months, collected all available sayings and teachings of the Buddha and other masters of the law and drew up expository commentaries on the *Sutra* (sermons), the *Vinaya* (discipline) and the *Abhidharma* (metaphysics). The treatises written on copper plates had been enclosed in stone boxes and deposited in a *Stupa* made especially for the purpose.besides large audience, this council was attended by500 Arhatas, 500 Bodhisattvas and 500 Panditas. Asvaghosa, the celebrated author of the *Buddhacarita*, the *Saundrananda* and the *Sariputraprakarna* attended this council. The credit also goes to this council that first time in the history of Buddhism, freedom of thought and expression was recognized and it was declared that the texts of all the 18 schools of thought in Buddhism were correct, for all of them contained the world of the master. The council is also important henceforth Kashmir became the headquarters of Sarvastivdin school of Buddhism, which was popularized by the Kashmiri's in central Asia, Tibet, china and south East Asia. Vairochana was the Kashmirian missionary, built the first Buddhist *Vihar* at Khotan in the central Asian region. Kalhana describes the illustrious Buddhist philosopher Nagarjuna who lived in Kashmir in the time of the Kushanas as 'the sole supreme ruler of the land'. It was due to his knowledge that the Buddhists of Kashmir maintained their ascendancy over the acharayas.

According to Kalhana, Kushana kings in Kashmir were followed by Abhimaniyu, in whose reign Buddhism received a check in Kashmir. Buddhism received a great setback during the reign of Nara. He was a great enemy of Buddhism. He burnt thousands of Buddhist *Viharas*, and granted the villages which had belonged to them, to Brahmans.

The next important king of Kashmir was Mihirkula. He was a great persecutor of Buddhists. He pulled down Buddhist monasteries of northern India and massacred the monks. Meghavahana is said to have been a kind hearted man as he prohibited slaughter of animals in his kingdom. He was a Buddhist and tried to revive the dying faith. His queen Amrtaprabha erected a lofty *Vihara* called Amrtabhavana for the benefit of Bhiksus. Kalhana compare the king with Jina i.e, Buddha. There is mention of the erection of a big *Vihara* during the reign of Pravarasena by his uncle Jayendra known as *Jayendravihara*. This *Vihara* was visited by Hiuen Tsang during his stay in Kashmir. Jayendra also erected a Buddhist statue.

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According to the *Rajatrangini*, Durlabhvardhana, was the first ruler of Karkota dynasty. Hiuen Tsang visited Kashmir during his reign. Hiuen Tsang has given valuable information about the large number of Buddhist monasteries existing at that time. Then the illustrious king Lalitaditya became the ruler of Kashmir. During the days of Lalitaditya three faiths flourished side by side in Kashmir. The king hence built temples of Vishnu and Siva and Buddhist *Viharas* as well as *Stupas*. The king also built the wonderful and famous *Rajavihara*, with a large quadrangle (catuhsala), a large Caitya, and a large image of Buddha. At Parihasapura, Chankuna, a Tukhara minister of the king erected the Chankunavihara, built a *Stupa* and placed there golden image of Jina, i.e., Buddha. Chankunas brother in law Ishanachandra who was a royal physician also built a *Vihara* with a number of golden images of Buddah. Tantric Buddhism seems to have been developed in this period. Chanakuna his minister is credited as Tantric Buddhist. Jayapida, the grandson of Lalitaditya came to the throne in 751 A.D. The king was a liberal patron of learning, and many poets and scholars flocked his court. He worshipped both Vishnu and Buddha. King Jayapida is said to have built *Viharas* and Hindu temples at Andarkot a mile away from the village of Sumba, near the entrance of Manasbal Lake. At present practically everything is destroyed.

Buddhism seems to have been overshadowed by the growing Vaisnava and Saiva faith which became predominant in the valley in the centuries following the Karkota period. Avantivarman laid the foundation of Utpala dynasty in 855 A.D. He heralded a new era in the history of Kashmir. He was a rare combination of strength and gentleness, and the first and most conscientious servant of the state. Avantivarman was a staunch follower of Siva and Vishnu. During his reign Kashmir witnessed a great rise in the popularity of Shavism. This was due to the fact that some of the greatest philosophers of Kashmir Shavism lived about this time. One of them, Bhatta Kallata is mentioned by Kalhana in Avantivarmans time. Henceforth the masses were attracted towards Saivaism. Avantivarman showed great regard for Buddhism also and prohibited the killing of all living beings. His pious engineer Suyya, who was also a Vaishnava, latter issued a prohibition against the killing of fishes in the Vitasta. Avantivarman was succeeded by his son Shankarvarma. During this period Buddhism was in a decayed condition. Shankarvarma, either confiscated lands and *Viharas* or plundered these shrines. Shankaravarman's queen Sugandha was killed in a monastery, called Nispalaka *Vihar* .

During the reign of Kshemagupta (A.D 950-9580) Kashmir saw one of the worst periods of her history. He was a great Shiva worshiper. Kalhana describes that Kshemagupta burnt down a Buddhist *Vihara* named *Jayendravihar*. From this decaying *Vihara* he took away the brass image of *Sugata* Buddha and utilized the stones of *Jayendravihara* for erecting a Shiva temple in his own name. He confiscated thirty- six villages which belong to the burnt *Vihara* and gave them to Khasa ruler. Kshemaguptas reign is important in the history of Kashmir by reason of his mirage to Didda. Didda so much dominated the mind of the king that he nick named *Diddaksema.*She founded a number of temples and other sacred buildings. She is started to have made sixty four foundations of which, *Diddamatha* has given its name Didamar to a locality in Srinagar (on the right bank of the Vitasta). She restored some of the buildings and enclosed with stone walls almost all the temples whose walls had been burnt down. She also repaired the *Jayendravihara*. Didda died o 1003 A.D.

Between 1003-1101A.D., Buddhism degenerated and lost the royal patronage. Buddhist nuns and monks lost high ideas of morality. The works of Ksemendra and Somendra bear ample testimony.

According to a version Buddhism, had led the country of Kashmir in awakening the common people and arousing a spirit of defiance in the against obscurantism and social injustice. A dynamic society of freedom had taken birth which was absorbed in making original contribution to philosophy, literature, arts, architecture and science. From here spread Buddhism beyond Himalayan countries. Its wandering monks took philosophical ideas beyond its borders to Ladakh, Tibet, Khotan, china, etc. All these are indebted to Kashmir for Buddhism, Buddhist literature and civilization.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019
ISSN 2394 - 7780

CORPORATE SOCIAL RESPONSIBILITY: A TOOL TO ENVIORNMENTAL PROTECTION: (WITH SPECIAL REFERENCE TO SELECT MULTI-NATIONAL COMPANIES IN HYDERABAD)

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ABSTRACT
The objective of this paper was examining CSR Practices and a tool to environmental protection practices practised by the select MNC in Hyderabad. This study adopts descriptive research design involving stratified random sampling procedure. Primary data was collected using Questionnaire method. The sample size was 375 comprising 5 sectors including IT, Automobile, Pharma, FMCG and Electronics. The statistical tools applied were Standard Deviation, ANOVA and Chi square Test. The results indicated that the proposed Hypothesis was accepted.

Keywords: CSR, Environmental protection, and IT.

INTRODUCTION

Corporate Social Responsibility is an overseeing idea whereby organizations acclimatize social and ecological worries in their business operations and associations with their partners. It is about overseeing organizations to accomplish both business and social advantage to improve brand esteem. In genuine significance it is about overseeing social, group and ecological effects to help in enhancing the outcomes, lessening dangers and upgrade business notoriety. It additionally turns into the secret key to overcome rivalry as well as to guarantee feasible development. Corporate Social Responsibility is the arrangement of business operations with social qualities and it considers the hobbies of partners in the business approaches and activities. "Responsibility" accentuates that the business has some ethical commitments towards the general public. Corporate Social Responsibility is also about developing business in a manner that has esteem for everybody related to it. CSR has been unsurprising by the huge partnerships today with going up on the worldwide front.

All definitions of CSR can be compiled and presented through five dimensions of CSR

- **The Environmental dimension**, which refers to the natural environment and Sustainability of business practice.
- **The Social dimension.** This dimension refers to relationship between business and society in general.
- **The Economic dimension.** Refers to socio-economic or financial aspects, including describing the CSR in terms of its impact on the business operations.
- **The Stakeholder dimension.** Refers to consideration of all stakeholders or stakeholder groups.
- **The Voluntariness dimension.** This dimension refers to actions not prescribed by law. Actually it can be described as doing more than is required by law.

REVIEW OF LITERATURE

Carroll (1979) has developed a three dimensional conceptual model of social responsibility and includes the categories of economic, legal ethical and discretionary responsibilities. The second deals with the social issues involving such as consumerism, environmental issues, as well as occupational safety and similar issues of social responsibility. The third deals with social responsiveness strategies such as reaction, defence, accommodation and probation. These three dimensions are combined together in the model which can help managers to conceptually understand the level of their social performance and improve upon it to develop socially responsible stakeholder‘s policies.

Borogonovi, Veronica (2011) article in knowledge@ Wharton, stated that today, CSR has different meaning for different companies. Some termed CSR in the sense of social issues while other for environmental issues. But there are not any mandatory guidelines for CSR so that the problem of areas of CSR can be sort out. In addition to this, the researcher discussed about various views and plans of government and other authorized institution like union corporate minister like Mr. Murli Deora, Companies act 1956, Companies bill 2008 and 2009, Dhavaludani (CEO of non-governmental organization), FICCI etc. All these institution and persons presented their ideas and bills about CSR requirement. The paper also differentiates the term CSR from other one like Corporate Philanthropy, CSV (creating Share Value) etc. CSR has defined in such a way that how the businesses are conducting their activities in society marked at the place.

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According to Lovins et al (1999) *"the long-term stability and sustainability of India might be threatened if the social and environmental problems are not solved."* This is exactly what made the researcher's mind to think about possible ways to tackle India's problems. The Indian government lacked both vision and resource to handle the social and environmental problems that emerged with the country's growth. **Rowe, (2005);** Marg, (2004). As a possible solution the growing Corporate Sector of India needs to contribute to this responsibility. Based on the theory one might expect CSR to have the potential to contribute to the development of the Indian society. **Newell (2008), Sood and Arora (2006)** Here the topic of this thesis was born and is the result of research study on the possibilities of the beneficial influence of CSR by India's corporate sector on the Indian society especially large organizations which the focus was initiated. India's economic growth is among the highest in the world. Companies are growing at a rapid pace and many new businesses are starting each year. The Middle class is getting richer, resulting in a high growth rate in consumption. However, India's economic progress also has a drawback. The economic growth has increased the pressure on India's environment and resources. Inequality between India's middle class and the poor has widened. The IT revolution of India helped build and nurture a very strong middle class amongst the educated people in India. However this revolution did not help alleviate the many chronic problems the uneducated-rural India faces. This broadened the gap between the haves and the have not's even more, thus resulting in even further disparity.

OBJECTIVES

1. To analyze the corporate policies towards environmental protection as a part of CSR activities by Multinational Corporations.
2. To suggest certain policy measures for the effective implementation of CSR policies in the light of Indian Companies Act, 2013.

HYPOTHESIS

Ha1: CSR activities practiced by MNCs have a significant impact on Corporate strategies towards environmental protection.

RESEARCH METHODOLOGY

The present study adopts descriptive Research Design. Stratified Random sampling technique was applied to collect the data from the sample. Questionnaire method was employed in order to collect the primary data and it possess a 5-point Likert Scale method. (Strongly agree to strongly disagree) The list of Multinational Corporations registered under Telangana Chambers of Commerce and Industries (TCCI) was identified and all the existing Multinational Corporations were stratified by the sector wise classification namely Information Technology (IT) industry, Automotive Industry, Fast Moving Consumer Goods (FMCG) sector, Pharma Industry and Electronics Industry. From each sector five companies were identified. Thus from the selected five sectors, five companies were listed thus making the selected companies to a size of 25. Each company was further stratified on the basis of existing departments and it was found that every company is roughly comprising around 15 departments. Thus 15 respondents from every selected company were drawn to comprise the sample size. Thus from 25 companies, 15 respondents were selected from each company and the sample size gears up to the size of 375. Thus the sample size was fixed at 375.

The statistical tools applied for the data analysis were Standard Deviation, ANOVA and Chi-square test and Mann-Whitney U test.

Table-1: Organizational efforts for building corporate strategies towards environmental protection

S. No	Items	N	Min	Max	Mean	Std. deviation
1	Our company has policy of tree plantation for environmental sustainability	375	2	5	4.62	0.964
2	Green marketing/Green HR system is followed effectively in our company	375	2	5	4.46	0.823
3	Energy Conservation programmes are carried out as CSR initiative policy	375	3	5	4.38	0.784
4	Soil and water conservation projects implemented to support CSR	375	2	5	4.64	0.922
5	Reduction of CO2 emission is ensured by Our company	375	3	5	4.82	0.514
6	Utilization of Industrial waste (Green house gas emission) is followed in Our company to promote CSR	375	3	5	4.12	0.847

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7	Rain water harvesting system is done effectively as CSR activity	375	2	5	3.29	1.321
8	Recycling process of waste materials are done as a system to promote CSR	375	2	5	4.74	0.796
9	Our company is maintaining a pollution environment	375	3	5	4.96	0.538
10	Our company has employment strategy to employ more vocational labors	375	2	5	3.38	1.263
11	Our company maintains strategy of enhancing corporate reputation among customers	375	3	5	4.16	0.617
12	CSR in our company is for generating awareness about environmental issues	375	2	5	4.27	0.712
13	CSR initiatives are imposed for social and environmental requirement on suppliers and customers	375	2	5	4.86	1.174

The above table shows the responses of the respondents working in Multinational Corporations with regard to the organizational efforts for building corporate strategies towards environmental protection which includes maximum, minimum responses received from the respondents and also provides the mean , standard deviation values of each item of part-III of the questionnaire.

Table-2: Analysis of Variance

Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	1.528	1	1.528	9.274	0.002
2	Residual	59.476	373	0.164		
	Total	61.004	374			

From the ANOVA table the F-test statistic is 9.274 with p-value of 0.000. Since the sig p-value is less than 0.05 the researcher concludes there is a statistical significance between Part-III the company puts measures on corporate strategies towards environmental protection and Part-V which is the CSR efforts as per companies Act 2013. Thus CSR Efforts help to build Corporate strategies towards environmental protection among Multinational Corporations in Hyderabad Region .

Table-3: Chi-square test – Hypothesis

Chi-Square Tests				Remark	
	Value	df	p value		
Pearson Chi-Square	14.38	8	0.03		
Likelihood Ratio	14.196	8	0.012	Significant	Positive Impact
Fisher's Exact Test	7.934				

Accordingly, the researcher has applied chi-square test as there is categorical (Nominal) as well as metric (scale) data. This test to know the association significance (impact) between CSR activities perform by the company and corporate strategies towards environmental protection. The p value is less than 0.05 hence there is significant difference exist, it means there is an impact. By this test of significance, the researcher generalized the result to the population.

HYPOTHESIS: Ha1 CSR activities practiced by MNCs have a significant impact on Corporate strategies towards environmental protection.

Test Applied: Pearson correlation, Regression Analysis, Analysis of variance (ANOVA), Chi-square test and Mann-Whitney U test.

Result: Accepted (Significant)- (Positive Impact)

- There is a statistical significance between the companies measures put on building corporate strategies towards environmental protection on the CSR efforts as per companies Act, 2013. Thus CSR Efforts help building corporate strategies towards environmental protection among Multinational Corporations in Hyderabad region.

MAJOR FINDINGS OF THE STUDY

1. The study shows that 70.9 percent of the respondents had Strongly agreed towards the statement that their organization policies provide a safe and healthy environment to all its employees & to local community by integrating its corporate strategy with CSR policy

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2. The study shows that 70.9 percent of the respondents had Strongly agreed towards the statement that their organization has a policy of tree plantation for environmental sustainability
3. The study shows that 66.2 percent of the respondents had Strongly agreed towards the statement that their statement that their organization's CSR activities are to generate awareness about environmental issues among the employees.
4. The study shows that 46.9 percent of the respondents had Strongly agreed towards the statement that their statement that CSR activities in their organization are imposed for social and environmental requirement on suppliers and customers
5. The study shows that 60.5 percent of the respondents had Strongly agreed towards the statement that CSR has created an environmental friendly technology and process for production.

SUGGESTIONS

Based on the above findings and observations, the following suggestions are made as a matter of policy implication. They are as follows:

1. It is high time now for the Multi-National Corporations that they should focus on Socio- centric activities too in all the branches in order to maintain their leading position, satisfying customer and finally to survive in this hyper competitive environment.
2. The Multi National Corporations should practice the community investment initiatives in the areas like poverty alleviation, working for disabled people, education, conservation of nature and environment and promotion of culture, values and social heritage.
3. Multi National Corporations should identify the Key Performance Indicators (KPI) which reflects in CSR reports.

CONCLUSION

An organization receives inputs from society in the form of skilled / unskilled labour, raw material and natural resources like air, water and space for its operation and, in turn, offers goods and services to society. Thus, businesses depend on society for further existence and it is, in their interest to take care of society. It cannot operate either in isolation or in vacuum. Like individuals, businesses also need to live in the real world, i.e., in society. Therefore, to be successful in business, companies also need to look after the basic needs of the society, minimize harmful effects to environment, contribute in nation-building and comply with the law of the land.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019
ISSN 2394 - 7780

DEVELOPMENT AND VALIDATION OF INDIAN MINDFULNESS INVENTORY

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ABSTRACT
Mindfulness therapy is now widely used as core or integrated therapy for both clinical and normal population for management of problem behaviour or personal development. India is considered to the ground of origin of mindfulness and mindfulness based meditation is an indigenous practice and very commonly used by many people in their daily ritual practice. The mindfulness effect in improving disorders and general health are assessed through a number of scales recently developed but all of them are foreign origin and at times are confusing to the people due to culture depended items. Thus this it is relevant to make an appropriate measure of mindfulness for Indian population with semantically clear and unambiguous items having the quality of construct and facet clarity. The aim of study is to develop and validate the scale for assessing mindfulness. The sample size was1147 both male and female aged 19 to 39. The study involved item construction based on the theoretical construct of mindfulness in view of Indian population and which was subjected to expert and statistical judgment and the retained items were used in order to establish concurrent validity, reliability and factors. The data analysis showed that the IMI scale was a single dimension scale of 32 item with adequate reliability and validity.

Keywords: Mindfulness, self-report measure, Assessment, inventory development, psychometric properties

BACKGROUND
The extensive use of mindfulness therapy and techniques in positive psychology and clinical psychology in the recent decade necessitated the need for valid reliable measures of mindfulness which can define the construct of mindfulness and assist in examining the mechanisms of mindfulness interventions and training (Bishop et al., 2004; Brown & Ryan, 2003; Dimidjians & Linehan, 2003). In order to assess mindfulness both in trait and state, there evolved two major kinds of assessment methods, namely Neuroimaging and self-report measure. Although Neuroimaging method is more accurate measurement and useful in determining neurochemical changes related to mindfulness practice, this has limited utility in assessing trait mindfulness and in addition to this the methods are costly and inaccessible (Johnson, 2007). The development of self-report measures of mindfulness is also a relatively new phenomenon. The first self-report measure assessing contemporary definitions of mindfulness was created in 2001, and a number of subsequent self-report measures have been developed, however it is noticed that additional psychometric support is needed to validate the widespread use of these recently created measures.

Mindfulness therapy is now widely used as core or integrated therapy for both clinical and normal population for management of problem behaviour or personal development. India is considered to the ground of origin of mindfulness and mindfulness based meditation is an indigenous practice and very commonly used by many people in their daily ritual practice. How they contribute to person's psychological well-being and development are not measured by appropriate culturally appropriate indigenous tool. Currently the mindfulness effect in improving disorders and general health are assessed through foreign tools which are confusing to the people due to culture depended items.

There are a number of definitions trying to capture mindfulness as a construct but however mindfulness eludes and definitions fall short of accuracy in describing the construct of mindfulness. The first and foremost definition was given by John Kabat Zinn as "paying attention in a particular way on purpose, in the present moment and non-judgmentally". Original Buddhist focus on "bare attention or the non-discursive attention to the ongoing stream of consciousness without evaluation or judgment is highlighted in this definition. An attempt to achieve greater clarity and consensus on the concept, Bishop and colleagues held a series of meetings among experts in the field, and concluded on an operational definition that stressed sustained attention to present experience, and an attitude of openness and curiosity, along with nonjudgmental acceptance towards that experience.

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Shapiro et al (2006) proposed a theory of mindfulness from a behaviourist perspective on the basis of three axioms. It is a model that elucidates the potential mechanisms of mindfulness. It suggests that intentionally (I) attending (A) with openness and non-judgmental acceptance (A) leads to a significant shift in perspective, which is termed reperceiving. it is interpreted to be a meta-mechanism of action, which overarches additional direct mechanisms that lead to change and positive outcomes.

Extensive review of literature identified 11 scales and invariable all of them developed in the west. The first scale to develop was The Freiburg Mindfulness Inventory (FMI; Buchheld, Grossman & Walach, 2001; Walach et al., 2006), the Mindful Attention Awareness Scale (MAAS; Brown & Ryan, 2003), the Cognitive and Affective Mindfulness Scale-Revised (CAMS-R; Feldman, Hayes, Kumar, Greeson & Laurenceau, 2007; Hayes & Feldman, 2004), the Southampton Mindfulness Questionnaire (SMQ; Chadwick et al., 2008), the Kentucky Inventory of Mindfulness Scale (KIMS; Baer, Smith & Allen, 2004), the Five Facet Mindfulness Questionnaire (FFMQ; Baer, Smith, Hopkins, Krietenmeyer & Toney, 2006), the Philadelphia Mindfulness Scale (PHLMS; Cardaciotto, Herbert, Forman, Moitra & Farrow, 2008) and the Toronto Mindfulness Scale (TMS; Lau et al., 2006). Although there is considerable overlap among the aforementioned measures because of their shared Eastern lineage, each measure is somewhat unique in terms of how mindfulness is conceptualized and which dimensions are emphasized.

A review of Bergomi, Tschacher, & Kupper, (2013), states that all the self-report measures of mindfulness are not fully adequate measure of mindfulness and each of them offers unique advantages and disadvantages. Lack of comprehensive assessment of all aspects of mindfulness, investigations focusing on specific populations such as clinical samples (Cognitive and Affective Mindfulness Scale, Southampton Mindfulness Questionnaire) or mediators (Freiburg Mindfulness Inventory) are some particular short comings. Generally, all issues found to be affecting the assessment of mindfulness can be summarized into three main open issues. They are: (1) the coverage of aspects of mindfulness in questionnaires; (2) the nature of the relationships between these aspects; and (3) the validity of self-report measures of mindfulness. If these issues are adequately addressed in future developments in the self-report assessment of mindfulness a more adequate measure can be developed.

Review of literature concluded that the current state in the self-report assessment of mindfulness, several noticeable limitations can be found. These limitations found in those reports are due to these open issues. First of all the validated mindfulness scales fail to measure a comprehensive assessment of mindfulness in the general population. The second, major problem is that the scales have different constructs of mindfulness which substantially hinder the comparison of results from studies using different scales, thus impeding communication about the construct (Brown et al., 2007; Malinowski, 2008). The third problem results from current scales is that the included of items can be easily misinterpreted by respondents especially those who are not familiar with the mindfulness concept (cf. Grossman, 2008). Therefore a keen interest is taken to understand the construct by looking into origin, available comprehensive definition and theoretical framework on which construct evolves.

It is evident that rapidly evolving field of mindfulness research needs more suitable new self-report instruments that are theoretically based, emerging from the previous account of operationalization and richly rooted in empirical evidence. The current measures lack clarity in construct, lack stable factors. Therefore ambiguity in construct and facets exists. There is also ambiguity of items due to varying semantic meaning according people's value and personal meaning. The weaknesses of current mindfulness scales can serve to improve the operationalization of the concept Therefore, it may be misleading to conclude and generalize from the current state of research that mindfulness in principle cannot be assessed using self-report scales. The challenge for the construction of self-report measures of mindfulness may thus lie with constructing semantically clear and unambiguous items, e.g. by formulating less abstract items. It was also found that age, culture or gender may considerably contribute to the compilation of items. Though the mindful is an indigenous practice of India and a number of studies have been done in this field in India a standardized tool is not developed to measure mindfulness of the Indian population. Thus this it is relevant to make an appropriate measure of mindfulness for Indian population with semantically clear and unambiguous items having the quality of construct and facet clarity.

METHODOLOGY

Aim: To develop and validate the scale for assessing mindfulness

Sample Character: The total sample size was 1547. The sample size was 541 for the phase of item analysis and establishing factors of the scale. A sample of 1007 was taken for the phase of reliability and concurrent validity. Sample constitution has representation from 16 states of India. People of prescribed age and gender who had basic proficiency in spoken and written English language and access to the virtual questionnaire were

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included in the sample. People who had mindfulness training, exposure psychotherapy of any kind, training and experience in psychotherapy and had any kind of mental illness or serious physical illness were excluded from the sample. Ethical consideration regarding the consent, confidentiality, protection from psychological harm and debriefing were taken care.

DESIGN OF SCALE CONSTRUCTION

Procedure

In the first phase of the study, based on the theoretical construct of mindfulness, situation based 55 items were generated in view of Indian population. For the development of this scale, peer review and expert judgment as well as statistical judgment were the two methods that were employed. After the peer review retained items were subjected to expert judgment along with statistical judgment. Statistical judgement comprised of Item Analysis which was the process of knowing the truthfulness of an item. For the statistical method, item analysis involved computing the item difficulty and item discrimination index for each item. In the statistical judgment, 540 individuals from India who meet inclusion and exclusion criteria were asked to fill out the online questionnaire. It included consent form, socio- demographic sheet and generated items. The data was statistically analysed for measuring item difficulty and item discrimination. Item difficulty was judged based on computed mean and standard deviation. Item discrimination was assessed using point bi-serial correlation. Along with this, internal consistency of items was computed using Cronbach's Alpha. Considering the item analysis and expert judgement the items for the final scale were selected. In the second phase 1007 individuals from India were asked to fill the final version of the scale online. The scale also included consent form, socio-demographic form, and available scales of mindfulness namely, The Freiburg mindfulness inventory (FMI), Mindful Attention Awareness Scale (MAAS), Cognitive and Affective Mindfulness Scale-Revised (CAMS-R), Five Facet Minsdfulness Questionnaire (FFMQ), Philadelphia Mindfulness Scale (PHLMS). The data obtained was computed for association between scales and items, thus, concurrent validity, Guttmann spilt half reliability and Cronbach's alpha were established. The items that were retained after item analysis, underwent Factor Analysis. This method was used in order to extract items so that they can be placed under specific dimensions. Principal Component Analysis was used for the formation of factors to give a multidimensional aspect to the final scale.

Statistical Analysis

The statistical analysis was done using SPSS 21. The following were the statistical assessment employed in construction and validation of the scale. Item analysis is done to find the item difficulty and item discrimination. Mean and SD and point bi-serial correlation were calculated for the same. Reliability that assesses consistency of each item with other items were calculated by Cronbach alpha and Split half: Guttman Split half. Validity of the scale, what intend to measure, is established by finding correlation coefficient between scores of Indian Mindfulness Inventory and existing scales of mindfulness. Exploratory factor analysis, intended to find items that group together to measure different aspects of the construct was done

RESULTS

The study aimed to develop a scale on Mindfulness named Indian Inventory of Mindfulness (IMI). For this purpose, the total sample consisted of 1547 individuals between the ages 19 to 39 years. The sample was divided as per the process of test construction. Sample 1 (n=540) represented 43% males and 52% females and sample 2 (n=/>200 per scale) represented 43% males and 52% females. The following tables summarize the findings of the study.

Table-1: Mean and Percentage of Peer Review of IMI

Item	Mean	%	Item	Mean	%
IMI1	4	80	IMI29	4.25	85
IMI2	4	80	IMI30	4.25	85
IMI3	4.5	90	IMI31	4.25	85
IMI4	2	40	IMI32	4.25	85
IMI5	4.5	90	IMI33	4.25	85
IMI6	4.75	95	IMI34	4.25	85
IMI7	3.25	65	IMI35	3.25	65
IMI8	5	100	IMI36	3.75	75
IMI9	4.75	90	IMI37	4	80
IMI10	4.25	85	IMI38	3.75	75
IMI11	4.25	85	IMI39	4.25	85
IMI12	4	80	IMI40	4	80

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IMI13	4.5	90	IMI41	4.5	90
aIMI14	5	100	IMI42	4	80
IMI15	4.5	90	IMI43	3.75	75
IMI16	4.5	90	IMI44	2.75	55
IMI17	3.75	75	IMI45	1.5	30
IMI18	4.5	90	IMI46	2.75	55
IMI19	2.5	50	IMI47	1.75	35
IMI20	4.25	85	IMI48	2.75	55
IMI21	4.75	90	IMI49	3.25	65
IMI22	4.25	85	IMI50	4.5	90
IMI23	2.75	55	IMI51	4.25	85
IMI24	2.75	55	IMI52	4.5	90
IMI25	3.25	65	IMI53	2.25	45
IMI26	2.75	55	IMI54	3.25	65
IMI27	4.75	90	IMI55	3.25	65
IMI28	3.25	65			

Table 1 represents the descriptive statistics of the rating of the Indian Mindfulness Inventory done by 5 peers in the form of Mean and Percentage for each item. The mean score ranges from 2.75 to 5 and the percentage ranges from 55 to 100 were included in the scale.

Table-2: Mean and Percentage of Peer Review of IMI

Item	**Mean**	**%**	**Item**	**Mean**	**%**
IMI1	4.75	95	IMI23	4.5	90
IMI2	5	100	IMI24	4.25	85
IMI3	4.50	90	IMI25	4.75	95
IMI4	5	100	IMI26	2.25	55
IMI5	4.25	85	IMI27	3.75	75
IMI6	4.50	90	IMI28	3.50	70
IMI7	4.75	95	IMI29	4.25	90
IMI8	4	80	IMI30	3.50	70
IMI9	4.25	85	IMI31	4	80
IMI10	3.50	70	IMI32	5	100
IMI11	5	100	IMI33	4.50	90
IMI12	4.25	85	IMI34	2.25	55
IMI13	5	100	IMI35	4.50	90
IMI14	4.75	95	IMI36	5	100
IMI15	4.75	95	IMI37	5	100
IMI16	4.75	95	IMI38	5	100
IMI17	4.75	95	IMI39	4	80
IMI18	4.75	95	IMI40	4.50	90
IMI19	2.25	55	IMI41	2.25	55
IMI20	5	100	IMI42	2.75	65
IMI21	5	100	IMI43	5	100
IMI22	5	100			
IMI23	4.50	90			

Table 2 represents the descriptive statistics of the rating of the Indian Mindfulness Inventory done by 5 experts in the area of Mindfulness in the form of Mean and Percentage for each item. The mean score ranges from1.5 to 5 and the percentage ranges from 30 to 100.

Table 3: Item analysis of 43 items of IMI

Item	**Mean**	**SD**	**r_{bis}**	**Item**	**Mean**	**SD**	**r_{bis}**
IMI1	1.77	0.68	0.36	IMI24	1.80	0.77	0.59
IMI2	1.44	0.64	0.37	IMI25	1.79	0.83	0.52
IMI3	1.43	0.64	0.3	IMI26	2.17	0.76	0.31
IMI4	2.54	0.65	0.42	IMI27	1.93	0.76	0.62

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IMI5	2.41	0.74	0.4	IMI28	1.65	0.73	0.13
IMI6	1.72	0.75	0.05	IMI29	1.56	0.71	0.34
IMI7	1.80	0.77	0.32	IMI30	2.44	0.64	0.03
IMI8	1.63	0.75	0.35	IMI31	1.88	0.74	0.15
IMI9	2.28	0.77	0.38	IMI32	2.41	0.62	0.55
IMI10	1.72	0.80	0.14	IMI33	2.12	0.74	0.45
IMI11	1.80	0.76	0.31	IMI34	2.18	0.76	0.51
IMI12	2.60	0.63	0.33	IMI35	1.64	0.69	0.11
IMI13	2.06	0.70	0.51	IMI36	2.60	0.55	0.38
IMI14	1.87	0.71	0.47	IMI37	2.53	0.62	0.39
IMI15	2.41	0.63	0.44	IMI38	2.21	0.67	0.31
IMI16	2.03	0.71	0.12	IMI39	1.78	0.73	0.3
IMI17	1.67	0.68	0.05	IMI40	2.41	0.67	0.1
IMI18	1.52	0.65	0.45	IMI41	2.34	0.75	0.58
IMI19	2.23	0.73	0.54	IMI42	2.23	0.72	0.42
IMI20	1.92	0.76	0.41	IMI43	1.61	0.64	0.16
IMI21	1.73	0.72	0.56				
IMI22	2.35	0.68	0.48				
IMI23	2.18	0.77	0				

Table 3 demonstrates the statistical item analysis of all the 43 items. Item analysis was done through the computation of Item Discrimination and Item Difficulty. For the computation of the Discrimination Index, Point Biserial Correlation was used. Biserial score less than +.3 was considered as a low index of discrimination. For Difficulty Index, Mean and Standard Deviation were computed. A mean value above 2.6 was considered as a low index of difficulty. Eleven items were eliminated from the scale due to their unsatisfactory item analysis index. Rest of the 32 items were retained for factor analysis.

Table-4: Descriptive Statistics

Variable		Mean	SD
Indian Mindfulness Inventory		67.93	9.331
Gender	Male	67.90	9.848
	Female	67.97	8.87
Age		21.44	3.35

Table 4 represents the general mean of the Indian Mindfulness Inventory which was 67.93. Males and females had a mean score of 67.90 and 67.97 respectively. Mean age of the sample was 21.44 years.

Table 5: Correlation between Indian Mindfulness Inventory and Five Facet Mindfulness Questionnaire, The Freiburg mindfulness inventory, Cognitive and Affective Mindfulness Scale-Revised, Philadelphia Mindfulness Scale and The Mindful Attention Awareness Scale.

Scale	IMI
FFMQ	.345**
FMI	.411**
CAMS- ®	.251**
PHLMS	.417**
MAAS	.040

**p < .01

Criterion Validity of the Indian Mindfulness Inventory was computed 5 questionnaires namely Five Facet Mindfulness Questionnaire, The Freiburg mindfulness inventory, Cognitive and Affective Mindfulness Scale-Revised, Philadelphia Mindfulness Scale and The Mindful Attention Awareness Scale. For all the scales a sample of 200 individuals ranging from ages 19 to 39 was used.

DISCUSSION

The study aimed to develop an inventory on Mindfulness towards Indian adult population. Using this inventory, it will be possible to assess one's trait of mindfulness as an independent construct. The results of the entire process of scale construction have indicated that the proposed scale has all the properties required to be used a psychometric tool. Indian Inventory of Mindfulness is a single construct 3 point Likert scale consisting of 32 items based on everyday situations.

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Mindfulness is an awareness of the present moment with a qualified non-judgmental and open acceptance that has the purpose of self-regulation, self-exploration self-liberation. This awareness is achieved when a person can distinctively see self as subject as well as object of observation. Thus the practice of mindfulness is simply a continuation of the naturally occurring human developmental process whereby one gains an increasing capacity for objectivity about one's own internal and external experience (Shapiro et al., 2006). The development occurs as individuals are able to shift their perspective of everyday situation away from the narrow and limiting confines of their own personal points of reference. The process is continuing process where individual, who objectifies thoughts, feelings, emotions and sensations felt by the subject in everyday life situation, no longer fuses with the content nor define in terms of controlling, conditioning or determining rather he develops an attitude of detachment or non-judgmental meta- perception. Therefore mindfulness also entails decentering, de-automatization and detachment in day to day life situations. The mindfulness training focus on training to live present moment (present life situation) mindfully. These two factors, namely, re-perceiving everyday life situation and training focus on mindful living of present moment are focused on the scale. Thus the scale is constructed to measure mindfulness in the day to day activities. The scale measures mostly the trait or natural disposition to be mindfulness in the everyday life situation.

The total sample size for scale construction was 1547 individuals between the ages 19 to 39 years. The sample was divided as per the process of test construction. Sample 1 (n=540) represented 43% males and 52% females and sample 2 had 1000 samples (n=200 per scale cf. table 5) represented 43% males and 52% females. For the purpose of developing this scale, Indian population of various Indian states was targeted. These states were Kerala (33.5%), Maharashtra (15.9%), Karnataka (11.5%), Uttar Pradesh (5%), Chhattisgarh (6.2%), Delhi (5%), Orissa (3.1%), North-eastern states (3%), Tamil Nadu (2.3%), Bihar (1.5%), Punjab (1.2%), Gujarat (1.3), Jammu & Kashmir (1.2%), Madhya Pradesh (1%), Telangana (1%) and Jharkhand (1%).

