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d. Book Chapter or Article in Edited Books

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Indian Journal of Clinical Psychology
2021, Vol. 48, No. 1, 1

Editorial

The Second Wave

Tej Bahadur Singh*

Year, 2021 commenced with a happy note as Covid 19 was known to be less dangerous in terms of loss of life and the whole nation was able to cope up successfully with this global health crisis, compared to the global figure. But at the same time, we are witnessing the entry of the second wave. As a result, Country faced second lock down in the month of February 2021 only; the spread of Pandemic is on the rise and turning out to be fatal day by day.

Although generation of awareness programmes and experiences of previous year were very helpful but considering spread and number of deaths lot of service demands are imposed on state, professionals' administrators and frontline Corona warriors.

Apart from support of pharmacotherapy, there is a massive demand of Oxygen and ventilators. On another front there is a marked increase this time in demand of psychological first aid, creation of help lines, online life skills training, Tele - Assessment, Diagnosis, Therapy & Rehabilitation. Psychologists Globally as well as in India are compelled to redefine their day-to-day clinical practice, service delivery strategies, & Procedures (Lata et.al, 2021).

Detection of infection is noted to be extremely stressful resulting in hospitalization, quarantine, isolation, in majority of cases under the care of medical team without a family member as care giver (Jiloha & Kishore, 2021). As a result, victim as well as family members are facing very difficult situation in coping. In case of death, situation was more pathetic. State is taking care of mortal remains and cremation to prevent further infection.

Nationwide lockdown, overcrowded hospitals, burning pyres and rising figures of death tremendously influenced the psyche of people. Ultimately the call of few sectors is consistently noted to curb this scenario by approaching the media to focus on recovery and success stories. Notable work of front-line workers named as corona warriors is well appreciated, both by the public & state. Post-traumatic stress still prevails.

With anxiety, depression, sleepless nights (Kochhar, 2020) now distinctly noted problems are, difficulty in interpersonal social interaction including domestic violence, alcohol & drug abuse, internet addiction and economic offenses (Jiloha & Kishore, 2021).

Overall, the second wave of Pandemic is proving vulnerable, disastrous & Fatal day by day.

IACP's commitments emerged as more serious and significant and the association is continuing support to victims and caregivers through PARAMARSH helpline; throughout the nation in 9 local languages from 9.00 A.M. to 9.00 P.M.

IACP is also very actively involved in providing manpower support in running KIRAN helpline a service provision made by National Institute of Mental Health Rehabilitation under the aegis of Ministry of Social Justice & Empowerment: Government of India

NIMHANS has continuously been providing the support of the institute in running these services as an authorized nodal agency of Ministry of Health & Family Welfare: Government of India.

Both the Behavioural techniques, Relaxation borrowed from 'Yoga' & 'Implosive Therapy' borrowed from 'Tantra' reached to western world from Indian subcontinent. With this background an article on 'Meditative therapies in Clinical Psychology', makes reading of this invited article interesting. Psychotherapeutic Components of faith healing from Kerala adds observations of a qualitative analysis in this issue.

Neuropsychological profile of persons with Alcohol use disorder has been explored thoroughly, study published in this issue is a new addition with fresh observations based on a clinic-based population of Delhi NCR. Further look for an answer with author; why cited research metrics of Clinical Psychology is less as compared to reads.

Editor is hopeful that other research papers on different topics published in this issue are likely to be informative and useful for you.

BE CORONA COMPLIANT & STAY SAFE

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Invited Paper

Meditative Therapies in Clinical Psychology

Krishnanand Choudhary[1*], Maitreya[2], Krishan Kumar[3] and Richa[4]

ABSTRACT

Meditation has born in India (East) and 'Therapies' have been developed in the West. Meditation can help a person to come out of depression, anxiety and sufferings.

'**Meditation (Dhyana**) is a multidimensional state of awareness where not a single iota of thought exists.' For being in a state of meditation a person has to purify his or her body, thought and emotion; and become aware of his body, thought and emotion ,then one can be in a state of witnessing (sakshi) which is a core feature of meditation.

The present day individual is so much suppressed, repressed and perverted that without passing through therapies 'which do cleaning', it is difficult to be in a state of meditation.

Osho has developed 'Meditative Therapies' for purification of body, thought and emotion of the participants, so that they should become ready to be in a state of meditation. These therapies dissolve tensions of the participants. Participants are also able to cathart out all the repressed emotions. These therapies are easy and are very useful, interaction among the meditators are very less. The energy which is created during therapy session, help them to go very deep in meditation. These therapies are: '**The Mystic Rose Therapy'**, '**No-mindTherapy**', '**Born Again Therapy'**, '**Dynamic Meditation'** etc.

These meditative therapies have been used to treat many patients suffering from psychogenic headache, anxiety, depression, psychosexual dysfunctions and OCD etc.

Keywords: Meditation, Mystic Rose Therapy, No-mind Therapy, Born Again Therapy, Dynamic Meditation.

INTRODUCTION

Meditation and its practices innate in India (East); have today been theorised and used as process of therapy in the West and has been found efficacious in treating conditions such as depression, anxiety, OCD and several other neurotic and stress induced conditions (Clifford and Wiser, 1984; McGee,2008; Smith,1975; Simpson et al,2007 Singh et al,2007). Meditation helps to improve the general sense of wellbeing and blissfulness in individuals by growing multidimensional awareness (sakshi); enhancing and rejuvenating: great silence, peace, sensitivity, compassion, love and intelligence.

During state of meditation, which is a multidimensional state of awareness, not a single iota of thought exists. Meditation is the science of being in the **present**, no past no future, no memory no imagination, being **here and now**. It is a state of beyond time and space. During Meditation three processes happen simultaneously – **thoughtlessness, egolessness (Anhankar shunyata)** and **timelessness**. It is a peaceful and blissful state. Meditation is not concentration. Meditation and concentration are diagrammatically opposite. In concentration the mind is focused on a point whereas in meditation multidimensional awareness remains. Concentration creates tension, whereas meditation is a state of complete relaxation. A person cannot be for twenty-four hours in concentration but he can be so in the state of meditation. Concentration is a mental phenomenon but meditation is a beyond mind state, a no-mind state. The mind works in such a contradictory way, it has such contradictory demands that it is bound to bring pain and misery. The mind divides the things. The mind can look at anything by dividing it. The mind is not capable of having a global look, it is against its nature; analysis is its way. To understand an object, it is the best procedure, but not of understanding human being. For understanding human being synthesis is the way. If we want to make human being blissful, it is not possible until and unless he goes beyond his mind. Meditation transcends duality. As expressed by Osho; 'no part of concentration should be in your watchfulness (witnessing), be watchful inclusive of all. Don't exclude anything' (Osho,1987; 1989).

For modern man and particularly mental patients, it is difficult to go directly into the state of meditation. A lot of suppressions, repressions and perversions are there. Until and unless he becomes free of all those rubbishes, it is difficult to be in the state of meditation.

That is why for being in a state of meditation a person has to **purify** his **body, thoughts and emotions; and** become **aware of** his **body, thoughts and emotion. Then witnessing (sakshi) happens. Witnessing (sakshi) is a core feature of meditation** (Osho, 1988). For purification of body a person has to cathart out all the blocks and not to allow new blocks by using them in creativity**.** Asana and pranayam and doing some creative work just for his happiness are for creative use of new blocks. A balance diet which does not bring excitation, lethargies and drunkenness; optimum exercise and optimum rest are essential for body purification. Pure thoughts bring one closer and more in understanding of oneself; one's energy leading to sublimation and upward movement; expressing feelings of being relaxed and blissful. On other hand an impure thought creates anxiety, sadness, anger, remorse. Kamanayein (desires), wealth and fame are centres of impure thought; whereas the exploration of **truth** within

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self, appreciation of **the good** (shubh) and **beauty** of very existence of the universe are centres of pure thought. **By being close to nature and listening the sayings of awakened ones thoughts are purified**. For purification of emotion, one has **to grow friendliness**, **compassion**, **blissfulness** and **being obliged to existence for whatsoever one has** (Osho, 1980).

Fritz Pearl has said, "Anxiety is a gap between now and later. Remove the later and anxiety collapse" (Pearls, 1970). But how to remove the later? The method is meditation. Dreaming goes on in the mind because of desires and desires can have a repetitive force upon the mind only when a person is not aware. So, the more asleep a person is the more repetitive and mechanical his thoughts are. Awareness brings a state of desirelessness, thoughtlessness (Osho, 2010).

Osho developed a new series of "meditative therapies" during eighteen months before leaving his body. He developed these 'Meditative Therapies' for preparing the background among participants for meditation. As ancient methods of meditation did not consider the modern man, Osho has developed meditation methods for every modern man.

These meditative therapies are powerful enough to dissolve the tensions and repressed emotions of the meditators that don't allow them to be able to sit silently. After passing through these therapies, they become silent and easily observe their thoughts. These therapies are easy and work very effectively. These therapies need less interactions among the meditators. Each meditator goes deeper in meditation with the help of the energy of the group. '**The Mystic Rose Therapy** (Osho, 1989), '**No-mind Therapy**', '**Born Again Therapy' (**Osho, 1989**)** are the main meditative therapies. Some other meditation methods which were developed by Osho in early seventies are also therapeutic: '**Dynamic Meditation' (**Osho, 1988), **Nataraj meditation** (Osho, 1988). These meditative therapies have been used to treat many patients suffering from psychogenic headache (Krishnanand, 2011), anxiety, depression, psychosexual dysfunctions, OCD, non-cardiac chest pain (Krishnanand, 1999), functional aphonia (Choudhary K, 1992; 1996), claustrophobia (Krishnanand, 2013) and other stress induced conditions.

Mystic Rose Meditative Therapy: - "The symbol of the mystic rose is that if a man takes care of the seed he is born with; gives it the right soil, gives it the right atmosphere and the right vibrations, moves on a right path where the seed can start growing, then the ultimate growth is symbolized as the **mystic rose**—when your being blossoms and opens all its petals and releases its beautiful fragrance" (Osho,1988).

The mystic rose meditative therapy has three stages and takes 21 days: 1) **Laughing** stage 2) **Crying** stage. 3) **Witnessing** (watchfulness) stage.

1) **Laughing** stage: For seven days, meditators gather everyday at one place and laugh for three hours without any reason. Generally, they keep their eyes closed. However, some eye contact with their friends is useful to accelerate laughter. Person can let their body roll about in a light, playful way, like a child. "Yaa-hoo" is a symbol which provokes hidden laughter.

At the end of the laughter stage, they sit silently, perfectly still, with eyes closed for a few minutes. By keeping their body relaxed they allow it to fall spontaneously. Digging for three hours for seven days one may find many layers of dust gathered on ones being. In seven days, much transformation comes to ones being. Laughter is an overflowing energy.

Osho says, "Laughter is a mystery. Laughter is the only ordinary experience when you are no longer a mind; it gives you glimpses of no-mind, meditation, of a transcendence of mind and time" (Osho,1988;1989).

"When one is laughing totally, a person releases energy which society does not allow him to release, ego (ahankar) disappears, the person starts functioning from heart centre, person may go even more deeper and touch the very centre of ones being; individual ego melt into existential (cosmic) ego. The person vibrates in one single tune and in harmony. It brings relaxation and great pleasure." (Osho, 1987, 1993, 1997; Rajneesh, 1987).

2) **Crying** stage: For seven days, three hours everyday people begin by saying "**Yaa - Boo**" softly a few times, then just allow themselves to cry. The room should be slightly darkened to help to move into their sadness. One should close the eyes and move deeply into all the feelings that make one cry. One can sit or lie down. The person is told to cry really deeply, cleansing and unburdening the heart; feel that the dam of all your pent-up hurts and sufferings is breaking open – let the tears flood out. If a person feels sleepy or block, he is told to rock his body back and forth a little, or say "**yaa-boo"** again a few times. The person is told not to prevent tears. At the end sit perfectly still for a few minutes and then move into let-go

"Crying cleans the whole being of the individual. Crying allows to express all the repressed emotions. Thus, it is a natural safety valve (Osho, 1977)". Tears is overflow of our emotions and has three dimensions: -**a**) that **of pain**, suffering, sadness**. B)** That of too happy, **too blissful**.**3**) A third dimension which is very rare, very few people have come to know it is **of innocence**. A person feels so over-flowingly innocent and fresh that tears come out of gratitude; just the feeling of so much grace towards the whole existence" (Osho,1987).

3) **Witnessing stage**: For the third week, a person has to sit in silence for whatever period of time he feels comfortable, and then dance to light and heartful music. A meditator may sit on a chair if he feels comfortable but his backbone should be straight, he keeps his eyes closed and breathing natural. The person is told to relax, be aware, and witnessing.

Osho (1988) used a term "**Become like a watcher on the hills, just witnessing whatever passes by**".

The meditator is instructed to remain aloof (without identifying) with whatever going on and non-judgemental. Then some gentle music is played and they dance, allow the body to find its own movements, and continue watching, with an understanding and awareness of not getting lost in the music.

During all the three stages of the mystic rose meditative therapy, participants of group are told not to talk to each other entirely.

In a study, the experimenters made two groups of the participants. One group passed through "the Mystic Rose meditative therapy". Their depression reduced significantly. Their quality of life also improved to a significant level. These improvements were not found in non-intervention group. (Sharma and Suri, 2014).

The NO-Mind Meditative Therapy: Osho (1988) says, ''No-mind means intelligence. Mind means gibberish, and not intelligence, and when I am asking you for gibberish, I am simply asking you to throw mind and all its activity so you remain behind – pure, clean, transparent, and perceptive."

This therapy is done for two hours every day. It is a seven-day course. It has three stages:

1. Gibberish or Conscious Craziness
2. Witnessing
3. Let- Go

First Stage: **Gibberish or Conscious Craziness** –People are told to say nonsense sounds –gibberish in a standing or sitting position but not to speak any language or use words that he or she knows. The meditator has to be total in throwing out all the rubbish he has accumulated during his life in different situations.

Osho (1989) says, "The mind thinks in terms of words. Gibberish helps to break up this pattern of continuous verbalization".

There is no need to suppress. Gibberish cleans thoughts. Singing, crying, shouting, screaming, everything is allowed. People are told to allow their body whatever their body wants: jump, lie down, pace, sit, kick without touching others or interfering with them in any way. "**Gibberish is to get rid of active conscious mind"** Osho (1989).

Second stage: **Witnessing**: - people are told to sit absolutely still, silent, relaxed keeping the backbone erect on the floor or on the chair. They are told to remain **aware, being here and now.** They are instructed to gather energy and look inwards. Let the thoughts drift but remain a witness. They are told to watch the thoughts inclusive of everything (not concentration)**.** They are instructed not to say to thoughts-this is good, this is not good, just keeping a distance**. "Silence is to get rid of inactive mind"** Osho (1989).

Third stage: **Let- Go: -** Participants are told to allow their body to fall spontaneously on the ground. They should remain aware and just be a witness. They will automatically come to their own centre of being." **Let -Go is to enter into the transcendental"** Osho (1989).

No-Mind therapy (non-verbal expressive therapy) has been used for treatment of psychogenic headache (Choudhary, 1994; Krishnanand, 2004), in the treatment of 'Internet Syndrome' (Krishnanand, 2005), in the treatment of obsessive compulsive disorder (Choudhary, 2015; Krishnanand, 2012).

Born Again Meditative Therapy: Osho (1989) says, "People go on saying that childhood was paradise. Everyone longs for it, but no one is doing anything for it. 'Born Again Meditative Therapy' gives this opportunity to regain it. I want to throw you back to the point where you started being 'good' against being natural. Decide that for these days you will be as ignorant as you were when you were born-just a child, a new baby".

Born Again Meditative Therapy takes two weeks and everyday two hours.

First Stage: People are told to behave like a child in this stage.

Osho (1989) gives instruction to participants to "Be playful. Initially it will be difficult because you are so much structured, have strong defences around; put aside seriousness. You may be dancing, singing, jumping, crying, weeping - anything at all, in any posture. Nothing is prohibited except touching other people."

Second Stage: People are told to sit silently, backbone erect, close the eyes, just be a witness to whatsoever is happening, passive watcher-no identification, no judgement.

After this therapy people becomes fresh, more innocent, and meditation becomes easier.

Some other **meditation methods** developed by Osho which are also therapeutic —

One such meditation is the

Dynamic Meditation: - Osho (1989) says, "Meditation is an energy phenomenon. All types of energy move in a dual polarity. For any energy to become dynamic, the anti-pole is needed. This polarity is very meaningful for meditation because mind is logical (it moves in a line, it chooses one of the opposites) and life is dialectical, life moves with the opposite, it zigzags from negative to positive, it uses the opposite. Dynamic Meditation is a contradiction. Dynamic means effort, much effort, absolute effort and meditation means silence, no effort, no activity. It may be called a dialectical meditation".

Dynamic meditation has five stages. It takes one hour. The stages one, two and three take 10 minutes each but the fourth and fifth stages take 15 minutes each. Osho developed music for this meditation which continues for one hour. This special music not only guides time to participants but also helps to go deeper in meditation.

First stage (Breathing): -People are told tobreath out and breath in as fast as possible but it should be deeper and chaotic. Participants are instructed to keep their body loose and allow natural movements. This stage facilitates the energy to move up.

Second stage (Catharsis): - Participants are instructed to express without inhibition anything which comes out-shouting, screaming, dancing, singing, jumping, laughing, crying… If nothing comes out, then choose any of emotion and do acting. Real catharsis will start. One has to go totally mad consciously.

Third stage(Shouting HOO...HOO): - Participants are told to keep their body loose, raise both hands up, jump and in jumping position shout 'Hoo-hoo...' While shouting

'hoo-hoo... exhaling should be total and very deep. Osho says to be total while jumping and shouting 'hoo-hoo..'. He says, "even 99.9% won't do, you have to use 100% energy." While coming down one should try that his heels touch the ground.

Fourth stage(STOP): When stop sound comes, the participant has to stop totally, like a statue, no movement at all. Osho says, "don't take any convenient position, just stop and be a witness to everything going on." Any movement will dissipate energy.

Fifth stage (**Celebration**): - People are told to celebrate; dance with the music and carry aliveness whole day.

In a study on Osho Dynamic Meditation, it was found that Osho Dynamic Meditation is highly effective in decreasing depression, anxiety, thought problems, sleep problems, anger (even at trait level), occupational stress, and burn out and it also increases self-esteem and self-care (Vyas, 2007; Vyas, Locke and Stein, 2012). In other study on Osho Dynamic Meditation, Iqbal, Singh, Aleem and Bano (2014) found that anxiety of the people who participated in 21 days' meditation programme has reduced significantly. Iqbal, Singh and Aleem (2015) found in another study on Osho Dynamic Meditation that it reduces significantly the mental health problems of the participants.

DANCING AS A MEDITATION

Osho (1989) says**, "**Dance totally so that you begin to feel that you are the dance. The division must disappear; then it becomes meditation. If the division is there, then it is a good exercise, healthy, you will feel fresh, your anger, tension, sadness disappears but it is not meditation. Be totally in dance, because division can exist only if you are not total in it."

NATARAJ MEDITATION: - It takes one hour and has three stages. Osho developed one-hour duration music for this meditation which helps the participants go deeper within and be a witness.

First Stage (Dancing): - Participants are told to dance totally and spontaneously with eyes closed for **40 minutes**, allow the body to move as it likes but remain a witness. Dancing is able to express all negative energy of the participants, brings peace and bliss.

Second stage (For 15 minutes**): -**The participants should lie down. There should be no movement in any part of the body and eyes should remain closed.

Third stage (For 5 minutes): - Dancing in this stage is a celebration and expressing thankfulness to existence for this peace and bliss.

Dance on this special music expresses the disturbed negative energy of the participants in rhythmic way and brings relaxation and wellbeing. It helps the person to be a witness (sakshi).

This therapy has been used for treating depression, anxiety neurosis, conversion disorder and psychosomatic illnesses.

Some studies have been done on simple dance therapy which reveals its usefulness for the treatment of depression, anxiety and post-traumatic stress disorder etc (Jeong, Hong, Lee, Park, Kim, and Suh ,2005; Meekume, Karkou and Nelson, 2015; Koch, 2019). Chen (2020) has reviewed the different studies done on dance therapy and has found its effectiveness in treating different disorders.

DISCUSSION

Mostly an approach towards treatment or solving a problem is thought the narrowed view of seeing it only where the patient 'is'- so far as his consciousness is concerned.

To solve an individual's problems or disorders a person (the patient) will have to **grow in relaxed awareness**. As the awareness of a person grows, the cloud of thoughts gathered around disappears and he can see the problems clearly and the problems will gradually disappear. Awareness means whatsoever a person is doing he is conscious of that. For example, if he is eating, he is aware of every step of eating, not that he is thinking something else while eating.

Sufferings are there because of desires which are contradictory and very conflicting and are projection of past experiences on to our future. The individual himself gives energy for the wheel of desires to move. Desirelessness happens if the individual's energy moves into unknown. Desire repeats itself.

The more desires are repeated, the more they become easy, convenient and automatic. While repeating a thing a person need not be aware. So, in unawareness a person keeps on repeating the same desires and related thoughts. The past experiences don't force a person, they only supply the easiest grooves, routine tracks and a person fall victim to convenience. Convenience is the temptation. It is inconvenient and troublesome to create a new track. The more a person is aware, in the fire of awareness old grooves, patterns gradually disappear and the person becomes desireless and goes in a state of thoughtlessness, becomes a witness (sakshi) which is a beyond mind state. In a state of total awareness which is multidimensional, a person is just a witness (sakshi), he lives moment to moment, here and now, in the present; all his sufferings disappear. Studies done on the Osho Meditative therapies by Sharma and Suri (2014), Krishnanand (1994, 2004, 2005, 2012, 2015); Vyas (2007), Vyas et al (2012), Iqbal, Singh, Aleem and Bano (2014), Iqbal, Singh and Aleem (2015) reveal the effectiveness of these therapies for the treatment of different mental disorders. The efficacies revealed by these studies for the treatment of different disorders are just the tip of the iceberg of usefulness of Osho Meditative therapies. Basically, these Meditative therapies are the devices to awake a person from deep slumber. Meditative Therapies developed by Osho destroy old grooves and patterns and help a person to be desireless, thoughtless, here and now, in the present, a witness (sakshi) and all human sufferings gradually disappears.

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Award Paper

Cognitive, Behavioral, Emotional, and Social Influences on Academic Achievement of Children in Grade I, Aged Six to Seven Years

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ABSTRACT

Background: Academic achievement in early years has positive distal outcomes on functioning. Little is known about what predicts academic achievement in early years.

Aims/Objectives: This study examines cognitive, behavioral, emotional, and social predictors of academic achievement among 6–7-year-olds.

Method: The sample comprised 200 children in grade I. Academic achievement was indexed on total marks obtained in last-term examinations. Tools used were the Wechsler Intelligence Scale for Children (WISC-III UK), Strengths and Difficulties Questionnaire (SDQ), Incomplete Doll Stories (IDS), and Peer Nomination for Social Preference (PNSP).

Results: The mean age of sample was 6.67 years (SD = .38); prominently from the middle socioeconomic strata (80%). In terms of academic achievement, mean percentage obtained by children was 68.82%. Intelligence was in average range (mean IQ = 107.22, SD = 12.24). Majority were categorized as normal on SDQ (69% and 68% on parental and teacher report of total difficulties; 88% and 72% on parent and teacher report of prosocial behaviors). Children demonstrated secure attachment (mean score on IDS = 2.13, SD = 0.62), and were liked by peers (PNSP like ratio = 0.72, SD = 0.10). On stepwise linear regression, predictors of academic achievement were teacher reported hyperactivity/inattention (50% variance), general intelligence (33%), likability (23%), and teacher reported peer relationship problems (19%). These variables together accounted for 42% variance in academic achievement.

Conclusion: Teacher reported hyperactivity/inattention and peer relationship problems, and child's intelligence and likability are predictors of academic achievement in 6–7-year-old school-going children.

Keywords: *Academic Achievement, Early Childhood, Primary School, Predictors*

INTRODUCTION

In India, education for children is not only a fundamental right, but a social expectation. Education is regarded by parents to be the gateway for a better future. Despite this national and social stress on education however, the percentage of children enrolling in schools and completing schooling is less than ideal (United Nations Educational Scientific and Cultural Organization).

While systemic factors cannot be denied, a key motivator to persisting in school maybe academic achievement, through its contribution to motivation and self-concept (Awan et al., 2011; Chetri, 2014; Emmanuel et al., 2014). It is pertinent to note that 'achievement motivation' is contextually embedded; bridging contributions of systemic and individual level factors (Wigfield et al., 2007). In India, marks continue to be a measure of academic achievement. Thus, it may be expected that children who demonstrate academic achievement are also more likely to stay in school, given the confluence between the systemic and individual factors noted in achievement (Wigfield et al., 2007).

Like any other facet of development, the pathway to successful schooling begins in early childhood. Children make their foray into formal schooling at grade I, being subjected to the rigors of a structured school curriculum. These early years of schooling and academic achievement have been noted to be associated with subsequent academic, social, emotional, and behavioral competencies (Bennett et al., 2003; Carroll et al., 2005; La Paro & Pianta, 2000). If academic achievement predicts socio-emotional and behavioral functioning, does the opposite also hold true? This question, unfortunately has been inadequately addressed, especially in India.

In examining predictors of academic achievement, studies in India have tended to focus on older children/adolescents, with prominent emphasis on systemic factors (Dev, 2016; Doley, 2018). When examining individual factors, studies have sampled children with scholastic issues/learning disabilities (Agarwal & Kar, 2007; Kayastha, 2011; Ralte, 2011; Uma & Shanthi, 2002). Available literature reflects a relative absence of studies on typically developing children and academic achievement in India, specifically at younger ages. This lacuna needs to be bridged; given the call for a longitudinal approach to education with focus on formative years, rooted in research and social reality (National Focus Group on Early childhood Education, 2006). In this regard, the current paper, drawn from findings from a larger study, examines the predictors of academic achievement in children enrolled in grade I, between ages of six to seven years.

METHODS

Sample:

Participants comprised of school-going children between the ages of six through seven years, their parent (mother or father), and their class teacher. The sample was drawn from two schools, catering to the middle socioeconomic sections

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of society in the city of Bengaluru, India. Both schools used English as the medium of instruction. While one school was a girls-only school, the other was co-educational. Both housed classes from Nursery to grade X.

Children were drawn from grade I of both schools. All children who could comprehend simple instructions in English were recruited into the study, along with their parent and class teacher. There were no exclusion criteria. Assessments on study tools with children, parents, and teachers were carried out within the school premises.

Measures:

The domains of study were cognitive, emotional, social, behavioral, and academic facets of children's functioning. There were variables under each, which were assessed using the following tools:

Table 1: Tools used in this study

Sl. No.	Tool	Domain	Variable
1	Exam Performance	Academic	Academic achievement
2	Wechsler Intelligence Scale for Children	Cognitive	General intelligence Verbal intelligence Non-verbal intelligence
3	Strengths and Difficulties Questionnaire	Emotional	Emotional problems
		Social	Peer relationship problems Prosocial behaviors
		Behavioral	Conduct problems Hyperactivity/inattention Overall behavioral problems
4	Incomplete Doll stories	Emotional	Attachment style
5	Peer Nomination for Social Preference	Social	Likability

1. Exam Performance (EP) was the total marks scored by the child in the last term examinations. It was taken as a measure of academic achievement, which was the primary outcome measure in the study.
2. The Wechsler Intelligence Scale for children (WISC-III UK) is an individually administered test for ages six through 16 years, comprising of 13 subtests across verbal and performance domains. For the purposes of this study, 5 subtests, namely arithmetic, information, vocabulary, picture completion and dight-symbol coding were individually administered with each child. The performance of the child yielded a Full-Scale Intelligence Quotient (FSIQ), a measure of general intelligence. Also, Verbal Intelligence Quotient (VIQ) and Performance Intelligence Quotient (PIQ) were obtained, which facilitated as measures of verbal and non-verbal intelligence. For the purposes of this study, Indian norms established by Panicker (2005) were utilized for interpretation of participant performance.
3. The Strengths and Difficulties questionnaire (SDQ) (Goodman, 1997) is a screening questionnaire for assessing mental health of children and adolescents. It comprises of 25 items to be responded to on three-point Likert scale. The tool yields scores across five subscales (emotional symptoms, conduct problems, hyperactivity/inattention, peer relationship problems, and prosocial behaviors), in addition to a total difficulties score. Based on the scores obtained, the child is categorized as belonging to normal, borderline, or abnormal; with regard to each of the subscales and total difficulties. Widely utilized with good psychometric properties (ICC with Rutter scale: 0.78 to 0.92), the SDQ has been used across studies in India (Chari & Hirisave, 2020; Kayastha, 2011; Vijayaraghavan, 2018). For the purposes of this study, the parent and teacher report versions were administered.
4. Incomplete doll stories (IDS) (Cassidy, 1988) assess mental representations of self in relation to primary attachment figure. The child is required to complete six stories using a family of dolls. These stories are rated on a three-point scale (1-3), with higher scores representing better attachment security. Also, children's attachment styles are classified as secure/confident, avoidant, and hostile/negative attachment style. Adequate inter-rater reliability has been established for this test (Cronbach's alpha = 0.78). The IDS has been previously used in Indian studies (Nithya Poornima et al., 2005). For the purposes of this study, only two stories were used to assess attachment security; and the three-band categorization was collapsed into two, namely secure and insecure (combining avoidant and hostile/negative).
5. Peer Nomination for Social Preference (PNSP) (Coie & Dodge, 1988) is a sociometric approach that assesses social standing/status. Children are asked to nominate and rank three children whom they liked least and liked most in their class. Self-nominations are not permitted. For this study, a preference ratio was additionally estimated by calculating the ratio of the total likes and dislikes a child received against the total number of the children in the class. The PNSP has been found to be valid and reliable; and has been used in other studies examining social preference (Menting et al., 2011).

Procedure:

The study was funded by the Indian Council for Social Science Research (ICSSR), and approved by the institutional review boards at the National Institute of Mental Health and Neuro Sciences (NIMHANS), Bangalore. Informed consent was sought from the managerial heads and principals of participating schools, teachers, and parents. Verbal assent of children was obtained. All participants were assessed individually on respective tools. Assessment duration with parents/teachers was a maximum of 20 minutes. Assessment duration for each child was around $2\text{-}2^{1/2}$ hours, and was carried out with breaks, on the same day. Children were given sweets for their participation. Data was collected over a period of 6 months.

Ethical considerations:

Participation was voluntary, with choice to withdraw participation at any point over the course of the study without penalty. Confidentiality was maintained. Care was ensured to not disrupt a child's school activities. When required, parents of children who demonstrated difficulties in any domain were given suggestions for improving the same. Professional referrals were made, if required.

Data Analysis:

Data was entered and analyzed on the Statistical Package for Social Sciences (SPSS, version 16.0). Descriptive statistics was employed to estimate sample characteristics. Pearson correlation was utilized to examine association of variables with academic achievement. Step wise Linear Regression was utilized to examine predictors for academic achievement.