After item generation, the inventory was subjected to peer and expert judgement in order to establish semantic clarity. Five peers and five experts of the concerned field were approached for this purpose. They had to rate the items on a 5 point scale. 55 items were devised for peers. Table 1 represents the descriptive statistics of the rating of the Indian Mindfulness Inventory done by 5 peers in the form of Mean and Percentage for each item. The mean score ranges from 2.75 to 5 and the percentage ranges from 60 to 100 were included in the scale. After that, 43 items were extracted for expert judgement. Table 2 represents the descriptive statistics of the rating of the Indian Mindfulness Inventory done by 5 experts in the area of Mindfulness in the form of Mean and Percentage for each item. The mean score ranges from1.5 to 5 and the percentage ranges from 30 to 100. Table 3 demonstrates the statistical item analysis of all the 43 items. Item analysis was done through the computation of Item Discrimination and Item Difficulty. For the computation of the Discrimination Index, Point Biserial Correlation was used. Biserial score less than +.3 was considered as a low index of discrimination. For Difficulty Index, Mean and Standard Deviation were computed. A mean value above 2.6 was considered as a low index of difficulty. Eleven items were eliminated from the scale due to their unsatisfactory item analysis index. Rest of the 32 items were retained for factor analysis.

Based on item analysis and expert judgement, 32 items were finally extracted for the purpose of factor analysis. Four factors were loaded in Exploratory Factor Analysis (EFA), but due to item cross-loading and unstable structure across the different samples, multidimensionality could not be established. Therefore, it can be concluded that the scale measures Mindfulness as one construct. This finding was supported by the Freiburg Mindfulness Inventory (FMI). Also many other scales like The Mindful Attention Awareness Scale (MAAS) and Kentucky inventory of mindfulness scale **(**KIMS) could not replicate a stable structure across samples in context to Mindfulness (Christopher et al., 2009). The reason can be attributed to the inter-relatedness of the domains of Mindfulness. For instance, mindful acceptance presupposes mindful awareness which is supported by the findings of MAAS scale construction.

Table 4 represents the general mean of the Indian Mindfulness Inventory which was 67.93. Males and females had a mean score of 67.90 and 67.97 respectively. Mean age of the sample was 21.44 years.

PSYCHOMETRIC PROPERTIES

Validity: Criterion validity of the scale was computed which is enumerated in the table 5. The Indian mindfulness inventory (IMI) was correlated with 5 different scales of Mindfulness. Moderate correlation was established with 3 scales Five Facet Mindfulness Questionnaire (FFMQ), Freiburg Mindfulness Inventory (FMI) and Philadelphia Mindfulness Scale (PHLMS), all of which assessed mindfulness. FFMQ and PHLMS had awareness and acceptance as distinct constructs but FMI had a single construct. The moderate correlation indicates that the current scale measures the same construct with a distinctive quality of its own. Cognitive and Affective Mindfulness Scale-Revised (CAMS) had a mild correlation with IMI due to the fact that CAMS only

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assessed cognitive aspects of attention and awareness whilst IMI assessed cognitive as well as situation-based aspects of Mindfulness. The Mindful Attention Awareness Scale (MAAS) was not found to be correlated with IMI which can be justified by the nature of MAAS which measured only awareness in negative terms.

Reliability: Reliability of the scale (n=1007) was computed using Cronbach Alpha for internal consistency and Guttman's split-half reliability. The Alpha score was .831 and Guttman's Split-Half coefficient was .778 indicating strong reliability in both forms.

By the end of the scale construction process, it can be concluded that the Indian Mindfulness Inventory is a 32 item, 3 point Likert scale that assesses Mindfulness as a single construct. The IMI23 of the final scale is measuring mindlessness therefore it is reversed score. The scale constitutes of items related to everyday life situations focusing on attention, awareness and intention in terms of Mindfulness. The global score of the scale will indicate current state of mindfulness trait or natural mindfulness disposition of the participant. The scale tried to incorporate 3 existing issues of mindfulness scales, namely- issue of coverage, dimension of the scales and validity of self-report which emerged from the review of literature. Thus, the scale developed items focusing on a comprehensive definition of the construct including all the dimensions of Mindfulness keeping in view, the semantic clarity from the Indian perspective.

The entire process of test construction involving item generation, item analysis and factor analysis has contributed in the successful evolution of the Indian Inventory of Mindfulness. The strong of reliability and validity values prove that this scale can be used for research related to Mindfulness, especially in the Indian context.

LIMITATIONS

- The self-report nature of the scale can allow self-biases, ambiguity, social desirability which may affect the assessment. A Lie score measure could be added.
- Sample selection being purposive and snow balling nature the data obtained might have sample related errors.
- The scale was limited to assess mindfulness disposition not the mindfulness state.
- Predictive divergent validity and stable factor structure were not established for the scale.

CONCLUSION

IMI having satisfactory psychometric properties, can be used to assess mindfulness trait or mindfulness disposition of the Indian population, both general as well as clinical. The Indian inventory of mindfulness can be used to conduct future research on Mindfulness and other related therapies like, MBI, MBCT, ACT, DBT. The present scale can contribute to existing literature of mindfulness especially in view of Indian perspective. The present scale can contribute to improve the indigenous understanding of mindfulness and to form more tailored mindfulness therapy. Future research can explore other variables which can help in establishing convergent and divergent validity. This self-report measure along with neuro- imaging techniques may validate its findings with more accurate empirical evidence. IMI can be used on other categories of population like children and middle and late adults in the future researches.

ACKNOWLEDGMENT

I am grateful to all of those who have contributed positively to completion of this project. I gratefully acknowledge these towering personalities; Dr. M.P Sharma, Professor, NIMHANS Banglore, Dr. Mashoor Jahan, Additional Professor, RINPAS Ranchi, Dr. Justine, Assistant Professor, Christ University Bangalore and Dr. Kishore Adhikari, Assistant Professor, Christ University Bangalore, who kindly agreed to review the scale by rendering their expertise in the field.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019

ISSN 2394 - 7780

DIDDA, THE SAVIOUR QUEEN OF KAHMIR

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"She, whom none believed, had the strength to step over a cattle track the lam lady traversed, in the manner of the son of the wind, the ocean of the confederate forces."

Rajatrangini

ABSTRACT
Kshemaguptas reign is important in the history of Kashmir by reason of his marriage to Didda. Didda so much dominated the mind of the king that he nick named Diddaksema. She founded a number of temples and other sacred buildings. She is started to have made sixty four foundations of which, Diddamatha has given its name Didamar to a locality in Srinagar (on the right bank of the Vitasta). She restored some of the buildings and enclosed with stone walls almost all the temples whose walls had been burnt down. She also repaired the Jayendravihara. Didda's masterful personality dominated the politics of Kashmir for nearly half century, first as the chief Queen of Ksemagupta, next the regent of her son and grandsons, and finally as an independent Queen.

Keywords: Kshemagupta, Didda, Di-kshema, Tunga, Ekangas, Rakka

INTRODUCTION

Less than half a century after the tragic death of the heroic Sugandha there appeared another Queen on the throne of Kashmir. Her name was Didda. By now political conditions had further political and cultural degeneration had set in at the Kashmir court, In 950 AD Kshemagupta, became the ruler of the valley. He was a weak, reckless and licentious ruler. The most notable event of his life was his marriage with Didda. She was the daughter of Simharaja, king of Lahore, and the grand-daughter of the Shashiking Bhima or Bhimapala of Udabhapura. According to Kalhana she was not only a lady of captivating personality but also streets ahead of her husband in intelligence. Naturally she came to have complete control over his husbands mind, so much so that he came to be known by the name of "*Di-kshema*". Kalhan's statement is supported by the copper coins of Kshemagupta, which bear the legend "*Di-kshema*" apparently a contraction of the above name,

Didda was lame, but the beauty of her face and the grace of her from were enchanting perceiving the Love Loren nature of the king, Didda gradually assumed the control of administration and in course of time her potentialities to handle the statecraft were fully unfolded. Though Kshemagupta continued to be on the throne tile 958 A.D., it was Didda who can the government and attended to every detail of the administration.

She was in direct charge of the civil department as well as the armed forces, nothing could be done without her consent and permission, and she was the real power in the Kingdom. We learn that while the affairs of the state had little chance to stabiles Kshemagupta died suddenly in 958 A.D. in accordance with the custom of the time, Didda, his favorite chief Queen wanted to climate herself with the dead body of her husband, but Narvahana, a prudent minister of the state, realizing the value of Didda's services to the people and she was capable of doing for their welfare, dissuaded her from ending her life. Didda agreed and changed her mind. Kshemagupta was succeeded on the throne by his minor son, Abhimanyu and soon the influential Queen Didda took up the reins of government in her own hands as regent of her offspring. She youngster, Abhimanyu, was yet a minor and consequently unable to play any leading role in the contemporary politics of Kashmir. His nominal rule of twelve years was marked by revolts and events of considerable importance but in almost all of them, the regent-mother Didda, and figures prominently. The early years of her regency were full of troubles and risks. Didda had been in enmity with the Prime minister, Phalguna, owing to the jealousy, she had with her rival, his daughter the old commander-in-chief "Rakka", no poisoned her mind against him saying that he was preparing to usurp the throne. So he compelled him to retire to parnotsa (Modern Punch).

But the regent's real trouble had yet to commence. Parvagupta's, grandsons, Mahiman and Patala, born of his two daughters (who were married to two ministers). As they had been brought up like princess in the royal palace itself they considered themselves fully qualified for the throne. They actually formed a conspiracy in collaboration with some influential persons, to seize the power. But instead of taking a strong action against the conspirators Didda first only turned them out of the palace and later on banished them from the country. Mahiman took refuge with his father-in-law Saktisena. The former's supporters also formed him there and rebellion soon became formidable. At this critical movement the Minister Naravahana remained faithful to the

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Queen and stood by her. The Queen managed to bribe several of the pretenders supported and promised high posts to many, and thus the revolt fizzled out. Yasodhara, a chief supporter of the rebels was raised by the Queen to the position of commander-in-chief. He soon marched against a Shashi chieftain, Thakkana by name, presumably of his own accord. The expedition of Yasodhara seems to have been inspired more on personal grounds as he is said to have been accompanied by his relatives as well. Though the terrain was hilly, inaccessible and difficult to march on, yet Yashodra, by his lightning marches surprised Thakkana and made him a captive after a brief resistance. His absence from Kashmir on the said expedition provided them with an excellent opportunity to work for his downfall led by Rakka, they began to din constantly into Didda's ears that Yasodhara were not a sincere and trustworthy man. His acceptance of tribute from Thakkana was presented to her as a bribe taken for reinstating the vanquished foe. When an attempt was made to banish Yasodhara on his charge, his supporter raised a revolt and succeeded in besieging Didda in her palace. But Didda crashed the rebellion with the help of minister Naravahana and the valiant forces known as the Ekangas. The grateful Queen now made Naravahana her chief councilor with the title Rajanaka. Didda's victory over the mighty forces of the conspirators amazed her friends and foes alike. Her affection for him grew day by day, so much so that she came to rely upon him to the full in all matters of the state and would go to any length to please him. Then a treasurer succeeded in arousing superior in her mind against him. She came under the impression that the minister-general was trying to usurp the throne, illiterate him and her insult ultimately drove her faithful adherent to commit suicide.

After she got rid of Naravahana, Didda resolved to punish the Damras who had been gaining strength for some years in the past. The first to fall a victim to her fury were the sons of Sangrama Darma of Uttaraghosa. She wanted them to be done to death. But they made their escape to their home place and there killed Kayyaka, the lord of the gate, and others who opposed them. Afraid of a possible general revolt in the make of this Damara up arising, the Queen hastened to make peace with them, though the latter still harbored distrust and strengthened their position by forming a league with other Damara chiefs. Meanwhile, Rakka also died and Didda, acutely conscious of the growing power of the Damarar , recalled here old land faithful minister, phalguna, who has started earlier, had retired from active politics by no means in good graces because of the Queen. The Damara hence, it seems, was warded off, but the old minister was unable to cope with growing corruption in the administrative machinery. It is worth of notice that the Queen no more relied upon the official coterie of the valley, instead, in order to strengthen her position, she started importing and employing men from her parents side which however, resulted in further looting of country.

Meanwhile king Abhimanyu was growing up with signs of promise. But unfortunately he contracted tuberculosis and died in 927 A.D. The death of Abhimanyu shocked her and temporarily changed her out look of life. The incident changed her ferocious nature and attracted her ferocious nature and attracted her to religious and chartable deeds. He created in her mind the inestimable love for the people and from that time onwards the Queen who had given up evil ways, came be respected by all the people. First of all in memory of her son, she built the shrine of Abhimanyu Swamin and the town of Abhimanyupur. In her own name she built the magnificent temple of DiddaSwamin and also a specious convert epically meant for the use of people from Madhya Desha, Lata and Saurashtra. She built another temple of the same name "DiddaSawamin" built of white stone, "which gleamed as if bathed with the waters of the Ganga emerging from its feet". Her husband, who had earned the Sobriquet of "Rainer of Armlets" for hawing lavishly given golden ornaments to his mistresses and concubines, was preserved in memory by her in founding the town of Kankanpura. As an attribute to the loving memory of her grandfather, she built a Vishnu temple known as Bhimakeshava. On the belt Bank of river Lidder in village Bumazu about 3 kms to the north of sacred springs of Mattan on Srinagar-Pahalgam road. She kept alive old tradition of patronage to Buddhists. She built monasteries or Mathas and a Vihara for the abode of Kashmiri students and foreign travelers. The most glaring evidence is of a matha known after her as Diddamatha. Nowadays, it is still called as Diddamar and the ruins of the structure are still visible on the right bank of the river Jhelum in between the area falling from sixth bridge to seventh bridge. The area is now renamed as Khan-Kali Sokata. Situated on the high plinth, the outer walls of the building consisting of huge blocks of stones and the long series of steps are even now noticeable. To commemorate the glory of her father, Simharaja, she founded a shrine and a convent for the Brahmans of the plains and called it SimhaSwamin. At the confluence of the rivers *Vitasta* and *Sindhu*, She built chapels dedicated to Vishnu. "It is needless to enumerate her manifold good works", observes Kalhana, "She consecrated sixty four foundations such is the report."

The devotional mood of the Queen aroused in her heart at the death of her son, did not last for more than a year. She killed Nandigupta by "Witchcraft". Another grandson Tribhuvana (Gupta) who succeeded was disposed of in the same manner A.D. 975. There remained now her last grandson Bhimagupta. During the five years of his

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nominal rule Phalguna, who appears to have held a check upon the will of Didda, died and the Queen became with her open misdeeds and excesses a hundredfold terrifying like a personated tusker in rut who has torn off face covering. Tunga, and a Khara from the hills of Parnotsa, who had entered Kashmir and had secured a job in the royal service as bearer of dispatches captivated her heart and openly became her Paramour. When after a stay of four or five years in the royal palace the mind of the boy king Bhimagupta began to mature, he perceived that the administration of the kingdom as well as the ways of his grandmother were shameful. So he tried for a reform. In this attempt, the Prince became an object of Suspicion to the fickle mended Queen who sent him to prison and finally put him to death by venous tortures.

Didda(981-1003 AD) now ascended the throne herself. She raised Tunga to the position of the prime-minister and started to rule as a through autocrat. Tunga placed his brothers on responsible posts and thus caused considerable heart-burning amongst the high officers of the state who had been so displaced. As a result, they in collusion with the local Brahmans, made respected attempts to dislodge, Tunga. But each time, his velour and Didda's cunning diplomacy wiped the floor. Prince Vigrahraja of Lohare, son of Didda's brother was invited to invade Kashmir from outside while Brahmanas of the important *agrahars* were induced to enter the common people, who were fed up with the corrupt &oppressive administration, also rose of this occasion. Their chief target was however, Tunga whom they wanted to seize and kill. But Didda very cunningly won over the Brahmans by a distribution of briber. In the essence of any support from within, Vigraharaja's plan of invasion failed and he was compelled to retreat. Then having consolidated their positions Tunga and the vest became masters and, in time, killed Kardamaraja and the others who had manufactured the insurrection. Another attempt was made by him subsequently to stir up rebellion among the Brahmans of Kashmir. Free from the anxiety of internal commotion, Didda's attention was diverted towards Rajapuri. At the death of Phalguna, the new tributary chief of the principality had displayed signs of insubordination and disloyalty. Prithvipala attacked the Kashmiri troops in a defile & killed two of the ministers. The situation was however, retired by Tunga, who marched along with his faithful followers, including his own brothers, to Rajapuri and took defenders by surprise. The city was burnt down and Prithvipala was thorough lyvanquished. He sued for peace. Tunga was thus able to raise himself in esteem and wars henceforth also given the command of the army. During the last years of Didda, there was a Damara rising. But this too war suppressed by Tunga.

Before the Queen went to her long last sleep in 1003 A.D. She had nominated Samgramaraja, son of Udayraja, her brother her successor and appointed him Yuvaraja". Thus with the passing away of the Queen in 1003 A.D, the throne of Kashmir passed peacefully to a new dynasty.

Thus we see that Didda's masterful personality dominated the politics of Kashmir for nearly half century, first as the chief Queen of Ksemagupta, next the regent of her son and grandsons, and finally as an independent Queen. It has rightly been said by Gertrude Emerson Seen that she was, "a remarkable women in many ways." She was a beautiful lady, with charming features but one physical defect - she was lame. She came to the throne at a critical time. The greedy Brahmans, unscrupulous landlords, conspiring nobles and even adventurers outside the realm had all joined their hands time and again to oust her. By bribing some and cajoling others, by wise and discriminating distribution of wealth and favor. She drones the enemy, she won the opponents, and she strived clear the ship of state through storms and stresses. Her lust for power and laxity of morals as justly impeached but none can deny her due for presence of mind, tactfulness firmness of purpose and political sagacity. She was able to ward off trouble which appeared again and again and maintained her autoerotic hold over the country inspired for an unusually long period. This shows that she was gifted with high political and diplomatic talents. Her ability as a statesman of high order is further affected to by her peaceful and undisputed transfer of power to the new dynasty of Sangramaraja the Lohara dynasty. She also had a wonderful capacity for organisation, which turned many a near defeats and failures into victories and success.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019
ISSN 2394 - 7780

Dr. BHIMRAO AMBEDKAR AND WOMEN UPLIFTMENT

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ABSTRACT
Ambedkar is one of the greatest personalities of 20th century India. His life was a great saga of suffering, sacrifice and struggle. His birth as an untouchable gave him a bitter taste of caste tyranny, oppression and unbearable agony. Ambedkar made significant efforts to lead the society on the path of liberty, equality and fraternity. He made the genuine efforts in laying down the resilient bases for codifying the common civil code for Hindus and other sections of the Indian society. He stalwartly believed that women empowerment can consummate by security and happiness of women. He was a fighter for the dignity of women and depressed people and is known as champion of human rights. He battled against unfair and vicious practices like Devadasi system, child marriage and strongly promoted family planning. He left no stone unturned for the development of women that are associated with malicious practice like prostitution. He was a great intellectual of women and their rights. Being a pioneer of social justice, he always functioned for the women empowerment.

Keywords: Ambedkar, Women Upliftment, Education, freedom, women rights

I measure the progress of a community by the degree of progress which women have achieved – Dr. B.R. Ambedkar.

Bhimrao Ramji Ambedkar was born on 14 April 1891 in the garrison town of Mhow, in a Mahar family in service of the army. Ambedkar's ancestral village was Ambavade in Mandangad *Taluka* in Ratnagiri district of the Bombay presidency, a region that underwent serious socio-political and economic upheaval in the wake of European mercantile and political expansion. A direct consequence was the recruitment of Mahars, in large numbers, in the British army. Ambedkar's father, Ramji Sakpal, had become a *subedar* and was appointed head of the Army Normal school. Ambedkar's mother, Bhimabai, came from a Mahar family with a distinguished record in military service-her father and six uncles' *subedars*. Since education was compulsory for army children, both men and women of Ambedkar's family were literate.

After the family moved to Bombay, Ambedkar matriculated from the Elphinstone college, where his fees were paid by the progressive maharaja of Baroda. He obtained his BA in 1912, whereupon he joined the service of the Baroda state. His father's death a fortnight later brought about change of plans. He left the army in order to resume his studies with the financial aid provided by the Maharaja of Baroda. In 1913 Ambedkar was sent by the maharaja for higher studies to the United States. He joined Colombia University in New York, where he did a master's thesis on the caste system and a doctoral thesis on provincial finance in British India. He came under the influence of great professors at Columbia – John Dewey, Edwin Seligman and A. A. Goldenweiser.

In 1916 Ambedkar moved to London, enrolled at Gray's Inn and began another doctorate at the London school of economics. But his scholarship ran out, and he was summoned back to Baroda, where he was appointed military secretary to the maharaja. However, the discrimination he faced led him to quit the job in disgust and move to Bombay. He started tutoring students for a living. But now he was politically active. With funds from the maharaja of Kolhapur, he began a fortnightly paper for the depressed castes.

Ambedkar returned to England in 1920 to continue his studies, this time with the help of the Maharaja of Kolhapur. He obtained an M. Sc. In economics from the London school of economics in June 1921, and went on to write a D.Sc. dissertation under the guidance of Edwin Canon, one of the renowned professors of economics of the time. Ambedkar also did a Ph. D at Columbia University and became the first untouchable to formally obtain a doctorate in 1927.

On his return from England, Ambedkar registered at the Bombay bar in 1923, and started legal practice in the Bombay High Court the following year. In 1924 Ambedkar founded the depressed classes' institute (*Bahishkrit Hitarini sabha*) in Bombay. Three years later (1927), he started a Marathi fortnightly, *Bahishkrit Bharat*, and the same year established the *Samaj Samta Sangh* to propagate the gospel of social equality between caste Hindus and untouchables. Ambedkar also organised the Independent Labour party on secular lines for protecting the interest of the labouring classes. In December 1927 he led the *Mahad Satyagraha* to establish the rights of untouchables to draw water from public wells and tanks. He also organised temple entry movements like the *Parvati temple satyagraha* of 1928 and the *Kalasam temple satyagraha* of 1930-35.

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A brilliant scholar, Dr. Ambedkar made significant efforts to lead Indian society on all fronts viz; social, cultural, educational etc. to beautify its diversity. He managed to provide the path for egalitarian society in India. For the advancement of Indian society, it was necessary to liberate the women of all the barriers which comes in the way of their development. For that he made efforts to provide a common code for all sections of the Indian society. In 1920, Dr. Ambedkar started his movement and for that he made various efforts to set the Hindu social order on track. Through his journals, namely "*Mook Nayak*" and "*Bahishkrit Bharat*" , which he launched in 1920 and 1927 respectively, he put stress on the need of the education and gender equality. Dr. Ambedkar highlighted the problems of the depressed as well as women. He strongly advocated for legislation for women's empowerment in Bombay Legislative Assembly. He stressed and encouraged the policies about women empowerment, which he considered a key for success to run the Indian society on its development track.

For the progress of the women folk, Dr. Ambedkar made various efforts to remove the illiteracy, poverty, and social bondage of women. He made efforts to aware the women about the barriers which were in their way of development like poverty, illiteracy, and other social systems like prostitution, devadasi, child marriages etc. As Dr. Ambedkar is also known as the father of Indian constitution, did not ignore the daughters of the nation of their rights, cared for them like a father and penned down the rights for them in the constitution of India. Dr. Ambedkar tried an adequate inclusion of women's right in the political vocabulary and constitution of India. i.e., Article14 - Equal rights and opportunities in political, economic and social spheres. Article 15 prohibits discrimination on the ground of sex. Article 15(3) enables affirmative discrimination in favour of women. Article 39 – Equal means of livelihood and equal pay for equal work. Article 42 – Human conditions of work and maternity relief. Article 51 (A) (C) – Fundamental duties to renounce practices, derogatory to the dignity of women. Article 46 – The state to promote with special care, the educational and economic interests of weaker section of people and to protect them from social injustice and all forms of exploitation. Article 47 – The state to raise the level of nutrition and standard of living of its people and the improvement of public health and so on.

He stressed on the amendment of the Hindu Code Bill and when the bill was not passed in the parliament, he resigned for the same. Thus, we can say that Dr. Ambedkar was having deep concern about the women empowerment of all sections of the society.

Dr. Ambedkar, an eminent scholar uses his intellect and reason to question the position of the women in the 20th century and struggled for their empowerment. As a brilliant intellectual, he provides a vision for the women upliftment in India. Dr. Ambedkar was a great scholar, who through his intellect, tries to mould and shape the destiny of the women in India. He was a great political leader, freedom fighter, thinker, philosopher, social reformer and he is also known as revivalist of Buddhism. For the upliftment of the women, he provide the future track and create the conducive atmosphere for the women empowerment. He provide a common civil code for all sections of the society. He tries his best to adjust the interests of the women in Indian society.

Dr. Ambedkar acts as a candle to light the path of women empowerment. He believed that women should act as a brave soldier to defend her identity. He strongly encouraged the women reform movements and was of the opinion that through education, women can be liberated of the social bondages which kept her position weak in the society. He put stress on the gender equality and pressed for the need of the education to women. The traditional Hindu Social Order which according to him was a hindrance in the development of the women, should be modified and adjusted according to the need of the time. According to him, "we shall see better days soon and our progress will be greatly accelerated if male education is persuaded side by side with female education". He was concerned about the education of the depressed class and women and tried a lot to improve their position in society. Nowadays Global feminists demand for the women education, their equal treatment as of men, and their participation in the political processes etc. was also a prime target of the Dr. Ambedkar in his times. For the human development as a whole, equality is the prime pillar which is only possible when women should be treated equally. It is the women which is the first school where a child nourishes and attains freedom for the development. In January 1928, a women's association was founded in Bombay with Ramabai, Ambedkar's wife, as its president. In the Kalram Temple Entry Satyagraha at Nasik in 1930, five hundred women participated and many of them were arrested along with men and ill-treated in jails. The encouragement of Dr. Ambedkar to empower women to speak boldly was seen when Radhabai Vadale addressed a press conference in 1931. She said "It is better to die a hundred times than live a life full of humiliation. We will sacrifice our lives but we will win our rights." The credit for this self – respect and firm determination of women goes to Dr. Ambedkar.

In the process of the social reform, women can play active role in achieving the goal which was also Dr. Ambedkar's belief. The historic, "Mahad Satyagraha" witnessed participation of three hundred women along

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with their male counterparts. Addressing meeting of about 3000 women, he said, "I measure the progress of community by the degree of progress which women had achieved. Let every girl who marries stand by her husband, claim to be her husband's friend and equal, and refuse to be his slave. I am sure if you follow this advice, you will bring honour and glory to yourselves."He provided several provisions in the constitution for protecting the welfare and civil rights of women. He introduced the Hindu Code Bill in the Parliament and highlighted the issues about women's property right. He was a hero of secularism who also fights for the rights of the Muslim women.

CONCLUSION

It may undoubtedly mentioned here that Ambedkar was a path maker of all the women irrespective of religion, caste, creed, gender etc. he brought a new trend for uprising the women through his thoughts and beliefs. Not only women all the people of India should thankful to him because of his tremendous and everlasting steps of developmental works. He also talked about the Muslim women about wearing veil, their religious traditions and marriages.

Ambedkar's vision of empowerment of women emancipation of women through legal reforms was intertwined with raising social conscience through social re- engineering and through education. Social awareness and social responsiveness appeared to him to be the basic ingredient of empowerment of women.

In contemporary setup the Indian women have achieved a lot in various spheres of their life though they are still in the vicious grips of various social tribulations like prostitution, rape, eve teasing, domestic violence, and victims of acid attack etc. despite all these evils women are holding high positions of authority in all walks of life including, police administration, defence academy, medical, engineering, higher education, politics, sports, foreign services, industry and trade. It would be worth mentioning the quote by Ambedkar's, '*Unity is meaningless without the accompaniment of women. Education is fruitless without educated women, and agitation is incomplete without the strength of women'*.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019
ISSN 2394 - 7780

INFLUENCE OF DIFFERENT REST INTERVALS BETWEEN CIRCUIT RESISTANCE EXERCISES ON POST-EXERCISE BLOOD PRESSURE

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ABSTRACT
The purpose of the study was to investigate the blood pressure responses during recovery after two protocols of circuit resistance exercises (CRE) with different rest intervals (RI). Eleven normotensive males (aged 19.5 ± 1.0 yrs, height 172.8 ± 5.7 cm and weight 65.1 ± 8.1 kg) performed two CRE with RI of 30 (RI30s) and 40 (RI40s) seconds between the exercises randomly, as well as a control Session without exercise. The Protocols consisted of 3 circuits of 6 exercises with 10 repetitions maximum (10RM) and 2 minute rest between circuits, followed by an 80 minute recovery period. Measurements were taken before exercise and at each 10 min of post-exercise recovery. The Analysis of Variance (ANOVA) with Repeated Measures (group x time) was used to analyze data, followed by posthoc Bonferroni test, for P≤0.05. Post-exercise hypotension of systolic blood pressure was observed after both CRE with RI30s and RI40s (at R40, R50, R60, R70 and R80), whereas diastolic blood pressure did not differ from that measured at rest. In all measured moments, there was no significant difference between exercise trials in post-exercise levels of systolic and diastolic blood pressure. CRE with RI30s and RI40s between the exercises can lead to occurrence of PEH similarly in magnitude and duration. The findings suggest a potentially positive health benefit of strength training.

Keywords: Post-exercise Hypotension; Resistance Exercise; Systolic Blood Pressure; Diastolic Blood Pressure.

INTRODUCTION
Physical exercise is the prevention and treatment of blood pressure (BP) disorders. Scientific evidence in the literature have demonstrated that after an acute exercise bout, BP levels are reduced for minutes or hours in relation to pre-exercise levels [1-3]. This phenomenon is called post-exercise hypotension (PEH) and considered as an important strategy in the control and reduction of BP. In addition to exercise intensity, volume and sequence that were previously studied, other variables such as the amount of muscular mass involved, number of repetitions, type of training and rest interval (RI) between the exercise Sets can affect the hemodynamic responses to a bout of resistance exercises. However, RI is considered as one of the main variables of resistance exercises. RI length influences the removal of metabolites produced during muscle contraction. Thus, the objective of' the present study was to investigate and compare the effects of different RI between circuit training exercises (30s and 40s; the ratio of exercise to rest was approximately 1 to 1.5 and 1 to 2, respectively) on post-exercise BP responses in non-hypertensive young males.

METHODS AND SUBJECTS
Eleven healthy sedentary males were selected for the study. They were non-smokers, had no history of cardiovascular disease in themselves and their Families. Complete advice about possible risks and discomfort was given to the participants. and all of' them gave their written in formed consent to participate. Their physical and cardiovascular characteristics are shown in table 1. Before initiating the tests, the participants underwent an anamnesis, a clinical evaluation and BP, body fat

Table-1: Physical and cardiovascular characteristics of the participants.

Participants characteristics	Mean (SD)
Age (years)	19.1 (1.0)
Weight (kg)	65.1(8.1)
Height (cm)	172.8 (5.7)
Body mass index (kg/m2)	21.8(2.1)
Body fat (%)	13.7 (2.5)
Ystolic blood pressure (mmHg)	113.5(5.6)
Diastolic blood pressure (mmHg)	77.1(4.7)
10RM leg press (kg)	110.9 (29.2)
10RM lat pull down (kg)	47.3(6.5)
10RM knee flexion (kg)	38.2(7.8)
10RM bench press (kg)	54.1(9.7)
10RM knee extension (kg)	32.7(4.1)
10RM cable biceps curl (kg)	27.2(6.8)

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The participants were carried out three experimental sessions with a minimum of 72 h intervals: (1) circuit resistance exercises (CRE) with 30s RI between exercises (R130), (2) CRE with 40s RI between exercises (R140) and (3) a control session (CON). The R130 and Rl40 sessions were performed in a randomized order. Pre and post-exercise values of BP were measured and analyzed.

The participants were instructed not to ingest alcoholic or caffeinated drinks, not to perform strenuous physical activity in the previous 48 h and to have their last meal 2 h before the beginning of the experimental sessions, which occurred at 2:00-4:00 PM to control diurnal variation in BP, The laboratory had a mean temperature of 21°C and mean relative air humidity of 4l%.

Blood pressure measurements

After a 5-min rest in the seated position, BP was measured three times during two different visits to the laboratory. On the occasion of each visit, BP was measured by the same experienced observer using a standard mercury sphygmomanometer (ALPK2, Japan), taking the first and the fifth phases of Korotkoff sounds as SBP and DBP values, respectively. Participants were excluded if the average of the last two values obtained during each visit for SBP and DBP was greater than 139 and 89 mmHg, respectively.

10RM test

At least 7 days prior to the experiments, participants performed a maximal 10 repetitions test (10RM) in the leg press, lat pull-down, knee flexion, bench press, knee extension, and biceps curl after 15 mm warm-up consisted of 5 minutes of slow running, 5 minutes of static stretching and 5 minutes of dynamic exercise.

Each individual was given up to five tries, in order to determine the load, with a five-minute interval between them. Also, before the 10RM tests, participants underwent a familiarization session and became familiar with Standard exercise techniques.

Exercise Protocols

Initially, the volunteers remained seated in a comfortable chair for 20 min, with BP being measured each 5 min from the 10^{th} min to obtain average resting values. The experimental session was postponed to another day, if the pre-exercise BP of volunteers was abnormal (SBP>139, DBP>89). Then, the subjects who were randomly selected for one of the two protocols underwent 15 min warm-up consisting of 5 minutes of slow running, 5 minutes of static stretching, and 5 minutes of dynamic exercise and performed CRE with 30s (The ratio of exercise to rest is 1 to 1.5) or 40s (The ratio of exercise to rest is 1 to 2) active and passive RI between each exercise in which time the participant moved between each station and then began the next exercise. In each session the circuit of resistance exercises was performed in the following sequence: leg press, lat pull-down, knee flexion, bench press, knee extension, and biceps curl. The subjects performed 3 circuits of 10 repetitions (1 complete movement in ~ 2s) with 2 min passive rest in the sitting posit ion after each complete circuit. After exercise trials, participants rested in the sitting position for 80 min, with BP being measured at each 10 nun of post-exercise recovery (R10, R20, R30, R40, R50. R60, R70 and R80). BP was recorded by the same observer in all exercise trials, using a standard mercury sphygmomanometer.

Control session

To determine any potential diurnal variations in blood pressure, all of the participants performed a nonexercise control trial three day's after the exercise trials. During this trial, the participants were submitted to the same experimental protocol used in the exercise trials, they rested in the seated position for 80 min.

STATISTICAL ANALYSIS

All data were expressed as mean ± SD and were analyzed using SISS software (v. 16.0). The Analyst of Variance (ANOVA) with repeated measures (group x time) was used to analyze data and when the difference presented was significant, the Bonferroni pos-hoc test was used for multiple comparisons, with a value of $P \leq 0.05$.

Table-2: Changes in systolic blood pressure and diastolic blood pressure during recovery after circuit resistance exercises with different rest intervals (n=12)

	Systolic Blood Pressure (mmHg)			Diastolic Blood Pressure (mmHg)		
Period	**Control**	**Rest Interval of 30 sec**	**Rest Interval of 40 sec**	**Control**	**Rest Interval of 30 sec**	**Rest Interval of 40 sec**
At rest	113.0(2.5)	113.8(8.4)	113.6(4.82)	77.5(3.8)	76.4(2.2)	77.5(7.1)
R10	111.1(4.5)	111.4(5.3)	112.8(4.75)	77.8(3.3)	78.1(2.2)	78.4(5.1)
R20	111.5(2.9)	110.2(10.1)	112.3(7.95)	78.7(3.5)	78.6(3.7)	78.0(5.5)

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R30	112.5(1.8)	107.6(8.5)	109.7(7.32)	77.6(4.1)	76.0(5.1)	75.9(4.9)
R40	112.5(1.9)	103.6	108.4	76.8(4.8)	75.5(5.1)	76.0(4.6)
R50	111.7(2.1)	106.4	105.9	74.6(3.9)	75.6(4.4)	76.4(4.9)
R60	112.3(1.7)	104.8	104.8	75.0(3.5)	74.7(5.3)	76.6(6.1)
R70	111.6(1.7)	106.2	106.2	75.0(3.4)	74.9(4.8)	75.9(6.0)
R80	111.5(1.5)	107.1	104.8	75.6(2.7)	76.2(4.6)	76.5(5.5)

R10 to R 80 - period after the protocol up to 80 minutes.

*Significant difference in comparison to rest ($P \leq 0.05$) / Significant difference in comparison to the control ($P \leq 0.05$).