RESULTS

Sample background:

The sample comprised of 200 children (girls = 185, boys = 15) across two schools (only-girls school = 170; co-educational school = 30). The mean chronological age of the sample was 6.67 years (SD = 0.38). Majority of the sample was from the middle-income socioeconomic strata (80% family monthly income between INR 10,000 to 40,000). Most parents were educated up to grade XII (54.5%, mothers; 51% fathers). While majority of mothers were home makers (88.5%), fathers had their own business venture (67%).

Academic achievement:

The mean percentage of marks obtained by children in the last term examinations was 68.82% (SD = 18.33). Majority obtained A grade in their examinations (57.5%), followed by B (27.5%), C (11.5%), and D grade (3.5%).

Cognitive variables and academic achievement:

On the WISC-III UK, the mean Full Scale Intelligence Quotient (FSIQ) was 107.22 (SD = 12.24), falling within the average range of intellectual functioning. The mean Performance IQ (PIQ) and Verbal IQ (VIQ) were 103.7 (SD = 15.79) and 112.68 (SD = 15.13) respectively, falling with the average and above average range of intellectual functioning. FSIQ ($r = 0.37$, $p < 0.01$), VIQ ($r = 0.30$, $p < 0.01$)), and PIQ ($r = 0.37$, $p < 0.01$) were positively correlated with examination performance (academic achievement).

Behavioral variables and academic achievement:

Across subscales on the SDQ (total difficulties, conduct problems, hyperactivity/inattention), both parent and teacher reports suggested that majority of children were within the normal category.

The mean scores for parent report for total behavioral problems, conduct problems, and hyperactivity/inattention were 11.35 (SD = 5.76), 1.93 (SD = 1.66), and 3.98 (SD = 2.08) respectively; falling within the normal category on all three scales. The mean scores for teacher report for total behavioral problems, conduct problems, and hyperactivity were 9.01 (SD = 5.76), 1.25 (SD = 1.49), and 3.78 (SD = 2.57) respectively; falling within the normal category on all three scales.

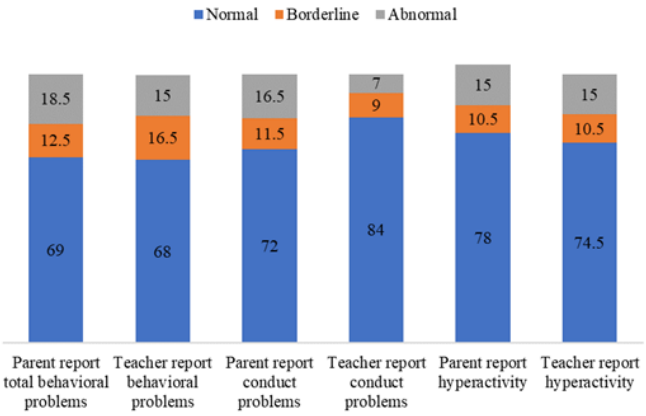

Figure 1: Percentage of children across categories on the SDQ behavioural subscales

Correlating behavioral variables with academic achievement demonstrated negative association between parental and teacher report of behavioral issues and academic achievement in the children.

Table 2: Pearson correlation between behavioral variables and academic achievement

Academic achievement	Total behavioral problems		Conduct problems		Hyperactivity/ inattention	
	P	T	P	T	P	T
	-0.38**	-0.52**	-0.17*	-0.28**	-0.37**	-0.50**

** $p < 0.01$, * $p < 0.05$; P: Parent report, T: Teacher report

Emotional variables and academic achievement:

On the IDS, most children were categorized as having secure attachment with their primary caregiver (86.5%, n = 173). On the three-point scale scoring (1-3), the mean score of the sample was 2.13 (SD = 0.62). Put together, these findings suggest that children in the sample had strong attachment security.

On the emotional problems subscale of the SDQ, both parent and teacher reports reflected majority of children to be within the normal category (parents: 63%, n = 126; teachers: 90.5%, n = 181). Mean scores on the subscale were 3.00 (SD = 2.41) and 1.69 (SD = 1.77) respectively for parent and teacher reports; falling within the normal score range (0-5).

Correlation analysis revealed an inverse relationship between emotional problems and academic achievement, such that more emotional problems was associated poorer exam performance (parent SDQ score: $r = -0.27$, $p < 0.01$; teacher SDQ score: $r = -0.35$, $p < 0.01$).

Social variables and academic achievement:

On the PNSP, more children were 'liked by few' and 'disliked by few'. The mean like preference ratio was higher than the dislike ratio, suggesting that children in the sample

were more liked than disliked by their peers (like ratio = 0.72, SD = 0.10; dislike ratio = 0.05, SD = 0.09).

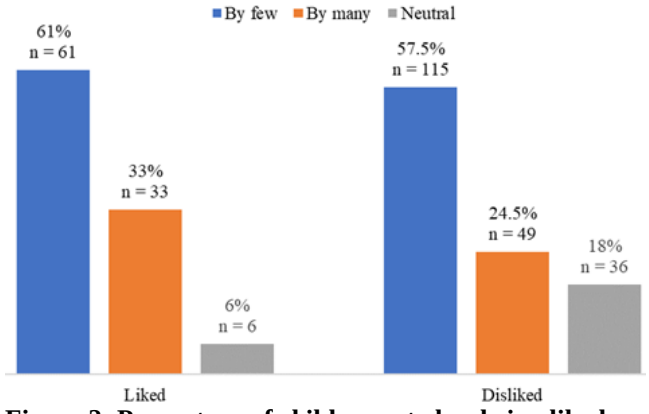

Figure 2: Percentage of children rated as being liked or disliked on the PNSP

As per parent and teacher reports on peer relations problems and prosocial behaviors of the SDQ, majority of children were categorized as being in the normal category

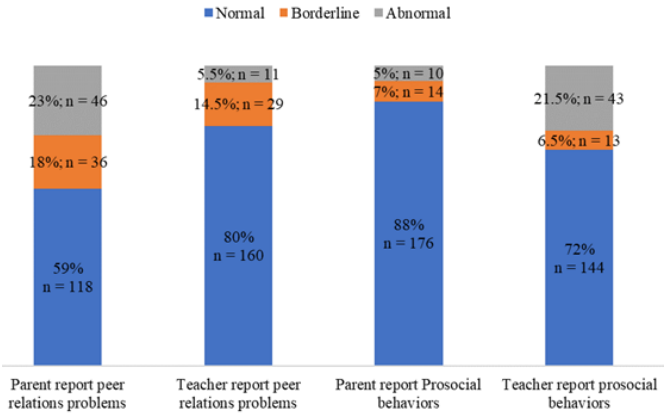

Figure 3: Percentage of children across categories on the SDQ peer relations problems and prosocial behavior subscales

The mean scores for parent report for peer relations problems and prosocial behaviors were 2.48 (SD = 1.80) and 7.82 (SD = 1.91) respectively; falling within the normal category. The mean scores for teacher report for peer relations problems and prosocial behaviors were 2.29 (SD = 1.63) and 6.57 (SD = 2.45) respectively; also falling within the normal category.

Correlating social variables with academic achievement reveal positive association with being liked (like ratio) and prosocial behaviors; and negative association with peer relation problems.

Table 3: Pearson correlation between social variables and academic achievement

Academic achievement	Social preference		Peer relation problems		Prosocial behaviors	
	Like ratio	Dislike ratio	P	T	P	T
	0.43**	-0.03	-0.24**	-0.37**	0.12	0.37**

*** p < 0.01, * p < 0.05;* P: Parent report, T: Teacher report

Model predicting academic achievement:

Stepwise linear regression analysis was done to identify predictor variables of academic achievement. Only those variables having correlation coefficients above 0.2 were included in analysis to minimize spurious correlation. Of these variables, teacher reports of hyperactivity/inattention, FSIQ, like ratio, and teacher reports of peer relation problems accounted for 50%, 33%, 23%, and 19% of variance on academic. Collectively, these variables accounted for 42% of the variance in academic achievement.

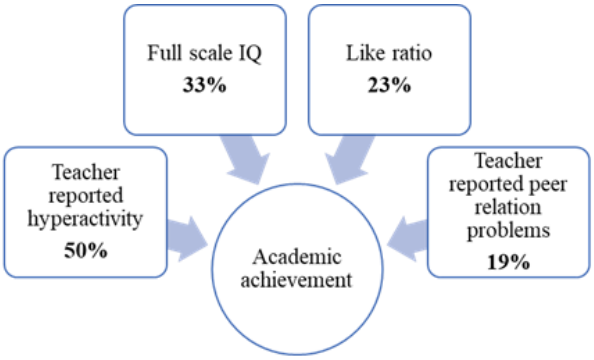

Figure 4: Percentage of variance of individual predictor variables on academic achievement

Table 4: Stepwise regression of predictor variables on academic achievement

Model	Predictor	Adjusted R^2	Beta Coefficient	t
1	Constant	0.25**		38.62
	SDQ Hyperactivity – Teacher rated		-0.50	-8.13
2	Constant	0.35**		2.51
	SDQ Hyperactivity – Teacher rated		-0.47	-8.29
	Full scale IQ		0.33	5.77
3	Constant	0.39**		2.46
	SDQ Hyperactivity – Teacher rated		-0.35	-6.31
	Full scale IQ		0.30	5.42
	Like ratio		0.23	3.76
4	Constant	0.42**		2.62
	SDQ Hyperactivity – Teacher rated		-0.31	-4.90
	Full scale IQ		0.32	5.78
	Like ratio		0.21	3.47
	SDQ Peer relations problems – Teacher reported		-0.19	-3.17

*** p < 0.01*

DISCUSSION

This paper examined academic achievement and its cognitive, behavioral, emotional, and social predictors among children attending first grade at school.

Most children performed well in their previous term examinations, with the sample's average percentage marks being close to 70%. The higher percentage of children obtaining 'A grade' in the sample further attests their academic achievement. This is a noteworthy finding, alluding to the quality of the academic curriculum at the selected schools. Both schools were non-government, private English medium schools. Over few decades, while

Indian government reported educational statistics have not been ideal, there has been a call to recognize the contribution of private schools in the education sector (Kingdon, 1996; Rao, Cheng, & Narain, 2003). Children attending private schools in India have been found to have higher reading and arithmetic skills than children in government schools, with more gains noted for those from the lower socioeconomic strata (Desai et al., 2008). Majority of children in this sample were from the middle-income socioeconomic group, albeit from the lower-end of this stratum (monthly family income: INR 10,000 to 40,000). It is plausible that facilitative school-related factors in private schools noted by Desai et al. (2008), also operated for children in this study sample, contributing to their academic achievement.

In examining cognitive, behavioral, emotional, and social factors, the children in the sample may be classified as typically developing. Their intelligence levels were average (mean full scale IQ approximately = 107) with nil significant behavioral or emotional issues (around 70% sample categorized as normal on SDQ). Sample children were noted to be securely attached (around 87% of sample), and generally liked by peers (around 94% of sample). In the background of relative absence of cognitive, behavioral or socio-emotional issues, combined with a supportive school clime, children's academic functioning may be expected to be average or above-average (noted in the academic achievement of the sample). It is arguable that academic achievement may be predicated for this sample on their typically developing status and supportive school environments.

However, regression revealed specific variables across cognitive, behavioral, and social domains to be predictive of academic achievement. In descending hierarchy of variance, these were general intelligence (cognitive), teacher report of hyperactivity/inattention (behavioral), child likability (social), and teacher report of peer relationship problems (social). Combined, these variables accounted for 42% percent of academic achievement. In this study, teacher reports of behavioral and social functioning predicted academic achievement; and not parent-report. This needs to be primarily addressed.

Discordance between parent and teacher report is not unusual in child mental health research; hence attesting the need for both (Lawson et al., 2017; Murray et al., 2004). However, it is argued that for this study, teacher report of behavioral and social issues be given salience. A large part of a child's day is spent at school. Also, the optimal test for behavioral and social issues is in the presence of another. Schools in housing children of all ages and adults, is fertile ground to witness behavioral and social competencies of children. Thus, it is likely that teachers held a more accurate view of children's functioning in these domains.

Hyperactivity and inattention have been noted to have a direct influence on academic functioning (Merrell & Tymms, 2001; Salla et al., 2016; Saudino & Plomin, 2007). Also, children with hyperactivity have also been found to have issues in peer relationships (Hoza et al., 2005; McQuade & Hoza, 2015). While the association amongst variables was beyond the scope of this study, it is proposed that hyperactivity was the larger predictor; contributing to issues in peer relationships and academic achievement. This is certainly a possibility, given the higher variance accounted for by hyperactivity/inattention (50%) than peer relationship problems (19%). It is pertinent to note that in this study, the association between hyperactivity/inattention and peer relationship problems with academic achievement was inverse, in that lower levels predicted higher academic achievement. This is again in line with previously established research (Hoza et al., 2005; McQuade & Hoza, 2015; Merrell & Tymms, 2001; Salla et al., 2016; Saudino & Plomin, 2007)

The association between intelligence and academic outcome is intuitive and well-established. Thus, the high predictive value of intelligence on academic achievement for this sample is explicable. Overlapping hyperactivity/inattention, intelligence, and academic achievement, Mayes and Calhoun (2007) noted Full Scale IQ on the Wechsler tests to be the strongest predictor of academic achievement in children with Attention-Deficit Hyperactivity Disorder (ADHD). Our sample being typically developing, the predictive potential of Full-Scale IQ on academic achievement is likely to be more robust (33% variance).

Finally, likability being a predictor of academic achievement, may be an index of broader socio-emotional competence. If one is liked by peers, it implies that he/she demonstrates social and emotional interpersonal skills that make him/her likable. A higher competence in these domains has been associated with better academic functioning among Indian and international sample of children and adolescents (Brouzos et al., 2014; Ratnaprabha et al., 2013; Shin, 2020; Welsh et al., 2001). While the actual mechanisms of socio-emotional competence contributing to academic achievement is not known, the same may be operative in this study. It is important to note that likability had more predictive potential than the absence of peer relationship problems (23 % Vs. 19% variance). It is hypothesized that children who were 'liked' demonstrated competencies above and beyond normative expectations, i.e., beyond typically developing status. This bodes well for future academic achievement (Shin, 2020; Welsh et al., 2001)

The major implication of this study is the elucidation of predictors of academic achievement amongst typically developing young children in India. Other studies in this area have stopped at correlation and noted general mental ability and home environment to be associated with academic achievement, albeit amongst adolescents (Dev, 2016; Doley, 2018). A study carried out in Pakistan examined the influence of intelligence, study habits, and behavioral maladjustment on academic achievement (Jamil & Khalid, 2016). However, their sample comprised older children (grades 4 and 5); and noted delinquency and social withdrawal, intelligence, and study habits to be predictive of academic achievement (Jamil & Khalid, 2016). This study is unique in focusing on children who just started schooling (6-7 years of age), and thus attributes of delinquency and study habits may not be applicable. The

findings from this study enhances the scope for early promotive interventions and longitudinal follow-up research. This study also contributes to international research that has tended to focus on home environment/parental engagement and/or pre-school readiness skills as predictors of academic achievement in this age-group (Kudrek & Sinclair, 2000; Pace et al., 2019; Schlee et al., 2009). Amongst lower income groups in India, teachers are primary tools for academic inputs, as parents often themselves are minimally educated. Thus, in focusing on teacher reports and their predictive potential, this study paves the way for scalable interventions in school mental health.

Possibly the biggest limitation of this study is the sample, specifically the gender-distribution. Of the sample of 200, only 15 were boys; urging caution in generalizing findings. However, this limitation may be a strength, in that, government data suggests girls representation in schools to be lower than that of boys. Thus, the study findings facilitate to address a much-needed area of public health concern; in attesting predictors of academic achievement in young girls. As stated earlier, achievement motivation in school settings may be intrinsically associated with persistence with school activities. Further studies may employ stratified random sampling to obtain more representative results. Also, longitudinal follow-up of this sample is encouraged to path trajectories for sustained academic achievement.

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Original Research Article

Neuropsychological Profile of Persons with Alcohol Use Disorder: Findings from De-addiction Centres of Delhi-NCR

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ABSTRACT

Background: Persons with alcohol use disorder exhibit mild-to-moderate deficits in cognitive functioning including attention span, working memory, executive functions, visuospatial abilities and verbal fluency. Depression is also known to play a mediating role during this decline.

Aim: This study aims to understand differences in the cognitive functioning among the persons with alcohol use disorder and non-users.

Method: For this study, a purposive sample of 50 male patients with alcohol dependence and 50 male normal participants was collected from different de-addiction centres located in Delhi and NCR. PGI Memory Scale, NIMHANS Neuropsychological Battery and BDI-II were used for the purpose of this study. To analyse the data t-test, Chi-Square/Fishers Exact Test and Correlation were used.

Results: The results of the study revealed that majority of the participants in the alcoholic group were unmarried, having undergraduate degree. The family history of alcohol abuse was seen in 64% of the participants in the alcoholic group. The minimum and maximum initiation age of alcohol consumption was 15 and 27 years respectively. Mild impairment in cognitive functioning like attention & concentration, executive functioning, abstraction and comprehension was reported in the alcoholic group. However, minimal impairment was found in verbal learning & memory, visual learning & memory and visuomotor gestalt along with mild depression among the persons with alcohol use disorder; although, there was no difference in the performance between depressed and non-depressed alcoholics in terms of verbal fluency and free recall deficits.

Conclusions: Long-term use of Alcohol affects cognitive functions. This knowledge can be used as awareness campaign against alcohol use and by clinical psychologists in planning effective psychotherapeutic interventions.

Keywords: *Alcohol Consumption, Addiction, Cognitive Functioning, Disorder*

INTRODUCTION

Alcohol is one of the most commonly used substances. Overall, 14.6% (around 16 crore) Indian population consumes alcohol (Ambekar et. al., 2019). Alcohol related disorders have become matter of global concern because of negative impacts of alcohol use on individual health, families, and social systems. It is also known to cause dramatic impacts on the national productivity and steep shifts in economic balance due to various disabilities associated with it at individual level.. Global data suggests alcohol consumption led to 99.2 million Disability Adjusted Life Years (DALY) & 4.2 millions of all DALY. However, the burden of disease attributable to alcohol use is associated with other health outcomes. (GBD 2016 Alcohol and Drug Use Collaborators, 2018).

Alcohol use is associated with multiple cognitive deficits including attention, working memory, executive functions, visuospatial abilities, impulsivity, learning, memory and verbal fluency (Gooden et al., 2021). In some severe cases, individuals may also develop alcohol related dementia, Korsakoff's syndrome and Wernicke's encephalopathy. The cognitive decline is found to be significant during the early abstinence period (Stavro et al., 2013). Excessive consumption of alcohol results in memory impairment. Studies have highlighted significant impact on episodic memory, whereas implicit memory remains intact (Berre et al., 2017). Persons with alcohol use disorder are also found to be depressed resulting in increased craving for alcohol (Kuria et al., 2012).

Many researchers have studied the impact of chronic alcohol use on attention and other cognitive functions. Parada et. al., (2012) analysed binge drinking and cognitive functions in university students using WMS-III on which poorer scores were reported among binge drinkers. Freydier et al., (2014) studied divided attention among drivers due to alcohol intoxication using car-following task and found decrease in additional task performance, and divided attention task due to a higher blood alcohol concentration (BAC $\geq$ 0.5g/L). Combination of alcohol and sleep deprivation results in reductions in vigilant attention, and slowing down the voluntary allocation of attention (Lee et al., 2015). In another study, significant impairment was found in selective attention during alcohol hangover (Devenney et. al. 2019). In a systematic review binge drinking & heavy alcohol consumption was found to be linked with poor scores on several domains of cognitive functioning including attention, learning, memory,

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visuospatial functioning, psychomotor speed, executive functioning, and impulsivity (Lees et. al., 2020).

In a longitudinal study, Peeters et al. (2014) found that working memory functions in a 2-way- it can be negatively influenced by alcohol use as well as it can also act as a risk factor for the alcohol consumption due to its poor development in at-risk adolescents. In another study, alcohol consumption was found to be associated with slower improvement on letter fluency and global cognition over time (Beydoun et al., 2014). Despite of prevailing notions for genetic associations between alcohol use and cognitive functions, Kumari et al., (2014) could not see any stronger evidences in favour such as a relationship between alcohol intake and cognitive functions (immediate and delayed word recall, verbal fluency and processing speed). In an investigatory study, Monnig et al., (2016) reported highest rates of neuro-cognitive impairment in learning (50.8%), executive function (41.9%), and memory (38.0%) for 5.6 ± 3.5 as an average number of drinks per drinking day. Domagała et. al., (2017) reported significant disturbances of cognitive functions and presence of severe frontal cerebral cortex dysfunctions affecting verbal fluency and working memory in alcohol-dependents. Martins et. al., (2017) explored a relationship between executive functioning, affect-regulation, drinking motives & alcohol related problems and found that both enhancement and coping motives predicted the pattern of alcohol use and consequences related to it. Brion et. al., (2017) observed that alcohol-dependent patients showed slowing down of reaction time, deficit in inhibition & impairment for shifting and updating executive functions. In an observational cohort study, Topiwala et. al., (2017) reported severe brain damage and a swift decline in cognitive functions like lexical fluency due to moderate or heavy drinking (more than 14 units/week). In a meta-analysis, 77 studies with 5140 sample seen the effects of alcohol use on the individual subcomponents of executive functioning and impulsivity. It was reported that planning, problem solving, and inhibitory abilities were significantly affected by alcohol abuse (Stephan et al., 2017). In another study, participants having affected working memory with poorer executive functioning or behaviour dysregulation are more likely to consume alcohol (Looby et al., 2018). Gunn et. al., (2020) reported increased errors in task switching, n-back and continuous performance test during a hangover indicating impairment of core executive functions due to alcohol consumptions.

Several studies attempted to find out a relationship between alcohol and depression. Rabassa et. al., (2020) found a positive correlation between alcoholism and depression & executive dysfunctions in an alcoholic group along with mental co-morbidities. By analysing data from a cross-sectional study, Jacob et. al., (2021) found that the prevalence of depressive symptoms was higher for those who reported an increase in the amount of alcohol during COVID-19. Bing-Canar et. al., (2021) examined effect of depressive symptoms on alcohol use and alcohol cue reactivity in trauma-exposed young adults currently using alcohol. It was found that depressive symptoms were associated with elevated drinking coping motives, symptom severity, and alcohol use problems at baseline.

Such cognitive impairments due to alcohol use make it difficult for an individual to access the treatment. Neuropsychological assessments can be conducted to evaluate the cognitive functioning of the individuals, and providing them with the correct diagnosis and treatment plan. This paper aims to study the neuropsychological profile of the persons with alcohol use disorder and non-alcoholics and study significant differences between both the groups.

METHODS

Settings:

The data was collected from different de-addiction centres located in Delhi-NCR.

Participants:

A purposive sample of 100 males was divided into experimental (n=50) & control group (n=50). Experimental group comprised of 50 in-patients diagnosed with alcohol dependence syndrome from de-addiction centres located in Delhi-NCR. Control group comprised of 50 male participants who were patient's relatives and friends without alcohol use disorder. All the participants were recruited as per the inclusion and exclusion criteria. Participants were informed that the collected data will be used for research purposes.

Inclusion criteria for experimental group: Male patients between 20 & 50 years, with the diagnosis of alcohol dependence syndrome, can read and understand Hindi and willing to give written consent were included.

Exclusion Criteria: Any major psychiatric or medical illness which may hinder the assessment process.

Inclusion and exclusion criteria for control group included all above except the diagnosis of alcohol dependence syndrome.

Measures:

Socio demographic data sheet: Socio-demographic details of the participant were recorded in a proforma, specifically designed for the purpose of this study which included details like age, sex, occupation, marital status, domicile, religion, age of onset, total duration of alcohol consumption, family history etc.

PGI Memory Scale: Developed by Pershad & Wig (1977). There are 10 subscales assessing mainly recent & remote memory recognition and retention etc. It takes around 45 minutes to one hour to complete this test. This is a highly reliable and valid test. The test-retest reliability was found to be between .70 & .80, and split half reliability was found to be .91. Its validity was also found to be high as its correlation with Boston memory scale .71 & .81 with Wechsler memory scale.

NIMHANS Neuropsychological Battery: It is used for neuropsychological assessment intended to examine both the working brain and dysfunctional brain. It was developed by Rao (2004) at NIMHANS, Bangalore. There are 5 tests and 18 subtests assessing various cognitive domains. It takes around 2 To 2 ½ hours to complete this test. This is a highly reliable and valid tool. In the present study, we have used following sub-tests: attention and concentration, executive functions, abstraction, comprehension,

visuomotor coordination (BGT), recognition, verbal and visual memory.

Beck Depression Inventory II: Developed by Beck (1987) to assess the severity of depression. It is a 21-items self-rating scale and, in each item, there are 3 or 4 statement with increased severity (0-3). Patient has to select one of the statement scores that will be added up which gives a total score (0-63). It takes around 20-30 minutes for administration. It is a highly reliable & valid tool. It has been found that most of the substance dependent patients report depressive feelings & thoughts.

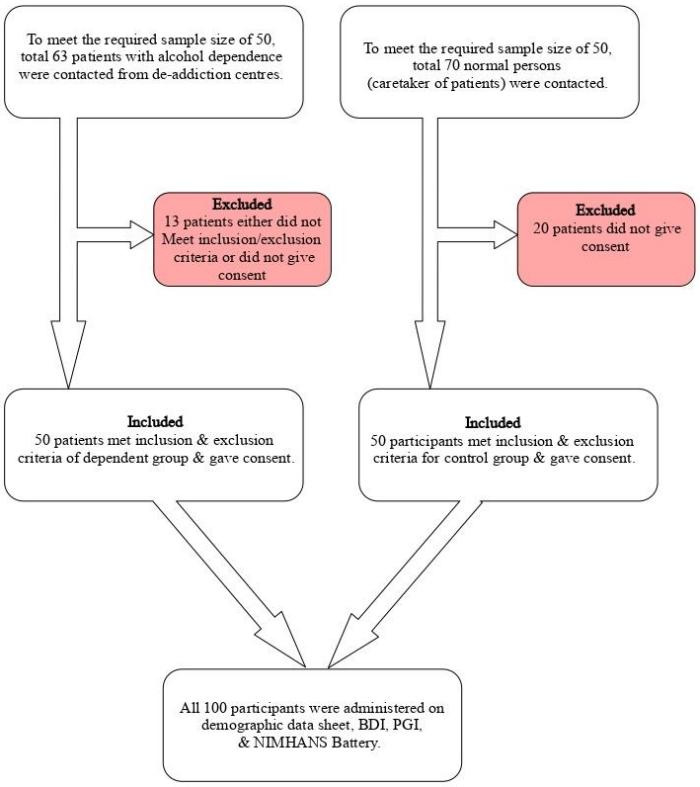
Data Analysis:

Data was analysed using Frequency, Percentage, Mean, SD, t-test, Chi-Square/Fishers Exact Test and Correlation were used to analyse the data.

Procedure:

Total 100 participants were included in the study. Fifty male patients diagnosed with alcohol dependence by the psychiatrists at de-addiction centres as per ICD-10 (WHO-1993) were recruited. Fifty male participants were recruited in control group who were patient's relatives or friends without alcohol use disorder. Participants were explained about the study and their written informed consent was taken. All the participants were interviewed and information regarding demographic and clinical details was collected. Filling of Socio-demographic data sheet was followed by administration of PGI Memory scale, NIMHANS Neuropsychological Battery and BDI. All tools were administered within a week by giving adequate time gaps between the tests to eliminate the effect of boredom and fatigue during assessment. Procedure is depicted in flow chart as follows:

FLOW CHART (PROCEDURE)



RESULTS

Participant Characteristics:

A total of 100 participants were recruited for the study, 50 in experimental group and 50 in the control group. The mean age of the experimental group was 34.22±5.82 years and 35.24±5.17 years for control group. Seventy per cent were unmarried in the experimental group whereas in control group 66% were unmarried. Fifty-two per cent of persons with alcohol use disorder (AUD) and 58% participants of control group were under graduates. In persons with AUD, family history of abuse was seen in 64% participants whereas in control group it was reported by 16% participants only. Characteristics of participants are presented in table 1.

Table 1: Characteristics of Participants

Demographics		**Groups**		**Total**
		Persons with alcohol use disorder (n=50)	Controls (n=50)	
Marital Status	Unmarried	35(70%)	33(66%)	68
	Married	12(24%)	17(34%)	29
	Separated	3(6%)	------	3
Education	Primary	3(6%)	3(6%)	6
	High	21(42%)	17(34%)	38
	UG & Above	26(52%)	30 (60%)	56
Occupation	Unemployed	3(6%)	2(4%)	5
	Labourer	7(14%)	9(18%)	16
	Regular Job	29(58%)	31(62%)	60
	Self-Employed	11(22%)	8(16%)	19
Domicile	Urban	48(96%)	49(98%)	97
	Rural	2(4%)	1(2%)	3
Religion	Hindu	45(90%)	43(86%)	88
	Muslims	1(2%)	5(10%)	6
	Others	4(8%)	2(4%)	6
Types of family	Nuclear	45(90%)	45(90%)	90
	Joint /Extended	5(10%)	5(10)	10
Family History of Alcohol Use	Present	32(64%)	8(16%)	40
	Absent	18(36%)	42(84%)	60

Clinical characteristics of experimental group:

The mean age of initiating alcohol use was 18.88±2.16 years. Mean duration of illness was 15.38±6.09 years. Clinical characteristics are presented in table 2.

Table 2: Mean & SD of Age of Onset and Duration of Illness in Experimental group (n=50)

Variables	**Minimum**	**Maximum**	**Mean**
Age of onset	15.00	27.00	18.88 (±2.16)
Duration of Illness	5.00	26.00	15.38 (±6.09)

Performance of both the groups on different tests:

The performance on Neuropsychological Battery of both the groups (i.e. Persons with alcohol use disorder & Controls) was recorded as Intact (No Impairment), Minimal impairment and moderate impairment. Attention and concentration were found to be minimally impaired in 22 and 3 participants of experimental and controlled group respectively ($p<0.01$). Eleven participants in alcoholic group have minimal difficulty in executive functions whereas in control group only one subject has difficulty ($p<0.01$). Minimal impairment was found in Abstraction in 19 participants of experimental group and 3 participants in control group ($p<0.01$). Verbal Learning & Memory minimally impaired in 28 participants of alcoholic group and 3 participants of the control group ($p<0.01$). Minimal difficulty in Visual learning and memory was seen in 21 participants of alcoholic group and 5 participants of control group ($p<0.01$). Nine participants in alcoholic group and 2 participants control group had minimal difficulty in comprehension ($p<0.05$). The visuomotor gestalt was intact in alcoholic group in 46 participants whereas it was intact in all the 50 participants of control group ($p<0.05$). Recognition was found to be intact. Only 4 participants in alcoholic group and 2 participants in control group had minimal difficulty in recognition (not significant).