RESULTS

BP responses during the different experimental sessions are shown in table 2. Regarding SBP measurements compared to rest values, there were significant decreases at R40 (P=0.005, P=0.03), R50 (P=0.02, P=0.005), R60 (P=0.005, P=0.002), R70 (P=0.029, P=0.001) and R80 (P=0.031, P=0.001) for both RI30s and RI40s. Whereas when compared with the CON session, observed significant differences at R40 (P=0.004), R60 (P=0.002) and R70 (P=0.02) for RI30s and at R60 (P=0.003), R70 (P=0.01) and R80 (P=0.01) for R 140s. DBP did not differ from that measured at rest abler CRE with RI30s and RI40s. Also, in all measured time, there was no significant difference between RI30s or RI40s and CON session. In all measured time, no significant differences were observed between CRE with RI30s and RI40s in pit and post- exercise level of SBP and DBP. Also these variables did not significantly change during CON session.

DISCUSSION

The aim of the present study ‘as to investigate and compare the SBP and DBP during recovery after a single bout of CRE with different RI between them (30s and 40s; the ratio of exercise to rest was approximately I to I .5 and 1 to 2, respectively). Our results have shown that, both CRE with RI30s and RI40s were effective in promoting reductions in post exercise blood pressure. The main finding was that CRE with RI30s and RI40s elicited PEH of SBP and no change of DBP in young healthy males, so that, there was no significant difference between CRE with RI30s and RI40s in post-exercise blood pressure responses. The absence of BP changes during the nonexercise control trial shows that, in bet, the decreased SBP levels after exercise are due to the exercise effect and not to the normal diurnal variations. The present study found a significant PEH of SBP compared to pre-exercise measurements in the protocols tested. The reductions in blood pressure levels after a single exercise session is in agreement with the results obtained by other studies that observed PEH after resistance exercises. In a study conducted by de Salles et al, volunteers performed 3 sets of 10 repetitions per exercise at 70% 10RM, with 1 or 2 in mutes RI between sets and observed PEH of SBP after both 1 and 2 minute sessions.

Regarding DBP, compared to pre-exercise values there was no significant PEH of DBP observed in all measured moments during recovery period of exercise trials. In the Simäo et al [15] study, significant post-exercise decrease in DBP was also observed 10 minutes after completion of a protocol of 12 repetitions with a load of 50% of 6RM. Rezk et al [10] also found significant post-exercise decrease in DBP; however, the duration of PEH was longer (30 minutes) than that found by Simão et al.

In this study no significant differences were observed between CRE with RI30s and RI40s in post exercise level of SBP and DBP. In our study, rest interval differences between the two protocols were 2.5 minutes. Probably this time is low and not sufficient to make significant differences in removal of metabolites and vascular resistance.

CONCLUSION

The present findings have shown that the CRE with RI30s and RI40s led to significant post-exercise decrease in SBP and no change of DBP. Although it has been suggested that RI length influences the removal of metabolites produced during muscle contraction that may be involved in PEH by vasodilator effects, we found no significant differences between exercise trials in post-exercise level of SBP and DBP in all measured moments. We suggest further studies to evaluate the effects of other RE variables on PEH in different populations such as those of elderly and hypertensive individuals. Additionally, the physiological mechanisms involved in post resistance exercise hypotension need to be better explained.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019
ISSN 2394 - 7780

PRE AND POST EXAMINATION STRESS AMONG COLLEGE STUDENTS

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ABSTRACT
Introduction: Various studies across the globe have emphasized that student undertaking professional courses are subjected to higher stress. Stress is a feeling that's created when we react to particular events. It's the body's way of rising to a challenge and preparing to meet a tough situation with focus, strength, stamina and heightened alertness. Excessive stress could lead to psychological problems like anxiety and depression. Aim: The aim of the current study was to assess stress among college students and its association with various academic, social, health and financial related factors. Methodology: This cross-sectional study conducted among student of college from urban area of Varanasi (U.P.). A conveniences sampling technique. The calculated total sample size was 100. A Student Stress Scale constructed by Dr. Taresh Bhatia Questionnaire was used for the data collection. Analysis was done using mean, standard deviation and t-test. Result: There is no significant differences found between pre and post on female college going student with regard to academic, financial, vocational, family and social stress, but there is significant difference regard to emotional stress in pre and post examination.

Keywords: Examination stress, academic, social and emotional levels etc.

INTRODUCTION
Stress is your body's way of responding to any kind of demand or threat. When you sense danger—whether it's real or imagined—the body's defenses kick into high gear in a rapid, automatic process known as the "fight-or-flight" reaction or the "stress response".

FIGHT-OR-FLIGHT RESPONSE: WHAT HAPPENS IN THE BODY
When you feel threatened, your nervous system responds by releasing a flood of stress hormones, including adrenaline and cortisol, which rouse the body for emergency action. Your heart pounds faster, muscles tighten, blood pressure rises, breath quickens, and your senses become sharper. These physical changes increase your strength and stamina, speed your reaction time, and enhance your focus—preparing you to either fight or flee from the danger at hand.

The Student Stress Scale (SSS) was used to determine the major sources of stress among college student. The scale consisted of 40 potentially stressful situations. The scale addressed interpersonal,intrapersonal, academic and environmental sources of stress. The items in the scale were also classified as either daily hassles or major life events. The most frequently reported source the top five source of stress were change in sleeping habits ,vacation breaks , change in eating habits , increased work load and new responsibilities.

The findings from this may be further used to examine which sources. The highest level of stress among college students and may be helpful in creating stress management programs. College student especially fresher'sare group particularly prone to stress due to transitional nature of college life. They must adjust to being away from home for first time, maintain high level of academic achievement and adjust to new social environment.

TYPES OF STRESS
1. **Acute stress:-**Acute stress is the most common type of stress. It's your body's immediate reaction to a new challenge, event, or demand, and it triggers your fight-or-flight response. As the pressures of a near-miss automobile accident, an argument with a family member, or a costly mistake at work sink in, your body turns on this biological response.
2. **Episodic acute stress:-**When acute stress happens frequently, it's called episodic acute stress. People who always seem to be having a crisis tend to have episodic acute stress. They are often short-tempered, irritable, and anxious.
3. **Chronic stress:-**If acute stress isn't resolved and begins to increase or lasts for long periods of time, it becomes chronic stress. This stress is constant and doesn't go away. It can stem from such things as:**Poverty :**a dysfunctional family, an unhappy marriage,a bad job **,**heart disease, cancer etc.

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CAUSES OF STRESS

Common external causes of stress

- Major life changes
- Work or school
- Relationship difficulties
- Financial problems
- Being too busy
- Children and family

Common internal causes of stress

- Pessimism
- Inability to accept uncertainty
- Rigid thinking, lack of flexibility
- Negative self-talk
- Unrealistic expectations / perfectionism
- All-or-nothing attitude

Signs and symptoms of stress overload

The most dangerous thing about stress is how easily it can creep up on you. You get used to it. It starts to feel familiar — even normal. You don't notice how much it's affecting you, even as it takes a heavy toll. That's why it's important to be aware of the common warning signs and symptoms of stress overload.

Cognitive symptoms

- Memory problems
- Inability to concentrate
- Poor judgment
- Seeing only the negative
- Anxious or racing thoughts
- Constant worrying

Emotional symptoms

- Depression or general unhappiness
- Anxiety and agitation
- Moodiness, irritability, or anger
- Feeling overwhelmed
- Loneliness and isolation
- Other mental or emotional health problems

Physical symptoms

- Aches and pains
- Diarrhea or constipation
- Nausea, dizziness
- Chest pain, rapid heart rate
- Loss of sex drive
- Frequent colds or flu

Behavioral symptoms

- Eating more or less

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- Sleeping too much or too little
- Withdrawing from others
- Procrastinating or neglecting responsibilities
- Using alcohol, cigarettes, or drugs to relax
- Nervous habits (e.g. nail biting, pacing)

Things that influence your stress tolerance level

- **Your support network** - A strong network of supportive friends and family members is an enormous buffer against stress.
- **Your sense of control** - If you have confidence in yourself and your ability to influence events and persevere through challenges, it's easier to take stress in stride.
- **Your attitude and outlook** - The way you look at life and its inevitable challenges makes a huge difference in your ability to handle stress. If you're generally hopeful and optimistic, you'll be less vulnerable.
- **Your ability to deal with your emotions**- Having the ability to identify and deal appropriately with your emotions can increase your tolerance to stress and help you bounce back from adversity.
- **Your knowledge and preparation** - The more you know about a stressful situation—including how long it will last and what to expect—the easier it is to cope.
- **Improving your ability to handle stress**
- **Get moving:-**Upping your activity level is something you can do right now to help relieve stress and start to feel better.
- ✓ **Connect to others:-** The simple act of talking face-to-face with another human can trigger hormones that relieve stress when you're feeling agitated or insecure
- ✓ **Engage your senses:-** Another fast way to relieve stress is by engaging one or more of your senses—sight, sound, taste, smell, touch, or movement. The key is to find the sensory input that works for you.
- ✓ **Learn how to relax:-** You can't completely eliminate stress from your life, but you can control how much it affects you. Relaxation techniques such as yoga, meditation, and deep breathing activate the body's relaxation response, a state of restfulness that is the polar opposite of the stress response..
- ✓ **Eat a healthy diet:-** The food you eat can improve or worsen your mood and affect your ability to cope with life's stressors
- ✓ **Get your rest:-** Feeling tired can increase stress by causing you to think irrationally. At the same time, chronic stress can disrupt your sleep. Whether you're having trouble falling asleep or staying asleep at night, there are plenty of ways to improve your sleep so you feel less stressed and more productive and emotionally balanced.

REVIEW OF LITERATURE

The purpose of the review of literature is to throw light on Stressin Pre and Post Examination of college going students. Some studies are being presented here in the context of studies.

The study of Shannon E.Ross and Gadzella (1994) showed no significant difference between Pre and Post female student in respect of their total adjustment.

An investigation of D'Zurilla Sheedy (1991) revealed that gender type of educational institution and standard influenced and mental health status of the students.

Reviewed by Towbes Cohen (1996) no doubt about it examination is a time of high stress for teenagers and parents alike.

M.Heckert himself state a that Stress Problems inside and outside of our body. All the problem listed above can be divided into two sub-major group (a)problems that occur outside our body such as, family problem, financial problems, etc..(b) Problems that occur inside our body .i.e. feeling nervous, angry, tense musclesetc.

Self-Appraisal of stressful events in 15 year old was studied by MCGEE and station (1992) provides insights into the sources of distress in students. Four types of stressful life events circumstances area elicited. i.e. problems of self-image , independence, academic , physical competence moving of residence and college

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female student reported higher levels of distress. Distress was associated with poor family and poor social support.

METHOLOGY

Objectives

The studies was under taken to assess the following objectives:

1. To find out level of stress in female college student
2. To assess and compare the various dimension (AS,FS,VS,FaS,SS,ES)of stress among female college student.

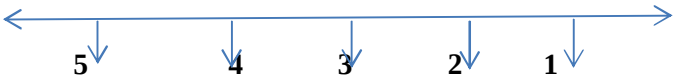
Hypothesis

The present study is on attempt to test the following hypothesis:

1. There will be no significant difference of Pre examination and Post examination of female student in Academic Stress (AS) dimension of student stress.
2. There will be no significant difference between female college students with regards to financial stress (FS) dimension of student stress.
3. There will be significant difference between female college students with regards to Vocational Stress (VS) dimension of student stress.
4. There will be no significant difference between female college students with regards to Family Stress (FS) dimension of students stress.
5. There will be significant difference between female college students with regard to Social Stress (SS) dimension of student stress.
6. There will be significant difference between female college students with regard to Emotional Stress (ES) dimension of stress.
7. There will be no significant difference between Pre Examination and Post Examination on female college students.

Scoring

It is a five point scale the scoring of which has been given by assigning five to one scores respectively follows:-



Strongly agreeagree uncertaintydisagree strongly disagree

The total score for each area of stress ranges from 5 to 25. Whereas the grand total of the stress ranges from 30 to 150. Higher scores on scales reveals the greater degree of stress.

Statistical Analysis

The data has been analyses by using the statistical technique such as mean , standard deviation ant t-test.

Sample

The sample for thestudy consisted of 100 college going female students of Varanasi City. The age range was 18-20 years. Further they were divided into two group:- Pre Examination N = 50, Post Examination N = 50females colleges students and they were taken from different college of Varanasi City.

Tools

Following tool were used for the purpose of the study Student Stress Scale (1999) Taresh Bhatia and Anurima Pathak. It consists 30 items with five point scales.

RESULTS AND DISCUSSION

The main aim of present study was to investigate the difference between pre and Post examination stress among female students.

1) Hypothesis

There will no significant difference between female students with regards to Academic Stress.

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Table No-1: Comparison between Pre and Post examination female students with regards to dimension of Academic Stress

Dimension	N	Mean	S.D.	t-ratio	P
Academic stress	**50**	**12.92**	**0.490**	**0.761**	**Not Significant**
	50	**13.46**	**0.503**		

Table 1 reveals that the Pre Examination female student had a little difference **M=12.92** in comparison to female student **M=13.46** with regards to Academic Stress. Through the both didn't differ significantly **t = 0.761** onAcademic Stress. Its means first hypothesis is accepted.

Pre and Post female student both feel tension in order to get good marks for good career so that they may not fail in examination. Academic Stress mount during high school, particularly in last two years, and although many parents recognize that Academic Struggles are important to avoid failing on important course. It may be most academically capable Pre and Post examination female student who feel the greatest pressure as they find themselves competing for score high prestige college spots.

2) Hypothesis

There will no significant difference between female student with regards to dimension on Financial Stress :-

Table No-2: Comparison between Pre and Post Examination with regard to dimension on Financial stress

Dimension	N	Mean	S.D.	t -ratio	P
Financial Stress	50	13.9	0.659	0.731	Not Significant
	50	13.26	0.561		

It is clear that Pre and Post female students are same score. Therefore there is no significant difference between both groups as t value was found 0.05, so hypothesis no.2 is also accepted. Such Pre and Post due to not getting sufficient pocket money and such adolescent feels for extravaganceso that their parents not many get angry or unhappy.

3) Hypothesis

There will significant difference between Pre and Post examination with regard to dimension on Vocational Stress.

Table No-3: Comparison between Pre and Post Examination stress with regard to dimension on Vocational Stress

Dimension	N	Mean	S.D.	t- ratio	P
Vocational Stress	50	15.88	0.498	2.96	Significant
	50	15.18	0.523		

The Pre and Post examination female student may be noted that both groups did difference significantly at Vocational Stress. Pre and Post examination female student have faith whether they will get service after complete their studies.

4) Hypothesis

There will be no significant difference between Pre and Post examination stress with regard to dimension of Family Stress.

Table No-4: Comparison between Pre ad Post examination Female Student with regard to dimension on Family Stress

Dimension	N	Mean	S.D.	t- ratio	P
Family Stress	50	11.24	0.665	0.056	Not Significant
	50	11.22	0.573		

The Pre and Post examination female students group did not differ significantly at family stress.

Such female student have tensionful relationship with their family members because it they did not get any family support for their problem. They didn't feel better to return to home in tensionful atmosphere. Pre and Post examination student must work through the age old struggle between the need to belong and to be taken care of and the need for independence and freedom.

Psychologist Erikson (1967) has pointed act that student are driver by need to come to grips with their own individual identities and part of this process involves understanding their origin part of this tasks involves simple knowing grownup and how they met.

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5) Hypothesis

There will be significant difference Pre and Post Examination female students with regards to the dimension on Social Stress .

Table No-5:Comparison between Pre and Post examination female student with regards to Social Stress dimension of student stress

Dimension	N	Mean	S.D.	t-ratio	P
Social Stress	50	11.46	0.542	5.24	Significant
	50	12.86	0.544		

This table reveals that the mean score of Pre examination M= 11.46 is same like Post examination female score M=12.86 Student did differ significantly on Social Stress. Female Student know it better that to take part in social matters is not a waste their time on such students feel difference to their friends.

6) Hypothesis

There will be significant difference between Pre and Post examination female student with regards to the dimension of Emotional Stress.

Table No-6: Comparison between Pre and Post examination student with regards to the dimension of Emotional Stress

Dimension	N	Mean	S.D.	t-ratio	P
Emotional Stress	50	11.60	0.576	5.36	Significant
	50	13.14	0.605		

As inspection of table no 6 it is clear that Pre and Post examination female student differ significantly on emotional stress and such student feel themselves strong in their self -confidence**.**

Graphical Representation of Various Dimension of Student stress among Pre and Post Examination

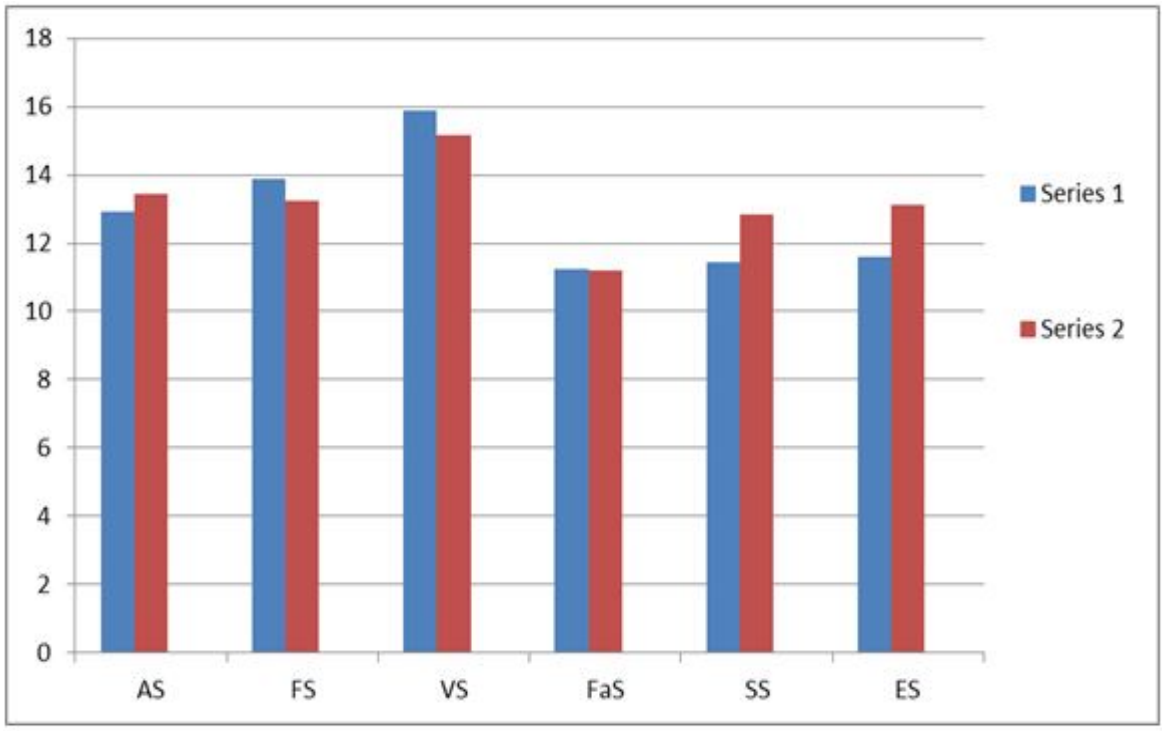

Table No-7: Pre and Post Student Examination Stress

Dimensions	N	Mean	S.D.	t-ratio	P
Pre Examination	50	77	33.72	0.505	Not Significant
Post Examination	50	79.72	23.70		

Its clear from this table that Pre and Post examination female students may be noted that both the group did not differ significantly t-0.505 at any level of confidence with regards to the student stress are emotionally liable, fearful, anxious ,unhappy and depressed so there is no significant difference between Pre and Post Examination Student Stress.

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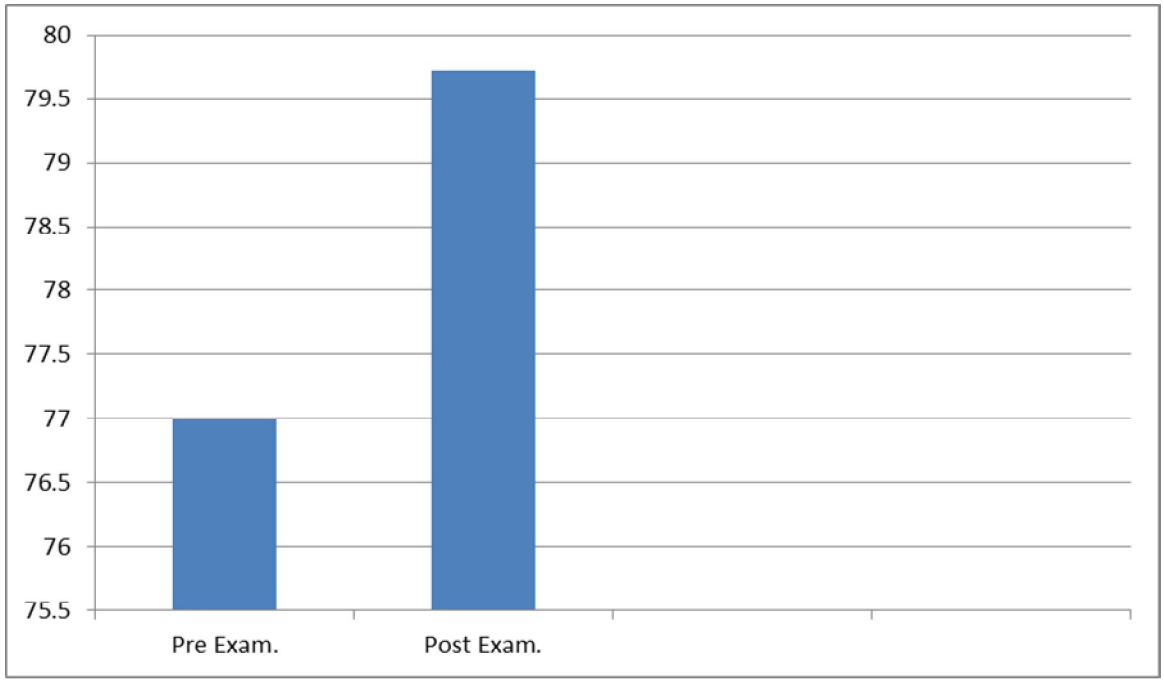
Graphical Representation Of Student Stress Among Pre & Post Examination



CONCLUSION

It may be concluded that there is no significant difference between Pre and Post Examination student stress on the dimension of Academic , Financial and Family stress but there is significant difference between on the dimension of Vocational , Social and Emotional stress.

There is significant difference between Pre and Post examination stress on college student.

LIMITATION

The present study is limited in following manners:-

- In this study only college students was taken in the sample . So finding have limited implication.
- The sample of the present study is general area of Varanasi City.
- Sample of the study is small . So finding may not be generalized.

Further Research Possibilities

- The present study was based on Pre and Post examination of female college students, similar studies should be conducted on co-education students.
- The student tress should also be worked in relation to adjustments problems academic stress, financial stress, vocational stress, social stress, family stress and emotional stress.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019

ISSN 2394 - 7780

ROLE OF FACULTY IN IMPROVING THE ROLE STRUCTURE OF TEACHERS: A RESEARCH STUDY

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ABSTRACT

The faculty associated to higher education is placed under two responsibilities; teaching and research (Marsh and Hath; 2002). These roles are performed by the teachers which varies with faculty to what teacher's belongs whether; Arts, Science and Commerce. According to National Centre for Public Policy and Higher Education (2002); the traditional quality measures viz; with and without Ph.D., institutional status, financial resources, 8=affect faculty and related to its excellence. Enlarging this concept Pascareela (2001) encapsulated that the extent and nature of student's interaction depends on intensity of academic experience and continuous professional development activities. These directly effect the faculty interactions and his knowledge by updating them. In this fashion, Menges (2000); noted that faculty practices are important sources of data to examine the role of faculty connected to student self-reputed gains and so on. The study uses data sets of teachers belonging to Punjab state of India. The main objective of the study was to explore the effect of teachers' role structure on faculty practices that prevail among degree college teachers. Accounting the reviews related to study;[Hattie and Marsh 1996; Gallaut 2000; Yang 2000; Lawler and King 2001; Bryk and Schneider 2003; Barker and Convad 2004; Umbach and Wawrzynski 2014; Naidoo 2015; Appadurai 2004; Bettinger and Long 2005; Watt 2006,2008; Simmie, Moles and O'Grady 2016; Mcquiggan 2007; Rodwell and Fairbairn 2007; Richardson and Watt 2010; DeAngelo, Mason and Winters 2015; Hernandez et.al. 2016; Toole 2019] highlighted that role structure of degree college teachers can be assessed by knowing their; professional commitment, teacher as a mentor and coping with diversity. After Regarding these dimensions the research addressed the following questions: To study the effect of faculty on role structure of degree college teachers dimension wise. The research findings witnessed that science teachers scored significantly higher than commerce and arts faculty teachers.

Keywords: Role structure, Professional commitment, Teacher as a mentor, Coping with diversity, Faculty.

INTRODUCTION

Degree colleges as institutions of higher education provide education in Bachelor of Arts, fine arts, science, commerce, computer applications. Beside this, some degree colleges also provide post graduate diplomas, master's in their field and so on. To cater these courses, these institutions employ faculty which follows the eligibility criteria as given by University Grants Commission. UGC in his norms has stated that teachers appointed in the subjects must be NET/SET/SLET qualified and that too conducted by UGC/CSIR or any other body accredited by UGC. The Commission further laid the minimum standards and procedures, subsequent amendments laid from time to time for recruitment and appointment of Assistant Professors or equivalent positions in Universities / Colleges / Institutions. This led us to conclude that for seeking an appointment to degree college one must be M.A in specialisation related to the field in which he is applying, NET qualified and Ph.D. holder. Taking this view, this means degree colleges teachers act as managers of learning rather than dispensers of knowledge. They act as expert repositories of subject wisdom in the colleges. (Naishitt;1982). This led us to infer that faculty archive an active role in institutional working, its transformation in accordance to changes going in the society may be; technology or knowledge based. This means faculty facilitate the changes by providing remedial support to the problems caused in higher education because of its related environment. Institutions can only meet the further challenges if faculty address their leading role-structure in a better way (Fletcher and Patrick;2006). This can only be feasible only, if faculty creates support services needed by the college. The degree colleges work can be achieved if teaching learning resources are integrated with part-time faculty, their structure and practices and full-time faculty (Scott;1992). Keeping this in mind, the paper in hand argued that faculty play an active role structure by concentrating on dimensions like; professional commitment, teacher as a mentor and coping with diversity. These issues were considered because of the reason that they help faculty to manage the complexities of academies life by concentrating on their roles.

PAPER DESIGN

The focus of this article is the framework of dimensions perceived under role structure. The perceiving of these dimensions was based on literature review around the subject. Further going through the complex literature, operational definitions regarding research were conceptualized and it was decided to frame a self-prepared questionnaire to draw the opinions from the degree college teachers.

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Therefore, the paper is planned under the following format;

- Theoretical Framework
- Operational Definitions
- Objectives
- Design of the Study
- Sample
- Analytical Framework
- Conclusion and Suggestions

THEORETICAL FRAMEWORK

The related review have explained different dimensions to view role structure of teachers but this section is devoted to the applied ones which explain that the current scenario of 21st century teachers which demands a role perspective which holds dimensions like; [Professional commitment; Hattie and Marsh 1996; Gallaut 2000; Yang 2000; Lawler and King 2001; Bryk and Schneider 2003; Barker and Convad 2004; Umbach and Wawrzynski 2014; Naidoo 2015; Coping with diversity; Appadurai 2004; Bettinger and Long 2005; Teacher as a Mentor; Watt 2006,2008; Simmie, Moles and O'Grady 2016; Mcquiggan 2007; Rodwell and Fairbairn 2007; Richardson and Watt 2010; DeAngelo, Mason and Winters 2015; Hernandez et.al. 2016; Toole 2019]; we can safely say that the role structure of degree college teachers can be determined by knowing their;

- Professional Commitment
- Coping with Diversity
- Teacher as a Mentor

Professional Commitment

This is regarded as an actualized performance of the teacher, which shows his loyalty towards the profession.

According to Singh (1972) commitment has motivational and value-oriented dimensions. It has role incumbent which access the normative structure of a role. In other words, he described role related performances as not only imitative but has a creative involvement of a teacher which transform his role into a vocation or a career by professionalising work.

Hattie and Marsh (1996) conducted research on teachers and found that the faculty play a very creative role in teaching-learning process. The study emphasized that teachers who undertake teaching and research responsibilities with commitment focus on pedagogy which produces positive gains in student learning. The study further revealed that faculty practices enhance student engagement and student learning by creating ties with collegiate environment.

Gallaut (2000) conducted research on teachers to determine the faculty responsiveness of teachers and its effect on learning. His research findings unveiled that individuality of the faculty member is a must with respect to preferences for teaching and learning, prior experience and attitudes towards change. He further emphasized that it provides necessary support structure to the faculty which involves commitment to plan teaching-learning conditions which effect constructive activities. This led us to conclude that commitment of teachers lies in planning of teaching-learning activities in such a way that effect student learning and his attitudes.

Yang (2000) conducted research to analyse commitment of librarians. He further emphasized that faculty commitment lies in updating of available services and ordering of material and books.

Lawler and King (2001) suggested that teachers commitment lies in faculty development initiatives taken by him. They emphasized that; creating a climate of respect, encouraging active participation, building an experience, employing collaborative enquiry; learning for action and empowerment of an individual are commitment related aspects. They further stressed that focusing on real professional experiences and concerns lead faculty towards development which is more relevant and meaningful to them.

On the basis of research Bryk and Schneider (2003) found that faculty trust act as an ingredient for professional commitment that leads towards cooperation. They further asserted that school reforms are only feasible if faculty trust exists among teachers.

Crosswell (2006) conceptualized commitment under six dimensions termed as;

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- Commitment as positive emotional attachment to the work.
- Commitment as an investment of time.
- Commitment as an achievement of students.
- Commitment to maintain professional knowledge.
- Commitment as transmission of knowledge and values to the students.

Umbach and Wawrzynski (2014) conducted research to determine the role of faculty in determining the commitment role of teachers. The findings of study highlighted that there exists a strong relationship between faculty and commitment of teachers.

In the light of above it can be concluded that professional commitment is a psychological way to relate with work one performs by being loyal and attached to the profession, by making himself actively involved with the goals, values and activities of an institution.

Coping with Diversity

It is the process that originated from human rights perspective by taking into account the freedom of religion, education, respecting disabilities and individual differences that exists among students.

Clarke and Hollingworth (2002) understood coping with diversity as practice and process of developing knowledge, skills and attitudes in relation to personal, practical, external and consciousness domain of the teacher's world. He further addressed that this make teachers competent by enhancing diversity with personal and practical domains by mediating the process of enactment and reflection.

Appadurai (2004) conducted research on diversity as a strong determinant of imagination and cultural capacity. His research findings unveiled that economics as a subject have something to do with wants, references, choices and calculations as factors to navigate and identify the cultural map of aspirations among young people.

Montgomercy and Rupp (2005) displayed coping strategies in terms of active and passive coping strategies. They further emphasized that active coping strategies are cognitive strategies like; changing perspectives, exerting self-control, rationally distancing oneself, behavioural strategy like; seeking advice from others, relaxation exercises, setting limits for work whereas emotional strategies like; think positively and be calm. On the other hand, they perceive passive coping strategies as wishful thinking, drinking and avoidance of direct engagement. At last, they concluded that coping mechanism can be applied directly with hope and positive thought.

Richardson and Watt (2010) conducted research to determine differences among teachers on the basis of language background and prior work experiences which help to cope with the lower status of teachers which in accordance to prior work experiences and non-English home language backgrounds.

Simmie, Moles and O'Grady (2016) demonstrated that in higher education there is dominance of official discourses by; state policies, organization policies and politicians. So, the teacher role structure is perceived an oppressive and restrictive at the practice level.

Koffi, Djoudi and Gautier (2017) opined that coping with diversity increases ones adaptive capacity to face the variabilities caused by climate, water regulations, agriculture services, aesthetic, cultural and spiritual roles.

At last, it can be concluded that coping with diversity helps teacher to integrate oneself with knowledge and understanding of differences among students on a global view.

Teacher as a Mentor and Role Structure

The role of teacher as a mentor is to pursue research and development by shared experiences, problem solving and effectiveness in learning. Mentoring for teachers is visualized as; development to promote one's roles, similarities, differences and interaction between phases.

Watt (2006,2008) investigated that teachers' role as mentor depends on the choices made by him with respect to academic disciplines. The results of the study inferred that teacher cope in accordance to different career trajectories, long term career plans and educational outcomes. He further asserted that there exists a significant variation because of subject options; choosing between easy or difficult, salary and station or so on.

Mcquiggan (2007) conducted research to study the effect of online teaching on faculty. His research findings addressed that faculty members must be aware of their altered role as mentor, only then they would be able to

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deliver it. He further asserted that a faculty must learn about alternatives for transmitting their role, which requires great amount of responsibilities to learn the skills.

Rodwell and Fairbairn (2007) conducted research that unveiled that assigning work to librarians in different departments demands different faculties who can interpret wide range of activities by eliciting information regarding changes and instructional needs of the students. This led us to conclude that intensive role of the faculty extends the role of the teacher as mentor by giving him sustainability.

Sellar and Gale (2011) studied their capacity of teachers as mentors to act as they imagine for the future. His research findings disclosed that the future of youth is dependent upon interconnecting factors such as; experiences faced in school, school attainment, peer choices, knowledge and awareness at post school level, educational options, support and assistance from parents, family and community regarding education and career.

DeAngelo, Mason and Winters (2015) conducted research in California State University Institutions to determine the role of mentor in faculty engagement. The research findings witnessed that faculty mentorship provides concrete benefits to students, faculty members and institutions. The study further found that faculty descriptions of engagement and interaction in relationship with mentoring can be grouped into expected or extra role behaviour. Here, they cited an example of faculty member in physical sciences who can advice students mostly about the course benefits but not on what they are doing with their lives. The research findings further stressed that extra role behaviour of teacher in mentoring promote institutional support that leads to charge by putting students in the program to work, access their impressive journey in research by seeking awards and attending conferences.

By the above reviews, it can be concluded that mentor teachers enhance the learning opportunities of their students by recognizing their own professional development by integrating with teaching learning skills. It also led us to conclude that mentors provide mutual support to the students by developing them professionally.

OPERATIONAL DEFINITION

Independent Variables

Faculty- Faculty is the professional staff of degree colleges required to meet the instructional needs of students by integrating with the academic programs and services of the institution. It is conceived as division of learning available in degree colleges as institutes of higher education viz; Arts (economics, history, social studies, political science, physical education, home science, public administration, fine arts , music, literature, languages); Science(mathematics, physics, chemistry, biology, botany, zoology, computer science.); Commerce (accounting, statistics, business). This further associate degree college teachers as subjects' experts of these division of learning.

Dependent Variables

Professional Commitment- For the undertaken study, professional commitment was conceptualized as multidimensional phenomenon reflecting on issues, indicating preferences to undertake teaching profession as a career in one's life, acting as role model for students and colleagues, assumption of heavy work load and opting for teaching profession for son or daughter.

Teacher as a Mentor- It is a way to influence the capacity of teacher by undertaking his teaching task to instruct and prepare students by collaborative teaching-learning process, negotiating and intervening skills, high quality performance by sensitizing students to share personal knowledge by undertaking projects, reform efforts to enter profession / education which is quality based and based on value and worth.

Coping with Diversity- It is expressed to perceive one's believed in understanding individual differences, emotional, cultural and intellectual differences based on caste, race, socio-economic, gender and intelligence level of an individual.

For the study, role related variables were taken as dependent variables for the study and faculty was treated as independent variable for the study.

OBJECTIVES

The undertaken research was conducted to examine faculty differences for among degree college teachers on dimensions of role structure viz; professional commitment, teacher as a mentor and coping with diversity by applying ANOVA and t-ratios.

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DESIGN OF THE STUDY

The descriptive research design helped the researcher to compare teachers of three different faculties viz; arts, science and commerce on dimensions of role structure that is; professional commitment, teacher as mentor and coping with diversity. The factor of faculty (F) varied at three levels, designated as F1, F2 and F3 standing for Arts, Science and Commerce respectively.

Tool used

A close ended questionnaire constituting of 21 items was developed under three dimensions viz; professional commitment, Teacher as a mentor and coping with diversity. Each dimension consisted of seven statements. The response to each statement was collected under 5-point Likert scale ranging from strongly agree to strongly disagree. The reliability of the tool was determined by applying Cronbach alpha method which came out to be 0.795 for the summative scale. Validity of the tool was also determined.

SAMPLE

The population of the study comprises of degree college teachers withdrawn from two states of India viz; Punjab and Haryana state. Multi-stage random sampling technique was applied because of sample characteristics as faculty. The sample for the study comprises of 500degree college teachers (250 drawn from Punjab and an equal number from Haryana state). These teachers were both the males and females withdrawn from the faculties of- arts, sciences and commerce. The description of the sample is shown vide table 1.