The result of performance of both the groups on different tools is presented in table 3.

Table 3: Performance of both the groups on different tools

Tests	Experimental		Control		Fisher's exact test
	Intact	Mild	Intact	Mild	
Attention & Concentration	28	22	47	3	19.06**
Executive Functions	39	11	49	1	9.35**
Abstraction	31	19	47	3	14.77**
Comprehension	41	9	48	2	4.96**
Visuo-Motor (BGT)	46	4	50	0	4.13**
Recognition	46	4	48	2	0.70 NS
Verbal Learning & Memory	22	28	47	3	28.93**
Visual Learning & Memory	29	21	45	5	13.17**

**= significant at 0.01 level; NS= Not Significant

On PGI Memory Scale, a total of 7 participants from the experimental group performed below 40th percentile whereas, none of the participants from the control group performed that low ($p<0.01$). Thirty-three participants in experimental group and 10 participants in control group reported mild depression on the BDI-II ($P<0.01$). The result of PGI Memory Scale of both groups is presented below in table 4.

Table 4: PGI Memory Scale (Total Score)

Test Percentile (PGI Memory Scale)	Experimental group	Control group
Above 60th percentile	10	40
40th to 60th percentile	33	10
Below 40th percentile	7	0

Table 5: Correlation matrix of different sub-scales

	Executive functions	Abstraction	Comprehension	BGT	Recognition	Verbal Learning Memory	Visual Learning Memory	PGI Total	BDI
Attention & concentration	.593**	.696**	.356**	.438**	.314**	.513**	.309**	.566**	.430**
Executive functions		.472**	.165	.553**	.425**	.351**	.272*	.454**	.363**
Abstraction			.353**	.384**	.272**	.427**	.181	.524**	.416**
Comprehension				.091	.046	.317**	.229*	.244*	.211*
BGT					.593**	.305**	.228*	.470**	.235*
Recognition						.195	.330**	.311**	.121
Verbal Learning & Memory							.589**	.534**	.466**
Visual Learning & Memory								.484**	.452**
PGI Total									.634**

** = Correlation is significant at the 0.01 level &
* = significant at the 0.05 level.

Correlation among different tests was seen using correlation matrix (Table 5). Attention and concentration were significantly correlated ($P<.01$) with executive functions, Abstraction, Comprehension, BGT, Recognition, Verbal and Visual learning & memory, PGI Memory scale and BDI. Executive function was also significantly correlated ($P<.01$) with all the other subtests except comprehension. Abstraction was also significantly correlated ($P<.01$) with all tests except visual learning & memory. Comprehension was not correlated with executive function, BGT and recognition only. BGT was correlated with all except comprehension. Recognition was correlated with all except comprehension, verbal learning & memory and BDI. Verbal Learning & Memory was significantly correlated with all except recognition. Visual learning & memory was correlated at .01 with attention, recognition, verbal learning & memory, PGI and BDI. It was not correlated with abstraction and with rest of the tests it was significant at .05. PGI memory scale was significantly correlated at .01 level with all tests except comprehension ($P<.05$). BDI was also significantly correlated with all the scales except recognition.

DISCUSSION

This study was aimed at understanding the differences in the cognitive functioning among the persons with alcohol use disorder and non-alcoholics. A total of 100 participants were taken for the study where, 50 were in experimental group and 50 in control group.

The results revealed that majority of the participants in the alcoholic group were unmarried, having undergraduate degree. Three percent of the alcoholic population was divorced which means that alcoholism could be a reason for the divorce. The family history of alcohol abuse was seen in 64% of the participants in the experimental group. Therefore, people with positive family history of alcoholism should be considered as a high risk group (Sarkar et al., 2013).

The minimum and maximum initiation age of alcohol consumption was 15 and 27 years respectively and the mean year of duration of alcohol intake was 15.38 years. The onset of initiation of consumption of alcohol and the amount consumed was found to be good predictors cognitive and motor impairment (Sullivan et al., 2000). A total of 52% of persons with alcohol use disorder and 58% controls participants were under graduates. Although, educational background generally does not influence performance on neuropsychological test, however, some reading and writing skills are required to complete the assessment. The majority of the sample was having regular job. However, persons with alcohol use disorder (58%) were not regular in the job due to alcohol intake.

In a study by Schottenbauer et. al., (2007), deficits in memory & learning were reported among alcohol consumers even after controlling for age. The significance of age was reduced as a predictor when number of years of heavy drinking were entered into regression equation. Results suggest about the existence of a direct link or relationship between alcohol use & memory impairments beyond the effects of age or education. In our study also, though age was matched but neuropsychological deficits were shown mainly by alcoholic patients.

Attention and concentration was found to be significantly impaired ($p<0.01$) between both the groups. The groups also differed significantly in executive functioning ($p<0.01$), which is supported by the finding of study conducted in year 2007 and 2010 (Green et al., 2010; Noël et al., 2007). Group comparisons revealed cognitive as well as affective humour processing deficits of alcoholics. The observed impairments related to executive functions (Uekermann et al., 2007). Abstraction and comprehension was also found to differ significantly among the control and the alcoholic group ($p<0.01$) and ($p<0.05$) respectively, can be supported with the study (Oscar-Berman & Marinković, 2007).

The alcoholic group was also found to be minimally impaired in Verbal Learning & Memory ($p<0.01$), Visual learning and memory ($p<0.01$) and Visuomotor gestalt ($p<0.05$).

On total scores of PGI Memory Scale only 7 participants of alcoholic group performed below 40^{th} percentile, 33 between 40^{th} – 60^{th} percentile and 10 participants above 60^{th} percentile. In control group 10 participants were between 40^{th} -60^{th} percentile and 40 participants were above 60^{th} percentile. Fisher's Exact Test was found to be significant. This shows both the groups differed significantly on PGI total scores.

A study investigated the effects of alcoholism on components of memory and meta-memory. Results revealed deficits in accuracy, with the alcoholic patients providing overestimations. There were also links between inaccuracy, executive decline, and episodic memory impairment in patients. Episodic memory deficit and executive dysfunction explained meta-memory decline in this clinical population (Berre et al., 2010).

33 participants in experimental group and 10 participants in control group reported mild depression on the BDI-II ($P<0.01$). Free call deficits along with verbal fluency were reported among depressive patients. However, performance remained invariably similar among both groups (depressed & non-depressed alcohol consumers). There is a relationship between depression and executive deficits in persons with AUD with evidence of major depression.

It was a well-planned study on persons with alcohol use disorder & cognitive functions. The neuropsychological functions were assessed using standardized test and BDI was included to rule out the effects of depression on cognitive functions. Control group was taken to compare the performance on neuropsychology so the difference of scores can be attributed to alcohol use and the large sample size increased the validity of the findings.

However, there are some limitations of this study. All the patients who were assessed on neuropsychological test were abstinent for just 1or 2 weeks, so the deficits seen may not be observed after a month or so. So, a prospective study can be planned to see the cognitive deficits in alcohol dependent patients periodically. The study was limited to Delhi-NCR only and duration of addiction was not controlled. Other impacts of alcohol dependence were not studied.

CONCLUSION

Long-term use of Alcohol affects cognitive functions. This knowledge can be used as awareness campaign against alcohol use and by clinical psychologists in planning psychotherapeutic interventions.

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Original Research Article

Self-differentiation, Schemas, and Future Time Orientation in Romantic Relationships Among Young Adults

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ABSTRACT

The study explored self-schemas, differentiation of self and future time orientation in relation to the romantic relationship status of young adults (18-30). A cross-sectional exploratory design with purposive sampling was adopted. A sample of 344 unmarried participants responded to the socio-demographic data sheet, Young Schema Questionnaire- S3, Differentiation of Self Inventory- R and Future Time Orientation in Romantic Relationships. Descriptive statistics, t-tests, ANOVA, correlation coefficients and multiple regressions were employed for analysis. Among the participants, 65% had been in a romantic relationship at least once. Those who were ever in a romantic relationship had higher scores on schemas of insufficient self-control and admiration seeking compared to those who were never in any relationships. The younger age group (18-24) scored higher on all schema domains in comparison to the older age group (25-30) and males had higher mean scores than females. Differentiation of self was higher in those who never had any romantic relationship and in the older age group. Overall high future time orientation was noted for the group. No significant differences across age, gender and relationship status and no predictor for future orientation were identified. There is a need to understand the study variables in the cultural context. Future research may consider prospective studies across the age groups to see the dynamic nature of these constructs and the influence of social-cultural factors.

Keywords: *Young Adults, Future Time Orientation in Romantic Relationship, Early Maladaptive Schemas, Differentiation of Self.*

INTRODUCTION

The transition to adulthood is marked by a shift in primary importance from familial bonds to romantic partners and other social relationships (Antonucci et al., 2004). Romantic relationships allow exploration of autonomy beyond familial relationships and aid psychological aspects such as identity, intimacy and attachment and hence, demand huge emotional and cognitive investment. Romantic relationships may become either a vital source of support as well as elicit negative emotions and stress (Bouchey & Furman, 2003). In healthy romantic relationships, the romantic partners play a crucial role in providing a buffer from experiencing adverse outcomes in adulthood relationships, especially in individuals with vulnerable childhood histories such as insecure attachment (e.g. Simpson et al. 2011). However, unsatisfactory or negative experiences in romantic relationships can also amount to mental health consequences like anxiety, depression, low self-esteem and in some extreme situations, suicidal attempts (Furman & Winkles, 2012; Sorensen, 2007; Teeruthroy & Bhowon, 2012). Even though India as culture follows a traditional approach wherein pre-marital romantic relationships are largely discouraged, opportunities for the forming romantic and sexual partnerships exist. Many young individuals have been found to engage in romantic relationships which may be casual or involve long term planning (Alexander et al., 2007; Varma & Mathur, 2015).

Early Maladaptive Schemas

Young's (1999) construct of Early Maladaptive Schemas (EMS) has provided an important construct that is useful for understanding the relationship of interpersonal experiences with the schemas (Yoo et al., 2014). According to this construct, an individual's early experiences in the social context and emotional experiences with significant others become the basis for developing cognitive relational schemas which further influence the way an individual interacts with others and his/her interpersonal orientation. EMS are central to the person's identity because they determine an individual's thoughts, feelings and behaviours across the relationship interactions. Often may elicit negative affect when they are activated in the context of interpersonal interactions (Young, 1994). EMS, however may vary in their levels of pervasiveness and proneness to activation such that the presence of unpleasant life events could activate them while the presence of of supporting and healthy experiences can buffer them. Schemas tend to impact the kind of social relationships formed and the way one responds in various relationships, often explaining the relational difficulties and psychological problems (Astaneh et al., 2013). EMS plays an adaptive role in childhood, allowing it to make sense of the environment. In emerging adulthood, romantic relationships demand the intertwining of self-concepts of the dyad, making the picture more complex. When there is loss of a romantic relationship, the parts of the self formed by interaction with the partners are lost or modified for the reconstruction of the self to happen. This alteration of self-concept, however, has been viewed as a necessary evil, that allows recovery from defunct relationships over time (Slotter et al., 2010).

Differentiation of Self

Bowen's (1978) construct differentiation of self is an aspect of personality that explains the nature of emotional balance existing in a relationship through which interpersonal anxieties are managed. Differentiation appears to have

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formed classically in the early formative years under the influence of family-of-origin experiences (Holman & Busby, 2011). Differentiation is defined as an individual's capacity to differentiate thoughts and feelings and make a choice with respect to ones' behaviours. Individuals with greater differentiation are able to experience strong affect however, they can return to the calmer affect easily and to logical reasoning when circumstances require the same. It also mediates flexibility, adaptability, and a better ability to cope with stress. Individuals with higher differentiation are able to balance both emotions and rationality in thinking and also able to maintain autonomy in their intimate relationships. They are able to establish stronger and long-lasting meaningful relationships as well as are able to have higher future orientation across various domains of life. In contrast, individuals who are less differentiated are more reactive, and find it difficult to maintain calm in the context of the high emotionality of others. They either fuse to the extent that their anxiety affects the others in the relationship or emotional cutoff in order to manage internal tension (Skowron & Friedlander, 1998; Skowon et al., 2003). Problems in adequate differentiation of self have been linked with higher potential of coping and problem solving deficits, abuse in relationships and marital discord (Skowron & Dendy, 2004).

Future Time Orientation in Romantic Relationships (FTORR)

Future Orientation refers to the process by which individuals use their previously formed schemata or attitudes to process the incoming information and make predictions for the future (Trommsdorff, 1983). Oner (2000) contextualized future orientation within romantic relationships to assess an 'individual's level of investment in and commitment towards relationships in the future. Various socio-cultural characteristics and individual factors such as personality characteristics, gender, and perspective on romantic relationships are said to influence his/her perceptions of the FTORR (Öner, 2001). Individuals who score high on FTORR are said to be more selective while choosing the partners, whereas; those who score low are more flexible in their relationship choices and tend to live in the "here and now".

Romantic relationships formed in young adulthood are seen as significant markers in the transition into adulthood which are closely intertwined with the construct of self. Still, the literature on romantic relationships among unmarried young adults is not vast especially in the Indian setting. The role of differentiation in the family context is well established but not well understood in the pre-marital intimate relationships. Further, FTORR appears to have found its significance in research only recently. Thus, this study aims to examine self-schemas, differentiation of self and FTORR in young adults across age, gender and relationship status (romantic relationships in the past, present and without any). Further, the interrelationship among the variables and predictors of FTORR are also explored.

METHOD

The study adopted an exploratory design. The young adults who are unmarried, able to read and understand English were included in the study and those who were seeking interventions for mental health concerns were excluded. A total of 423 young adults (aged between 18-30 years) were selected using purposive sampling from the community and college populations. Out of which, 54 participants were excluded due to the absence of sufficient data and 24 questionnaires were empty and the final sample consisted of 344 individuals.

Tools

1. Socio-demographic Data Sheet collected the socio-demographic data such as age, sex, living arrangement, education, sexual orientation, religion, relationship status, and nature of relationship experiences in the family and during childhood.

2. **Young Schema Questionnaire- Short Form** (YSQ-S3, Young, 2005) is a shorter version of Young Schema Questionnaire- Long Form (YSQ-LF; Young & Brown, 1994). YSQ-S3 has 90 items rated on a 6-point scale. Young (1998) has identified 18 early maladaptive schemata, categorized under five larger domains (Disconnection and Rejection, Impaired Autonomy and Performance, Impaired Limits, Other–Directedness, and Overvigilance and Inhibition). A higher score on any subscale indicates a greater possibility of a particular maladaptive schema. Cronbach's alpha for the overall scale was 0.94 and, moderate to high reliability is reported for the subscales.

3. **Differentiation of self inventory** (DSI-R, Skowron & Schmitt, 2003) is a self-report multidimensional inventory having 46 items that focus on significant relationships and current relations with the family of origin of adults, items are rated on a 6 point Likert Scale. It has a full scale differentiation score and scores for the following subscales: 'Emotional Reactivity', 'I Position', 'Emotional Cut-off', and 'Fusion with others'. Individuals with poor differentiation are found to involve in fused relationships when they are anxious (Skowron, 2004; Skowron& Friedlander, 1998). Higher scores on each subscale reflect greater differentiation. The scale has demonstrated sound psychometric properties.

4. **Future Time Orientation of Romantic Relationship** (FTORR, Öner, 2000) scale has 11 items assessing one's need for future commitment and the degree of future investment in the relationships with the partner. The items are rated on 4-point Likert-type scales ranging from 1 (not at all true of me) to 4 (very true of me).Total scores ranged from 11 to 44 with higher scores reflecting higher future orientation. The reliability coefficient was .89 (Öner, 2001).