Table-1: Sample structure

FACULTY			TOTAL
Arts	Science	Commerce	
190	160	150	500

ANALYTICAL FRAMEWORK

This section was developed to visualize differences among degree college teachers on the basis of faculty.

Table-2: Summary Table of ANOVA for the Main Effects of Faculty

Dimensions	Source of Variance	Symbol	Sum of Squares	df	Mean Square	F-value	Level of Sig.
Professional Commitment	Faculty	F	5590.23	2	2795.12	4.352**	0.01
Teacher as a Mentor	Faculty	F	2818.78	2	1409.39	14.21**	0.01
Coping with Diversity	Faculty	F	2798.81	2	1399.42	13.81**	0.01

** Significant at 0.01 level of Confidence

Examination of table 2 confirms significant differences among teachers on the basis of faculty, so it was necessary to analyze them further by finding their t-ratios.

Table-3: t-ratios for Faculty on Professional Commitment

Levels	Symbol	N	Mean	SD	Treatment Levels	t-ratio	Level of Sign.
Arts	F1	168	24.13	4.31	F1-F2	10.71**	0.01
Science	F2	211	28.20	4.25	F2-F3	0.69	-
Commerce	F3	121	27.95	4.13	F1-F3	8.59**	0.01

** Significant at 0.01 Level of Confidence

The significant t-ratios for the treatment level (F1-F2) and (F2-F3) reveals that; a) teachers of science faculty were professionally more committed to their profession than teachers of arts faculty b) teachers of commerce faculty were significantly more committed professionally when compared with teachers of arts faculty.

Table-4: t-ratios for Faculty on Teacher as a Mentor

Levels	Symbol	N	Mean	SD	Treatment Levels	t-ratio	Level of Sign.
Arts	F1	168	25.06	4.35	F1-F2	10.14**	0.01
Science	F2	211	29.22	3.43	F2-F3	3.16**	0.01
Commerce	F3	121	27.89	3.86	F1-F3	5.89**	0.01

** Significant at 0.01 Level of Confidence

The significant F-value for faculty suggest that teachers belonging to various faculties viz; arts (F1), science (F2) and commerce (F3) vary significantly from each other in capacity to undertake their role as mentors. The

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analysis further led us to conclude that teachers belonging to different faculties vary in their abilities to give advice, help, information and encouragement to students who approach them in learning process.

Table-5: t-ratios for Faculty on Coping with Diversity

Levels	Symbol	N	Mean	SD	Treatment Levels	t-ratio	Level of Sign.
Arts	F1	168	27.14	4.23	F1-F2	6.48**	0.01
Science	F2	211	29.67	3.08	F2-F3	2.085**	0.01
Commerce	F3	121	28.94	3.12	F1-F3	4.18**	0.01

** Significant at 0.01 Level of Confidence

It is depicted from table-5 that the science teachers have scored significantly higher on coping with diversity than arts and commerce teachers. The table further shows that the commerce teachers have scored significantly higher on the coping with diversity than the teachers belonging to arts faculty.

CONCLUSION

Results obtained from the study, led us to conclude that significant difference were observed among teachers because of faculty differences related to; professional commitment, teacher as a mentor and coping with diversity. This may be due to the reason that science teachers organize their work in methodological manner by practicing there life skills like; computer savvy skills, problem solving skills, communication skills in a better way.

The results of the present study fall in line with the research findings of Rodwell and Fairbairn (2007); who concluded that different departments demands different faculties who can interpret wide range of activities by eliciting information regarding changes and instructional needs of the students. This led us to conclude that intensive role of the faculty extends the role of the teacher by giving him sustainability.

The findings of the present study are in agreement with those of Little (1990); who found that conservative traditions of schools shape the role of mentor. He further emphasized that norm of isolation makes teachers communicative with teachers and they talk about their practice. He further emphasized that conservative norms of interaction make difficult for beginning teachers to face the problems in classroom. This led us to believe that experienced teachers act as mentors for beginning teachers by sharing their experience of how to practice.

The findings of the present study are in consonance with those of Coleman (1997); who suggested that coping with diversity needs thorough understanding because it is only then the influence can be created by counselling. At last, we can say that faculty of any institution can assume better role if they undertake their role with commitment and emphasize more as their role as mentors. Above all teacher is to follow s the vision of global teacher by extending his role to cope with diversity.

SUGGESTIONS FOR FURTHER STUDIES

Suggestions recommended for future research were as;

1) This study can be replicated on large samples of different states and union territories for validity of generalizations.
2) A similar study could be conducted on different professionals such as; engineers, doctors, university teachers, schoolteachers and so on.
3) An investigation could be studied for teachers working at Panjab University, Chandigarh.
4) Mapped role structure of teacher would provide rich insight for new teachers to understand their role in a better way.
5) The research study used three dimensions of role structure as; professional commitment, teacher as a mentor, coping with diversity but it does not accumulate the benefits for undertaking these roles effectively by teachers who demands research.
6) Further research is recommended to validate the role structure of degree college teachers to make a positive impact on teaching profession.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019
ISSN 2394 - 7780

THE UNFINISHED AGENDA OF UNIVERSAL ELEMENTARY EDUCATION IN INDIA

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ABSTRACT
Even after seven decades of embedding the goal for universalisation of elementary education (UEE) in the constitution and ten years of pronouncing the right to education, a fundamental right, the Global Education Monitoring Report - 2016 by UNESCO, put India in category of countries falling short of achieving the target yet again. As per the report, India will meet universal education goals for primary level in 2050, for lower secondary in 2060 and for upper secondary in 2085 unless it makes fundamental changes in the education system. Numerous attempts have been made to achieve the long due target of universal education in India. With the two national policies on education in 1968 and 1986 (revised in 1992), and placing much emphasis to achieve this goal, India's inability to allocate resources effectively and efficiently has made this monumental task unattainable. The present paper discusses how time and again the sense of urgency attached to the fulfilment of the goal of UEE within the time frame was neglected and the target to achieve the goal of UEE has revised. Further, it also shows the current status and future prospects of the achievement of the goal of UEE.

Keywords: UEE, RTE Act, SSA, Five Year Plans, UNESCO, MDGs, SDGs.

Elementary Education being the foundation of the pyramid in the education system has always been accorded high priority. Post independence, Elementary Education began with a good resolution, as the Article 45 of the Directive Principles of State Policy laid down that the state shall endeavour to provide free and compulsory education for all children till they complete the age of 14 years, within ten years of the date of promulgation of the constitution i.e. by the 26th January 1960. Article 45-the only directive principle of the State policy in education presented a comprehensive vision when it is viewed in conjunction with Article 39(f) in Part IV, where the State was directed to frame its "*policies towards securing....that children are given opportunity and facilities to develop in a healthy manner and in conditions of freedom and dignity....*" and Article 46 which directs the State to "*promote with special care the educational and economic interests....of the Scheduled Castes and Scheduled Tribes.....*". Article 45 has been interpreted in the report of Committee for Review of National Policy on Education-1986 to include:

(i) Early childhood care, balanced nutrition, health support and pre-primary education for children below six years of age; and

(ii) Elementary education of eight years (Class I-VIII) for 6-14 age group children.

Though the writers of India's constitution envisioned education as a fundamental right; almost six decades after the constitution came into being; India took a step forward to make that vision a reality. In 2002, with the 86th amendment in the Constitution, India included Article-21A - "*The State shall provide free and compulsory education to all children of the age of six to fourteen years in such manner as the State may, by law, determine*" in the constitution- making education a fundamental right. After seven years of debate, 'The Right of Children to Free and Compulsory Education Act'- the legislation to describe the mode of implementation came into being on 4th August 2009. With the RTE act, India became one of the 135 nations to make education a 'fundamental right' in practice. By the same Amendment, Article 45 was worded as "The State shall endeavour to provide early childhood care and education for all children until they complete the age of six years.".

Being a directive principle in the constitution, the original Article 45 was not enforceable by any court like the Fundamental Rights but the sense of urgency attached to achieve the goal "*within a period of ten years from the commencement of the constitution*" was remarkable. The present paper discusses how time and again the sense of urgency attached to the fulfilment of the goal of UEE within the time frame was neglected and the target to achieve the goal of UEE has revised. Further, it also shows the current status and future prospects of the achievement of the goal of UEE.

WATERING DOWN OF THE ORIGINAL TARGET

Independent India began its journey with a poor profile of elementary education. In 1947, the overall literacy rate was 14% and the total enrolment in primary education was 14.11 million i.e. only one child out of three had been enrolled in school in the age group 6-11; whereas in upper-primary education, the total enrollment was 2.04 million and thus only one child out of 11 was enrolled in the age group 11-14 years. The first step in the

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direction of shifting goals was taken in 1958 when the Planning commission recommended to give up the old idea of treating education for the age-group of 6-14 as an integrated whole. It recommended to bifurcate the elementary education into primary education and middle school education/upper primary education and the target to provide universal and compulsory education at the primary stage and upper primary stage was aimed to be achieved by the end of the Third Plan (1965-66) and Fifth Plan (1975-76) respectively.

Because of the poor implementation of the constitutional directive, only 54.8% of the children in the age group of 6-10 and only 24.3% of the children in the age group of 11-13 were enrolled by 1960-61- the original time frame set by the constitution makers. The implementation of this revised programme to achieve the target by the Fifth Plan (1965-66) seemed difficult at that time because of the absence of an official programme to set the time frame to achieve this target left States indeterminate. It was estimated that universal primary education will have been provided by the end of the third plan (1965-66) only in the States of Kerala, Madras and Delhi; the seven advanced States (Andhra Pradesh, Assam, Gujarat, Maharashtra, Mysore, Punjab and West Bengal) will reach the goal at the end of the Fourth Plan (1970-71); and the six backward States (Bihar, Jammu and Kashmir, Madhya Pradesh, Orissa, Rajasthan and Uttar Pradesh) will reach it by the end of the Fifth Plan (1975-76). The universal and compulsory Middle school education for the age group 11-13 years, may be provided by 1975-76 in the States of Madras, Kerala and the Union Territory of Delhi; the seven advanced States may do so by 1980-81; and the six backward States by 1985-86 (Naik, 1966).

The Third Education Commission (1964-66) of independent India under the chairmanship of Prof. D.S. Kothari reviewed the progress made and suggested an agenda of reform in his report, titled as *Education and National Development*. Sympathizing with the insistent demand to fix an early deadline for fulfillment of Article 45, the commission suggested that "*While the Constitutional Directive will be fulfilled in some places such as urban areas or advanced States as early as in 1975-76, all the areas in the country should be able to provide five years of good and effective education to all the children by 1975-76 and seven years of such education by 1985-86"*.

The National Policy on Education was formulated in 1968 on the basis of the recommendation of the Kothari Commission. The policy declared that "*The Government of India is convinced that radical reconstruction of education....is essential...This will involve a radical transformation of the system...; a continuous effort to expand educational opportunity; a sustained and intensive effort to raise the quality of education at all stages..."* (NPE, 1968). But, National policy on Education 1968 didn't set any time frame for achieving the goal of UEE and only showed Government of India's resolve to promote the development of free and compulsory education for all children up to the age of 14 by stating that "*Strenuous effort should be made for the early fulfilment of the directive principle under Article 45 of the constitution*" (NPE, 1968)..

The second National Policy on Education (1986) identified deficiencies in the implementation of the NPE 1968 that continued to cause problems of '*access, quality, quantity, utility and financial outlay'*. Also, the need to tackle these problems, which had assumed 'massive proportions', with utmost urgency, was acknowledged (Atal, 2004). It gives an unqualified priority to UEE with emphasis on

(i) Universal enrolment and universal retention of children up to 14 years of age, and

(ii) A substantial improvement in the quality of education.

It proposed that all children by the time they attain the age of 11 years will complete five years of schooling, or its equivalent through the non-formal stream, by 1990 and free and compulsory education up to 14 years of age is provided to all children by 1995. The National Policy on Education 1986 and its Programme of Action 1992, in the light of the resolve of Education for All (EFA, 1990) in its Revised Policy Formulations brought that for "*the enormous task of achieving UEE in its entirety (access, retention as well as achievement),* RPF envisage that "*free and compulsory education of satisfactory quality should be provided to all children up to 14 years of age before the commencement of the 21st century*."

The first phase of World Bank-sponsored District Primary Education Programme was launched in 1994 in 42 districts spread over seven states (Assam, Haryana, Karnataka, Kerala, Madhya Pradesh, Maharastra and Tamilnadu). Later it was implemented in about 248 districts (after bifurcation, 271) of fifteen (eighteen) states. The DPEP was implemented with the objective to provide special thrust to achieve UEE. It was envisaged to take a holistic view of primary education development and to operationalize the strategy of Universal Primary Education through district specific planning with an emphasis on decentralized management, participatory processes, empowerment and capacity building at all levels. DPEP aimed at providing access to primary education for all children, reducing the primary dropout rate to less than 10 per cent, increasing learning

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achievement of primary school students by at least 25 per cent, and reducing the gap among gender and social groups to less than 5 per cent The programme was confined only to primary level but the Government of India decided to upgrade it to the upper primary level initially in 42 (Phase one) districts. The programme in these districts came to an end in March 2002. For the first phase, the deadline was of five years which was extended by two years. Therefore the first phase was from 1994 to 1999, and the second phase was from 1998 to 2005. Meanwhile, the Government of India merged it with a new initiative entitled Sarva Shiksha Abhiyan (SSA) from 2002.

Sarva Shiksha Abhiyan (SSA) conceived at the end of Ninth Five Year Plan and later incorporated in Tenth Five Year Plan (2002-07) was Government of India's flagship programme for achieving UEE in a time-bound manner. The SSA came into operation since 2000-2001. It was envisaged that the access to all children in the age group 6-14 years through formal primary schools or through equivalent alternative delivery will be provided by 2003 which was later extended to 2005; completion of five years of primary education by all children by 2007; completion of eight years of elementary education by all children by 2010 and Provision of elementary education of satisfactory quality, bridge all gender and social category gaps at primary level by 2007 and at elementary level by 2010. Universal retention was to be achieved by 2010.

UNESCO Global Monitoring Report - 2002, declared that India belongs to the high-risk group of not achieving the EFA goals of Universal Primary Education and gender equality pledged by 164 governments in Dakar, 2000 which was to be met by 2015. The EFA goals contributed to the global pursuit of the eight Millennium Development Goals (MDGs), especially MDG-2 on universal primary education. More specifically, it was to *"ensure that by 2015, children everywhere, boys and girls alike will be able to complete a full course of primary schooling."*

The Sarva Shiksha Abhiyan was modified in 2007 and the XI Plan (2007-12) Working Group Report on SSA states that "*SSA needs at least another five years to complete the unfinished agenda with a slightly altered focus*." Therefore the duration of the programme was extended to the end of the 11th Five Year Plan viz. 2011-12. This report implied significant changes in the definition of eligible activities and financial norms. On account of the recommendation for a modified focus and prioritization of SSA interventions during the 11th Plan, it referred to the balance 5 year period of the programme as 2nd phase of SSA.

The SSA programme was further strengthened with the passage of the Right of Children to Free and Compulsory Education (RTE) Act, 2009 which gave a legal mandate to provide free and compulsory elementary education to every child in the age group of 6-14 years. The norms of the SSA were aligned with the provisions of the RTE Act with effect from September 2010 and thus SSA became a vehicle for implementation of the RTE Act.

THE TARGET ACHIEVED!

Education for All 2000-2015; Achievement and Challenges - The Global Monitoring Report (2015) by UNESCO contains a remark of the then HRD Minister of India, that *"India has successfully moved towards reaching the EFA goals, especially in ensuring near Universal Elementary Education and enrolment of girls. India's efforts have been backed by the Right of Children to Free and Compulsory Education Act, 2009 and the national Sarva Shiksha Abhiyan programme. To ensure the continued participation of girls in education, Beti Bachao Beti Padhao (Save the Girl, Educate the Girl) initiative has recently been launched in India."*

The Sustainable Development Goals (SDGs) - a collection of 17 global goals were set by the United Nations General Assembly in 2015. Sustainable Development Goal-4 aims to "ensure inclusive and equitable quality education and promote lifelong learning opportunities for all" by 2030. The SDG India Index- A baseline report (2018) by NITI Aayog states that only 2.97 per cent of children in the age- group 6-13 years are out-of-school in India. Seventeen States/UTs have achieved the national target of reducing this rate to two per cent. Three States-Himachal Pradesh, Punjab and Tamil Nadu, and two UTs-Andaman and Nicobar Islands, and Lakshadweep islands have already achieved the 2030 target of reducing the dropout rate to 10 per cent or less. The national target for 2030 is to have all teachers to be professionally qualified. With Delhi which has already achieved the milestone, India has 81.15 per cent of professionally qualified teachers. India has 70.43 per cent of elementary and secondary schools with a pupil- teacher ratio of 30:1 as against the national target of 100 per cent schools providing at least one teacher for 30 students. UT of Lakshadweep Islands has successfully achieved this national target. The adjusted Net Enrolment Ratio at Elementary and Secondary Schools in India is 75.83 as against the target of 100 per cent enrolment. Tripura (94.72) and Delhi (92.95) performed the best among the states and UTs. The learning outcomes in Language, Mathematics and Environmental Science (EVS) of class 5 students and in Language, Mathematics, Science and Social Science of class 8 students shows improvement with 54.69% and 44.58% correct responses across the country.

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THE FUTURE PROSPECTS

The SDGs which came into effect from January 1, 2016, have 2030 as their deadline for achieving the targets. The SDG-4.1 states that *"By 2030, ensure that all boys and girls complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes"*. Further, the SDG 4.5 states that *"By 2030, eliminate gender disparities in education and ensure equal access to all levels of Education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations"*.

Keeping in view that a successful programme of UEE is the precondition for taking the first reliable step towards Universal Secondary Education, an overarching programme Samagra Shiksha Abhiyan (SMSA) for the school education sector extending from pre-school to class 12 has been initiated from the year 2018-19. It has subsumed three previously existing schemes i.e. (i) Sarva Shiksha Abhiyan (SSA), (ii) Rashtriya Madhyamik Shiksha Abhiyan (RMSA) and (iii) Teacher Education (TE). The vision of the SMSA is to ensure inclusive and equitable quality education from pre-school to senior secondary stage in accordance with the Sustainable Development Goal (SDG) for Education.

CONCLUSION

Finally, it can be said that though the goal to achieve universal elementary education has been shifting in India after independence but India has made tremendous progress towards Education for All. Despite not meeting the stipulated deadlines, millions of children are in school. Since 2000, when countries committed to the global education goals, India stood first in the race to reduce it's out of school children by over 90% and achieved the target of universal enrolment in primary education (GEM, 2015).

However, the agenda is far from finished. On the recommendation of the Education Commission (1966), the Indian government (1968) fixed a target of investing six per cent of GDP in education which was reiterated by the second NEP in 1986, but this has never been achieved (India Education Report, 2005). In 2017-18, public expenditure on education in India was 2.7% of GDP. As per UNESCO, Global Education Monitoring Report-2016, India has achieved universal primary enrolment with an adjusted net enrolment rate of 98%, but has 2.9 million out of school children of primary school age and 11.1 million adolescents of lower secondary school age. India will meet universal education goals for primary level in 2050, for lower secondary in 2060 and for upper secondary in 2085 unless it makes fundamental changes in the education system.

Education in India stands at the crossroads today. Neither normal linear expansion nor the existing pace and nature of improvement can meet the needs of the situation. India needs to set specific, well-funded strategies that prioritize the girls and deprived sections, reduce the literacy gap and improve the quality of learning so that education becomes meaningful and universal by the year 2030- the SDG completion deadline.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019

ISSN 2394 - 7780

TRADE AND COMMERCE IN ANCIENT KASHMIR

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ABSTRACT
Kashmir has been a meeting place of different nations. From time immemorial, despite the tremendous difficulties of communication and transport, Kashmir had commercial relations with far off places of the world, like Persia and Rome. Trade was carried on both by land and river. The river Jhelum played an important role in commercial life of Kashmir. The chief items of trade were food grains, cattle, saffron, Kuth, agricultural implements, woolen cloth, leather goods, earthenware etc., in fact Kashmir was well known for its saffron throughout India.

Keywords: Trade, Prosperity, Rome, Hieun-Tsang, Lalitaditya, Kuth, Saffron

The original form of trade was barter. Trade exists for man due to specialization and divisions of labor in which most people concentrate on a small aspect of production, trading for other products, trade exists between the regions, because different regions have a comparative advantage in the production of some tradable commodity.

So far as the trade and commerce of ancient Kashmir were concerned, we have much material, regarding the prosperity of the country, in the various fields of trade and commerce. Geographically, Kashmir occupies a key position touching the borders of India, Tibet, Afghanistan and central Asia; these features make her a great in culture of trade and commerce. The prosperity of Kashmir valley depended up on agriculture, commercial and agriculture products and on trade and commerce. In this context we learn that Kashmir has commerce with for off places since very early days if we believe the suggestion of scholars, then we has to believe that Kashmiri wood was carried to Persia etc, as early as 6th century B.C. The popularity of Kashmiri goods is also a well known fact. Thus we propose to give a detailed account of the Kashmiri concerning the trade and commerce known to us from various texts.

Our knowledge regarding the internal trade of early Kashmir is comparatively meager. Kalhana mention of regularly arranged markets (Hatta) in the city of pravarpura, and reference of new foundation of market by some members of royal family in other towns, Kalhanas description of the semi legendary towns of Narapure where the markets were kept full of supplies shows how closely the markets were associated in the Kashmir mind with the idea of large town. The information pertaining to industries during early period in Kashmir is that people were engaged in agriculture, a considerable section of the population took up various industries and crafts as the profession, and it was this section that brings prosperity to the valley. The first thing for which Kashmir was famous is its wool products about which we have references from the texts both Kashmir and Rome.

The wool was one of the essential commodities of trade in Kashmir is evident from a passage in the *Rajatarangini*, where Kalhana quoting the high prices of wool during the famine. Thus, where as raw pashm or shawl wool formed an important item of import, the manufactured woolen goods were the principal articles of export. Many types of the woolen clothes, shawls, blankets, and embroidered cloth pieces from Kashmir had an eager and ready market outside India.

A market called kamala Hatta was found at Parihaspora by Lalitaditya's queen. The internal trade was carried on both by land and river. Some idea of the land route may be probably be had from the itinerary (journey) of the Chinese traveler Hieun-Tsang, the pilgrim entered the valley from the west through the Baramullah pass, from Baramullah he went to Huskapur, the next place which he visited Srinagar or Pravarapora. The capital from the pilgrim travels through a mountain district south west for above 700 Li and reached Pan-nu-tso is modern poonch. From poonch a journey south west of above 400 li brought him to Ho-lo-Shi-Pu-lo (Rajapuri) country, which at the time of Hieun-Tsang was subject to Kashmir, there can be a little doubt that in the7th century A.D commercial products were chiefly carried in the same road through which Hieun-Tsang travelled.

Kutha which was produced in Kashmir has less market in Kashmir but much better in Rome. Likewise in Rome it has a chief market in China and in Tibet also, and was an export of balance of trade. Both Tibetans and Chinese used it as the chief ingredient in various incenses and medicines. It was perhaps medicinal plant which Hiun-Tsang particularly mentions among the Kashmir products.

The river *Vatista* played an important part in the commercial traffic of the valley is also evident from the fact that most of the city and towns of Kashmir flourished on its banks. During the ancient period we find several references that Kashmir has trade relation with foreign countries of central Asia. Especially during the period of

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Lalitaditya. Lalitaditya evinced interest in other spheres besides his army life. The principal centers of trade in the valley were the cities of Puranadistana, Huskapora, Praverpura, Parihaspora, etc.

As there were several passes (entrances) in the valley played an important role in the Kashmir's history, whether in the field of trade and commerce or any other aggression or expedition. Each of the mountain passes were guarded by a watch-station (*Dranga*) at the end of the route, were custom officers were posted to collect duties. All the goods passing through these stations were duly stamped and registered. Soldiers also were posted at these stations for safeguarding the routes against any inroad trifling.

Art and trade received importance during his (Lalitaditya's) time; the trade was to its peak that means both internal as well as external trade exists in Kashmir valley. The society during his reign was happy and prosperous, there was an arrangement for an open trade which almost all the countries in Asia, there were ample facility for agriculture and many new things were invented.

Copper was metal of common utility, we have reference to image and utensils made of this metal. The use of copper for coining money is as early the reign of Tormana. King Jayapida alone to have issued large quantity of copper coins after obtaining probably a hoard of copper coins. The large scale use of copper in daily routine could not have been possible if it was not imported from outside as the valley does not have copper ore of its own. In this context it has been suggested that copper was obtained from Nepal, when the region of Punjab was disturbed due to foreign invasions, thus it can be easily guessed that Nepal exported copper which reached Kashmir either by the way of Tibet of Ladakh or through the mid Indian trade route which was more in vogue during the winters.

The import and export trade of the valley was carried by the various routes leading to the rest of the countries. During the reign of the pratabaditya II, for instance, "the land was full of merchants of different wares come from all regions." When we come to items of daily necessities of the people, we find that the valley had to depend upon other regions of the country for them. For example, salt was always brought to the valley from elsewhere. His trade was in particular, was in full swing we have references those traders from different places coming and settling in Kashmir. The pir Panstal route was the main way by which salt from the Punjab was brought to the valley. Betal nuts were perhaps brought from the coasts of (Gauda) Bengal and Malabar, since we know from references that the valley had relations with them since the time of Lalitaditya. Besides these the spices, silk, horses were the articles of import in the valley for them they depend on the other regions.

Following are some import and export articles which has affected the trade of the valley during the times of imperial Karkota's:

S.no	Imported items	Exported items
1	Salt	Woolen goods
2	Spices	Saffron
3	Silk piece goods	Kutha (costus)
4	Coral	Silk
5	Betal nuts	Pashmina shawls
6	Copper	Sandal wood

- **Position of traders**

Kashmir occupies geographically a strategic position and it has taken full advantage of it. As early as beginning of Christian era, we have references of Kashmir's commercial relation with other parts of the country as well with Asia and Europe. It's flourishing trade conditions in early times, resulted in the emergence of a rich trading community in the region.

The traders commanded a respectable position in the Kashmiri society. The fact is clearly mentioned in the *Nilmata Purana*, it speaks about the important role the said community used to play in the coronation ceremony of the king. The clay taken for their door steps was an important item needed at the time of coronation ceremony of the kings. The *Kuttanimatt*a also refers to traders (vanik) leading luxurious life and playing an important role in the society. Accordingly they are shown as witnessing Dance Theater along with their retinue. They also freely mixed up with the ruling class. The account of Kalhana regarding a trader of early Kashmir is very explicit in this regard. He gives a vivid description of the mansion of a trader and from this description, it is clear that it was much more comfortable than the palace of the king of Kashmir,

The story narrated by Kalhana pertaining to king Durlabhaka pratapaditya II and a trader, shows that the two classes were having very good social relations. The aforesaid king and the salt trader by the name of Nona were

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so close that they used to visit frequently each other. The most important king of the Karkota was Lalitaditya was the son of the lady who initially was the wife of this merchant. But the later on married Durlabhaka pratapaditya. The account, given by Kalhana pertaining to this clearly shows the high social prestige of the community. He says that once the merchant stay at royal palace. In the night due to the smoke caused by the lamps he could not sleep well. Consequently he could not present himself as fresh and comfortable in the morning as was accepted by the king. On enquiry, after some time hesitation, informed the cause for his discomfort and sleeplessness to the king. The king became surprised and asked about the type of lamps used at his palace during the night. The traders to the surprised of the king informed him that it was the precious stones which were used as lamps and therefore there no problem resulting from the smoke. Since this was the news to the king, he decided to pay return call to the trader and in due course of his stay at his palace came to know about his riches. It was his visit in course of which he meets the trader's wife and ultimately obtained her as his wife. It was this lady who gave birth as stated above to Lalitaditya, the most powerful king of the valley this is general picture of early period which portrays as enjoying a high status in the Kashmiri society.

If we analyses the main factor which boosted the traders prosperity in the valley and in turn made the trading community powerful, we would see that during the Kushana's period the valley witnessed favorable trade conditions which continued till the time of king Lalitaditya's period, is marked with the ascendancy of Arab power. This lead to disruption of trade routes connecting the valley, because of which we find that, both Chandrapida and Lalitaditya had tried to form an alliance with china to check the rising power of Arabs and Tibet. And perhaps Lalitaditya lost his life while securing of a safety of the trade routes connecting Kashmir with the southern silk route. Therefore we can say that the valleys prosperity depended mainly on the trade.

- **Trade Routs**

For flourishing trade at a particular place, the importance of trade route is too much necessary, because caravan goods for export as well as imports requires a safe and smooth transit. When we look at Kashmir from this point of view, then we find that it had succeeded in developing its trade bars economy, to some extent, because of its geographical location which provided it an access to different trade routes. Because of its connection with other parts of country, Asia and Europe. In this context we also learn about the routes passing through difficult to terrains as well as the routes which are quite comfortable. So for internal transit of trade items is concerned, it is mainly carried through the river. The plenty of boats and their role in Kashmir economy is apparent from the Rajtarangni. Kalhana mentions about the spots which were created on the river banks because of the tying of boats.

Besides we have reference to land routes connecting the different parts of valley. From the accounts of Hieun-Tsang, Ou-kong and Alburine, we learnt that all the major cities of the valley were connected with each other. A beautiful description by them regarding the routes is given by stein, from Chinese account it appears that most convienent entry to the valley was via HazaraUrsa (present Pakistan) and throughthe gorge of Baramulla following the course of vitastsa(*Jhelum*).

The principal routes of Kashmir leading to the neighboring countries, references to which may be found in the accounts of the foreign travelers as well as indigenous literature, were presumably also the chief routes through which trade and commerce with other countries were carried on. The chief routes on the west were that which went from Varamullah to Gandhara. In the 7th century A.D., the Chinese pilgrim Hieun-Tsang entered Kashmir through this route.Ou-kong coming from Gandhara followed this route on his way to happy valley about the middle of 8th century A.D. He describes this route as the road which starts from the western gate and goes to kien-to-lo i.eGandhara.

The western route was undoubtedly one of the most important trade route of Kashmir for it was connected with the famous ancient trade lines, leading up to central Asia and china. One of these lines, as we learn from the Chinese biography of Jinagupta (6th century A.D)Passed through Nagarahara, the trade emporium of kapisa, the bamiyan range, the territories of Badakhshan, wakham and Tashkurghan and ultimately reached Khotan. Another Indian Buddhist pilgrim, Dharmagupta (6th century A.D.) availed himself of the route, but from Tashkurghan, instead of going directly to kashgar.

Coming again to the trade within the valley, we have seen that it was carried both by land and river. The important places mentioned within Kashmir are Parihaspura, Pratapapura. These places as per Rajtarangini were important capital cities and urban centers.e.g. kalhana clearly mention about the market *(hatta)*which used to take place regularly at Pravarapura (Srinagar). Besides these he also tells about other markets like the one at pattana where there was regular sale and purchase of cattle and was also famous for cloth weaving.

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The northern route ran from the north shore of the Wuler Lake through the modern village of Atwat and Vijemarg leading to Astor and Balti territories on the Indus. This route was followed by Chinese travelers Fa-hieun (399A.D.), Che-mong (400A.D.) and Fa-yong (420 A.D) describes it as the second pass of Kashmir leading off to po-liu or Bultistan.

To the east of Kashmir there was a third important route leading to Ladakh and then to Tibet and china. It is represented by the resent pass of Jo-ji-la (Zojela) this route was distinctly referred to by Ou-kong who mentioned it as the road which started from the gate in the east and led to Tou-fan or Tibet. Several other routes of Kashmir on the southern side penetrated through the PirPantsal range to India proper. The Banasala or Banihal pass on eastern extremity of the range maintained link with the hill states of east Punjab.

Trade through rivers too was very common. The Rajtrangni gives many references of river journey. there were numerous bridges on the rivers and Srinagar itself had many, the most important of these being the Brihatsetu (lofty bridge) these were mostly constructed on boats and it is known that there was no permanent bridge in Kashmir during the entire period of Hindu history. The celebrated Chinese pilgrim, Hieun-Tsang who entered Kashmir through the valley of vatista (Jhelum) did not have any difficulty in travelling throughout the Kashmir because of the availability of ferry services at all points of crossing.

The route which Hieun-Tsang followed further south of Kashmir has been referred to above, gives us the hint of the places which were connected with Kashmir after leaving raja puri (Rajouri), Hieun-Tsang travelled further south east and reached the country of Takkas (Punjab) and after crossing Beas reached Sakala (Sialkot).

Kashmir on the western side was connected with central Asia via the land route which went from Baramula to Gandhara. The Chinese pilgrim Hieun-Tsang and Ou-Kong also entered Kashmir from this route during 7th century A.D; Ou-Kong refers to three roads which are secured by gates, leading to different countries. Accordingly in the east a road lead to Toufan or Tibet, in the north there was a second pass leading up to Poliu or Balistan, and the third one which started from western gate and went to Kien-to–lo or Gandhara.

The trade in the above mentioned regions was not free from difficulties and danger. The entire central Asian region was known for violence and robbers were very active on these routes. The kings of Kashmir tried their level best to secure the safety of these routes. We are informed by the annals of the Tang dynasty that king Chandrapida has sent an embassy to the Chinese court to seek its help against the Arbas who has begin to overrun the areas which fell on these routes. King Lalitaditya also tried to gain the control over the “silk route” from china to persia and is said to have defeated the Tibetans, invaded the tarim basin and crossed the Taklimakan probably to reach and conquer Kucha and Tufran in the central Asian desserts. The sole purpose of all this was to have a hold on the said routes as they provided access to the markets of Rome as well as china.

We have references to the export of Kashmiri goods through the sea ports also. The account contained in the periplus of Erythraeansea tells us that the costus was exported via the port of Barygaza. these routes as well as the various passes over pirpanjal range were of great importance for carriying trade and commerce with the outside world. Salt was not available in the valley and was a rare commodity and was imported from the neighboring territories the pirpanjal route was the chief route by which salt was brought over here. This route in those days was named as Lavanasarani or salt road.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019
ISSN 2394 - 7780

EFFECT OF MINDFULNESS MEDITATATION ON STATE ANGER

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ABSTRACT
*Mindfulness, a state of being often developed through meditation practices, involves paying attention to our present circumstances with acceptance and non-judgment, while enhancing our equanimity. Mindfulness is gaining a growing popularity as a practice in daily life, apart from buddhist insight meditation and its application in clinical psychology. Mindfulness is defined as moment-by-moment awareness of thoughts, feelings, bodily sensations, and surrounding environment, characterized mainly by "acceptance" - attention to thoughts and feelings without judging whether they are right or wrong. The main objective was to study the effect of mindfulness mediation on state anger. The sample consisted of 100 participants balanced ratio of males and females of urban population is taken. Tests used were State – trait anger expression inventory (staxi-2) of Spieberger, 1999). On the basis of present study it can be concluded that t*here is a significant effect of intervention on the level of *subjective well being.*

Keywords: Mindfulness, Meditation, anger expression

INTRODUCTION
The word mindfulness may be used to describe a psychological trait, a practice of cultivating mindfulness (e.g., mindfulness meditation), a mode or state of awareness, or a psychological process (Germer, Siegel, & Fulton, 2005). To minimize possible confusion, we clarify which meaning is intended in each context we describe (Chambers, Gullone, & Allen, 2009).

State anger which is defined as the psychobiological emotional state or condition marked by suggestive feelings that vary in intensity from mild irritation or annoyance to intense fury and rage.

Teasdale (1999) states that Mindfulness has also been described as a meta cognitive state of detached awareness. Metacognitive processing not only consists of acquiring knowledge regarding one's cognition, but also involves regulatory processes such as planning, monitoring, and evaluating. he practice of mindfulness meditation has been shown to be effective in reducing impulsiveness and increasing tolerance of common stressors. Mindfulness has been demonstrated to bring reduction in stress-related symptoms/negative distress of mood disturbance.

Several researchers (e.g., Chambers, Gullone, & Allen, 2009; Rosch, 2007) have argued that in order to more fully appreciate the potential contribution of mindfulness in psychological health it is important to gain an understanding of these differences, and specifically, from a Western perspective, how mindfulness is conceptualized in Buddhism. Given the diversity of traditions and teachings within Buddhism, an in-depth exploration of this topic is beyond the scope of this review (for a more extensive discussion of this topic,

Research also has examined the relationship between mindfulness meditation practices and psychological well-being. Lykins and Baer (2009) compared meditators and non-meditators on several indices of psychological well-being. Meditators reported significantly higher levels of mindfulness, self-compassion and overall sense of well-being, and significantly lower levels of psychological symptoms, rumination, thought suppression, fear of emotion, and difficulties with emotion regulation, compared to non-meditators, and changes in these variables were linearly associated with extent of meditation practice.

Allen (2008) saw similar results in their study of participants on a 10-day meditation retreat. Pre and post-tests revealed significant increases in self-reported mindfulness, as well as decreased depressive symptoms and decreased rumination (Chambers, Lo, & Allen 2008).

Mindfulness interventions may help individuals reduce emotional reactivity, redirect attention to the present moment, and extinguish maladaptive responses previously elicited by anger (Borders et al., 2010; Wright et al., 2009), consistent with the theorized effects of mindfulness on negative emotions in general (Farb et al., 2010).

Ortner, Kilner and Zelazo (2007)used an emotional interference task in which participants categorized tones presented 1 or 4 seconds following the onset of affective or neutral pictures. Levels of emotional interference were indexed by differences in reaction times to tones for affective pictures versus neutral pictures. A participant's mindfulness meditation experience was significantly associated with reduced interference both

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from unpleasant pictures (for 1 and 4 second delays) as well as pleasant pictures (for 4 second delay only), as well as higher levels of self-reported mindfulness and psychological well-being. These findings suggest that mindfulness meditation practice may enhance psychological well-being by increasing mindfulness and attenuating reactivity to emotional stimuli by facilitating disengagement of attention from stimuli.

OBJECTIVE

- To study the effect of mindfulness meditation on state anger

HYPOTHESES

- There would be significant effect of mindfulness mediatation in state anger .
- There would be significant effect of mindfulness mediatation in state anger/F.
- There would be significant effect of mindfulness mediatation in state anger/V .
- There would be significant effect of mindfulness mediatation in state anger/P.

*F- Feeling

*V-Verbal

*P- Physical

VARIABLES

Independent Variable

- Mindfulness meditation

Dependent Variables

- State Anger expression

METHODOLOGY

Sample

A sample of 100 participants will be taken. Age group is between 25-40 years and balanced ratio of males and females of urban population will be taken. They will be asked to provide consent for participating in this research. The entire participant is given intervention.

Tool used

- **State – trait anger expression inventory (staxi-2) -** Staxi – 2 (Spieberger, 1999) is a 57 items inventory which measures the intensity of anger as an emotional state (state anger) as well as the disposition to experience angry feelings as a personality trait (Trait anger). The instrument consists of six scales:

1. State anger includes 4 variables, state anger (S-Ang), feeling anger (S-ang/f), feel like expressing anger verbally (S-ang/V) and feel like expression anger physically (ang-p);
2. Trait anger include trait anger (T-ang), angry temperament (T-ang-T) and angry reaction (T-ang-/R);
3. Anger expression out (AX-O)
4. Anger expression in (AX-I)
5. Ang-control-out (AC-O)
6. Anger control in (AC-I) and an anger express index (AX-index),Procedure

- All the volunteers is present in the office space every morning for 7 days in a group setting. They provided with the institution for the mindfulness each morning along with the demonstration of each stage of the mindfulness .participants were encouraged to ask any question or comment.
- Two days prior baseline to the study participants is completed a concern form and all the clinical scales completed. On first day before participating and at the last day of Meditation of protocol. The order of all the scale for all time point is counter balance. In the addition to the formalized management. After completing the meditation each day participants had to complete and informal daily form. Which consist of three items surveying level of energy.

ANALYSIS OF DATA AND RESULTS

The analysis of data and its interpretation is presented below. The results are shown in the following tables:-

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Table

Variable	Intervention	N	Mean	t-value	Significance level
S-Ang	Pre	100	20.5	8.99	.01
	Post	100	17		
S-Ang/ F	Pre	100	8	6.03	.01
	Post	100	6		
S-Ang /V	Pre	100	6.75	3.66	.01
	Post	100	6		
S-Ang/ P	Pre	100	5.75	6.08	.01
	Post	100	5		

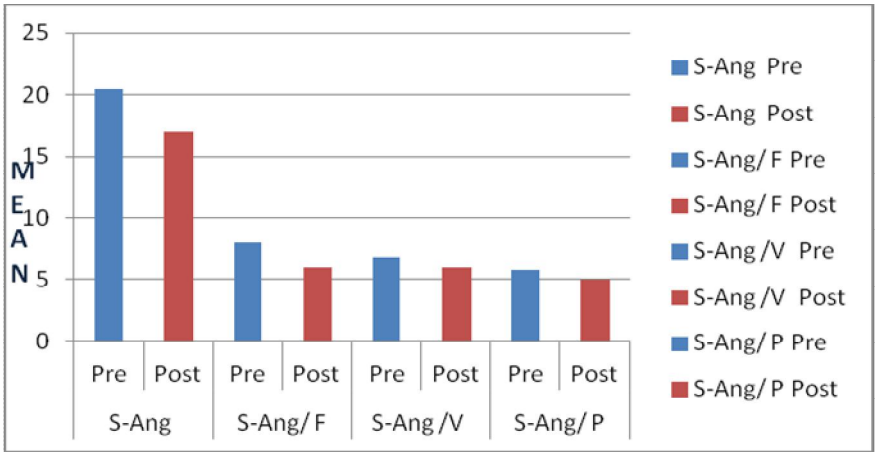
DISCUSSION

The aim of our study was to study the **effect of mindfulness meditation on state anger** and hypothesis was there would be significant effect of mindfulness meditation on state anger aand its dimensions.

Table shows the mean value & t-test on effect of intervention on the level of state anger of pre and post experimental group.

Column 1 indicates the level of state anger which has mean score for pre sample (20.5) and post sample (17) reveals that pre group has high mean than post group that depicts pre group sample are experiencing relatively intense angry feeling than post group. The percentile value for pre group (77) and post group (60) shows the clinical to borderline level of anger. It shows that the mindfulness meditation is effective to reduce anger. Person with anger scores above the 75th percentile experience and express angry feelings to a degree that may interfere with optimal functioning (spielberger.1988,1996).

As we see the t value which is 8.99 shows that is a significant difference in the pre and post data that says that there is a significant effect of mindfulness meditation. Study of Fennell, Erik ,Benau,(2015) Show more one session of meditation can help reduce your body's response to anger. Graph also shows the improvement in anger level.



Column 2 indicates the level of state anger/F which has mean score for pre sample (8) and post sample (6) reveals that pre group has high mean than post group that depicts pre group sample are experiencing relatively intense angry feeling than post group. Sample with high state anger/F reports relatively intense feeling of angry emotions ranging annoyed to furious. The percentile value for pre group(80) and post group (50) shows the clinical to borderline level of anger .

As we see the t value which is 6.03 shows that is a significant difference in the pre and post data that says that there is a significant effect of mindfulness meditation. Mindfulness interventions may help individuals reduce emotional reactivity, redirect attention to the present moment, and extinguish maladaptive responses previously elicited by anger (Borders et al., 2010; Wright et al., 2009), consistent with the theorized effects of mindfulness on negative emotions in general (Farb et al., 2010).

Column 3 indicates the level of state anger/V which has mean score for pre sample (6.75) and post sample (6) reveals that pre group has high mean than post group that depicts pre group sample are experiencing relatively intense angry feeling than post group. Sample with high state anger /V were experiencing intense feelings to express their anger verbally i.e. yelling, shouting or screaming. The percentile value for pre group (78) and post group (75) shows the clinical to borderline level of anger.

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As we see the t value which is 3.66 shows that is a significant difference in the pre and post data that says that there is a significant effect of mindfulness meditation.

Column 4 indicates the level of state anger/P which has mean score for pre sample (5.75) and post sample (5) reveals that pre group has high mean than post group that depicts pre group sample are experiencing relatively intense angry feeling than post group. Sample with high state anger/P experience intense feeling to express their anger physically i.e. beating someone or breaking things. The percentile value for pre group (75) and post group (50) shows the clinical to borderline level of anger.

As we see the t value which is 6.08 shows that is a significant difference in the pre and post data that says that there is a significant effect of mindfulness meditation. To reduce aggressive behaviour singh et al. (2013) used mindfulness-based intervention, a randomized controlled trial of 34 individuals with mild intellectual disabilities demonstrated the effectiveness of the mindfulness-based procedure for helping reduce physical and verbal aggression.

CONCLUSION

It can be concluded that mindfulness meditation specifically designed to meet the objectives of the present research was found to be effective. Intervention is found effective.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019

ISSN 2394 - 7780

A STUDY TO ASSESS KNOWLEDGE AND PRACTICE ON CONSTIPATION AMONG TYPE 2 DIABETES MELLITUS PATIENTS IN SAVEETHA MEDICAL COLLEGE AND HOSPITAL

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ABSTRACT
Constipation is a common complication in people with diabetes. Living with diabetes means paying careful attention to all systems of the body. A study to assess knowledge and practice on constipation among 30 type 2 diabetic mellitus patients in saveetha medical college and hospital were recruited by on probability convenient sampling technique; descriptive method was used with a Semi Structured questions and the result of the study 28(93.3%) type 2 diabetic mellitus patients have inadequate knowledge of diabetic constipation and 2(6.6%)type 2 diabetic mellitus patients have moderate knowledge about diabetic constipation and none of the type 2 diabetic mellitus patients have adequate knowledge on diabetic constipation.This level suggest that, the knowledge and practice among the type 2 diabetic mellitus patients in not adequate among them.

Keyword: knowledge, practice, diabetic mellitus, constipation, diabetic constipation

INTRODUCTION
The prevalence of diabetes for all age groups worldwide was estimated to be 2.8% in 2000 and 4.4% in 2030 . The total number of people with diabetes is projected to rise from 171 million in 2000 to 366 million in 2030. The prevalence is higher in men than women. As many as 75% of patients visiting diabetes clinics will report significant GI symptom.Normal subjects had a rapid increase in colonic spike and motor activity ($P < 0.001$) within the first 30-min postprandial period. Diabetic patients with mild constipation had a postprandial increase in colonic motility. The response was delayed to 60–90 min after eating. Diabetic patients with severe constipation had no postprandial increase in colonic motility. There was no correlation between colonic motility and gastric emptying of a liquid meal. These studies suggest that patients with diabetes mellitus and severe constipation may have an autonomic neuropathy which leads to an absent postprandial gastrocolonic response.

MATERIALS AND METHODS
RESEARCH DESIGN
Descriptive design was chosen to assess the knowledge and practice on constipation among type 2 diabetes mellitus.

SAMPLE SIZE
The sample size consists of 30 patients.

SAMPLING TECHNIQUE
Convenience sampling technique.

SETTING
The study was conducted at medicine ward in saveetha medical college and hospital.

POPULATION
All the patients suffering from diabetes mellitus in medicine ward.

SAMPLES
Both male and female patients with diabetes mellitus in saveetha college and hospital.

CRITERIA
Inclusion criteria: Diabetic patients in saveetha medical college and hospital, Patients who are willing to participate in the study.

RESULTS
In the assessment of the knowledge and practice on constipation out of 30 type 2 diabetic mellitus patients majority of them have inadequate knowledge among 28(93.3%) samples. Where there inadequate knowledge and Majority of patients are not aware of constipation who suffers from type 2 diabetic mellitus patients 28(93.3%).only 2(6.6%) are having moderate adequate knowledge of constipation who suffers from type 2 diabetic constipation.

ISSN 2394 - 7780

TABLE-1: Frequency and distribution to assess the constipation among diabetic mellitus patients

INADEQUATE KNOWLEDGE		MODERATE KNOWLEDGE		ADEQUATE KNOWLEDGE	
No.	%	No.	%	No.	%
28	93.3%	2	6.6%	0	0%

Inadequate knowledge-93.3%

Moderate knowledge-6.6%

Adequate knowledge-0%

Figure-1: frequency and distribution to assess the constipation among diabetic mellitus patients

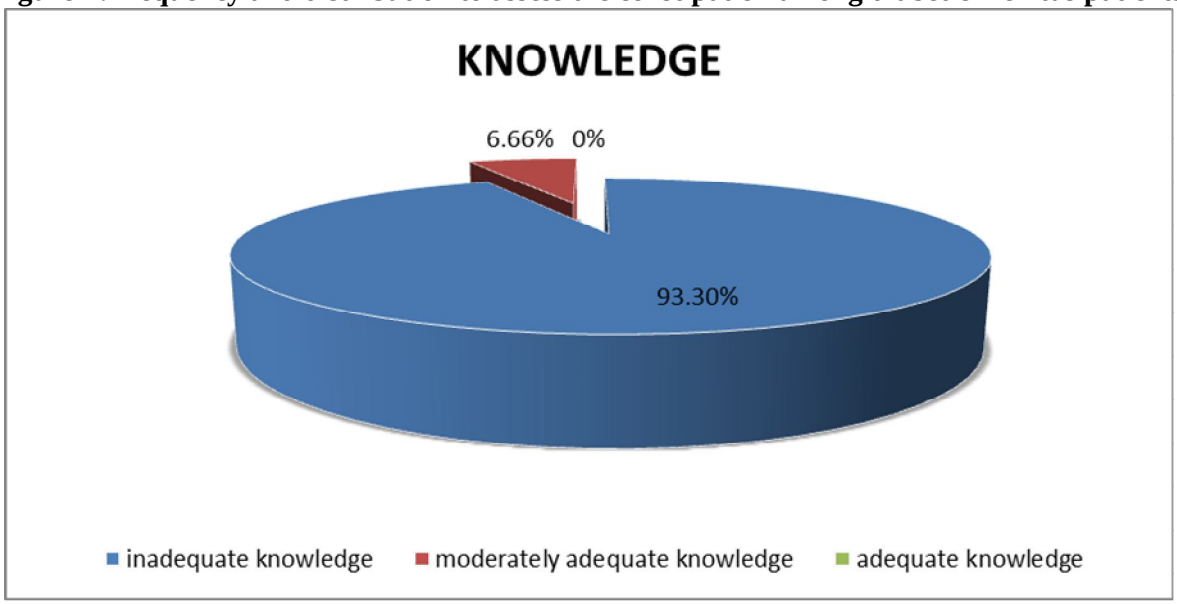

Figure-1: reveals inadequate knowledge of 93.30%, moderately adequate knowledge of 6.66% and adequate knowledge of 0%.

Table-2: Association between frequency and distribution of demographical variable with assessment of constipation on type 2 diabetic mellitus patients

S.no	Demographic variable	Inadequate		Moderately inadequate		Adequate		Chi square test
		n.o	%	n.o	%	n.o	%	
1.	Age							
	a)30-40 years	3	10%	1	3%	0	0%	
	b)40-50 years	6	20%	1	3%	0	0%	X^2=0.361
	c)50-60 years	13	43%	0	0%	0	0%	Df=6
	d) above 60	6	20%	0	0%	0	0%	P=12.29(S)
2.	Sex							X^2=0.0023
	a)male	13	43%	1	3%	0	0%	Df=2
	b)female	15	50%	1	3%	0	0%	P=5.99
3.	Type of family							X^2=0.1302
	a)joint family	8	26.6%	0	0%	0	0%	Df=2
	b)nuclear family	20	66.6%	2	6%	0	0%	P=5.99(S)
4.	Number of member in the family	0	0%	1	3%	0	0%	X^2=0.198
	a)1-2 members	20	66.6%	1	3%	0	0%	Df=4
	b)3-4 members	8	26.6%	0	0%	0	0%	P=9.49(S)
5.	c)more than 4 members	9	30%	0	0%	0	0%	X^2=0.95

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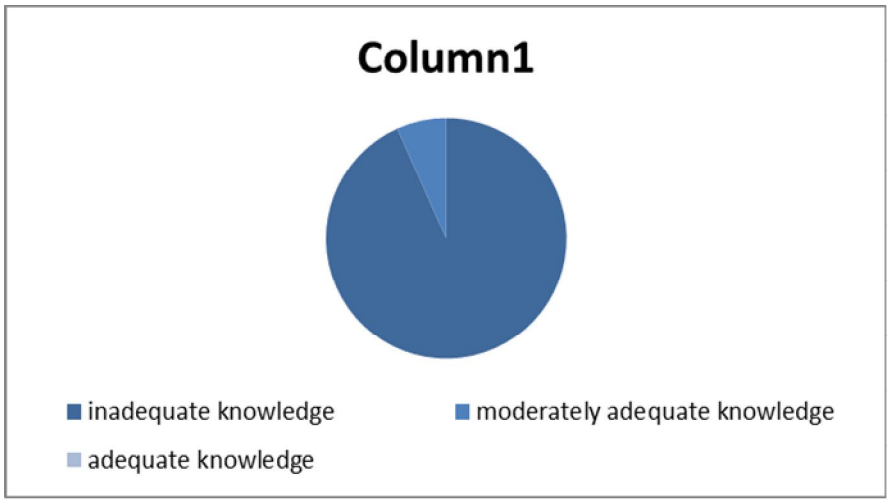
6.	Educational status a)illiterate b)primary school c)high school Religion a)hindu b)Christian c)muslim d)others	18 1 21 5 2 0	60% 3% 70% 16.6% 6.6% 0%	2 0 1 1 0 0	6% 0% 3% 3% 0% 0%	0 0 0 0 0 0	0% 0% 0% 0% 0% 0%	Df=4 P=9.49(S) X=0.094 Df=6 P=12.59(S)

NS-NON SIGNIFICANT

S-SIGNIFICANT

Table-2: Frequency and Distribution to Assess the Constipation Among Diabetic Mellitus Patients

Inadequate knowledge		Moderate knowledge		Adequate knowledge	
No.	%	No.	%	No.	%
28	93.3%	2	6.6%	0	0%



DISCUSSION

The main focus of the study is to assess the knowledge and practice regarding constipation among type 2 diabetic mellitus patients, total 30 samples were selected by convenient sampling technique. The knowledge and practice of type 2 diabetic mellitus patients was assessed using a structured questionnaire. The study finding were discussed based on the following objectives. The teaching guide may be a helpful for the nurse to educate the type 2 diabetic mellitus patients. They play an important role in preventive, promotive and curative aspects of health care system. The nursing administration in the hospital should develop guidelines for conducting teaching sections for diabetic constipation. Continuous quality assessment can be on by the quality assurance team on the quality of education provided to the patients.

ACKNOWLEGDEMENT

The authors are grateful to the authorities of Saveetha College of Nursing, Saveetha Medical college and Hospital.

CONFLICT OF INTEREST

The Authors declare no conflict of interest.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019

ISSN 2394 - 7780

A STUDY TO IDENTIFY THE RISK OF FALL ASSESSMENT AMONG OLDAGE PEOPLE LIVING IN THANDALACHERRI VILLAGE, THIRUVALLUR DISTRICT

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ABSTRACT

INTRODUCTION: Falls are one of the major problems in the elderly and are considered one of the "Geriatric people". The major area of concern is the health of the elderly with multiple medical and psychological problems. The geriatric population in India will dramatically over the next four decades. The share of India's population ages 60 and olders is projected to climb from 8% in 2010 to 19% in 2050 , according to the united nations population division (UN 2011) . In India; 53million females and 51 millions males. Both the share and size of elderly poplution is increasing over time. From 5.6%in 1961 the proportion has increased to 8.6 %in 2011. For males it was marginally lower at 8.2%, while for females it was 9.0%.As regards rural and urban areas , 71% of elderly poplution resides in rural areas while 29% is in urban areas. In rural areas, 66% of elderly men and 28% of elderly women were working, while in urban reason 46% of elderly men and about 11% of elderly women were working. (28%) is less than half of the literacy rate among elderly males(59%).

STATEMENT OF THE PROBLEM: A study to identify the risk of fall assessment among old age people living in Thandalacherrivillage ,Thiruvallur district.

OBJECTIVE

- *To identify the risk of fall among oldage people.*
- *To evaluate the prevalence of various risk factors for falls among older people.*

METHODOLOGY: Descriptive design was adopted for this study, convenient sampling technique was used and 40 oldage people age group of were selected. The data was collected, analyzed, in terms of both inferential and descriptive statistics.

RESULT: The study out of 40 samples age group among 60-70 years 11 samples are moderate ,age group among 70-80 years 13 samples are moderate and 2 samples are high risk and age group among 80 -90 years 7 samples are moderate and 7 samples are high risk. finally most of people having moderate level of risk.

CONCLUSION: The studies revealed that minority of old age people have risk of fall.

Keywords: Identify, risk of fall, old age

INTRODUCTION

The geriatric population India will dramatically over the next four decades. the share of India's population ages 60 and olders is projected to climb from 8% in 2010 to 19% in 2050 , according to the united nations population division (UN 2011).By mid century, India's 60 and older population is accepted to encompass 3,23 million people ,a number greater than the total U.S population in 2012.According to Population Census 2011 there are nearly 104 million elderly persons (aged 60 years or above).In India 53million females and 51 millions males. Both the share and size of elderly population is increasing over time. From 5.6%in 1961 the proportion has increased to 8.6 %in 2011.For males it was marginally lower at 8.2%, while for females it was 9.0%. As regards rural and urban areas , 71% of elderly population resides in rural areas while 29% is in urban areas. In rural areas, 66% of elderly men and 28% of elderly women were working, while in urban reasonably 46% of elderly men and about 11% of elderly women were working. The percent of literates among elderly persons increased from 27% in 1991 to 44% in 2011. The literacy rates among elderly females (28%) is less than half of the literacy rate among elderly males(59%).

Falls are one of the major problems in the elderly and are considered one of the "Geriatric people". The major area of concern is the health of the elderly with multiple medical and psychological problems. The number of persons above the age of 60 years is fast growing, especially in India in community-dwelling elderly persons a history of fall leads to admission of the hospital. About one third of the older population experiences at least one fall each year. Fractures caused by falls can lead to hospital stays and disability. Most often, fall-related fractures are in the person's hip, pelvis, spine, arm, hand, or ankle. The most consistently proven predictors of fall risk are history of a fall during the past year and gait and balance abnormalities. Falls can be devastating to the affected individual but are also expensive to manage. In particular, when associated with fracture of the proximal femur, they carry a high morbidity and mortality. Even lesser falls lead to loss of self-confidence and

ISSN 2394 - 7780

reduced quality of life.Falls are considered one of the more serious problems among all age groups. A fall is defined as "inadvertently coming to rest on the ground, floor or other lower level, excluding intentional change to the rest in furniture, wall, or other objects.Falls-related injury is one of the leading causes of morbidity and mortality in older Australians, with more than 80% of injury-related hospital admissions in people aged 65 years and over due to falls and falls-related injuries.11 Fall rates are greater for older people.11 Fall rates of 4–12 per 1000 bed days have been described in this age group.12 Incident rates vary between wards and departments in hospitals. In the subacute or rehabilitation hospital setting, more than 40% of patients with specific clinical problems, such as stroke, experience one or more falls during their admission.2 Injuries result from approximately 30% of such falls in hospital.13 Australian data on falls in hospitals do not distinguish between injuries that occur before and after admission. If a patient is admitted to hospital for one reason and falls while in hospital care, it is not recorded as a separate event. Falls are particularly common and burdensome among the elderly. About one third of the older population experiences at least one fall each year . Worldwide, it is estimated that falls are responsible for 35 million disability-adjusted life years . The most widely accepted paradigm for fall prevention in community-dwelling older adults consists of three sequential stages: screening for high fall risk, assessment of multiple risk factors for those at high risk, and implementation of a tailored intervention.

The guidelines from the American and British Geriatric Societies (AGS/BGS update 2011) and the English National Institute for Health and Care Excellence (NICE) propose a combination of simple questions about history of falls in the previous twelve months and difficulties in walking or balance, possibly followed by simple functional tests assessing gait and balance (e.g. Timed Up and Go test (TUG), Performance-Oriented Mobility Assessment, and Berg Balance Test) [4]. The US Centers for Disease Control and Prevention (CDC) combine similar questions and functional tests with a questionnaire (their 'Stay Independent' brochure), which also asks about walking aid use, fear of falling, muscle weakness, medications, and depression .

WHO report of 2004 states that 536 elderly people per 10,000 suffer from physical and psychosocial problems of old age, currently affects of age in our country, it is projected that by the year 2025, 4 million Indians will become victims of dementia. The theme of this age period is loss, and dealing with death is one of the tasks of the elderly. Science death is the only certainly in life, without emotional support to sustain and bear the losses.[loss of work role, spouse ,friends, sensory and motor abilities and intellectual processes] the elderly individuals is vulnerable to depression and despair.

Nassarn,et,al . [2013]had conducted a study on predicting falls using two instruments(the **hendrich fall risk model and the morse fall scale**) in acute care setting in Lebanon with prospective observational cross-sectional design was used .it identified the adult population group with the most frequently observed risk factors for injuries fall in acute hospital settings .data for 1815 inpatients at the American university of Beirut medical center (AUBMC) in Lebanon were evaluated using to instruments to predict falls : the MFS and the HFRM. Although both instruments were easy to use in a middle eastern country ,the HFRM rather than the MFS is recommended for in patients in an acute setting as it had higher sensitivity and specificity.

Hence the researcher had interest towards the assessment of risk of fall assessment among older adult.

MATERIALS AND METHODS

RESEARCH DESIGN

A study to identify the risk of fall assessment among old age people living in Thandalacherrivillage ,Thiruvallur district.

SAMPLE SIZE

The sample size among 40 old age people.

SAMPLING TECHNIQUE

Convenience sampling technique.

SETTING

The study was conducted in Thandalacherri village ,Thiruvallur district.

POPULATION

Population in Thandalacherri village total no of houses 417 , total population is 1,574 (female -780 , male-794) and old age people 154 present in Thanadalacherri village.

CRITERIA

Inclusion criteria: available during the data collection, fall-prone older adult and willing to partipate.

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Exclusion criteria: History of stroke, vestibular disorder, foot abnormalities and neurological disorders.

INSTRUMENTS INTENTED TO BE USED

- John Hopkins fall assessment scale.

RESULTS

The study out of 40 samples age group among 60-70 years 11 samples are moderate ,age group among 70-80 years 13 samples are moderate and 2 samples are high risk and age group among 80 -90 years 7 samples are moderate and 7 samples are high risk. finally most of people having moderate level of risk.

TABLE-1: FREQUENCY AND DISTRIBUTION OF THE DEMOGRAPHIC VARIABLE RISK OF FALL ASSESMENT AMONG OLDAGE PEOPLE

N=40

S.NO	DEMOGRAPHICAL VARIABLE	FREQUENCY	PERCENTAGE
1	Age		
	60 -70	11	27.5%
	70 – 80	15	37.5%
	80 – 90	14	35%
2	Sex		
	Male	20	50%
	Female	20	50%
3	Place of living		
	Urban	0	0%
	Rural	40	100%
4	Religion		
	Hindu	32	80%
	Christian	8	20%
5	Type of family		
	Nuclear family	20	50%
	Joint family	20	50%

TABLE:1shows that out of 40 samples , among 11 samples (27.5%) were in the group of 60-70 years , 15 samples (37.5%) were in the group of 70-80 years,14 samples (35%), 20 samples (50%) were in male and 20 samples (50%) were in female ,0 sample (0%) were in urban and 40 samples (100%) were in rural people,32 samples (80%) were are hindu and 8 samples (20%) were are Christian,20 samples (50%) were in nuclear family and 20 samples (50%)were in joint family.

TABLE-2: ASSOCIATION BETWEEN SELECTED DEMOGRAPHIC VARIABLES WITH RISK OF FALL ASSESMENT AMONG OLD AGE PEOPLE

N=40

S. No	Socio Demographic Variables	Moderate		High risk		Chi Square
		No	%	No	%	
	Age					
1	60-70	11	27.5%	o	15%	x2=58.46
	70-80	13	32.5%	2	5%	p5.99
	80-90	7	17.5%	7	17.5%	df=2
						Non-Significant
2	Sex					x2=2.63
	Male	15	37.5%	5	12.5%	p=3.84
	Female	12	30%	8	20%	df=1
						Significant
						^{x2}=330.56
3	Place of living					p=3.84
	Urban	0	0	0	0	df=1
	Rural	20	50%	20	50%	Non Significant

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4	Religion					x^2=0.009 p=3.84
	Hindu	27	67.5%	5	12.5%	df=1
	Chiristian	5	12.5%	3	7.5%	Significant
5	Type of family					x^2=4.5
	Nuclear family	16	40%	4	10%	p=3.84
	Joint family	16	40%	4	10%	df=1
						Non Significant

TABLE:2shows that association between demographic variables with risk of fall assesment among oldage peoples with their age , sex , religion, place of living and type of family.

Shows that out of 40 samples , among 11 samples (27.5%) moderate ,6 samples (15%)high risk , were in the age group of 60-70,among 13 samples (32.5%) moderate , 2 samples (5%) high risk were in the group of 70-80, among 7 samples (17.5%) moderate , 7 samples (17.5%) high risk , chi square $x^2 = 58.46$ and its non significant. Among 15 samples (37.5%) moderate, 5 samples (12.5%)high risk were are male , among 12 samples (30%) moderate, 8 samples (20%) high risk were are female, chi square $x^2 = 2.63$ and its significant . Among 20 samples (50%) moderate , among 20 samples (50%) high risk were are rural people chi square $x^2 = 330.5$ and its non significant. Among 27 samples (67.5%) moderate and 5 samples (12.5%) high risk were are hindu , among 5 samples 5 (12.5%) moderate , among 3 samples (7.5%) high risk were are chiristian chi square $x^2 = 0.009$ and its significant. Among 16 samples (40%) moderate , among 4 samples (10%) high risk were are in nuclear family ,among 16 samples (40%) moderate , among 4 samples (10%) high risk were are in joint family , chi square $x^2 = 4.5$ and its non-significant.

Laurence Z. Rubenstein, Karen R. Josephon, (2003)[2]A study in India showed risk factors of falls in elderly aged above 60 (n=100) with history of falls during October 2003 to September 2004 in geriatric outpatient department , government general hospital , Chennai. . Study demonstrated female and inactive persons has a larger incidence of falls than male and active persons. The extrinsic risk factors contributed 56 % and intrinsic risk factors resulted in 44% falls among the study group. People aged above 70 years were more prone to falls due to intrinsic risk factors and possibility of recurrent falls are high**.**

DISCUSSION

The investigator had drawn the following implication from the study which is vital concern for nursing practice.The nurse should create an impact on preventing pressure risk of fall among oldagepeoples.the nurse should develop their knowledge independently by assessing risk of fall by using john Hopkins fall risk assessment tool.The information regarding assessing the risk the risk of fall among oldage patients by using john Hopkins fall risk assessment tool can be educated to care givers and other health professionals through conference, seminar, in service education, workshop and health education.

ACKNOWLEGDEMENT

The authors are grateful to the authorities of Saveetha College of Nursing, Saveetha Medical college and Hospital.

CONFLICT OF INTEREST

The Authors declare no conflict of interest.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019
ISSN 2394 - 7780

AN EMPIRICAL STUDY ON ENTREPRENEURSHIP IN TELENGANA REGIONS

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ABSTRACT
This present paper throws light on entrepreneurship process in the capacity and willingness to develop, organize and manage a business venture along with any of its risks in order to make a profit. In order to encourage entrepreneurs,Government of Telangana introduced two most sophisticated steps-Introduction of new industrial policy as TS-iPASS (Telangana State Project Approval and Self Certification System) and T-HUB (Telangana Hub). TS-iPASS act,2014 assures the registration process of setting a company in Telangana will be completed within 15 days.This step gives the Telangana ranked one under "ease of doing business" in 2016-17 from 13th rank in 2015-16. T-HUB is India's largest incubator for startups, which is a public-private partnership between Government of Telangana and three leading academic institutes situated in Hyderabad(IIIT,ISB, and NALSAR).This paper analyzes the performance of post TS-iPASS and T-HUB as a game changer in entrepreneurship sectors.

Keywords: entrepreneurs, entrepreneurship,TS-iPASS, T-HUB

INTRODUCTION

Entrepreneurship is the purposeful activity of an individual's or a group of associated individuals undertaken to initiate, maintain, or getting profit by production or distribution of economic goods and services for the societal aspect. Entrepreneurship is a purposeful activity in promoting and maintaining economic development for the production and distribution of wealth. Entrepreneurship is doing new things or doing things that are already being done in new innovative way.

Every state in India facing a serious problem of growing unemployment and the reasons for unemployment may be ever increasing population, under utilisation of resources, increasing number of graduates coming out of educational institutions, lack of entrepreneurial spirit, bad opinion towards self -employment. This problem can be somewhat reduced by means of self- empowerment through Entrepreneurship.

Hence, every state governments in India has introduced various promotional measures in the form of self-employment schemes to support new entrepreneurs for starting various small scale industries. Telangana one of 29 states of India, newly formed and emerged on June 2nd,2014. After formation of government, government of telangana taken path breaking innovative steps to encourage entrepreneurship in its states. Among various measures taken by government of Telangana, TS-iPASS and T-HUB can be treated as game changer in entrepreneurship.

TS-IPASS: The "Telangana state Industrial Project Approval and self-certification System (TS-iPASS) Act, 2014" was enacted to create investor friendly environment by repealing the AP Industrial Single Window Clearance Act,2002. It provides speedy processing of applications for issue of various clearances at a single point. Ts-iPass is forward-looking and a model legislation in the country as it provides novel provisions such as automatic approval system on submission of self-certification by entrepreneurs.

Importance of the TS-iPASS

1. To speed up the processing for issue of various licences, clearances and certificates required by industries and also provide for an investor-friendly environment in the state.
2. To facilitate Industrial growth
3. To create peaceful, secure and progressive business regulatory environment
4. Massive creation of Jobs
5. To mitigate the potential impacts and protect the environment
6. Minimum Inspection and Maximum facilitation

T-HUB

T-Hub is an interesting open/private association between the administration of Telangana, 3 of India's chief scholarly organizations (IIIT-H, ISB and NALSAR) and key private segment pioneers. It remains at the convergence of the start-up, scholarly, corporate, research and government parts.

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We are mooring the whole Hyderabad startup biological system with a cutting edge 70,000 square foot building called CatalysT, the biggest structure in India to be completely devoted to business. Situated at the IIIT-H Campus, Gachibowli, the rambling structure will bring the start-up network together.

Stage for business people, guides, financial specialists and the scholarly community to cooperate and work together. The world-class foundation offices at the structure will be utilized for cooperating spaces, gatherings, tutoring, organizing sessions and meetings. By offering access to top coaches, financial specialists and the scholarly community.

OBJECTIVES OF STUDY

The core objectives are

1. To study the growth of year wise clearance of TS-iPASS applications
2. To understand the role of TS-iPASS in generation of employment opportunities in various entrepreneurial sectors.
3. To know the HUB in energizing local as well as global entrepreneurs in bringing their technologies to the market

DATA SOURCES

The existing data is been collected from Government of Telangana annual reports, and published documentary material available on the subject for further analysis in T- HUB .

ANALYSIS AND INTERPRETATION OF DATA:

1. Analysis of Year wise clearances:

SNO	YEAR	No.of units	Year on Year change (%) = $(n+1)^{th}$ year units-n^{th} year units/ n^{th} year units
1	2015-16	1556	
2	2016-17	1807	16.13
3	2017-18	3106	71.89
	Total	6469	

Table-1.1: Number of units cleared by TS-iPass (Extracted from Industrial annual report, 2018)

As per the data reflection in the table1.1 from 2015 to 2018 trend of clearances is upward and year on year change of 2017-18with 2016-17 is four times of change of 2016-17 with 2015-16

2. Analysis of Employee Generation from Ts-iPASS cleared Units

SNO	YEAR	Employment	Year on Year change (%) = $(n+1)^{th}$ year employment-n^{th} year units/ n^{th} year employment
1	2015-16	107705	
2	2016-17	123765	14.91
3	2017-18	296137	139.27
	Total	527607	

Table-2: Number of units cleared by TS-iPass (Extracted from Industrial annual report, 2018)

From above table1.2 fromthe year 2015 to 2018 trend of employment is upward and year on year change of 2017-18 with 2016-17 is 10 times between changes of 2016-17 with 2015-16

3. Achievements of T-HUB:

Fact sheet of T-HUB 2016-17:

1	Physically Incubated Startups	250
2	Number of Graduated Ventures	50
3	Cumulative Turnover of Ventures(Incubated and Graduated)	100 cr
4	Current Employment (Incubated and Graduated)	1000
5	Funds raised through Grand challenges/Business plan Competition etc...	6 cr
6	Cumulative quatum of External Funding raised(debt+equity)	24 cr

Table-3: Fact sheet of T-HUB as on 2016-17 (Extracted from Telangana IT deptannual report, 2017)

Achievements of T-HUB in 2017-18

1. In 217-18 annual report, T-HUB identified as top 3 incubators in India by DIPP(department of Industrial policy and Promotion)

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2. Four Hyderabad entrepreneurs from T-HUB start-ups made it to the Forbes 30 under 30 asia 2018 list.
3. Banyan Nation, A T-HUB incubated start up won dell people's choice award for circular economy entrepreneur.