Procedure

The study was approved by the Institute Ethics Committee. The data was collected from November 2014 to January 2015. The investigator approached many universities within 5 Km of her Institute in the city of Bangalore out of which, 6 granted permission for the collection of data. With the help of college staff, the tools of the study were administered in groups. In addition, the investigator also did individual administrations to those who chose to participate separately. The participants were explained about the nature

and purpose of the proposed study, confidentiality of the information given by the participants was ensured and anonymity was maintained. Written informed consent was obtained. All participants were informed regarding the availability of the investigator in case of further clarification in the campus for a specified time, in addition, guidance for psychological help and the contact details were provided.

Data Analysis

Statistical Package for the Social Sciences (SPSS– version 15) were employed to perform statistical analyses. Descriptive statistics was used to analyse the measures of the study and demographic variables. ANOVA, t-test, was employed to compare scores obtained in ERR, YSQ-S3, DoS and FTORR across age, gender and relationship status groups. Pearson's correlation and Multiple Regression was employed to understand the associations among variables. The data was also subjected to Post Hoc analysis for a better understanding of the significant differences across the four relationship status groups.

Table 1: Socio-demographic characteristics of the sample

Socio-Demographic Details		Frequency (N=344)	Percent
Age	18 – 24	252	73.3
	25 -30	92	26.7
Gender	Male	154	44.8
	Female	190	55.2
Education	Graduation	244	70.9
	Post-Graduation	90	26.2
	PhD	10	2.9
Religion	Hinduism	179	52.0
	Muslim	76	22.1
	Christian	80	23.3
	Others	9	2.6
Sexual Orientation	H Heterosexual	344	100
Relationship Experience	Never	120	34.9
	Ever	224	65.1
Relationship Status	Only Past	103	29.9
	Only Current	67	19.5
	Past & current	54	15.7
Number of Pas Relationships	1	91	26.5
	2	39	11.3
	3 or more	31	9
Duration of Current Romantic Relationship (years)	<1	51	14.8
	1-2	27	7.8
	≥3	40	11.6

With respect to EMS, the group belonging to being ever in a relationship had higher scores on schemas of insufficient self-control and admiration seeking compared to those who were never in any relationship.

Table 2: Difference in means of EMS across two Relationship experience groups, age and gender

Maladaptive Schema	Relationship Status	Mean (SD)	t	Age	Mean (SD)	t#
Emotional Deprivation	Never (n=120)	2.57 (1.17)	1.0	18-24 (n=252)	2.65 (1.18)	4.95
	Ever (n=224)	2.44 (1.15)		25-30 (n = 92)	2.04 (0.95)	
Abandonment	Never	2.68 (1.00)	-1.02	18-24	2.94 (1.05)	5.72
	Ever	2.80 (1.11)		25-30	2.24 (0.94)	
Mistrust	Never	2.60 (1.02)	-0.2	18-24	2.83 (1.05)	7.26
	Ever	2.62 (1.08)		25-30	2.03 (0.84)	
Social Isolation/ Alienation	Never	2.43 (1.02)	-1.24	18-24	2.69 (1.04)	5.75
	Ever	2.57 (1.03)		25-30	2.07 (0.82)	
Defectiveness /Shame	Never	2.09 (0.97)	-0.24	18-24	2.25 (0.99)	5.10
	Ever	2.12 (0.98)		25-30	1.72 (0.80)	
Failure to Achieve	Never	2.36 (0.90)	-1.68	18-24	2.66 (0.98)	5.76
	Ever	2.54 (1.06)		25-30	1.98 (0.91)	
Practical Incompetence/ Dependence	Never	2.30 (0.85)	-1.04	18-24	2.56 (0.94)	6.77
	Ever	2.40 (1.01)		25-30	1.82 (0.78)	
Vulnerability to harm or Illness	Never	2.24 (0.84)	-1.73	18-24	2.61 (0.98)	9.19
	Ever	2.43 (1.08)		25-30	1.69 (0.75)	
Enmeshment	Never	2.39 (0.87)	-0.75	18-24	2.66 (0.89)	7.91
	Ever	2.46 (0.98)		25-30	1.82 (0.82)	
Subjugation	Never	2.52 (0.87)	-1.19	18-24	2.80 (0.94)	7.29
	Ever	2.65 (0.99)		25-30	2.07 (0.76)	
Self-Sacrifice	Never	3.33 (1.07)	-0.27	18-24	3.47 (1.05)	3.41
	Ever	3.36 (1.01)		25-30	3.04 (0.93)	
Emotional Inhibition	Never	2.96 (0.93)	0.44	18-24	3.12 (0.98)	6.09
	Ever	2.91 (1.04)		25-30	2.41 (0.89)	
Unrelenting Standards	Never	3.57 (1.00)	1.60	18-24	3.64 (0.91)	5.92
	Ever	3.40 (0.95)		25-30	2.97 (0.95)	
Entitlement /Superiority	Never	3.07 (1.00)	-1.13	18-24	3.33 (0.96)	5.81
	Ever	3.19 (0.97)		25-30	2.66 (0.86)	
Insufficient Self Control	Never	2.90 (0.92)	-3.26**	18-24	3.21 (0.96)	2.57

/ Self Discipline	Ever	3.26 (0.98)		25-30	2.91 (0.97)	
Admiration/ Recognition Seeking	Never	2.81 (1.00)	-2.11*	18-24	3.15 (1.01)	5.47
	Ever	3.06 (1.05)		25-30	2.48 (0.96)	
Pessimism/ Worry	Never	2.92 (0.97)	0.45	18-24	3.20 (1.04)	9.33
	Ever	2.97 (1.09)		25-30	2.26 (0.74)	
Self Punitiveness	Never	3.00 (0.92)	-0.38	18-24	3.19 (0.96)	5.29
	Ever	3.04 (1.02)		25-30	2.58 (0.92)	
YSQ total	Never	2.71 (0.64)	-0.74	18-24	2.94 (0.66)	8.55
	Ever	2.79 (0.74)		25-30	2.27 (0.61)	

**** p-=0.001, *p=0.03; # all values significant at 0.01**

RESULTS

The mean age of the sample was 21.9 (±3.23) years; majority belonged to the age group 18- 24 years. There were more female participants than male participants and the majority were pursuing their graduation level education. About half of the sample identified with Hinduism as their religion. Further with regard to experience with intimate relationships, 35% of the sample had never been in a relationship (the majority were in the 18-24 age range with a mean age of 20.26yrs) and 65% have been in a romantic relationship at least once. Among those who have been in a relationship majority only had past relationships.

Comparison of scores on EMS domains across 4 relationship status (never, only past, only current, past and current) shows that there was significant difference on the domain Emotional Deprivation (F=8.22; p=0.001), Practical Incompetence/ Dependence (F=3.38; p=0.01), Subjugation (F=3.29; p=0.02), Insufficient Self control/Self discipline (F=3.64; p=0.01). Post Hoc analysis indicated that the group having relationship in the past only had a significantly higher score on the schema of Emotional Deprivation compared to those belonging to the group of only current relationship (Mean Difference = 0.52; p = 0.02) and the group past and current relationship (Mean Difference = 0.88; p =0.001). Also, those belonging to the group of never having a relationship had significantly higher mean score in Emotional Deprivation than those belonging to Past and Current Relationship group (Mean Difference = 0.64; p =0.001).

The mean scores on the schema Practical Incompetence and Dependence were higher for the group with Only Current Relationship than the group with Past and Current relationship (Mean Difference = -0.51; p =0.02). On the schema Subjugation, the mean score of the group Only Past had significantly higher mean than the group Both Past and Current Relationships (Mean Difference = 0.40; p =0.01). On the schema Insufficient self control/ self discipline domain the mean score of group Only Past Relationship was significantly higher than the Never in a relationship group (Mean Difference = 0.37; p = 0.02). Comparison of maladaptive schemas across the two age groups shows that the difference in means is significant across all domains wherein the younger age group had higher scores on all early maladaptive schema domains than the older age groups.

Table 3: Difference in means of Differentiation of Self and Future Time Orientation in Romantic Relationships across Relationship status, and age

Differentiation of self	Relationship Status	Mean (SD)	t	Age	Mean (SD)	t-score
Emotional Reactivity	Never (n=120)	3.69 (0.79)	3.52***	18-24 (n= 252)	3.39 (0.88)	-2.61**
	Ever (n=224)	3.34 (0.93)		25-30 (n = 92)	3.67 (0.91)	
I Position	Never	3.90 (0.82)	0.20	18-24	3.88 (0.72)	-0.61
	Ever	3.89 (0.72)		25-30	3.94 (0.84)	
Emotional Cutoff	Never	4.04 (0.76)	-0.68	18-24	3.98 (0.73)	-4.16***
	Ever	4.10 (0.76)		25-30	4.36 (0.78)	
Fusion with Others	Never	3.49 (0.73)	0.35	18-24	3.38 (0.75)	-3.41***
	Ever	3.46 (0.78)		25-30	3.69 (0.76)	
DoS Total	Never	3.81 (0.55)	2.789***	18-24	3.71 (0.53)	0.033
	Ever	3.65 (0.48)		25-30	3.71 (0.46)	
Future time orientation in romantic relationships	Never	2.77 (0.49)	-0.682	18-24	2.81 (0.48)	-0.18
	Ever	2.82 (0.48)		25-30	2.82 (0.48)	

**** p-=0.01, *p=0.05; *** p-=0.001**

Analysis of gender differences indicated a significant difference on the total score of YSQ such that males have a higher mean score than females (Mean difference = 0.20, p < 0.01). Further, significantly higher mean scores were observed in males on the domains of Emotional Deprivation (Mean difference = 0.43, p < 0.001), Abandonment (Mean difference = 0.23, p < 0.05), Mistrust (Mean difference = 0.24, p < 0.05), Defectiveness/ Shame (Mean difference = 0.26, p < 0.05), Expectations about self and environment, Incompetence/ Dependence (Mean difference = 0.26, p < 0.05), Enmeshment (Mean difference = 0.21, p < 0.05), Emotional Inhibition (Mean difference = 0.24, p < 0.05) and Unrelenting Standards (Mean difference = 0.29, p < 0.01).

On differentiation of self across relationship status it was found that mean scores of the group who have never been in a relationship was significantly higher on the domain of Emotional reactivity and Differentiation of Self Total Score. The Post hoc analysis revealed that there was a

significant difference in the four relationship subgroups on the scale of Emotional Reactivity (F=4.24, p=.006). The mean scores of only current relationship group was significantly lower than Only Past Relationship group (Mean Difference = -0.52; $p < 0.05$). Further, it was found that the Past & Current relationship group has significantly lower mean score than group Never been in a relationship (Mean Difference = - 0.64; $p < 0.05$) and also group Only Past relationship (Mean Difference = -0.88; $p < 0.001$). Further, DoS total was also found to be significantly different (F=3.86, p=0.01) between group Never and the group Only Past (P=0.03) and Only Current (p = 0.04) relationships.

Table 4: Correlation between Early Maladaptive Schemas and Differentiation of Self

	ER	IP	EC	FO	DOSFULL
Emotional Deprivation	-.310(**)	-.111(*)	-.399(**)	-.250(**)	-.303(**)
Abandonment	-.516(**)	-.127(*)	-.420(**)	-.446(**)	-.479(**)
Mistrust	-.454(**)	-0.051	-.440(**)	-.334(**)	-.401(**)
Social Isolation/ Alienation	-.454(**)	-0.034	-.416(**)	-.316(**)	-.381(**)
Defectiveness/ Shame	-.345(**)	-.197(**)	-.453(**)	-.308(**)	-.405(**)
Failure to Achieve	-.421(**)	-.161(**)	-.388(**)	-.379(**)	-.458(**)
Practical Incompetence/ Dependence	-.319(**)	-.220(**)	-.372(**)	-.340(**)	-.365(**)
Vulnerability to harm or Illness	-.342(**)	-.153(**)	-.367(**)	-.318(**)	-.367(**)
Enmeshment	-.308(**)	-.131(*)	-.383(**)	-.368(**)	-.365(**)
Subjugation	-.431(**)	-.166(**)	-.461(**)	-.405(**)	-.410(**)
Self-Sacrifice	-.259(**)	.173(**)	-.181(**)	-.248(**)	-.173(**)
Emotional Inhibition	-.331(**)	-0.027	-.431(**)	-.356(**)	-.374(**)
Unrelenting Standards	-.291(**)	.168(**)	-.249(**)	-.319(**)	-.201(**)
Entitlement/Superiority	-.375(**	.137(*)	-.351(**)	-.311(**)	-.289(**)
Insufficient Self Control/ Self Discipline	-.354(**	0.046	-.304(**)	-.329(**)	-.295(**)
Admiration/Recognition Seeking	-.466(**	-0.048	-.363(**)	-.438(**)	-.425(**)
Pessimism/ Worry	-.455(**	-0.042	-.399(**)	-.457(**)	-.420(**)
Self Punitiveness	-.392(**	0.006	-.332(**)	-.372(**)	-.342(**)
Young Schema Questionnaire	-.540(**	-0.071	-.536(**)	-.501(**)	-.491(**)

*** p < 0.01; ** p < 0.05**

Comparison of DoS across the two age groups shows that the difference in means is significant on the subscales emotional reactivity, emotional cutoff and fusion with others. The results suggest higher scores in the group of 25-30 years as compared to the age group 18-24 years. Gender differences across DoS were examined using Levene's test for equality of variance. There were no significant differences on any of the subscales.

The FTORR across the relationships status (F=0.89; p=0.44), age and gender (mean difference-0.02; p=0.65) groups were not significantly different.

ER, EC and FO are significantly negatively correlated with all the subscales of YSQS3 indicating that lower maladaptive schema is related to greater differentiation on these domains. The correlation values range between 0.25 and 0.54 suggesting a moderate correlation. The subscale of I position had a positive correlation with subscales of Self-Sacrifice, Unrelenting Standards and Entitlement/Superiority and had a negative correlation with all other subscales suggesting that lower scores on these maladaptive schemas are related to higher scores on I position, therefore, greater differentiation.

Logistic regression was carried out to determine the predictors of FTORR. The variables used in the model included various demographic details such as age, gender, and number of past relationships. Further, YSQ and DSI total scale means were used as predictors. The results indicate only a 13.3% variation when regression was done through Enter method.

DISCUSSION

The sample was largely drawn from undergraduate colleges thus majority were in the age range of 18-24 years and most of them were involved in romantic relationship which is in accordance with the current scenario of romantic relationships in young adults of India (Alexander et al., 2007; Varma & Mathur, 2015). The formation of a romantic relationship may be related to how an individual perceives self (self-schemas) and who they perceive themselves to be capable of being with (Robinson & Cameron, 2012). From this perspective the data obtained in the study was analyzed to assess differences in maladaptive schemas between participants who have never been a relationship and those who did (Table 2). The findings suggest that the participants who have ever been in a relationship have higher EMS of insufficient self- control/ self-discipline than those who have never been in a relationship**.** This probably suggests that the group with the experience of being in a romantic relationship has a higher tendency towards inability to exercise sufficient self-control, self-discipline and tolerate frustration for achieving personal goals. Further, they face more difficulty in postponing immediate gratification, tend to have greater difficulty in establishing control of emotions and experience boredom of tasks sooner. More specifically, within this group, the maladaptive schema was higher for the participants with only past relationship as compared to the group that has never been in a relationship. Further, the group with romantic relationship experience also has a higher schema of need for Admiration/Recognition Seeking suggesting that this group also placed importance on obtaining recognition and acceptance from others. They may express higher rejection sensitivity as well (Young, 1998). The findings seem to indicate activation of maladaptive schemas upon close interaction with the partner, and a tendency to lose control over limits in the

relationship as well as become more approval seeking (Astaneh et al., 2013). It may be possible that the schemas of admiration seeking, need for gratification and poor frustration tolerance get activated in romantic relationships.