CONCLUSION

The present study concludes TS-iPASS and T-HUB are generating new entrepreneurs and there is drastic improvement and development in whole ecosystem and community altogether.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019
ISSN 2394 - 7780

PREPARATION AND PROPERTIES OF HOMO AND HETERODINUCLEAR SCHIFF BASE COMPLEXES OF Cu (II) AND Ni (II) BY INTER–COMPLEX REACTION

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ABSTRACT
Homo and hetero binuclear Schiff base complexes of Cu(II) and Ni(II) were prepared by inter complex reaction between the corresponding metal complexes of 2-hydroxy 1- Napthaldehyde and 2-amino 3-hydroxy pyridine. The complexes were characterized by elemental analysis and estimation of metals. Thermal behavior of the complexes was studied by TG-DTA analysis. Structures of the complexes were elucidated by spectroscopic methods like, infrared spectroscopy, UV-visible spectroscopy, mass spectrometry and 1HNMR spectroscopy. The powder X-ray diffraction study suggested crystalline nature of the complexes with tetragonal geometry. Magnetic moments and electronic spectra reveal tetrahedral structure of the complexes. Antibacterial activity of complexes were studied against Gram-positive bacteria, Staphylococcus aureus, Bacillus subtilis and Gram-negative bacteria, Salmonella typhi, Escherishia coli by agar cup method. Their antifungal activity was also tested against Aspergillus niger, Penicillium chrysogenum, Fusarium moneliforme and Aspergillus flavus by poison plate method using potato dextrose agar medium at one percent concentration. All complexes show considerable antimicrobial activity.

Keywords: Schiff base, inter-complex reaction, binuclear complex, biological activity

Mixed metal complexes differ from traditional complexes in the sense that they are having at least two different or same metals associated with two different ligands (metal organic ligands).the presence of more than one type of ligands in a complex increases chances of variation in properties expected for the complex .this makes the researcher interested in the synthesis of mixed metal complexes with varying properties.[1] Synthesis and characterization of mixed metal complexes is gaining importance day by day .The increased interest in this research area has motivated many researchers to get involved in this field. In recent years many publication are devoted to synthesis and characterization of mixed metal as well as ligands complexes.[2-6] The Schiff base complexes were also used as drugs and they possess a wide variety of antimicrobial activity against bacteria , fungi and it also inhibits the growth of certain type of tumors.[7-8] The complexes formed by coordination with metal ions, have the tendency to coordinate further orreact with other complexes ,then they may act as metal organic ligand (MOL). This MOL when allowed to react with metal ions result in the formation of mixed metal complexes. the donar atoms are unable to coordinate with the same metal ions duo to steric factors. This unutilized functionality is drawn on another metal ion forming poly nuclear complex [9-11]

Due to the reaction between coordinated amino and aldehyde groups, Schiff base were formed. The imine nitrogen of the Schiff base was allowed to coordinate with the metal nearby while the deficiency created at the metal ion on aldehyde end was sufficed by aquo-ligands liberated during imine formation. The resultant binuclear complex thus has one of the metal ions in di aquo form. When the metal ion in the reacting complexes was different, the resultant complex was mixed metal complex.

MATERIAL AND METHOD

Experimental

2-amino 3-hydroxy pyridine and 3-ethoxy salicylaldehyde (>99.0%) were purchased from S. D. Fine Chemicals. Nickel acetate, copper acetate, sodium hydroxide and solvents (>99.0%) were purchased from E-Merck Ltd, Mumbai (India).The purification was done according to the needs through known procedures. Elemental analysis (C, H, N & O) was done using Perkin Elmerseries II, 2400 CHNS/O Analyzer. The metal content of the complexes were determined by EDTA titration method in case of $Cu_2(SB)_2(H_2O)_2$.The amount of nickel from homo binuclear complex $Ni_2(SB)_2(H_2O)_2$ was determined by the complex formation of Ni (II) with dimethylglyoxime. The individual metal estimation of heterodinuclear complex, $CuNi(SB)_2(H_2O)_2$was done by separating the copper from nickel. Solution containing a mixture of metal ions was first treated with H_2S gas under mild acidic condition at600c. The precipitated copper sulphide was dissolved in a minimum quantity of concentrated hydrochloric acid and an aqueous solution of Cu (II) was prepared by adding appropriate amount of water .The copper was then determined by titrating against standard EDTA solution. Ni (II) was estimated as dimethylglyoxime complex. IR spectra were recorded on FTIR spectrophotometer model RZXC Perkin-Elmer in the range (4000-400 cm-1), 1H NMR spectra were recorded on BruckerAvance II at 400 MHz using tetramethylsilane as an internal standard. Electronic spectra was recorded on Shimadzu 1800 spectrophotometer using DMSO as solvent. Mass spectra were recorded on Waters, Q-TOF Micro Mass (LC-MS). Magnetic data

ISSN 2394 - 7780

at room temperature were collected on Guoy balance. Mercury (II) tetrathiocynato cobalt acetate was used as a calibrant. Diamagnetic contributions were calculated for each compound by Pascal's constants. TG/DTA analysis was performed in an inert nitrogen atmosphere on Perkin Elmer STA 6000. Heating rate was 10o/min. x-ray diffractogram was scanned on Bruker AXC Ds.

Synthesis of Metal Complexes

The method used in the synthesis of metal complexes consists of following three steps. In the first step, 2-amino-3-hydroxy pyridine (2A-3OH-PYR), (0.404gm) in absolute alcohol (~20mL) was prepared and a solution of copper acetate/nickel acetate (0.399g/0.497g) in rectified spirit (20mL),were mixed, stirred for an hour to obtain a four coordinated complex, M(2A-3OH-PYR)2 in solution as shown in equation-1,

M+2(2A-3OH-PYR) M(2A-3OH-PYR)2 [1]

In the second step,2-hydroxy1-napthaldehyde(0.2M) in absolute alcohol (~20ml) was prepared and a solution of metal acetate (0.1M) in rectified spirit(~20ml), were mixed and stirred for an hour to obtain a four coordinated complex viz. M'(2OH-1 Napthaldehyde)$_2$ in solution. The reaction is shown in equation 2.

M'+ (2-OH-1Napthaldehyde)$_2$ → M'(2OH-1Napthaldehyde)$_2$ [2]

In the last step, hot solution of M(2A-3OH-PYR)$_2$ was added to the refluxing solution of M'(2OH-1 Napthaldehyde)$_2$.The reaction mixture was refluxed for 6-hours in a water bath to obtain the product under slightly alkaline condition created by sodium hydroxide. The precipitate was then filtered, washed with ethanol and dried over fused $CaCl_2$. The third step of the reaction is depicted in equation 3.

M(2A-3OH-PYR)$_2$ +M' (2OH-1Napthaldehyde)$_2$ → MM'(SB)$_2$(H$_2$O)$_2$ [3]

All complexes were prepared by the above discussed method .The heterobinuclear complex, CuNi (SB)$_2$(H$_2$O)$_2$was obtained by using M=Cu(II) and M'=Ni (II) respectively, whereas homobinuclear complexes,Ni$_2$(SB)$_2$(H$_2$O)$_2$and Cu$_2$(SB)$_2$(H$_2$O)$_2$were obtained when both M and M'=Ni (II) and Cu (II) respectively. The melting points of all the complexes were found to be higher than 300 oC.

RESULTS AND DISCUSSION

The complexes are stable in air and insoluble in both polar and non polar solvents but sparingly soluble in polar solvents like DMF and DMSO. Their molar conductivities are in a range that indicate nonelectrolytic nature of the complexes. Elemental analysis data (Table 1) obtained from experimental results was in agreement with the theoretical values within the limit of experimental error and confirmed the proposed formula of the complexes.

FT-IR Spectrum

The IR spectra of reactant mononuclear complexes and their binuclear complexes were compared with each other in order to investigate mode of chelation in binuclear complexes. The spectra of the precursor complex derived from 2-amino-3-hydroxy pyridine, (2A-3OH-PYR)2showed a strong absorption band at 1551 cm-1 was assigned to coupled vibrations of NH_2 bending and stretching[13,14]. Bands observed at 3322cm-1 and 3230cm-1 were attributed to NH_2 asymmetric and symmetric stretching frequencies respectively. A weak band at 556 cm-1 was observed in the complex was assigned to the M-N stretching frequency. FT-IR spectra of other reactant complex derived from 3-ethoxy salicylaldehyde, M'(3E-SAL)$_2$ exhibited a broad and strong band at 1630 cm-1 was assigned to C=O stretching in the complex. A weak band at 456 cm-1observed in the spectra was due to M-O stretching frequency. A band showed by both the complexes in the range3030- 3065 cm-1may be due to aromatic ring vibrations. The spectra of both the reactant complexes did not show any band corresponding to the presence of coordinated water molecule. In binuclear complex, MM'(SB)$_2$ (H$_2$O)$_2$,peak due to C=O stretching (1630 cm-1), NH_2 bending and NH_2 stretching (1551 cm-1) was found to be absent . Emergence of a new sharp peak at 1605-1608 cm-1 is the evidence of imine formation. New stronger bands appearing at 560-570 cm-1 and 450-460 cm-1 were assigned to M-N and M-O stretching frequencies. A band seen at 1203cm-1 may be due to C-O stretching. A sharp and strong peak between 1600-1619 cm-1 may be attributed to C=N stretching was in accordance with proposed structure of the complex. supported by the conclusions drawn from the elemental analysis which agree with the molecular formula assigned to these complexes.

Table-1

System	ν(C=N) cm^{-1}	ν (O-H) cm^{-1}	ν(M-O) cm^{-1}	ν(M-N) cm^{-1}
M(2OH-1 Napthaldehyde)$_2$ Ligand			572	

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M'(2A-3OH-PYR)$_2$ Ligand			526	472
Cu_2 $(SB)_2$ $(H_2O)_2$	1600	3405	528	466
$Ni_2(SB)_2$ $(H_2O)_2$	1631	3437	518	465
CuNi $(SB)_2$ $(H_2O)_2$	1558	3404	569	455

Mass and 1H-NMR Spectra of the Complexes

The molecular weights of all the binuclear complexes is exactly equal to that calculated theoretically from the proposed structures. These results are further supported by the conclusions drawn from the elemental analysis which agree with the molecular formula assigned to these complexes.

Formation of dinuclear metal complexes and their structure is confirmed by ^{1}HNMR spectral study of representative metal complexes .The result obtained was used to interpret the proton environment and number of protons present in the sample. The ^{1}HNMR spectra of complex are presented in Fig 2 where as the characterization of particular protons are presented in Table 3

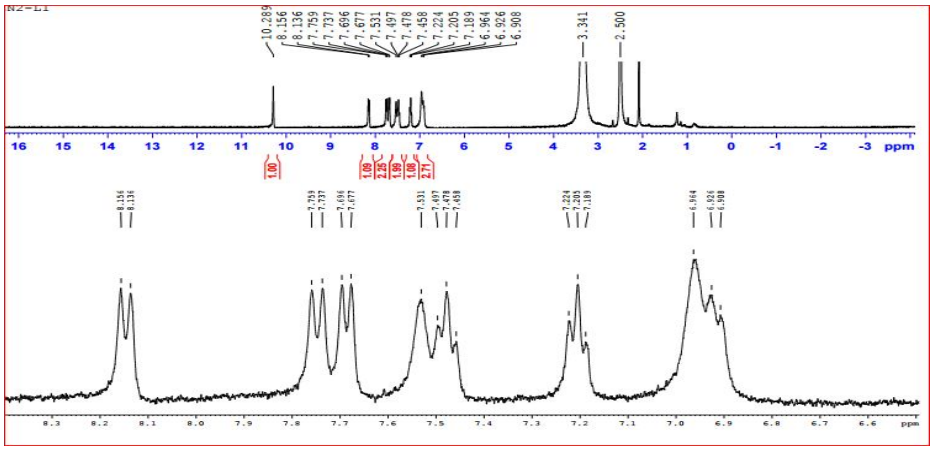


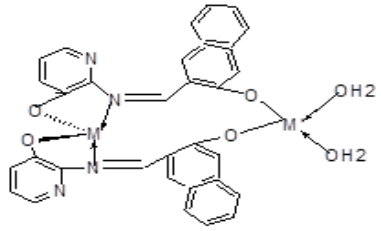
Figure-2.14: $Ni_2(SB)_2(H_2O)_2$

Table-2

Chemical Shift 'δ'ppm	Numbers of Protons	Multiplicity (Splitting)	Assignment
6-8	18H	M	Aromatic proton
10.32	1H	S	Imine proton

Electronic Spectra and Magnetic Studies

All the complexes showed absorption peaks in the near UVregion and these high intensity bands were due to transitions in the aromatic group of ligand. The homodinuclear Ni_2 $(SB)_2(H_2O)_2$ complex is paramagnetic in nature. The electronic spectra of Ni_2 $(SB)_2$ $(H_2O)_2$ shows bands at 20,026 cm^{-1} (454) 25,477 cm^{-1} (392) assigned to $^5T_2g\rightarrow{}^5Eg$ $^6A_1g\rightarrow{}^4A_1g$ and charge transfer transitions indicating tetrahedral geometry around the metal ions. Cu_2 $(SB)_2$ $(H_2O)_2$ complex is diamagnetic. The spectra of Cu_2 $(SB)_2$ $(H_2O)_2$ complex, bands observed at 21367 cm^{-1}(448), 25,188 cm^{-1}(395) assigned to $^6A_1g\rightarrow{}^4A_1g$ and charge transfer transition indicating tetrahedral geometry around Cu (II) metal ions. The spectra of hetero dinuclear complex CuNi $(SB)_2$ $(H_2O)_2$ complex shows UV bands at 21,367cm^{-1} (468), 25, 188 (397), 27642 (362). 28, 248 cm^1 (354) assigned to $^6A_1g\rightarrow{}^4A_1g$ and charge transfer transitions indicating tetrahedral geometry around Cu(II) and Ni(II) metal ions. It was difficult to find the effective magnetic moment per each ion whereas the total effective magnetic moment was high .The higher value of the effective magnetic moment suggests the presence of some ferromagnetic interaction at room temperature [16] On the basis of physico-chemical and spectral study, following structure may be proposed for the complexes.



Structure of the Complex Where M & M' = Cu(II), Ni(II),

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Table-3

System	Mol. Wt. g/mole	Color	% Yield	μeff per ionB.M	Elemental Analysis % Found (Calculated)					
					C	H	N	O	Ni (II)	Cu (II)
$Ni_2(SB)_2(H_2O)_2$	664	Yellow	81	3.59	50.20 (50.67)	3.21 (3.31)	8.21 (8.44)	9.44 (9.64)	17.50 (17.68)	
$Cu_2(SB)_2(H_2O)_2$	673	Dark brown	80	*	41.00 (41.15)	2.20 (2.21)	6.66 (6.71)	17.60 (17.64)		18.64 (18.87)
$CuNi(SB)_2(H_2O)_2$	668	Yellowish green	74	*	50.20 (50.30)	3.20 (3.29)	8.29 (8.37)	9.49 (9.57)	8.89 (8.87)	9.48 (9.51)

Powder X-ray diffraction data

The $Ni_2(SB)_2(H_2O)_2$ complex was used to study the X-ray powder diffraction. Diffractogram is presented in Fig. 5.53. The crystallographic data and the indexed powder diffraction data is presented in Table 5.15. The standard deviation observed is within the permissible limit. The observed density for Ni2(SB)2(H2O)2) complex is 0.1236 gcm-3 while calculated density from Z value and unit cell volume for complex is 0.11823.gcm-3 respectively. The porosity percentage calculated from the observed and calculated densities was found to be 4.36. The crystal system was found to be tetrahedral with 2 molecules per unit cell having probable space group P. The lattice parameters reported are a = 10.2365Å b = 10.2365Å c = 17.85378Å $\alpha = \beta = \gamma = 90^{\circ}$

The X-ray powder diffractogram suggest that Ni(II) complex under investigation crystallize with tetrahydral crystal system with probable space group P.

Indexed X-ray Diffraction Data of $Ni_2(SB)_2(H_2O)_2$ Complex

Peak No.	2θ (observed)	2θ (calculated)	d (observed)	d (calculated)	Miller indices of Planes			Relative intensities (%)
					h	K	L	
1	2.54558	2.44967	1783766	18.02216	0	0	1	100
2	7.43030	7.36705	6.01375	6.00739	0	0	3	52
3	8.73578	8.63559	5.11456	5.13140	2	0	0	39
4	9.65810	9.58260	4.62635	4.62753	1	1	3	28
5	12.27749	12.2685	3.64059	3.62844	2	2	0	16
6	1570137	15.70137	2.84639	2.84639	3	2	0	15

Unit cell data and crystal lattice parameters

a (A°) =10.2365

b (A°) =10.2365

c (A°) 17.85378

α =90°

β = 90°

γ=90°

Standard deviation (%) = 0.068

Volume (V) = 1898.18166$A^{\circ 3}$

Density (obs.) =0.1236 gcm^{-3}

Density (cal.) =0.11823 gcm^{-3}

Z = 2

Crystal system= Tetrahedral

Space group = P

Porosity = 4.36%

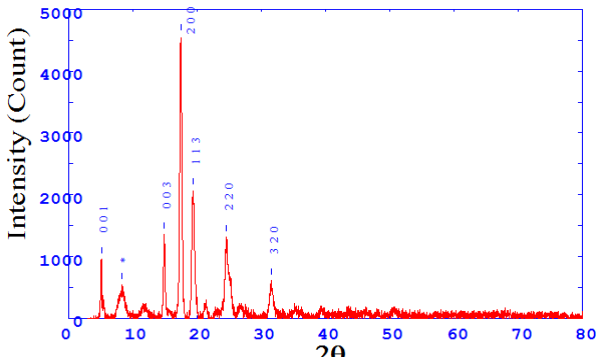

Fig: $Ni_2(SB)_2(H_2O)_2$

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Table-5: Report for Antibacterial Testing
Medium-Nutrient Agar Method –Agar cup method Dose of compound -1% cup size-10mm

Sr. No.	Test Compound	Inhibition Zone (nm)			
		Escherishia coli	Salmonella typhi	Staphylococcus aureus	Bacillus subtilis
	Penicillin	14 mm	20 mm	36 mm	28 mm
01	$Ni_2(SB)_2(H_2O)_2$	15	-ve	20	16
02	$Cu_2(SB)_2(H_2O)_2$	18	20	20	20
03	$CuNi(SB)_2(H_2O)_2$	16	20	20	-ve

Table-6: Report for Antifungal Testing

Test compound	Inhibit			
	Aspergillus Niger	Penicillium chrysogenum	Fusarium Moneliforme	Aspergillus Flavus
Griseofrin	-ve	-ve	-ve	-ve
$Ni_2(SB)_2(H_2O)_2$	RG	RG	RG	RG
$Cu_2(SB)_2(H_2O)_2$	RG	RG	-ve	RG
$CuNi(SB)_2(H_2O)_2$	RG	RG	RG	RG

Antimicrobial activity of the complexes
The anti bacterial activity of the complexes were tested against the standard microbial strains.

Escherishia coli, Salmonella typhi, Staphylococcus aureus and Bacillus subtilis by agar cup method at fixed concentration of 1%[21]and compared with known antibiotic viz Penicillium (Table 5). For fungicidal activity, compounds were screened in Vitro against Aspergillus niger, penicillin chrysogenum, Fusarium moneliforme, Aspergillus flavus by poison plate method with potato dextrose agar media. The complexes were tested at 1% concentration in DMSO and compared with control (Table 6)

The complexes individually show varying degrees of inhibiting effects on the growth of the bacterial species. All complexes show activity against Gram-negative bacteria Escherishia coli however the activity of these complexes are considerably high than that of standard drug. but copper containing complexes are show activity which is exactly equal to standard drug. All complexes show activity against Gram-positive bacteria Staphylococcus aureus however the activity of these complexes are considerably less than that of standard drug. The complexes except CuNi $(SB)_2(H_2O)_2$ show activity against Gram-positive bacteria Bacillus subtilis however the activity of these complexes are considerably less than that of standard drug.

Result of antifungal testing indicate that the all the bimetallic complexes show moderate to high antifungal activity.

CONCLUSION

In the present work we have been synthesized metal organic ligands and their binuclear metal complexes. The synthesized compounds were characterized by various analytical techniques. .Magnetic study reveals the paramagnetic nature of complexes. Solution conductivity suggests the non electrolyte nature of complexes. The XRD pattern indicate the crystalline nature of the complexes. ^{1}HNMR , mass spectra and UV. Study are in good agreement with the proposed structure of the complex. All the complexes show high antibacterial activity and moderate to high antifungal activity.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019
ISSN 2394 - 7780

WORK LIFE BALANCE

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ABSTRACT
Work Life balance has become an area of concern not only for the employee but also for the organisation as it impacts both in a big way. With the changing business environment change in work place is inevitable causing stress and insecurities in the lives of employees. It had led to reduction in employee productivity and increase in cost for employers resulting in losses for the organisation. Studies have been taken up by various organisations and some governments too to help understand the issues and frame policies and actions which may be beneficial to create a healthy work life balance that can benefit all. This paper attempts to understand the changing situation of work life and the attempts made by organisations and governments to improve work life balance.

Keywords: Work Life Balance, Burnout, stress, conflicts, millennials, initiatives.

RESEARCH METHODOLOGY
The present research paper is based on secondary data which has been collected from books, newspapers, websites and research journals.

INTRODUCTION
Work Life balance is a major component of leading a fulfilling and happy life. It is the ability to enjoy all aspects of life that is work, family, friends and self. A person plays multiple roles in personal & professional life and has varied goals.

Work life Balance -A comfortable state of equilibrium achieved between an employee's primary priorities of their employment position and their private life style. (Business Dictionary.com).

Work life balance is a term used to describe the balance that an individual needs between time allocated for work and other aspects of life.

- A Healthy Work-Life balance exists when there is Satisfaction with functioning at work and home with minimum role conflict Absence of Work-Life Conflict or spillovers.
- It is reflected in the employee's personal and professional life. Being free from conflicts and increase in productivity.
- The employee is able to balance his career aspirations, fulfil his family responsibilities and achieved self-contentment. There are four important aspects of an employees life namely work, family, friends and his own self.
- The employee allocate his time and energy to fulfil his responsibilities towards all these aspects which are important for him.

When the employee is able to balance his work and life it leads to contentment, stability and congenial work home atmosphere. For the organisation it means a productive, healthy employee good work environment and increase in efficiency.

FACTORS THAT LEAD TO WORK LIFE IMBALANCE
There are many factors that affect the work and life of an employee which have become a cause of concern for the employee, his organization and society in general. Some are the major factors are mentioned below:

- ✓ Globalisation of economies has led to changing Landscape, Demographic and Social changes.
- ✓ Increasing use of technology at work place has its own advantages at the same time limitations. Removal of restriction of place and time leading to 24X7 accessibility to employers and clients.
- ✓ Increasing family responsibilities and work demands. Extreme ambition, unrealistic expectations, desperate for perfection has increased pressure in the employees.
- ✓ Dynamic economy creating capacity crunch of people with right skills. This increases the work responsibilities on the middle and higher level managers in the organisation.

Work Life Imbalance has affected the employees in a negative way by increase in stress, frustration, Health issues, physical and mental burnout and conflicts.

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Similarly for the employers it has resulted in Low productivity, absenteeism, high cost and loss in terms of finance and talent in the organisation.

- **Benefits of Work Life To Employees:**

✓ Improve on the-job and off-the-job relationship.

✓ Reduces stress and provide self-satisfaction.

✓ Improvements in ones' health and well-being.

✓ More value and balance in daily life

- **Benefits of Work Life To Organization:**

✓ Reduces absenteeism and Increased productivity.

✓ A reduction in staff turnover and recruitment costs.

✓ Improved morale and brand image of the organization.

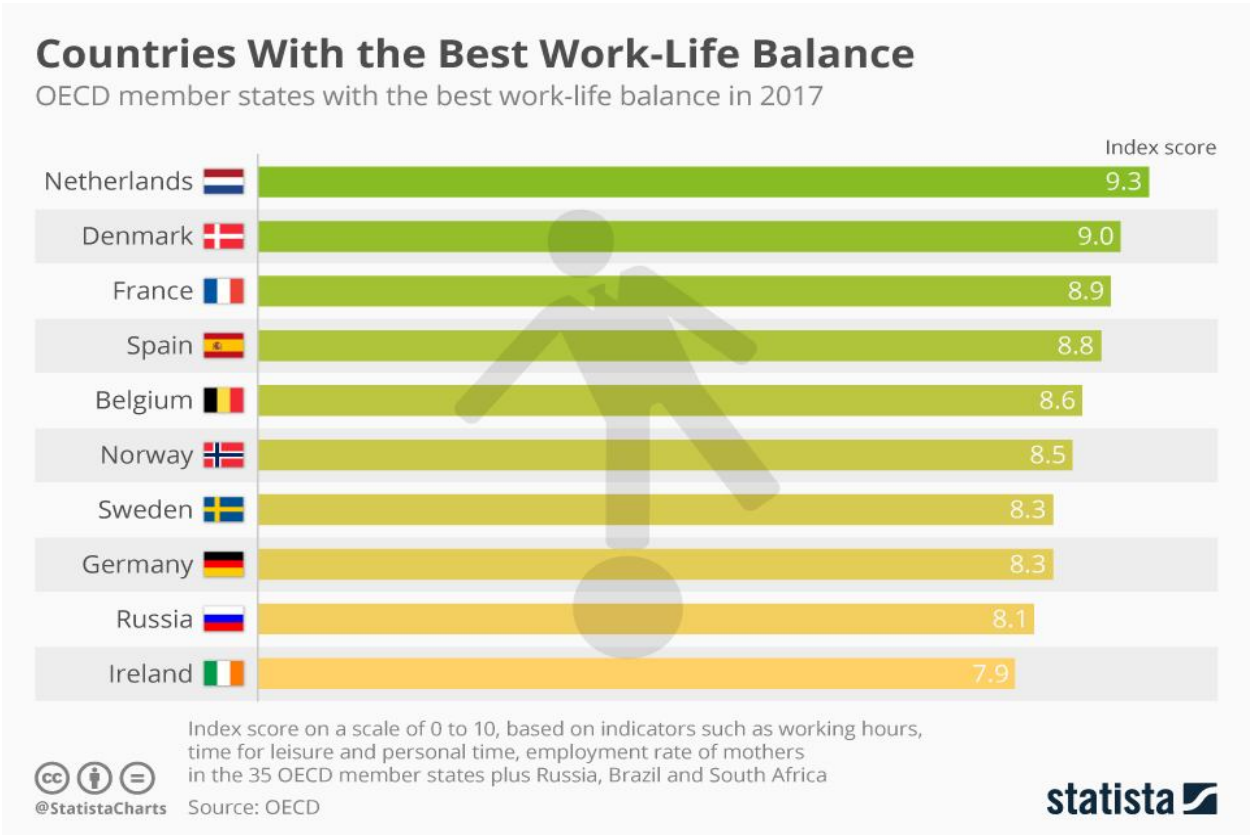
✓ Better team work and communication.

Many countries have policies and norms for protecting the rights of employees and preventing exploitation by the employers.

Some developed countries have realized importance of work life balance and passed legislation that promotes it for their citizens.

- Many developed countries have laws that protect the employees right to healthy work life balance.
- France has passed a law that allows employees to disregard work email when they're not in the office.
- France has 25 federally mandated vacation days.
- The European Union has passed a Working Time Directive that enforces a maximum 48-hour workweek, including overtime.

The European countries are much more aggressive than the United States on this front. One result of this is the fact that in Germany and France, employees take almost all of their time off. In the United States, however, employees use only 73 percent of their available time off.



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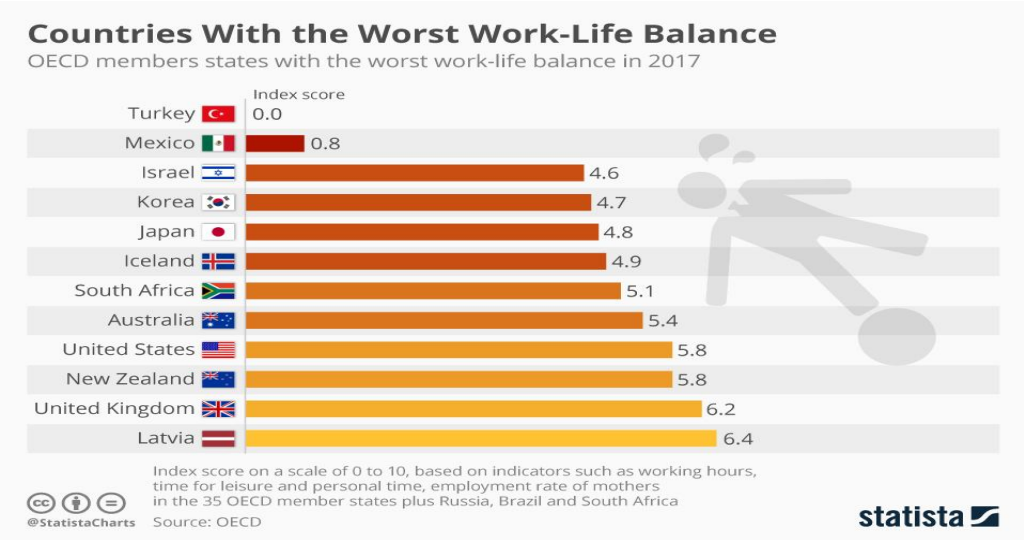


According to the OECD data which is gathered from United Nations Statistics and National Statics office of different countries. Netherlands enjoys the best work life balance. Only 0.5 % employees work 50 hours or more as compared to the average of 13% among all OECD nations. The people of Germany on an average work for 26 hours a week. In France since 2002 the average has been 35 to 39 hours a week. About 50% of employee of England, 63% of Norway and 58% in Denmark work between 35 to 39 hours. USA stood at 30th position among 38 countries. Turkey scored the lowest with 56.7% employees working 40 to 49 hours a week followed by Mexico where on average employees work for 45 hours a week. Besides hours spent by employees at work, time for leisure, personal time, employment rate of mothers was also considered while calculating the index score.

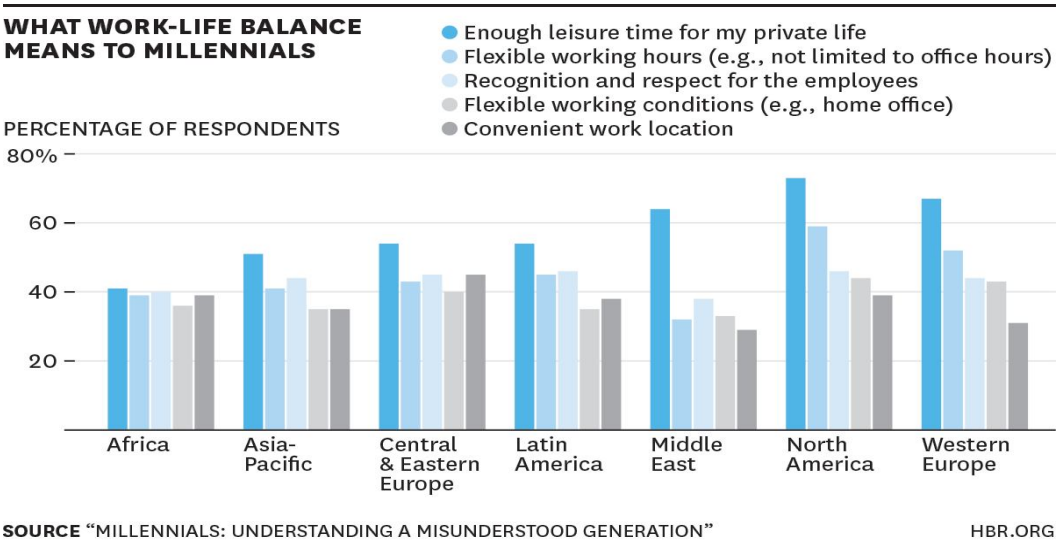
Another data by UBS mentions India as the country where employees put in maximum working hours that is above 52 hours a week followed by Mexico and China.

The world Happiness report lists the same countries ranking high on work life balance as the happiest country in the world Denmark, Switzerland, Norway and Finland have enjoyed top places in the ranking.

MANY REASONS CAN BE CONCLUDED FROM THE ABOVE DATA

1. Developed countries have better work life balance and also rank high on the happiness index.
2. These countries are techno savvy and also more aware about the importance of the issue.
3. The future work force and consumer market is dependent upon the work environment and family and work model.
4. Spending more time at work does not lead to increase in productivity but balancing work and life can. There is lack of formalisation of policies and practices among different sectors and organisations.

WHAT WORK-LIFE BALANCE MEANS ACCORDING TO MILLENNIALS



ISSN 2394 - 7780

The millennials are those born between 1980s to 2000. The millennial generation according to the survey conducted across all continents desires more leisure time for themselves as compared to all the other perks as their major criteria of work life balance. This is food for thought for the corporate sector which can plan accordingly. They are keen on career paths that will support their lifestyles. Thus there are companies that try to make workspace millennial friendly and overcompensate by having gaming rooms, bean bags, coffee breaks etc.

FOOD FOR THOUGHT

- "Don't work for your Company work for yourself and your family."
- "Employees in India have a tendency to overcomeit." (Vikram Net Apps India).
- "Climbing career Ladder faster and bagging fatter pay cheques leads to neglecting personal life." (Margarita Rodrigues Directi).
- "Indian Education System don't lend cultivation of hobbies. Our extra office activities are limited to movies and dining. Only place where time investment creates value its work place. Once that perception changes people will focus on balance. (Diwakar Kaza President, Lupins Ltd)

CONTRIBUTION OF CORPORATE SECTORS TO WORK LIFE BALANCE

The corporate employees are dealing with lot of problems and challenges for managing work and life.

They have to deal with tough competitive and dynamic business environment. They are working against different time zones and continuous technological up gradations.

They face uncertainties at work place and long working hours that creeps into their family time. They are left with less time, energy and enthusiasm for other aspects of their life.

Recognition the challenging circumstances of the employees and its impact on the company initiatives have been taken up by corporate sector in India to improve the work life balance of employees. Flexible timings, work from home, Wellness centre for physical and mental health, counselling personal and career, employee assistance programme, reading library, gymnasium, free classes and courses, sabbatical, extended leaves, day care centres, telecommuting, doctor on call, paid holidays. Companies had been coming up with unique programmes to attract and retain talented employees within the organisation. They are designing tailor made policies for staff who are in different life stages and have variant needs. Some organisations provide core benefit common to all employees and optional benefits to choose from. They even design unique names for the schemes.

CHALLENGES FOR WORK LIFE BALANCE

1. Work life balance is not static but will vary over a period of time and even on day to day basis.
2. It may be different for different industry and individuals in different phases of life.
3. Individuals may have different priorities in life so there is no perfect size that fits all in work life balance.
4. Employees and employers must together sincerely understand and cooperate in framing policies and implementing them.
5. Maintaining flexibility in work environment, improving overall work place experience for employees and a healthy work culture in the organisation.
6. Employees should take efforts to delink when needed, avoid spillover effect and manage work life conflicts with all the available resources at his disposal.
7. The government should recognise the importance of work life balance on Human Resource development and frame policies for wellbeing of employees is public and private sector.

CONCLUSIONS

Work life balance is crucial for the well-being of the individual employee, the organisation, the business environment and for the nation.

Some developed countries have taken conscious efforts to improve the work life balance of their citizens by enforcing legislation whereas others have yet to take cognition of the same.

Many business organisations have realised the impact of healthy work environment for their employees and taken up initiatives to improve the work place experience for their employees.

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Since it is estimated that the millennials will take up 75% of the jobs by 2025 organisations will have to redefine their WLB policies to suit their requirements.

Flexible tailor made policies to cater to the employees life stages and lifestyles helps in creating better employer, improves employee engagement and loyalty , provides distinct value proposition, provides competitive edge in recruiting and retaining talent in the organisation.

It is important to create awareness at all levels regarding the importance of work life balance for a happy and productive work force and citizens of the country.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019
ISSN 2394 - 7780

PREPARATION AND PROPERTIES OF BINUCLEAR SCHIFF BASE COMPLEXES OF FE(II) ZN(II)AND MN(II)INTER –COMPLEX REACTION

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ABSTRACT
Homo and hetero binuclear Schiff base complexes of Fe(II),Zn (II) and Mn (II) were prepared by inter-complex reaction between the corresponding metal complexes of 3-ethoxy Salicyaldehyde and 2-amino 3-hydroxy pyridine. The complexes were characterized by elemental analysis and estimation of metals. Thermal behavior of the complexes was studied by TG-DTA analysis. Structures of the complexes were elucidated by spectroscopic methods like, infrared spectroscopy, UV-visible spectroscopy, mass spectrometry and ^{1}HNMR spectroscopy. The powder X-ray diffraction study suggested crystalline nature of the complexes with tetragonal geometry. Magnetic moments and electronic spectra reveal tetrahedral structure of the complexes. Antibacterial activity of complexes were studied against Gram-positive bacteria, Staphylococcus aureus, Bacillus subtilis and Gram-negative bacteria, Salmonella typhi, Escherishia coli by agar cup method. Their antifungal activity was also tested against Aspergillus niger, Penicillium chrysogenum, Fusarium moneliforme and Aspergillus flavus by poison plate method using potato dextrose agar medium at one percent concentration. All complexes show considerable antimicrobial activity.