A further analysis across four relationship statuses reflected that the schema of Emotional

Deprivation has been represented differently across relationship statuses. Emotional Deprivation is higher for those having only past relationships than for those who are currently in a romantic relationship or have both past and current relationships. Also, it is higher in the group who has never had a relationship experience as compared to those who have both past and current relationships. The findings indicate that the presence of a relationship during the time of the study may be acting as a moderator for the schema, as presence of a partner could fulfil the wishes of nurturance, empathy, guidance and protection which otherwise may not be present in the groups with no relationship or the ones with only previous experiences. Through the Convoy Model of Social Relations, Antonucci et al. (2004) suggested that turning to young adulthood, brought about changing pattern of relationships wherein spouse or romantic partner gained excessive relevance in terms of support, much more than peers and family as was visible in childhood or adolescence. Absence of a romantic relationship could mean deprivation of emotional support. Further, the schema of Subjugation was also found to be higher for the group with only past relationships as compared to the group with both past & current relationships. This suggests that people with only past experiences in relationships have a higher tendency towards schemas of surrendering of control to others and increased worry of negative consequences. They may also exhibit the tendency to suppress their needs or emotions with the assumption that they shall be discounted, ignored or criticized. Workings of such schema could possibly be indicative of low interpersonal satisfaction increasing chances for a break-up (Paim & Falcke, 2012). The schema of Practical Incompetence and Dependence was found to be higher in the group with only current relationship as compared to the group with both past and current relationship. This could indicate that young people while in relationship may find it difficult to handle everyday responsibilities thus may feel the need to depend on others.

Comparison across age groups clearly suggests that maladaptive schemas are consistently higher for the age group of 18- 24 years as compared older age group. The finding indicates a contradiction to the theoretical conjecture of maladaptive schemas that they are stable constructs (Young et al., 2003). Both the groups were comparable on marital status, relationship experiences and employment status. Therefore, these life events may not be the factors moderating maladaptive schemas. Other possible reasons could be that most of the higher age group participants were those who were pursuing higher education and experienced higher stability in terms of their life goals, would have had greater learning and exposure to new experiences and personal development as compared to students from under-graduation. Schemas, therefore, may undergo change as the individual progresses in age as a result of varying life experiences. Further, life experiences need not necessarily activate maladaptive schemas but can instead help translate them in a positive direction as well.

With regards to gender differences, males were found to have greater maladaptive schemas which reflected higher maladaptive schemas of disconnection and rejection, impaired autonomy and performance and overvigilance and inhibition. The findings indicate that men tend to have negative self-concept/insecurity, greater needs for dependence and fear of rejection. They have a tendency towards overvgilance of their own behaviors for the fear of losing relationships. Further, men are more likely to have an excessive emotional involvement with their romantic partner/ family. As a result, full individuation may not occur thus resulting in an inability to fulfil the emotional needs of the partner (Young, 1998). As supporting evidence, research suggests that men, irrespective of whether they are in a relationship or not, base their self-esteem on relationship standing more than women, meaning, that relationships can serve as a source of social standing (Kwang et al., 2013). Felmlee (1997) indicated that men tend to express less emotional involvement and vulnerability in relationships. However, the finding was linked with the need for men to exert greater power in the relationship by being more emotionally distant. The findings may also be corroborated by the cultural context such as patriarchial set up in India, men are largely discouraged from emotional expression perceiving that as a sign of feminine characteristics and are rather encouraged to keep up a restrained exterior that is unfazed in the face of turmoil (Banerjee, 2005). Inadequate expression of emotions could be a contributor to the development of such maladaptive schemas.

In the current study, the group who has never been in a relationship indicated low emotional reactivity in comparison to those who have been in a relationship. Further, the differentiation in the group with no relationship is better than the group with only past and only current relationship. Skowron and Friedlander (1998) also suggested that persons in a relationship have higher emotional reactivity and thus they react to the emotionality of others. The research also shows that individuals with greater emotional reactivity show more aggression and insensitivity in relationships (Skowron et al., 2009).

Further, age also showed an impact on DoS such that persons in the higher age group of 25- 30 years had higher scores on ER, EC and FO thereby indicating greater differentiation in comparison to the age group 18-24 years. Skowron and Friedlander (1998) also indicated that greater differentiation occurs as age and life experiences increase. Thus, lower maladaptive schemas in the 25-30 age group could be attributed to higher DoS noted in this group. This difference could be attributed to higher differentiation of self noted in the former age group. In the current study, no gender differences were noted on differentiation levels exhibiting inconsistency with available literature. Kosek, (1998) reported that women tend to express their state of emotionality through emotional reactivity whereas men utilized disengagement from partners.

A moderate correlation was found between EMS and DoS (Table 4). Persons with lower maladaptive schemas have greater differentiation on emotional reactivity, emotional cut off and fusion with others. It was found that individuals with schemas of Self- Sacrifice, Unrelenting Standards and Entitlement/ Superiority schemas had a higher tendency to adopt 'I' position in relationships. Further, persons with schemas of emotional deprivation, abandonment, defectiveness, failure to achieve, dependence, vulnerability to harm or illness, enmeshment and subjugation had lower differentiation due to difficulty in adopting 'I' position in relationships. Thereby, it indicates that individuals with low maladaptive schemas have higher differentiation such that they are able to develop a better balance of emotional and intellectual functioning as well as closeness and freedom in relationships (Bowen, 1978).

The finding is congruence with that of Langroudia et al. (2011) who also reported a negative association between aspects of self (emotional reactivity, emotional cut-off and fusion with others) with early maladaptive schemas and a positive association between I-position and EMS. According to Young (1998), persons with these schemas are because of their incorrect interpretation of others behaviours withdraw from close relationships. They often harbour conflict between intimacy with others and getting away from others. This finding is consistent with both of Young's and Bowen's theory (Langroudia et al., 2011). Lal and Bartle-Haring (2011) reported that partners' differentiation of self predicted partners' relationship satisfaction; which in turn predicts partner supportive behavior. Similarly, Dumitrescu (2012) suggested that decreased level of EMS predicts an increased level of couple satisfaction and individual mate value. Yoosefi et al (2010) highlighted the role of EMSs in relationships such that less differentiated young individuals experience more severe and a range of interpersonal problems with time.

Future orientation can be understood as a cognitive schema that allows structuring of future events in time and causation (Öner, 2001). Links have been found between future orientation and one's maturation, life experiences and cultural factors (Trommsdorff, 1983). In the current research, FTORR was studied in relation to EMS, and DoS. No significant difference across relationship experience, relationship status, age and gender was found in terms of FTORR. Further, the overall orientation appeared to be high suggesting that the participant group overall suggesting desire for longevity in relationships. The findings, however, appear to be inconclusive and require further evaluation (Table 3). In research by Öner (2001), reported that less satisfied individuals had significantly higher FTORR regarding romantic relationships, indicating that excessive worry over the future of a romantic relationship might result in more dissatisfaction. Gender differences have also been noted in FTORR such that women were more future-oriented in their ongoing romantic relationships than men (Öner, 2001; Sakalli-Ugurlu, 2003). Weak predictors of future time orientation in romantic relationships were identified in the current study. This result is contrary to the previous research findings (Oner, 2001; Sakalli-Ugurlu, 2003) wherein partner selection, experience of jealousy, and eagerness to break-up predicted FTORR. This particular construct needs further exploration in order to understand the cultural context.

IMPLICATIONS AND LIMITATIONS

The study has implications as it is one of the first endeavors to explore the subject of romantic relationships in an unmarried population in the Indian context. The sample selected for the study belongs to a wider age range as compared to other studies. Further, the large sample in the study allows making safe conclusions. The study explores EMSs and differentiation in relationship with each other and the findings reveal that the two are in fact related and have implications upon the interpersonal functioning of individuals. The study also initiated research in the area of future time orientation in romantic relationships in the Indian context. Being mindful of the limitations can assist future research in this domain. Including participants from both urban and rural settings and varying educational statuses could increase applicability beyond urban educated youth. Further, demographic data available in terms of education, religion, relationship with parents, siblings and childhood experiences has not been utilized sufficiently in the analysis. The inconclusive findings in the domain of future time orientation in romantic relationships prompt the need for further examination.

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Original Research Article

An Intervention-based Study to Explore Effectiveness of MBSR among Breast Cancer Patients

Deoshree Akhouri *

ABSTRACT

Aims: To assess and compare the level of different psychosocial problems of both the groups (MBSR and CBT) at baseline level. To assess and compare the effect of MBSR and CBT on various psychosocial factors of both the groups (MBSR and CBT). To assess and compare the level of mindfulness of MBSR and CBT group.

Methods and Materials: Hamilton Anxiety Rating Scale, Beck Depression Inventory (BDI-II), WHO Quality of Life, Mental Adjustment to Cancer Scale, Impact of Stressful Event Scale and Cognitive and Affective Mindfulness Scale- Revised.

Result: The obtained result shows that MBSR group was more effective in reducing the negative psychosocial aspects in comparison to CBT group. It also helps in increasing their level of mindfulness.

Conclusion: It is easy to conclude that MBSR is more effective that CBT in influencing the psychosocial aspects of patients with breast cancer.

Keywords: *Mindfulness-Based Stress Reduction; Cognitive-Behaviour Therapy; Breast Cancer; Anxiety; Depression*

INTRODUCTION

According to WHO report of 2014, cancer caused about 8.2 million deaths in 2012 and is expected to rise from 14 million to 22 million in next two decades [1]. WHO report has also explained that around 1.5 million women suffer from breast cancer every year. Statistics of Breast Cancer (India) states that breast cancer accounts for 25-32% in females, where the highest number is found in Mumbai, Bangalore, etc [2]. It has been reported that about 80% of the women in world suffer from invasive ductal carcinoma (IDC) [3]. Due to lack of awareness, most of the patients approach when they are in Stage 2B and beyond, where the condition has gotten worse, therefore the survival rate is even lower as compared of rest of the world where patients approach in Stage 1 or 2 and survival rate is high (BreastCancer.org, 2018) [2]. On an average, women belonging to urban area have 2.1 children in comparison to rural women who on an average have 3 children, which could be another contributing factor in breast cancer [4].

Psychiatric conditions also happen to be comorbid with breast cancer, ranging from 29% to 47% [5]. According to a review conducted in 2010, about 10-25% of people suffering from cancer are diagnosed with major depressive and clinically significant depressive symptoms [6]. Cancer patients suffering from depression also reported to have post-traumatic stress disorder (PTSD, 30%), generalized anxiety disorder (24%) and panic disorder (18%) [7]. Attempted suicide rates are found in about 2-6% of breast cancer patients, especially at terminal stage [8, 9]. Therefore, it is of importance to address to the psychiatric co-morbidity with breast cancer for proper and efficient treatment of the patients. If the psychological well-being of individual is maintained or they are prepared to deal with the consequences of chemotherapy, their recovery is swift and less painful.

Centres for Disease Control and Prevention (2013) points out that death from cancer could be prevented if proper information (in detail) is provided to the patients about the treatment along with psychological support [10]. Psychologists/ psychotherapists are developing new coping mechanisms for the patients to deal with breast cancer in more acceptable and positive manner. Psychosocial intervention helps patients not only accepting the diagnosis but also guides them towards better recovery process and healthy psychological well-being.

Different therapeutic approaches have been adopted that could help in managing patients with breast cancer, such as supportive psychotherapy, cognitive-behaviour therapy (CBT), relaxation, etc [11]. Among these, mindfulness-based therapy and cognitive behavioural therapy are been considered as the most effective and efficient in re-storing the psychological health of patients. Various studies have been conducted to explain its affect on patients with cancer, especially breast cancer. It has been found that mindfulness-based intervention for cancer patients helps in alleviating their stress level and works towards speedy recovery [12, 13]. A systematic review based on mindfulness-based therapy for breast cancer patients have examined how it is an effective approach for the treatment of psychological conditions in breast cancer patients [12, 13]. Another systematic review explained that cognitive behaviour therapy is effective for the breast cancer patients and survivors, helping them restore their disturbed quality of life and other psychological aspects [14]. Although, various researches have been conducted using mindfulness-based therapy and cognitive behavioural therapy, not many studies have been conducted that compares both therapies as an intervention for breast cancer patients, impacting their psychosocial factors.

With the aim to improve the psychosocial aspects of patients suffering from breast cancer, the present study has

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been designed to see the effect of mindfulness meditation (MBSR) and cognitive behaviour therapy (CBT) on these factors and contributing to existing researches that whether MBSR is an effective approach towards reducing cancer related negative aspects and converting them into positive ones or CBT is more effective.

Following objectives were formed for the current study:

1) To assess and compare the level of different psychosocial problems of both the groups (MBSR and CBT) at baseline level.
2) To assess and compare the effect of mindfulness meditation and cognitive behavioural therapy on various psychosocial factors of both the groups (MBSR and CBT)
3) To assess and compare the level of mindfulness of MBSR and CBT group

MATERIALS AND METHOD

Sample: Total 60 patients were taken for the psychosocial management. Patients of age range 35-55 years, diagnosed and referred breast cancer patients, having moderate-to-severe levels of stress, anxiety and depression, reduced quality of life and adjustment issues, having low level of mindfulness and gave consent for participation were selected.

Table 1 showing socio-demographic details of patients

Variables	Characteristics	MBSR group (n=30), %	CBT group (n=30), %
Age	35-45 45-55	(20) 66 (10) 34	(19) 64 (11) 36
Marital status	Married Unmarried Widow	(18) 60 (7) 23 (5) 17	(18) 60 (6) 20 (6) 20
Occupation	Housewife Working	(25) 83 (5) 17	(26) 86 (4) 14
Religion	Hindu Muslim Others	(12) 40 (16) 54 (2) 6	(13) 43 (15) 50 (2) 6
Residence	Rural Urban	(10) 33 (20) 64	(12) 40 (18) 60
Socio-economic status	>10,000 10,000-25,000 < 25,000	(9) 30 (20) 67 (1) 3	(9) 30 (20) 67 (1) 3

Graph 1 showing socio-demographic details of patients

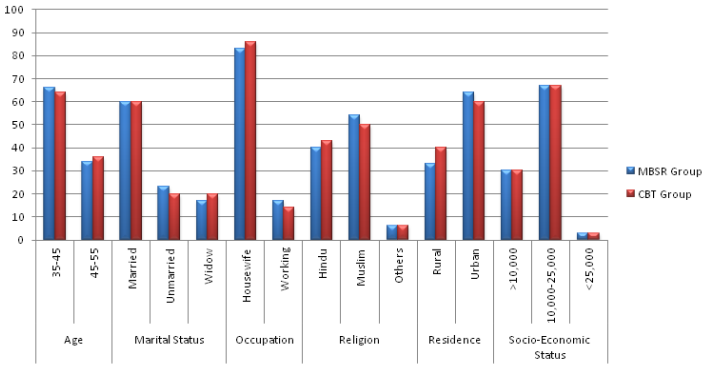


Table 1 and *Graph 1* indicates that most of the patients were between the age-range 35-45, MBSR (66%) and CBT (64%). About 60% were married and 40% were widows. Majority of the patients belonged to urban area (63%) and were housewives (approx. 85%). Approximately 70% of the participants belonged from 10,000-25,000 income bracket.