Keywords: Schiff base, inter-complex reaction, binuclear complex, biological activity

INTRODUCYION

Mixed metal complexes differ from traditional complexes in the sense that they are having at least two different or same metals associated with two different ligands (metal organic ligands) the presence of more than one type of ligands in a complex increases chances of variation in properties expected for the complex .this makes the researcher interested in the synthesis of mixed metal complexes with varying properties.(1) Synthesis and characterization of mixed metal complexes is gaining importance day by day. The increased interest in this research area has motivated many researchers to get involved in this field. In recent years many publication are devoted to synthesis and characterization of mixed metal as well as ligands complexes.(2-6) The schiff base complexes were also used as drugs and they possess a wide variety of antimicrobial activity against bacteria, fungi and it also inhibits the growth of certain type of tumors.(7-8) The complexes formed by coordination with metal ions, have the tendency to coordinate further orreact with other complexes ,then they may act as metal organic ligand (MOL). The donar atoms are unable to coordinate with the same metal ions duo to steric factors. This unutilized functionality is drawn on another metal ion forming poly nuclear complex (9-11)

Due to the reaction between coordinated amino and aldehyde groups, Schiff base were formed. The imine nitrogen of the Schiff base was allowed to coordinate with the metal nearby while the deficiency created at the metal ion on aldehyde end was sufficed by aquo-ligands liberated during imine formation. The resultant binuclear complex thus has one of the metal ions in di aquo form. When the metal ion in the reacting complexes was different, the resultant complex was mixed metal complex.

EXPERIMENTAL

Reagents: 2-amino 3-hydroxy pyridine and 3-ethoxy salicyaldehyde (>99.0%) were purchased from S.D. Fine Chemicals. Nickel acetate, copper acetate, sodium hydroxide and solvents (>99.0%) were purchased from E-Marck Ltd, Mumbai (India).The purification was done according to the needs through known procedures.

Measurements:. Elemental analysis (C, H, N& O) was done using Perkin Elmer, series II,2400 CHNS/O Analyzer. The metal content of the complexes were determined by EDTA titration method after decomposition of the metal complexes with an acid mixture of $HCLO_4$, H_2SO_4 andHNO_3 (1:1.5:2.5) in case of $Fe_2(SB)_2(H_2O)_2$.The amount of Fe(II)from homo dinuclear complex of Fe(II) Viz $Fe_2(SB)_2(H_2O)_2$ was determined by by EDTA titration method $FeZn(SB)_2(H_2O)_2$was done by separating the iron from Zinc. Solution containing a mixture of metal ions. before precipitating iron as hydroxide, add 5grms of NH_4Cl to retain zinc in the solution. Now estimate the iron as iron oxide gravimetrically. Reserve the filtrate and washings for volumetric estimation of zinc by titrating against standard EDTA solution volumetrically. In same manner seperation and estimation metals of $FeMn(SB)_2(H_2O)_2$ can be done by separating iron as iron oxide gravimetrically and Mn(II) volumetrically by titrating against standard edta solution volumetrically. All chemicals used were of analytical grade and used without purification. All metal salts were purchased from SD fine chemicals. Elemental analysis (C, H, N, O) were performed on Perkin Elmer-2400. IR spectra were

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recorded on FTIR spectrophotometer model RZXC Perkin-Elmer in the range (4000-400 cm-1), 1H NMR spectra were recorded on BruckerAvance II at 400 MHz using tetramethylsilane as an internal standard. Electronic spectra was recorded on Shimadzu 1800 spectrophotometer using DMSO as solvent. Mass spectra were recorded on Waters, Q-TOF Micro Mass (LC-MS). Magnetic data at room temperature were collected on Guoy balance. Mercury (II) tetrathiocynato cobalt acetate was used as a calibrant. Diamagnetic contributions were calculated for each compound by Pascal's constants. TGA/DT analysis was performed in an inert nitrogen atmosphere on Perkin Elmer STA 6000. Heating rate was 10^{o}/min. x-ray diffractogram was scanned on Bruker AXC $D_{s.}$

SYNTHESIS OF METAL COMPLEXES

The method used in the synthesis of metal complexes consists of following three steps. In the first step, 2-amino-3-hydroxy pyridine (2A-3OH-PYR), (0.404gm) in absolute alcohol (~20mL) was prepared and a solution of iron/Manganese/Zinc acetates (0.399g/0.497g) in rectified spirit (20mL),were mixed, stirred for an hour to obtain a four coordinated complex, $M(2A\text{-}3OH\text{-}PYR)_2$ in solution as shown in equation-1,

$$M+2(2A\text{-}3OH\text{-}PYR) \rightarrow M(2A\text{-}3OH\text{-}PYR)_2 \quad 1$$

In the second step,3-ethoxy salicylaldehyde(3E-SAL),(0.665 g) in absolute alcohol (~20ml) was prepared and a solution of iron/manganese/zinc acetates (0.5g, 0.1m) in rectified spirit(~20ml), were mixed and stirred for an hour to obtain a four coordinated complex, $M'(3E\text{-}SAL)_2$ in solution. The reaction is shown in equation 2.

$$M'+ (3E\text{-}SAL)_2 \rightarrow M' (3E\text{-}SAL)_2 \quad 2$$

In third step, a solution of $M (2A\text{-}3OH\text{-}PYR)_2$ was added to the refluxing solution of $M' (3E\text{-}SAL)_{2.The}$ reaction mixture was refluxed for 6-hours in a water bath to obtain the product under slightly alkaline condition created by sodium hydroxide. The precipitate was then filtered, washed with ethanol and dried over fused $CaCl_2$. The third step of the reaction is depicted in equation 3.

$$M(2A\text{-}3OH\text{-}PYR)_2 + M' (3E\text{-}SAL)_2 \rightarrow MM'(SB)_2(H_2O)_2 \quad 3$$

All complexes were prepared by the above discussed method .The heterodinuclear complex, , whereas homobinuclear complexes,$Fe_2 (SB)_2(H_2O)_2$, $FeZn(SB)_2(H_2O)_2$and $FeMn(SB)2(H_2O)_2$ were obtained when M=Fe and M'=Zn (II),Mn (II) respectively in heterodinuclear complexes and M& M'=Fe in mononuclear complex. The melting points of all the complexes were found to be higher than 300^{0}C.

RESULT AND DISCUSSION

IR Spectra : The IR Spectra of reactant complexes and dinuclear complexes displayed some similarities and dissimilarities, Significant IR bands are shown in Table A. The spectra of the reactant complex $M(2H\text{-}3AP)_2$ Showed a strong absorption at 1551 $^{cm-}$frequency ^{1} which was assigned to coupled vibrations of NH_2 bending and stretching (12-13)absorptions at 3330' were attributed to NH_2 asymmetric and symmetric stretching frequency respectively .A weak band at 556 cm-^{1} was observed in the complex which was assigned to the M-N stretching .

IR spectra of reactant complex $M'(3E\text{-}S)_2$ exhibited a broad band and strong peak at 1530 cm^{-1} which was assigned to C=O stretching in the complex A weak band at 456 cm^{-1} 'observed in the spectra was due to M-O stretching frequency. Both the complexes showed a band in the region of 3330 cm^{-1}& 3365 cm^{-1} arising due to aromatic ring vibrations the spectra of both the reactant complexes did not show a broad band in the region of 3400 cm^{-1} which indicated the absence of any coordinated water molecule .

In the spectra of resulting dinuclear complexes viz $MM'(SB)_2 (H_2O)_2$ peak due to C=O stretching (1530 cm^{-1}) NH_2 bending and NH_2 stretching (1551 cm^{-1}) was found to be absent .New stronger bonds appearing at 560-570 cm^{-1} and 450-485 cm^{-1} were assigned to M-N and M-O stretching frequencies. A band seen at C-O stretching at 1203cm' a sharp and strong peek between 1600-1619 cm^{-1} which may be attributed to C=N stretching was in accordance with proposed structure of the complex.

Table-1: FT-IR Spectral frequencies of Complexes

System	VC=N cm^{-1}	VO-H cm^{-1}	VM-O cm^{-1}	VM-N cm^{-1}
$M(3H\text{-}2AP)_2$			453	556
$M'(3E\text{-}S)_2$			456	
$Fe_2(SB) (H_2O)_2$	1600	3436	463	535
$FeZn (SB)_2(H_2O)_2$	1603	3419	485	521
$FeMn(SB)_2 (H_2O)_2$	1600	3423	463	547

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ELECTRONIC SPECTRA AND MAGNETIC STUDIES

All the complexes showed absorption peaks in the near UVregion and these high intensity bands were due to $\pi \rightarrow \pi^*$ transition in the aromatic group of ligand.The spectra of the homodinuclear complex$Fe_2(SB)$ (H_2O) is characterized by two weak bands at region, 437--435nm,274-270nm assigned to spin forbidden $^5T2g \rightarrow {}^5Eg$transitions respectively. The effective magnetic moment at room temperature for $Fe_2(SB)$ $(H_2O)_2$was found to be 4.49 BM for each Fe(II) ion that was less than the suggested magnetic moments for the tetrahedral geometry of iron(14) The spectra of Hetero nuclear complexes complex FeZn $(SB)_2(H_2O)_2$is characterized by two weak bands at region, 455-450nm,273-270 nm assigned to spin forbidden $^5T2g \rightarrow {}^5Eg$, transitions respectively. The effective magnetic moment at room temperature for FeZn $(SB)_2(H_2O)_2$was found to be 5.10 BM for each Fe(II))& Zn(II) ion which was found to be less than the expected value of tetrahedral geometry of heterometals(15)The spectra of hetero dinuclear complex $FeMn(SB)_2$ $(H_2O)_2$is characterized by two weak bands at region, 455-450nm and 273-270 nm assigned to spin forbidden$^5T2g \rightarrow {}^5Eg$,$^6A1g \rightarrow {}^4T2g$ransitions respectively. For the heterodinuclear complex $FeMn\ (SB)_2\ (H_2O)_2$,It was difficult to find the effective magnetic moment per each ion whereas the total effective magnetic moment was high .The higher value of the effective magnetic moment suggest the presence of some ferromagnetic interaction at room temperature (17-18)On the basis physic-chemical and spectral study, Following structure may be proposed for the complexes.

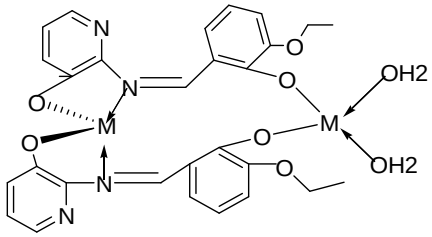

Fig-1: Proposed structure for the complexes

Table-2: Physicochemical and analytical data of metal complexes

System	Mol.Wt g/mole	Color	% Yield	µeff per ionB..	Elemental Analysis % Found (Calculated)						
					C	H	N	O	Fe(II)	Zn(II)	Mn(II)
Fe_2 $(SB)_2(H_2O)_2$	658	Brown	84%	4.49	48.55 (48.73)	3.08 (3.17)	7.99 (8.11)	18.05 (18.55)	17.5 (17.7)		
FeZn $(SB)_2(H_2O)_2$	667	Brown	80%	5.10	50.30 (50.37)	3.21 (3.29)	8.35 (8.39)	19.10 (19.17)	8.12 (8.35)	9.68 (9.78)	
$FeMn(SB)_2$ $(H_2O)_2$	657	Yellowish brown	75 %	*	51.00 (51.15)	3.29 (3.33)	8.50 (8.52)	19.39 (19.47)	9.85 (9.95)		8.26 (8.36)

Mass and 1H-NMR Spectra of the Complexes:

Mass Spectra

The molecular weights of all the binuclear complexes is exactly equal to that calculated theoretically from the proposed structures. These results are further supported by the conclusions drawn from the elemental analysis which agree with the molecular formula assigned to these complexes.

Formation of dinuclear metal complexes and their structure is confirmed by 1HNMR spectral study of representative metal complexes .The result obtained was used to interpret the proton environment and number of protons present in the sample. The 1HNMR spectra of complex are presented in Fig 2 where as the characterization of particular protons are presented in Table 3

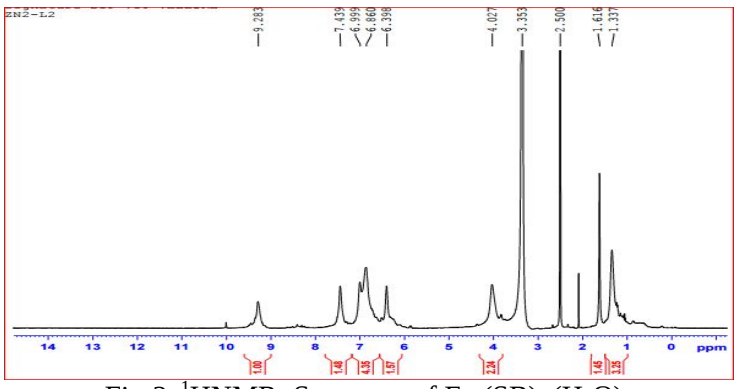

Fig-2: ^{1}HNMR Spectrum of $Fe_2(SB)_2\ (H_2O)_2$

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Table-3

Chemical Shift 'δ'ppm	Numbers of Protons	Multiplicity (Splitting)	Assignment
1.337	3H	S	Methyl hydrogen of Ethoxy group
4.027	2H	S	Methylene hydrogen of Ethoxy group
6.398-7.439	12H	M	Hydrogen of aromatic ring and heterocyclic pyridine
9.283	1H	S	Imine proton

Powder X-ray diffraction data.

FeZn(SB)2(H_2O)2 Complex.

The FeZn $(SB)_2(H_2O)_2$ complex was used to study the X-ray powder diffraction. Diffractogram is presented in Fig. 3The indexing in the powder diffraction was done independently by trial and error method. The crystallographic data and the indexed powder diffraction data is presented in Table 5.6. The standard deviation observed is within the permissible limit. The observed density for FeZn $(SB)_2(H_2O)_2$ complex is 1 gcm^{-3} while calculated density from Z value and unit cell volume for complex is 0.9988gcm^{-3} respectively. The porosity percentage calculated from the observed and calculated densities was found to be 0.12.The crystal system was found to be monoclinic with 2 molecules per unit cell having probable space group P. (17-18)

Table-4: Indexed X-ray Diffraction Data of $FeZn(SB)_2(H_2O)_2$ Complex

Peak No.	2θ (observed)	2θ (calculated)	d (observed)	d (calculated)	Miller indices of Planes			Relative intensities (%)
					h	K	L	
1	3.82740	3.81873	11.55344	11.56605	-1	0	0	100
2	4.62965	4.64682	9.55272	9.50829	-1	0	1	43
3	5.65959	5.64745	7.81713	7.82768	0	0	1	40
4	6.76812	6.76531	6.54.52	6.53889	-1	1	1	30
5	9.11856	9.10781	4.86298	4.86630	-2	1	0	27
6	9.66030	9.64292	4.59252	4.59860	-1	0	2	21
7	11.64024	11.62902	3.81924	3.82142	-3	1	2	20
8	12.54988	12.55254	3.54629	3.54430	-3	1	0	18
9	16.02535	16.02814	2.79107	2.78983	-1	1	3	15
10	18.12264	18.11802	2.47703	2.47704	-4	2	3	12

Unit cell data and crystal lattice parameters

a (A°) =14.13822

b (A°) =9.02213

c (A°) =9.57245

α =90°

β =125.271586°

γ=90°

Standard deviation (%) = 0.088

Volume (V) = 998.84$A^{\circ 3}$

Density (obs.) =1 gcm^{-3}

Density (cal.) =0.9988 gcm^{-3}

Z = 9

Crystal system= Monoclinic

Space group = P

Porosity = 0.12%

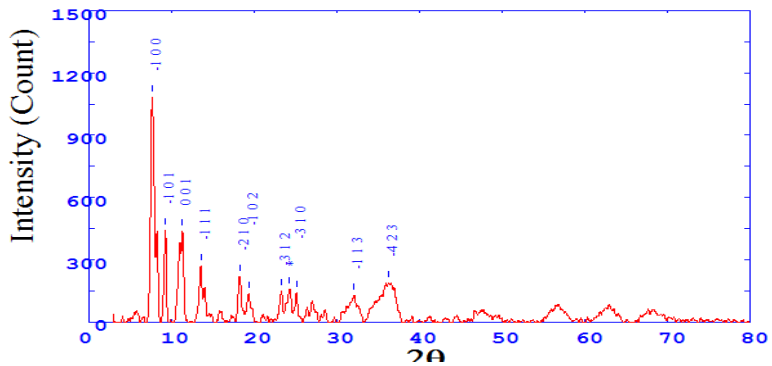

Fig-5: FeZn(SB)2(H2O)2

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Table-4: Report for Antibacterial Testing.

Medium-Nutrient Agar Dose of compound -1%
Method –Agar cup method cup size-10mm

Sr. No.	Test Compound	Inhibition Zone (nm)			
		Escherishia coli	Salmonella typhi	Staphylococcus aureus	Bacillus subtilis
	Penicillin	14 mm	20 mm	36 mm	28 mm
01	$Fe_2 (SB)_2 (H_2O)_2$	-Ve	-Ve	-Ve	-Ve
02	FeZn (SB) $(H_2O)_2$	20mm	-Ve	-Ve	-ve
03	$FeMn(SB)_2 (H_2O)_2$	-Ve	-Ve	-Ve	36mm

Table-6: Report for Antifungal Testing

Test compound	Inhibit			
	Aspergillus niger	Penicillium chrysogenum	Fusarium moneliforme	Aspergillus flavus
Griseofrin	-ve	-ve	-ve	-ve
$Fe_2 (SB)_2 (H_2O)_2$	RG	RG	RG	RG
$FeZn (SB)_2 (H_2O)_2$	RG	+ve	+ve	RG
$FeMn(SB)_2(H2O)_2$	+ve	RG	RG	RG

Complex: +ve growth = Antifungal activity absent -ve growth = Antifungal activity present

RG = reduced growth (more than 50% reduction in growth observed)

ANTIMICROBIAL ACTIVITY OF THE COMPLEXES

The antibacterial activity of the complexes were tested against the standard microbial strains.

Escherishia coli, Salmonella typhi ,Staphylococcus aureus and Bacillus subtilis by agar cup method at fixed concentration of 1%(19)and compared with known antibiotic viz Penicillium (Table 2). For fungicidal activity, compounds were screened in Vitro against Aspergillus niger, penicillin chrysogenum, Fusarium moneliforme, Aspergillus flavus by poison plate method with ptato dextrose agar media. The complexes were tested at 1% concentration in DMSO and compared with control (Table 3)

The complexes individually show varying degrees of inhibiting effects on the growth of the bacterial species. Some complexes show activity against Gram-negative bacteria .Escherishia coli, salmonella typhi &Bacillus subtilis. The some complex show activity against Gram-positive bacteria Escherishia coli & Bascillus. The metal complex FeZn $(SB)_2$ $(H_2O)_2$ show better activity for Escherishia coli however the activity of these complex is considerably less than that of standard drug. The complex of FeMn $(SB)_2$ $(H_2O)_2$ is found to be active against Bacillus subtilis bacterium. However the activity of these complex is higher than that of standard drug.

Result of antifungal testing indicate that the all the bimetallic complexes show moderate to high antifungal

CONCLUSION

In the present work we have been synthesized metal organic ligands and their binuclear metal complexes. The synthesized compounds were characterized by various analytical techniques. .Magnetic study reveals the paramagnetic nature of complexes. Solution conductivity suggests the nonelectrolytic nature of complexes. The XRD pattern indicate the crystalline nature of the complexes. ^{1}HNMR , mass spectra and UV. Study are in good agreement with the proposed structure of the complex. All the complexes shows high antibacterial activity and moderate to high antifungal activity.

ACKNOWLEDGEMENT

We are thankful for Department of Biology N.S.B. College Nanded and C.I.L. Chandigrah for support.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019
ISSN 2394 - 7780

A PSYCHO ANALYTICAL STUDY OF DARU OF MOHSIN HAMID'S *MOTH SMOKE*

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ABSTRACT
The attempt has been made to analyze the character of Daru in the light of psychology. Daru represents the psyche of middle class person of Pakistan. His psyche is moulded in the corrupted Pakistani society and he cannot get success in his personal and professional life as well. He was fired from bank job and he could not get job anywhere. In order to live his life luxuriously he indulges in the anti social activities. To take a sort of revenge from his aristocratic friend, he perhaps makes physical relation with his friend's wife, Mumtaz. Gradually, he falls in love with her but ultimately he is rejected by her. At the end of the novel he is put behind the bars not because he killed the man but he is accused by Ozi.

Keywords: Psyche, aristocratic, Middle Class Person, Dilemma, Frustration, Aggression

[1] INTRODUCTION

Psychology is a branch of science which studies the human behaviour i.e. psyche of a human. It helps to understand the strange behaviour of a human being. Many psychiatrists have developed the various theories to study the human nature and behaviour. Through the psycho analysis, one can understand the personal and professional life of a person. The psyche of a person mould on the various situations, circumstances, experiences, believes, traditions, customs and heredity. The authors observe and study the psyche of the people, they meet and see in the society in which they live and present them in their literary works through their power of imagination. Mohin Hamid is one of the Pakistani novelists who studies such kind of people and presents them in his masterpieces. Moth Smoke is a novel, published in 2000, presents the psyche of middle class Pakistani. As far as the present study is concerned, the paper throws the light on the character of Darashikoh Shezad i.e. Daru. The novel takes place in Lahore, Pakistan, tells the story of a man's fall from grace within Pakistan's upper class following the loss of his job. As he spirals downward, he becomes addicted to drugs, has an affair with his best friend's wife, and is arrested for murder.

[2] OBJECTIVES OF THE STUDY

(1) To understand the theme of the novel, *Moth Smoke*.

(2) To critically analyze the psyche of the character of Daru

(3) To study the various responsible factors which moulds the psyche of the protagonist, Daru.

[3] A PSYCHO ANALYTICAL STUDY OF DARU

Daru is the leading character of the mentioned novel, plays a vital role from the beginning to the end of the novel. Most of the events and incidents revolve around him only. The novelist portraits Daru as:

A hard man with shadowed eyes, manacled, cuffed, disheveled, proud, erect. A man capable of anything and afraid of nothing. Two guards accompany him, and yes, they are brutes, but they would offer scant Reassurance if this man were not chained. He is the Terrible almost- hero of a great story: powerful, tragic, and dangerous. He alone meets your eyes (8).

Daru hankers after power, pelf and luxuries of life. Daru was working in a bank as an office assistant but is fired due to his misbehavior to one of the regular clients of the bank. After this incident, he tried a lot to find a job but he could not get success and remains unemployed. Thus, unemployment is the basic problem for his downfall. He represents a young man of Pakistan who is well educated, skilled and talented yet he is unable to find a job. This condition compels him to make malpractices in the society. The helpless silence of Daru gives rise to frustration which later manifests in his aggressivity. The novelist declares:

Perhaps he merely feared the loss of social status that the end of his air- conditioning represented…he needed money to have his power and air-conditioning and security restored, and he swore that nothing would stand in his way. He, a man, who hated guns, came to accept that he would have to use one (109).

Daru's silence breeds in him frustration and aggression and the dilemma of not to be what he wants and not to be able to voice what he wants to say explains the psychology of criminal mind. Daru must not be blamed for his plight because in indigenous society crime is but the product of criminal policy based on injustice. Daru becomes involved in drug addiction, murder, and is later reduced to a doomed lover seeking an escape from the worsening circumstances in his life. He uses heroine and other forms of intoxication as a source of escape from

ISSN 2394 - 7780

the fear of cruel and 'artificial rules' of modern day corrupt society. In order to pacify his soul, he consumes drugs and also makes love with his best friend's wife. In the company of her, he feels solace. It seems that Daru as a result of his revolution perhaps keeps physical relation with Mumtaz. He was fired from the bank, tried a lot to find a job but could not succeed and ultimately remains unemployed. To live a luxurious and comfortable life he indulges in illegal activities.

Besides drug addiction, Daru is involved in a bomb blast with the help of Murad Badshah, ruining the lives of thousands of innocent victims. He also shares his part in a bank robbery and later develops his illicit relationships with Mumtaz. His philosophy of life is about making money and having fun at all costs. It is the end of the degeneration and devastation of his moral and social life. We see how degeneration happens step by step in the novel and turns a fearful person into a criminal. All his life reveals how the harmful spiral of silence first suppresses his voice and, as a result, triggers his aggression that turns inwards and outwards. The tightening of the spiral of silence reveals the contradictions inherent in an unjust and irrational society.

With the passage of the time, the story moves ahead and after a long time, Daru meets his school friend, Aurangzeb, who has just returned from America. When he enters into the house of his best friend, he is surprised to see his luxury life and also attracts towards his wife, Mumtaz. The emotional chaos in the mind of Daru is expressed with the atmospheric movements. Just like the difference between rain and deluge, (heavy rain) he confesses that his mental stability is destroyed due to his fascination for Mumtaz. He knows that his attraction toward Mumtaz is developing at a lighting speed and he may fall down at any time. However, he is well aware of this bitter fact, he falls in love with her and on the other side Mumtaz does not have any plan to divorce her husband and leave her child and to settle down with Daru. When she comes to know about the intention of Daru, she leaves him and does not want to disturb her personal life. Here, again in personal life Daru is disturbed. Thus, Daru neither succeeds in his professional life nor in personal life.

At the end of the novel, Daru is arrested and put behind the bars. He is not arrested because he killed the man but because of the position and power of Ozi, he is accused and put behind the bars. The fact is that Ozi has killed a man in an accident but with his power he manages to escape from this crime and the blame has been laid upon Daru and Daru is arrested for that.

Thus, from the beginning to the end of the novel, Daru faces many ups and downs of his life and becomes the victim of the aristocratic society. Being a middle class or below middle class he cannot sustain his existence in the world and his psyche is moulded in such corrupted Pakistani society.

[4] CONCLUSION

Moth Smoke of Mohsin Hamid depicts the degeneration of modern man in a cosmopolitan like Lahore. Daru's tragedy begins from losing his parents and later his job. He knows quite well that his mushroom status in society snatched his mother away from him. He cannot find the perfect match in personal and professional life as well. His psyche is disturbed and moulded in such corrupted Pakistani society. The novelist dives deep into the character of Daru and presents his dilemma and psyche in the present novel.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019
ISSN 2394 - 7780

EFFICACY OF SOCIAL SKILL TRAINING IN INTELLECTUAL DISABILITY

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ABSTRACT
Introduction: Intellectual disability is a condition in which an individual has sub average level of intellectual functioning means that the IQ score less than 70. The individual shows marked deficit in intellectual and adaptive functioning (conceptual, social and practical) which includes motor skills, communication skills, self help skills etc. Social skill is the ability to communicate and interact with each other, both verbally and non-verbally, through gestures, body language and our personal appearance. Social skill training includes social and psychological management to increase social interaction, became independent and encourage performance (Cook et al., 1996). Social skills training is based on principles of behavior therapy and utilise techniques for teaching individuals to communicate their emotions.

Aim: Thus, the study aims to see the efficacy of social skills training in children with intellectual disability.

Methodology: The study was conducted on 5 children with intellectually disability with their parents, who were purposively selected for the study. Socio-demographic data sheet, Developmental Screening test, Vineland Social Maturity Scale and Seguin form board test were used as screening tools. BASIC- MR was used as study tool. Study was within group design. Three areas of skills training were selected- motor skill training, self help skill training and communication skills training.

Result: It was found that social skills training has significant efficacy in improving motor and communication skills of children with intellectual disability

Conclusion: The study reveals that social skills training helped parents to enhance social skills in children with Intellectual disability.

Keywords: Intellectual disability, Parent, Social Skills Training, Reinforcement, Activities,

INTRODUCTION

Intellectual Disability

Intellectual Disability is a condition in which there is marked deficit in nearly all areas of functioning. Intellectual disability implies a sub average level of intellectual functioning. The deficit in areas of functioning may be in communication skills, self help skills, motor skills, speech and language. There is co-morbidity with other psychological disorders. The manifestation is before 18 years. IQ score is below 70. The definition of intellectual disability was given by the AAMR (2002)- "Intellectual Disability is a disability characterized by significant limitations, both in intellectual functioning and in adaptive behavior, as expressed in conceptual, social, and practical adaptive skills. ID is classified into four categories which include mild, moderate, sever and profound. There is an associated physical disorder, which often contributes to mental retardation, is common in this subtype. The achievement of developmental milestones is significantly delayed. The child often needs care or support. There are various causes which may lead to intellectual disability- prenatal, natal, postnatal and environmental factors. According to the World Health Organization, the overall prevalence of ID in India is 1-3% in the global scenario. Prevention is divided into 3 stages. First is prenatal, which includes regular check-ups, adequate nutrition, avoiding harmful radiation in the early stages of pregnancy. Second is natal prevention which includes proper care during delivery, for instance, ensuring that the baby breathes properly. Third is post natal prevention, which includes immunization, adequate nutrition etc. Management is very essential to reduce problematic behavior in ID. A child with limited skilled behaviors needs to cultivate appropriate social behavior.

Social Skills Training

Social skill is the ability to communicate and interact with each other, both verbally and non-verbally, through gestures, body language and our personal appearance. The term ''skills'' refers to the ''abilities" and implies that they are predominantly based on learning experiences. Social skills training use the principles and techniques of behavior therapy to enable individuals to communicate their emotions and helps to achieve their goals and meet their needs for affinitive relationships and roles required for independent living. This modality

ISSN 2394 - 7780

of treatment and rehabilitation has been empirically effective for a broad range of deficit or problematic behavior and other psychological problems. It seeks to improve the ability of person in their context. It includes social and psychological management to increase social interaction, become independent and encourage performance (Cook et al., 1996) . It enhances the capacity to express positive and negative emotions in the context of a given social setting (Hersen and Bellack 1977). Social skills is demonstrated in a wide variety of interpersonal contexts, which involve the coordinated delivery of appropriate verbal and nonverbal responses. These are behaviors that help to achieve interpersonal goals (Liberman et al. 1989). Social skills training (SST) is a form of behavior therapy used by teachers, therapists, and trainers to help persons who show deficiency in various areas of functioning. Function of Social Skills includes optimal use of social skills. It is necessary for maintaining various areas of psychological functioning. People with poor social skills are less effective among their peers than those with better social skills (Hartup 1967).

Types of Social Skills

The "Stop and Think" Social Skills Program (Knoff): Part of Project ACHIEVE (Knoff and Batsche) program organizes skills into four areas. First is survival skills such as listening, following directions, ignoring distractions, using nice or brave talk, rewarding yourself. Second is interpersonal skills such as sharing, asking for permission, joining an activity, waiting your turn. Third is problem-solving skills for example asking for help, apologizing, accepting consequences, deciding what to do. Fourth is conflict resolution skills such as dealing with teasing, losing, accusations, being left out, peer pressure.

COMPONENTS OF SOCIAL SKILLS

Fine motor skills training

Fine motor training refers to motor coordination or to reduce stiff muscles of body. Fine motor training is a training process in an effort to improve child motor retardation in relaxing their hand muscles. Some smaller movements of body that occur in the wrists, hands, fingers, feet and toes, writing, holding small items, buttoning clothes, turning pages, eating, cutting with scissors, and using computer keyboards. Some smaller actions involve such as picking up objects between the thumb and finger, writing carefully, and even blinking. The combination of two or three motor skill make more effective. Motor skills develops with all age, more practice and the increased use of muscles while playing sports, playing an instrument, using the computer, and writing. Studies shows that there is deficit motor skills in ID.

Self help skills Training

Self help skills are needed to fulfill everyday tasks such as dressing, eating, cleaning teeth and so on. Self help skills are those skills wherein children can develop the ability to plan in order to perform on a task. It is important to develop the refined physical control required to carry out daily tasks such as opening lunch boxes, drawing or standing to pull up pants. According to available studies four type of self help skill was given here self-feeding, independent dressing and grooming, hygiene and toileting, helping with daily chores like table setting and picking up toys. It is important to expose children to activities of daily living which include house hold chores. It is also important to encourage children's performance on tasks that involve feeding, dressing, usage of utensils, and so on, which can make the child independent. Children with ID show lack of performance in daily life skills.

Communication skills

Communication refers to the ability to communicate information. Communication is act of transferring information. It includes verbal and non verbal abilities. Verbal communication uses voice, written word, and visuals while in nonverbal, body language, gestures, tone and pitch of voice are used. It is best used in situations where a personal connection is to be established. It includes many areas such as interpersonal communication skills which implies a face to face communication with one or more people. Listening skills is vital interpersonal communication skills.

TECHNIQUES FOR MONITORING SKILLS TRAINING

Social skills training is effective and uses behavioral techniques such as modeling, role-playing, shaping, chaining, prompting, fading feedback, and reinforcement of positive interactions. Social skills training is applicable in intellectual disability to teach the basic life skills, including how to interact with other people. It can also help to learn a variety of basic skills, appropriate eye contact, practice using role play, while receiving feedback from a therapist on taking care of basic hygiene, preparing meals, and managing their money. It also applicable with other psychological disorders.

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NEED FOR STUDY

In recent years, social skills training have been the primary form of treatment in children with mental retardation. It provides opportunities to the individual with mental retardation to mutually identify and improve the social skills. Also they get support and role modeling for positive changes; acquisition of new communication skills when receiving social skills training. Thus, the present study is structured in an attempt to see the manageable aspect of social skills training for patients with mental retardation. The proposed study, to be used with persons of all ages and living situations, was viewed as a means of collecting information about their circumstances, needs, and attitudes of intellectual disabled individuals which could be used to shape national policy. According to a study conducted by NIMH, it was proposed that there is need for more emphasis on training of social skills of children attending home based programs. It was also observed that social skills training is important for children with ID who need more constant observation and support. Therefore there is a need for parents to know behavioral skills and techniques so they can effectively apply them to their children. They can also serve as co-therapist maintaining skills at home.

REVIEW OF LITERATURE

Part-A Review of Literature about Intellectual Disability and Deficit Area

Those children whose developmental milestones are delayed need an individualized program taking into account their family needs, preferences and supports. Priorities of family are best fulfilled with every member who is involved in the management of ID. Social functioning impairment associated with intellectual disability and diagnosis of mental retardation, American Psychiatric Association, 2000).

Children with ID obtained lower score on executive function tasks. They also obtained lower scores on executive function measures: these included inhibition; planning; and non-verbal. The remaining results suggested greater problems with selective aspects of executive function for children with ID than would be expected by their mental age, particularly in relation to the inhibition of salient but incorrect responses and in categorizing materials according to self-generated organizing principles. The study suggests that the results on some of the executive function tasks could be influenced by lower working memory capacity in children with ID. (Henrik Danielsson , Lucy Henryd, David Messere, Jerker Ro nnberg, 2011). Kernisan (2013) reported that intellectually disabled children may eat very slow and often may be messy. A study was conducted by U donwa, Rose Ekaete1, Iyam, Mary Arikpo, Osuchukwu, Nelson Chukwudi, Ofem, Obono M. E, Etim, John John, Ikong, Michael Agbu (2017), on Intellectually Disabled Children and it was discovered that these children with ID having deficit in daily living skills such as; toileting, dressing, feeding, personal hygiene, et al., it was also revealed that they can improve life just like other children through effective training, counseling, motivation and close supervision.

PART-II Review of Literature about Social Skills Training and Managable Aspects of Intellectual Disability

Study was conducted by Gresham (1981) on social skills training with children with intellectual disabilities. Social skill training can improve the deficit areas of functioning and build the capacity to approach mainstream and suggested more research employing between-group designs, technique comparisons, discriminate analysis and social validation of behavior change was needed.

Majority of the study on social skills training reveal that individuals with intellectual disability may make improvement in their level of performance as they move through adult life (Heber & Garber, 1984). Umadevi VM, PS Sukumaran conducted a study on Functional Social Skills of Adults with Intellectual Disability indicates that only 48% of the adults with intellectual disability in the study sample possessed functional social skills.

Vera Dekker, Maaike H Nauta, Erik J Mulder Marieke E Timmerman and Annelies de Bildt conducted a study on SST with ASD children (age range 9-12 years). Strength of this study shows efficacy of longer positive impact of social skill training.

Drysdale J, Casey J, Porter-Armstrong conducted a study on effectiveness of training on the community skills of children with intellectual disabilities in 2008. Results suggested that skills training were effective in one of the skills areas with this client group.

In the case of children with intellectual disability, intensive training is needed to inculcate appropriate social behavior. If the children mix up with other children during their childhood, they can improve their social competency. Therefore training should be started very early. The family, neighbors, friends and society at large are responsible for social skills training of a person with intellectual disability (NIMH, 1990).

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Study conducted by Sukintaka (2001: 47), it revealed that fine motor skills is the ability of child which are related to motion control and ability to concentrate. The younger age of child needs more time to concentrate on activities related to fine motor skills.

Psychotherapeutic interventions should be considered as part of overall treatment plans for persons with mental retardation (H. Thompson Prout and Karen M. Nowak-Drabik (2003).

Kathleen Finn, Hana Valkova conducted study on "motor skills development in preschool children with mental and developmental disorder –the difference after a year comprehensive and education program" in July, 2007. The aim of this study was to reassess the motor skills performance of preschool children with mental and develop- mental disorders. This can be attributed in part to the school program. As well as motor skills improvements, the social and behavior patterns of the children also improved which was noted primarily during the qualitative observations. Positive pattern of development has taken place as a result of this early intervention.

Sri Winarni and Tri Ani Hastuti (Yogyakarta State University) conducted study on fine Motor The research result showed that the fine motor skills level of educable ID children of elementary level students.

Indrabhushan kumar, Amool R. Singh, and S. Akhtar conducted study in 2009. Topic was social development of children with ID. Social development of children as implication for prognosis. This study evaluated whether the social maturity intellectual level and consequent adjustment in family and society of children with mental retardation. So that with the help of social skills training we can manage the deficit behavior of ID.

METHODOLOGY

Aim

To see the efficacy of social skills training among children with intellectual disability.

Objectives

- To find the effect of fine motor skills training in children with intellectual disability.
- To find the effect of self help skills training in children with intellectual disability.
- To find the effect of communication skills training in children with intellectual disability.

Hypotheses

- There will be no significant effect of fine motor skills training in children with intellectual disability.
- There will be no significant effect of self help skills training in children with intellectual disability.
- There will be no significant effect of communicative skills training in children with intellectual disability.

Study design

The study was within group pre test and post test design using purposive sampling technique.

Venue of the study

- Nai Subah Institute of mental health and behavioral sciences, Varanasi
- Vikalang Samakalan Sansthan, Varanasi

Sample

- 5 Participants both male and female with ID as per ICD 10 were taken.
- Purposive sampling technique was used.
- Participants were taken from Nai Subah Institute, and an integrated school for disabled, Varanasi.
- The study incorporated the parents or care givers.

Inclusion Criteria for children with intellectual disability

- Both male and female participants.
- Age from 5 to 15 years.
- Education up to play group to class 6.
- Middle and low SES.
- IQ ranging 35 to 69.

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Exclusion criteria for children with intellectual disability

- Children with symptoms other childhood disorder and other mental illness
- Children with organic disorder or any other medical conditions
- Children with above age of 15 year and before age of 5 year

Inclusion Criteria of Care Giver

- Age from 25 to 55 years.
- Education up to class 5 or more.
- Parents giving consent for social skills training.

Exclusion Criteria of Care Giver

- Persons having chronic physical illness.
- Persons having mental illness.
- Mentally challenged parents.

TOOLS

Socio-Demographic and Clinical Data Sheet

It contains detail of socio-demographic details of the children with ID and their parents.

Screening Tools

1. Developmental screening test

DST developed by Bharat Raj in 1977 and it assess the developmental quotient. It gives estimate of developmental age and quotient.

2. Vineland Social Maturity Scale

The Indian adaptation was done by Dr. A. J. Malin. It gives profile of social functioning areas. There is 8 areas of VSMS which is self-help general, self-help eating, self-help dressing, self direction, socialization, occupation, communications, and locomotion.

3. Seguin Form Board Test

SFBT developed by Seguin. It assesses child's eye-hand co-ordination, shape-concept, visual perception and cognitive ability. the test material consist 10 blocks. It is administered in three trials.

OUTCOME MEASURE

Behavioral assessment scales for Indian children with MR- BASIC-MR:- Behavioral assessment scales for Indian children with MR was develop by Reeta Peshwaria, S. Venkatesan. BASIC-MR developed in Part A and Part B. The scale is suitable for mentally handicapped children between 3 to 16 (or 18) year.

Part A- items included in part A of the scale help assess the current level of skills behavior in the child. It consists of 280 items grouped under the following seven domains (1) Motor (2) Activity of daily living (ADL) (3) Language (4) Reading–Writing (5) Number –time (6). Domestic- Social (7). Prevocational-Money

Part B- items included in part B of the scale help assess the current level of problem behavior in the child. It consists of 75 items grouped under the following seven: (1) Violent and destructive behavior (2) Temper tantrums (3) Misbehaviors with others (4) Self injurious behavior (5) Repetitive behavior. (6) Odd behavior (7) Hyperactive behaviors (8) Rebellious behavior (9) Antisocial behavior (10) Fear

PROCEDURE

Parents were contacted individually at their respective institute. Later, tools were administered to the children whose parent given consent. Demographic and clinical Data Sheet, DST, VSMS, SFBT and BASIC-MR were administered individually. After administering the questionnaire, the participants were trained individually according to the following module. After social skills training post assessment was done.

THERAPEUTIC SESSIONS

Total 16 sessions were given and 45 – 60 minutes were taken for one session.

1 Initial Phase- It was started with psycho-education about intellectual disability, Social skills training and overall therapeutic process.

2. Middle Phase- Social skills training sessions was done with Children with ID and with their Parents.

3. Last Phase- post assessment, feedback and termination of intervention sessions were completed.

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MODULE FOR SOCIAL SKILLS TRAINING

A module has been prepared keeping in mind requirements of the population covered in present research. Required modifications have been done to make the program suitable and applicable in the present study. Social skills training was done with children with intellectual disability with their parent. For preparing the module, information has been gathered from various sources. Social Skills Training was done in three areas of functioning. First is a motor skill training, second is self help skills training and third is communication skills training.

SOCIAL SKILLS MODULE

	Techniques	Explanation	Activity
Motor skills training	1.Continuous Reinforcement. 2.Interval Reinforcement.	Reinforcement is delivered after completion of single target task but not after every task Reinforcement where a response is rewarded after an unpredictable amount of time has passed	Grasping skill Pickup object Coordination Assemble object
Self help skills	1..Shaping 2.Chaining 3.Prompting 4.Fading	This is reinforcement technique which was given after completion the task. Reinforcement was given after completion of task step by step In this technique support was given during task (both verbal and physical). This technique helps to reduce unnecessary behavior towards task performance.	Eating Bathing Toilet behavior Initial steps of dressing
Communication skills training :	1.continuous reinforcement 2.Interval Reinforcement 3.Modeling 4.Differential reinforcement	Modeling in which individual imitate the task. This refers to the implementation of two clearly different degrees of reinforcement for two behaviors.	Greeting Participation Sharing Obeying command

Primary reinforcement, secondary and positive reinforcement were used.

STATISTICAL ANALYSIS

The statistical analysis was done with the help of SPSS 21. Since sample is less in number and violating the principle of normal distribution, we have used wilcoxon sign rank test. This nonparametric test was used because this was the within group comparison study.

RESULT

Table-1: Part A (On the basis of total score in each domain of all participants)

Variable	Pre test		Post test		z value	P value
	Mean	SD	Mean	SD		
Motor	45	8.22	71	11.02	2.02	.044
ADL	45	16.89	58	16.75	2.02	.430
Language	37	6.9	47	6.63	1.84	.066
Reading	25.2	12.98	22	9.89	0.360	.715

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Number-Time	26.4	8.59	33.2	13.27	2.032	.042
Domestic social	54.40	15.63	78.80	7.59	2.023	.043
Prevocational	34.80	9.44	44.80	8.43	2.041	.041

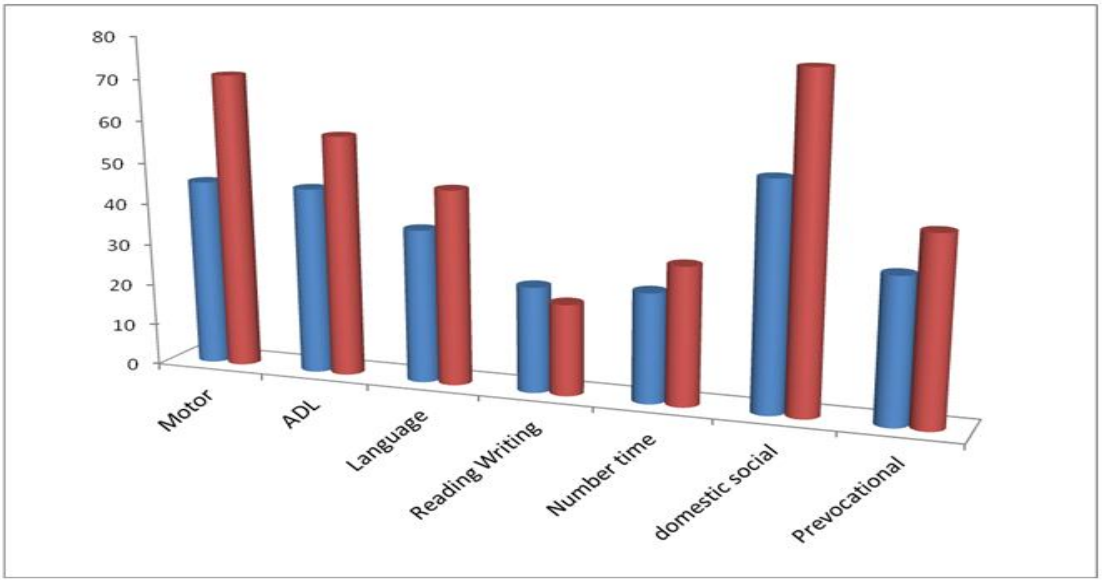
Table 1 shows that mean of motor pre assessment is 45 and of post is 71, obtained z value is 2.02 suggesting significant difference between the two conditions. The mean of ADL pre assessment is 45 and post is 58, obtained z value is 2.02 is suggesting not significant difference in pre and post test. In the dimension of language, pre assessment mean is 37 and post is 47, obtained z value is 1.84 is suggesting no significant difference. In the dimension of reading and writing pre assessment mean is 25.2 and post is 22 obtained z value is 0.36 is suggesting no significant difference. In the dimension of number – time pre assessment mean is 26.4 and post assessment mean is 33.2 obtained z value is 2.03 is suggesting significant difference between pre and post assessment scores. In the dimension of domestic social pre assessment mean is 54.40 and post is 78.80 obtained z value is 2.02 is suggesting significant difference. In the dimension of prevocational pre assessment mean is 34.80 and post is 44.80 obtained z value is 2.04 is suggesting significant difference.

Table-2: Part B (On the basis of total score in each domain of all participants)

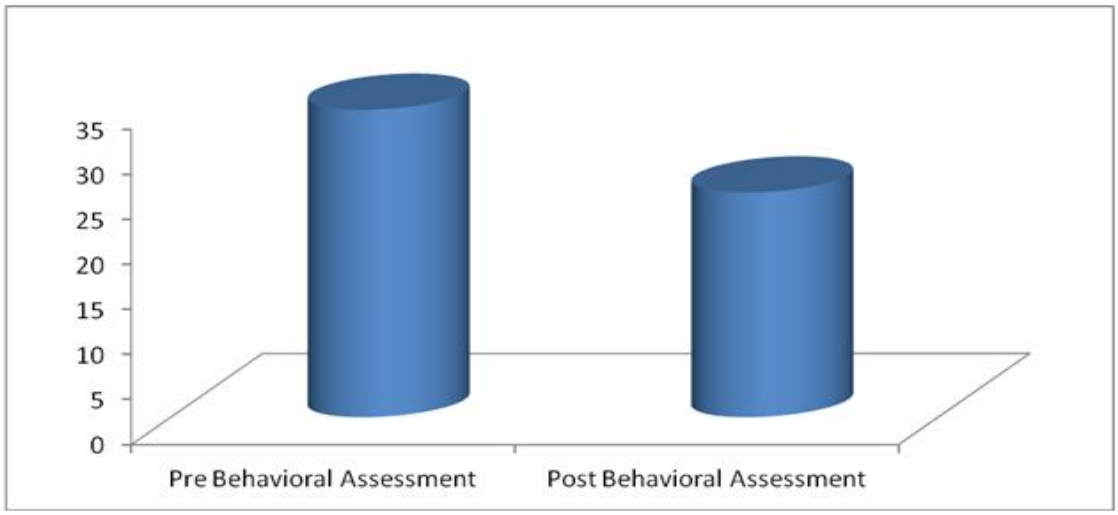
Variables	Mean	SD	z value	P value
Pre Behavioral Assessment	34.20	8.81	2.060	.039
Post Behavioral Assessment	25	5.24		

Table 2 is showing pre assessment mean in behavioral issues is 34.20, post assessment mean is 25 and z value is 2.06 is indicating significant difference between the two conditions.

Graphic representation of BASIC MR Part –A pre and post test



Graphic representation of BASIC MR Part –B pre and post test



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DISCUSSION

Background Discussion

The present study was conducted to find out the effect of social skills training in children with intellectual disability. The intervention included motor skill training, self help skill training and communication skills training. Pre and post assessment comparison showed significant difference in two domain.

Discussion of socio-demographic detail

There were 4 male and 1 female children with ID were taken. 2 children were in play group, 1 child was in 1st class, 2 children were in 2nd class. Age mean was 52. IQ range was mild to Moderate. There were 10 parents. There age range was 25 to 55 and age mean was 36. 5 male and 5 female.

Discussion of Result (Skills Training)

Findings of this study suggest that there is significant difference in the motor skills after intervention which indicate the intervention is effective for social skill training. The result is in agreement with a previous study conducted by Anggraini Sudono (1995; 55) regarding motor skills in which game tools used in training fine motor are string up beads, put a tennis ball into the basket, catch a tennis ball, and put puzzles, climbing.

No significant difference was found, ostensibly because it requires more time and practice. If self help skill training was given as a single unit to the child, it might have yielded appropriate and positive results. A study was conducted by F. O'Brien C. Bugle N. H. Azrin (1972) on "Training and Maintaining A retarded child's Proper eating". This study supports the present study and suggests that proper time for skill training and motivation is required for acquiring skills of ADL by children with intellectual disability.

In the present study communication skills comes under language and domestic-social as per scale of study tool. Results show that there is a positive effect of communication skill training in Children with ID. Previous study was conducted by Drysdale J, Casey J Porter-Armstrong (2008) on effectiveness of communication skills training on children with intellectual disabilities. Results concluded that this skill training were effective in one of the skill area with this group.

Discussion of Results (Behavioral Problems)

Children with intellectual disability show many behavior problems. In the present study children show behavioral issues as per finding of pre assessment of part B. After skills training with various techniques of behavior modification post assessment was done. Post assessment findings suggest decrease in behavioral issues such as hyperactivity.

SUMMARY AND CONCLUSION

Present study has been carried out to enumerate the effect of social skills training on children with intellectual disability on children and parent or caregiver. Indicators were significant in motor skill, communication skill and behavioral issues. Present intervention has positive impact on social skill training. Thus this study concludes that parental cooperation in such training for children with ID can increase efficacy and bring out better result for such intervention or psychotherapy in the real setting.

Limitation and Future Direction

Large populations having equal representation of all categories of mental retardation should be included. In a future study, between group caparison can be conducted where social skills training will be given to one group with the assistance of parents and to the other group without assistance of parents.

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International Journal of Advance and Innovative Research
Volume 6, Issue 2 (XXXVII): April - June, 2019

ISSN 2394 - 7780

LONG RANGE MULTIMODE EXTRINSIC FIBER OPTIC SENSOR FOR THE MEASUREMENT OF REFRACTIVE INDEX OF LIQUIDS

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ABSTRACT

Fiber optic sensing systems have been playing a prominent role in the measurement of varies parameters for the last several years across the world, ranging from consumer application to Military, Defense, Medical, Chemical, Beverage and Fragrance industries, etc. applications, due to their superiority over the conventional sensors. A uniform U-shaped glass rod based multimode extrinsic fiber optic sensor has been designed and developed to measure the refractive index of binary mixture in the present paper. A U-shaped glass rod is connected to a source at the operating wavelength of 630nm by using a input plastic cladding silica (PCS) fiber extending from source to input end of the glass rod and connected to power meter at the other end of the U-shaped glass god by using another PCS fiber extending from glass rod to detector. Exposing the glass rod to the binary mixture of particular concentration, light is injected into the fiber and collected at the output end and was recorded. Functionally the power reaching the output end is inversely proportional to the concentration of liquid cladding in the sensing region. Binary mixture of different ratios having different concentration have been prepared by using Cinnamon essential Oil ($1.577n_D$) and Methanol ($1.326n_D$). By determining the refractive index of concentration and noting down the corresponding power from output light detector, a long range calibrated curve has been generated which can be used to measure the refractive index of any unknown liquid either dark or transparent in the long dynamic range between $1.326n_D$ to $1.577n_D$ at room temperature and at operating wavelength of 630nm.

Keywords: Cinnamon essential Oil, Long Dynamic Range, Multimode Extrinsic Fiber Optic Sensor, Methanol, Refractive Index, U-Shaped Glass Rod.

1. INTRODUCTION

The advancement in the field of fiber optic sensors is responsible for numerous revolutions in the domain of science and technology. The fiber optic sensing technology has been attracted many scientists and engineers across the world due to their dominance and with advantages over the other conventional sensing systems. The main advantages with fiber optic sensors are 1. Abundant availability of raw material i.e. sand which made them to be available at low cost, 2. Their light weight and portable size made them utility easier, 3. Non-reactivity to ionizing radiation made them work at hazardous environment, 4.With the help of their large bandwidth, they can be used to measure the parameters from different locations at a time by multiplexing, 5. Small size makes them to be used to sense the parameters from otherwise inaccessible regions, 6. Due to their non-reactive nature to the chemicals, they can be used to measure the chemical parameters during the chemical reaction or otherwise, 7. They also can be used to measure the same parameters from different locations at a time by using the OTDR technique. With these advantages, they can be used to measure various environmental parameters ranging from temperature, strain, pH, electronic and magnetic field, humidity and so on and so forth. Thus the technology of optical fiber sensors revolutionized over the last few decades with the importance of sensing applications [1-2]. The conventional ways of light propagation in the optical fibers has been reported and extensively studied [3]. Using cheap materials, various simpler methods were presented and reported in literature [4-5]. A special kind of polishing method was used in the development of a polished surface sensor reported in literature [6]. A liquid-drop method also known as the oil-drop test was used in the sensor with a specific depth of polish was reported in literature [7]. The role of oil for temperature sensing has been reported using single mode fibers with extreme sensitivity [8-9]. The development of fiber optic sensors, which depends upon the molecular functional relationships at low concentrations, where the immobilization was the key [10-11]. Fiber optic transducers coated with sol-gel or polymer materials that are doped with an optical indicator were reported [12-13]. Several authors have developed theoretical equations for attenuation constant (α) for side polished fibers [14-15]. Results obtained from the temperature sensor, humidity sensor are similar, and hydrogels swell with water due to which the refractive index lowers [16]. This was applied to the fabrication of various sensors [17]. Cinnamomum Zeylanicum is a very spice an important in food industry and very useful substances in medicine is originated from the southeast of India and island Sri Lanka. It is also used in the aromatherapy due to its aroma and sent. For the evolution of quality of an essential oil bases on the density which play a role in different areas such as pharmacy, chemical, cosmetic and food industry[18].

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EXPERIMENTAL DETAILS

The configuration of the experimental arrangement consists of mainly four parts. They are 1. A light source of a semiconductor laser diode operating at the wavelength of 630nm, 2. A bench mark light detector operating at the corresponding wavelength, 3. Two multimode plastic cladding silica (PCS) fibers of 200/230µm diameters, 4. A uniform U-shaped borosilicate glass rod [Fig.1&2].

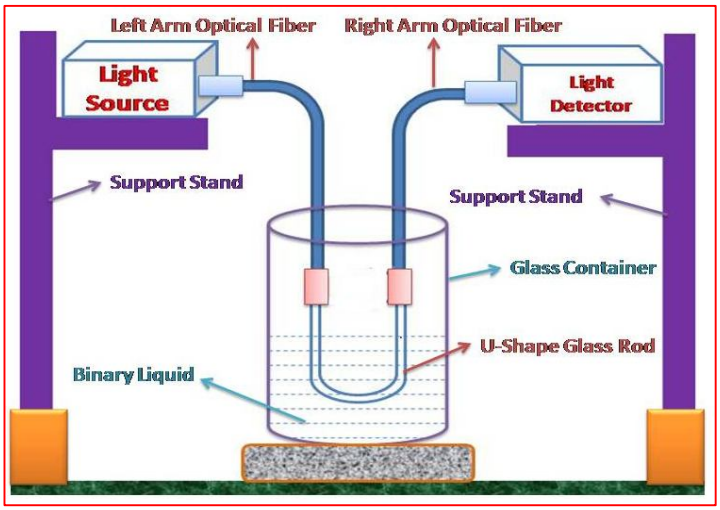

Fig.1: Experimental arrangement of Multimode Extrinsic Fiber Optic Sensor

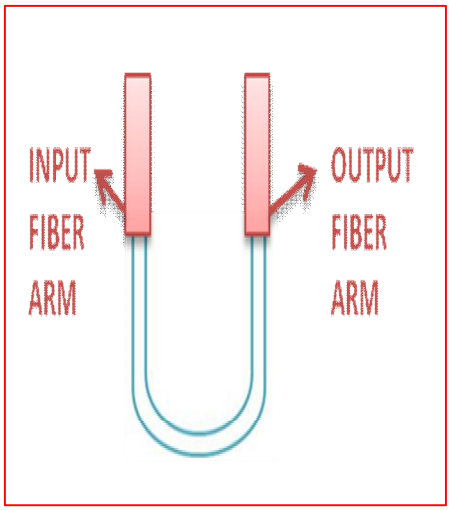

Fig.2: Uniform U- shaped glass rod

For the study of present developed sensor to have long dynamic range, two liquids i.e..Cinnamon essential oil having refractive index of $1.578n_D$ [Fig.3] and methanol having Refractive index of $1.332n_D$ [Fig.4] have been selected.

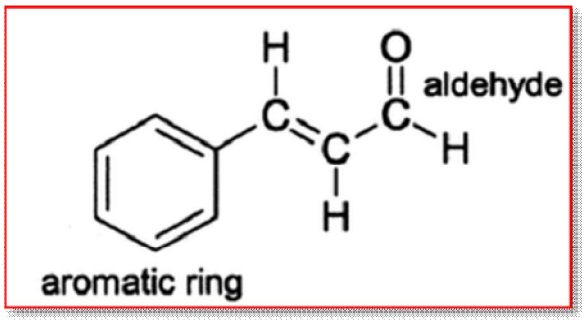

Fig.3: Structure of Cinnamon essential oil [Source 18]

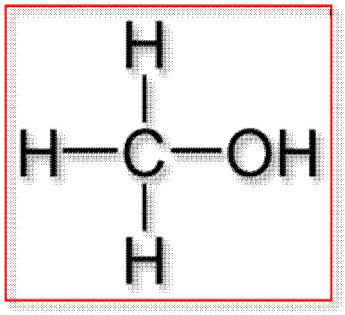

Fig.4: Structure of Methanol

Using two burettes, one for Cinnamon essential oil and other for Methanol, the mixtures (Cinnamon essential oil+ Methanol) with different proportions have been prepared making the total volume is equal to 10ml and taken each into a separate glass beaker. The refractive indices of each mixture was found by a digital Refractometre (Model: RX7000i, ATAGO-Make) and tabulated. Positioning both source and the detector at sufficient height by using suitable stands, the glass element is slowly immersed in a glass beaker containing the Cinnamon essential oil of 10ml in volume and power was launched from the source and power reaching the detector was noted. Then immersing the glass rod into mixture with different concentrations, the power reaching the detector was noted and recorded. Finally, the power was noted by immersing the glass element into pure 10ml Methanol. The output power reaching the detector was decreased with increase in the concentration and hence the refractive index of the liquids maintained around the U-shape glass rod in the region of sensing. The light transmission in both fibers (input fiber and output fiber) takes place without any attenuation but in the region of sensing due to the presence of liquid cladding, where the glass rod acts as a core, a portion of light enters into the liquid cladding due to the evanescent wave absorption in the liquid mixture. The absorption of light takes place due to the polarization (electronic polarization and molecule polarization) in the molecules of liquid mixture due to the interaction of light with the molecules of the mixture. The polarizability of the molecules increases with the concentrations of the mixtures, which results increase in the loss of power. The

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increase in concentration of the mixture, increases the presence of number of molecules their by the light will interact with more number of molecules resulting more loss of power.

RESULTS AND DISCUSSION

The variation in the output powers with respect to the concentration of oil were recorded using the experimental setup consist of source of 630nm wavelength and power detector creating a sensing zone between two optical fibers, where in the U-shaped sensing element is exposed to mixtures with various concentration. From the tabulated values of output power and power loss with respect to the corresponding refractive indices of mixtures, it is observed that output power decreases with increases in refractive index and power loss increase with refractive index as shown in [Fig.5, 6].

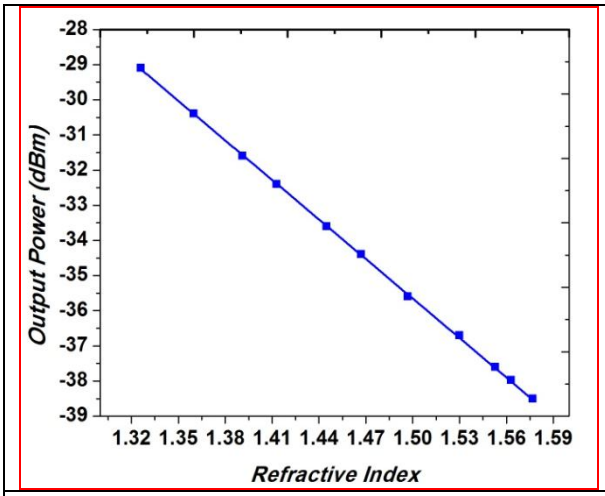

Fig.5: Refractive Index Vs Output Power (dBm) of Cinnamon essential oil + Methanol mixture.

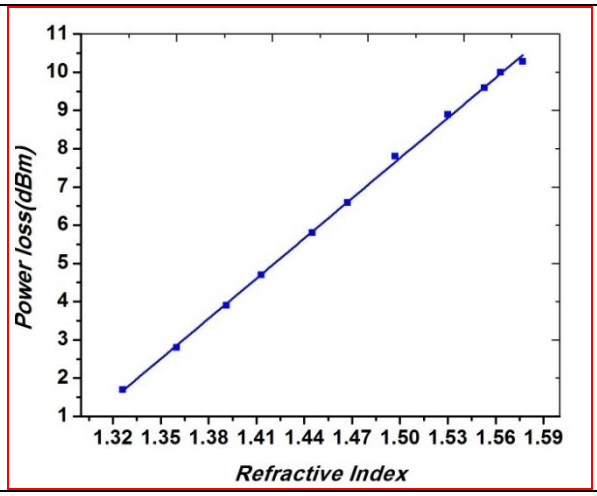

Fig.6: Refractive Index Vs Power Loss (dBm) of Cinnamon essential oil + Methanol mixture.

With a view to increase the operating range of the sensor two liquids i.e., Methanol and Cinnamon essential oil have been chosen and they are mixed in the ratios of 0ml+10ml, 1ml+9ml, 2ml+8ml, 3ml+7ml, 4ml+6ml, 5ml+5ml, 6ml+4ml, 7ml+3ml, 8ml+2ml, 9ml+1ml, 10ml+0ml respectively and relation between ratios of Methanol and Cinnamon essential oil with respect to output power have been shown graphically [Fig.7].

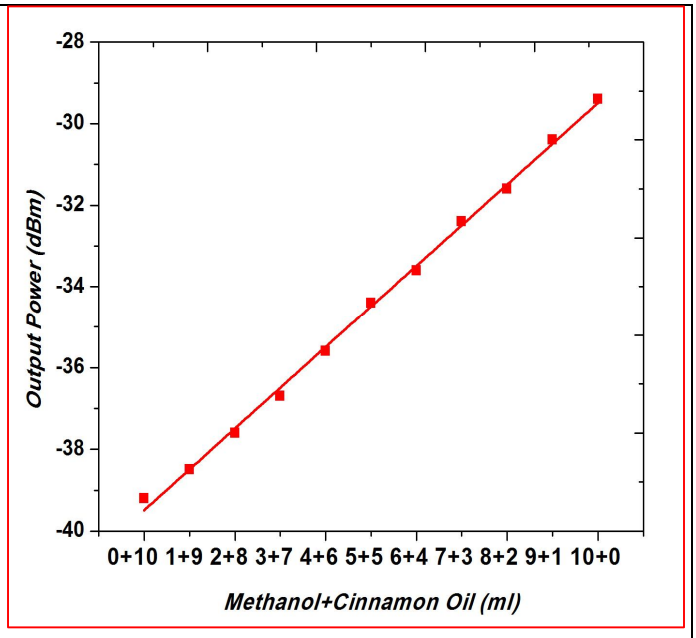

Fig.7: Output Power (dBm) Vs Cinnamon essential oil & Methanol rations in binary mixture.

The study of Methanol concentration(%) in Methanol and Cinnamon essential oil mixture with respect to refractive index, output power, power loss, dielectric constant has been under taken and variations are represented graphically [Fig.8-11]

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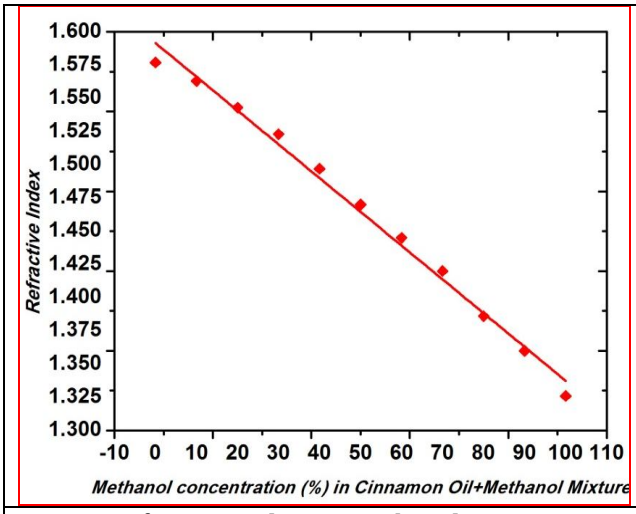

Fig.8: Refractive Index *Vs* Methanol concentration (%) in Methanol and Cinnamon essential oil mixture

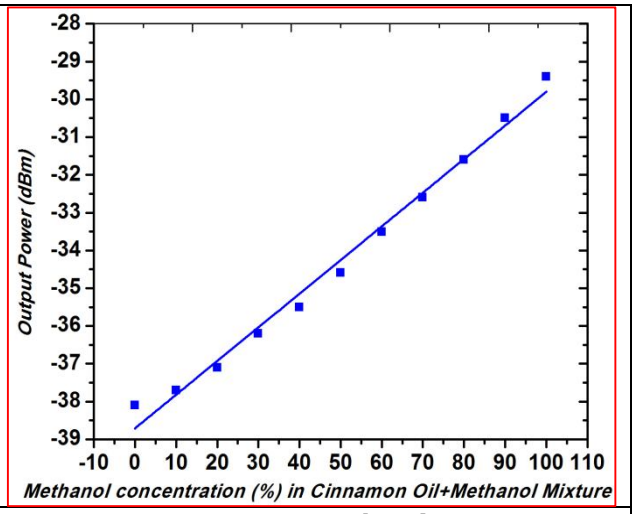

Fig.9: Output Power *Vs* Methanol concentration (%) in Methanol and Cinnamon essential oil mixture

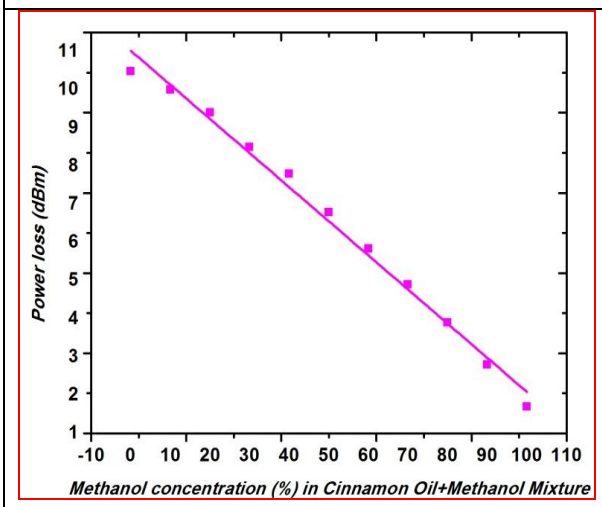

Fig.10:Power Loss *Vs* Methanol concentration (%) in Methanol and Cinnamon essential oil mixture

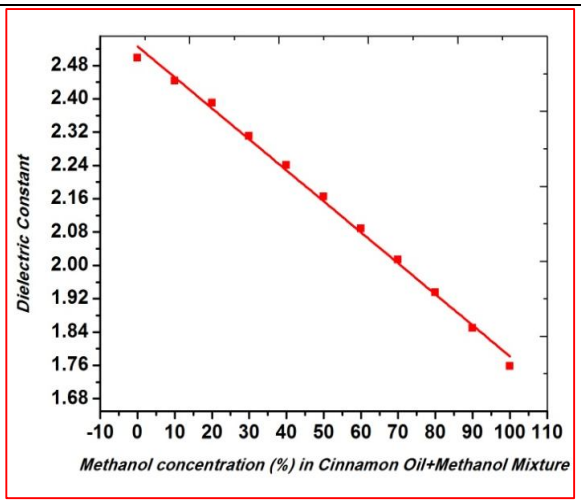

Fig.11:Dielectric Constant *Vs* Methanol concentration (%) in Methanol and Cinnamon essential oil mixture

From the recorded values of refractive index and by using the equation $n^2 = \varepsilon$, the dielectric constant values have been calculated and the variations in output power and power loss with respect to dielectric constant have been represented in graphs [Fig.12-13].

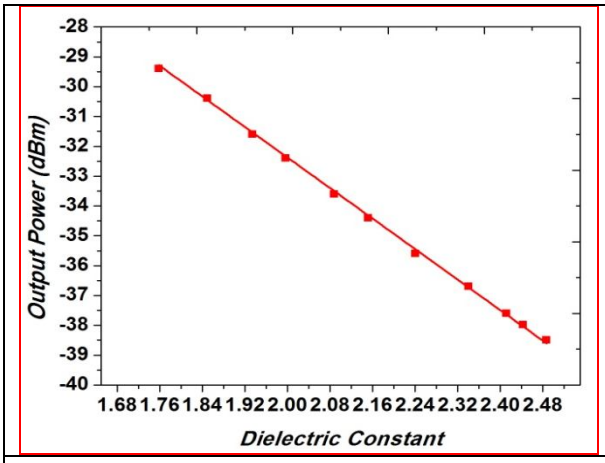

Fig.12:Output Power (dBm) *Vs* Dielectric Constant Methanol and Cinnamon essential oil mixture

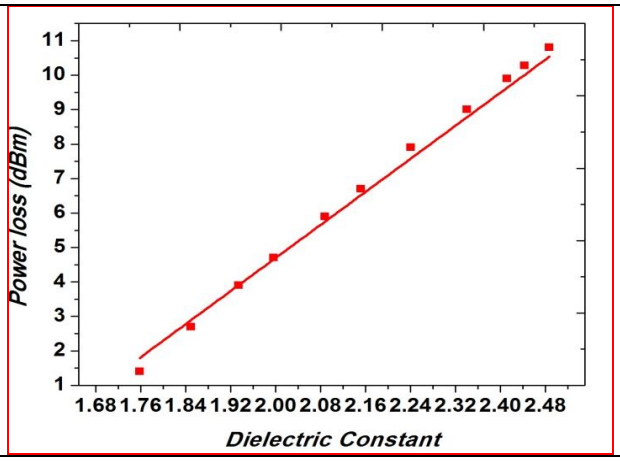

Fig.13:Power Loss (dBm) *Vs* Dielectric Constant Methanol and Cinnamon essential oil mixture

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CONCLUSION

In the present experiment, the dynamic range of the sensor has been increased by selecting a binary mixture of methanol $1.326n_D$ and Cinnamon essential oil $1.577n_D$. The calibrated curve drawn between refractive index of binary mixtures and output power can be used to determine the refractive index of any unknown liquid either dark and transparent whose refractive index lies between$1.326n_D$ to $1.577n_D$ at room Temperature. The variation of power loss with refractive index, concentration mixture verses output power, concentration of methanol verses refractive index, output power, power loss, dielectric constant and dielectric constant verses output power, power loss also studied.

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