Procedure

Total 60 patients suffering from invasive ductal carcinoma (IDC) referred from Radiotherapy OPD, Jawaharlal Nehru Medical College and Hospital, Aligarh Muslim University were taken for psychosocial management. Of these, patients within age range of 35-55 years diagnosed with IDC along with different psychological conditions (stress, anxiety, depression and poor quality of life) and who gave consent for the study were selected. All the patients were explained about the purpose of the study and after the attainment of their inform consent, assessment was done by Hamilton Anxiety Rating Scale (HAM-A) [15], Beck Depression Inventory-II (BDI-II) [16] and WHO QOL-BREF [17]. Along with these, Mental Adjustment to Cancer Scale [18] and Impact of Event Scale [19] were also used. Cognitive and Affective Mindfulness Scale-Revised (CAMS-R) [20] was used to assess the level of mindfulness. Patients showing moderate to severe levels of anxiety, depression and lowered quality of life were retained for the study. Those showing poor level of adjustment, strong and stressful impact of events and lowered level of mindfulness were also retained for the study. After 2 months of therapy, re-assessment was done using the same tools. The comparison between the two groups was done using appropriate statistical analysis to reach the conclusion.

2.3 Intervention: The selected patients were randomly assigned into two groups. Each group consisted of 30 patients; group one received mindfulness-based stress reduction (MBSR) intervention while the other group received cognitive-behavioural therapy (CBT). Patients of both groups were divided into 6 groups of 10, similar in respect with their therapy and technique, i.e. first group (3 groups) receiving MBSR and second group (3 groups) receiving CBT. The entire duration of intervention was of 8 weeks, 60-90 minutes a day. The MBSR intervention included weekly sessions with the therapist and daily practice at home. The MBSR intervention consisted of mindfulness body scan, mindfulness breathing, sleeping,

sitting, eating and acceptance. The CBT intervention consisted of detailed scientific psycho-education, cognitive restructuring, activity scheduling, relaxation, decatastrophizing and lifestyle modification.

Statistical Analysis

Using SPSS version 21, t-test was used to see the effect of mindfulness meditation from pre-to-post-intervention and comparison was made between both the two groups. Column graphs were used to show the socio-demographic details of the patients and to represent the effect of mindfulness meditation from pre-to-post-intervention.

RESULTS AND DISCUSSION

The aim of this study was to establish that mindfulness meditation helps in improving different psychosocial aspects of breast cancer patients and to explain how much this improvement leads to increment in level of mindfulness. Mindfulness awareness and acceptance guides women to take a proper decision and make peace with the consequences of therapy or surgeries, improving their psychological well-being as well. In a meta-analysis done in 2016, it was found that MBSR is an effective approach that has a positive impact on psychological well-being of patients and on their quality of life. This analysis also recommends MBSR as a rehabilitation approach for patients with breast cancer [21].

Jun Zhang (2016) conducted a study using MBT that helps in improving the physical and psychological health along with quality of life [22]. Present result also explained that MBT is an important factor in reducing anxiety, depression, fear of relapse, etc. associated with breast cancer as shown in *Table 3*. The level of anxiety reduced from M=23.3 to M=7.33 from pre-to-post intervention. Similar result was obtained for level of depression, M=41.73 before intervention and it reduced to 12.46 post-intervention. The quality of life also improved after the mindfulness meditation intervention, i.e. M=108.53 to M=331.53. Improved scores from pre-intervention (M=43.73) to post-intervention (M=97.53) on adjustment with cancer indicates that patients accepted and adjusted to their diagnosed cancer. Similar results were obtained on impact of stressful event scale, from pre-intervention (M=63.66) to post-intervention (M=17.26). All the results are found significant at <0.05 level.

In a systematic study conducted in 2012, MBT were found to be effective in improving the coping strategies of patients with breast cancer, reducing their distress level, providing emotional stability. But this meta-analysis explained that mindfulness-based therapies are more effecting reducing individual's anxiety and stress levels [24]. Along with MBT, CBT has also been seen as effective approach for improving the psychosocial aspects affecting the breast cancer patients [23, 25]. Similar results were found in the present study (*Table 5* and *6)*.

A study conducted in 2017 by Elisabeth Kenne Sarenmalm, MBSR has been found to be an effective technique in not only improving the various psychosocial problems but also lending patients a helping hand in their coping abilities [26]. This finding was supported by Else M. Bisseling's study (2017), explaining that MBSR approach is effective enough to reduce the level of distress among patients of breast cancer [27]. Similar results were obtained in the present study, explaining that among MBSR and CBT, MBSR is more effective (*Table 2, 3, 4* and *5*).

Table 2 shows the effect of mindfulness meditation of MBSR group on various psychosocial factors of patients (pre-to-post-intervention)

	Variables	M	SD	T	Sig.
Pre Intervention	Anxiety	23.3	2.33	33.38	<0.05
Post Intervention		7.33	1.6		
Pre Intervention	Depression	41.73	10.11	24.11	<0.05
Post Intervention		12.46	4.89		
Pre Intervention	Quality of Life	108.53	5.25	66.79	<0.05
Post Intervention		331.53	17.26		
Pre Intervention	Adjustment	43.73	3.31	25.89	<0.05
Post Intervention		97.53	12.28		
Pre Intervention	Impact of Stressful Event	63.66	7.61	35.70	<0.05
Post Intervention		17.26	2.04		

Table 3 shows the effect of mindfulness meditation of CBT group on various psychosocial factors of patients (pre-to-post-intervention)

	Variables	M	SD	T	Sig.
Pre Intervention	Anxiety	23.5	2.34	32.09	<0.05
Post Intervention		8.36	0.99		
Pre Intervention	Depression	42.66	9.68	16.49	<0.05
Post Intervention		13.96	2.39		
Pre Intervention	Quality of Life	111.4	3.91	91.95	<0.05
Post Intervention		295.93	10.91		
Pre Intervention	Adjustment	42.26	3.1	41.34	<0.05
Post Intervention		89.9	4.64		
Pre Intervention	Impact of Stressful Event	66.26	7.69	35.89	<0.05
Post Intervention		18.2	1.82		

Table 4 shows the difference between MBSR and CBT group on various psychosocial domains (post-intervention)

Group		MBSR	CBT
Psychosocial Domains			
Anxiety	**t**	*4.03	
	SD	1.6	0.99
	M	7.33	8.36
Depression	**t**	*1.8	
	SD	4.89	2.39
	M	12.46	13.96
Quality of Life	**t**	*9.21	
	SD	17.56	11.16
	M	331.53	296.2
Adjustment	**t**	*3.14	
	SD	12.28	4.64
	M	97.53	89.9
Impact of Stressful Event	**t**	*3.34	
	SD	2.04	1.82
	M	17.26	18.2

*Significant at 0.05 level

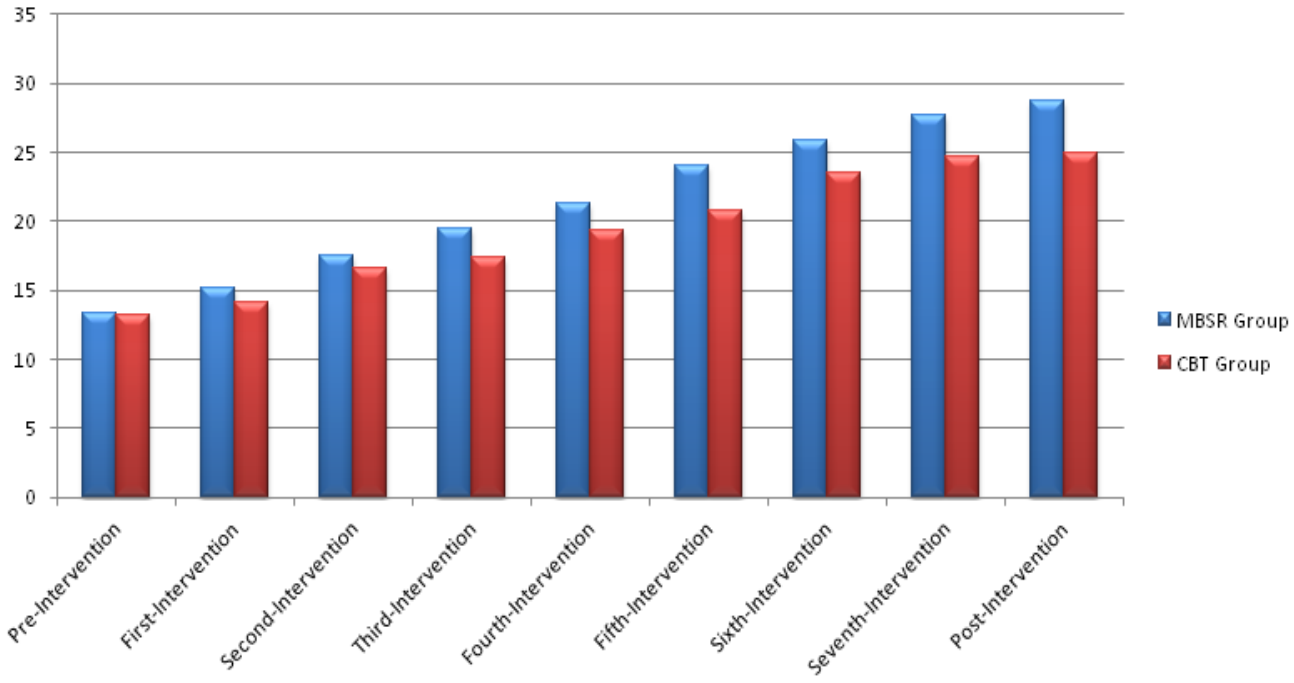
Park S et al in 2018 conducted another study, examining mindfulness-based cognitive therapy as an effective technique in providing relief to the patients and improving their quality of life as well [28]. These studies helps in concluding our findings and explaining that mindfulness-based therapies, in our case mindfulness meditation, is an efficient step towards providing patients with breast cancer an another chance at life, but in the most healthy and cost-friendly manner. Despite many indications, there's still a long way for psychologists to achieve their importance in oncology informing that psychosocial management of cancer, especially MBT, is the first and foremost step towards making the world a better place for them.

Table 5 shows the level of mindfulness of patients of both MBSR and CBT groups having breast cancer (every session, pre-to-post, n=30)

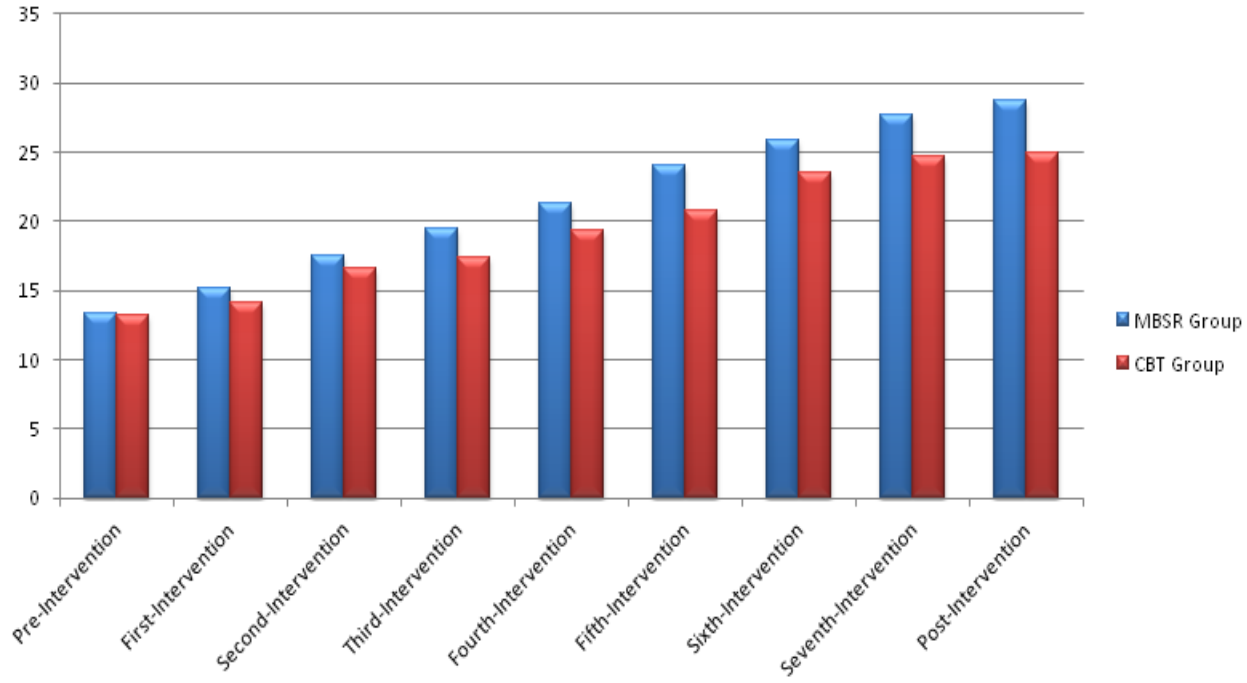
Group		MBSR	CBT
Intervention			
Pre Intervention	**t**	0.46	
	SD	1.71	1.62
	M	13.4	13.2
First Intervention	**t**	*2.15	
	SD	1.96	1.86
	M	15.16	14.1
Second Intervention	**t**	*1.57	
	SD	1.9	2.47
	M	17.46	16.56
Third Intervention	**t**	*4.32	
	SD	2.04	1.82
	M	19.5	17.33
Fourth Intervention	**t**	*3.56	
	SD	2.26	3.32
	M	21.3	19.33
Fifth Intervention	**t**	*4.55	
	SD	2.17	3.32
	M	24.03	20.73
Sixth Intervention	**t**	*3.23	
	SD	1.85	3.49
	M	25.83	23.5
Seventh Intervention	**t**	*4.5	
	SD	1.74	3.34
	M	27.73	24.66
Post Intervention	**t**	*4.85	
	SD	2.26	3.55
	M	28.7	24.96

*Significant at 0.05 level

Graph 2 shows the difference in mean score of patients on various psychosocial domains after-intervention (MBSR & CBT)



Graph 3 shows level of mindfulness (mean scores) of patients after receiving intervention (MBSR & CBT)



Graph 2 shows how the intervention has affected patient's level of anxiety, depression, quality of life, adjustment level and impact of stressful event. The graphical representation also explains how MBSR is more effective technique than CBT.

The above graphical representation *(Graph 3)* shows how level of mindfulness increases when MBSR and CBT are given as an intervention and that MBSR is more effective in increasing level of mindfulness of breast cancer patients in comparison to CBT.

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Original Research Article

Does Phonological Awareness Influence Mathematical Word Problem Solving?

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ABSTRACT

Contemporary research in the fields of Psycholinguistics and Cognitive Linguistics is expanding and deepening our understanding of the role of phonological cognitive abilities in mathematical problem solving. Successful solving of mathematical word problems entails both reading skills and mental representation skills. Although the implications of language in learners' mathematical development have been studied extensively; only few studies have spelled out the crucial role of phonological processing abilities in mathematical performance. Building on the working memory model propounded by Baddeley and Hitch (1974), the present correlation study examines the relationship between phonological awareness and mathematical word problem solving performance in primary children. Seventh grade children (n = 40) with a mean age of 12.5 years were assessed on phoneme deletion, phoneme segmentation, phoneme blending sound categorization and mathematics word problems. Using correlation analyses, the results indicated that phonological awareness is correlated to learners' performance in mathematics word problems. Based on this finding, it is concluded that developing phonological awareness skill among learners should be given utmost importance during early years for better mathematical performance.

Keywords: *Mathematical Word Problems, Working Memory, Phonological Processing, Phonological Awareness*

INTRODUCTION

In mathematics learning and teaching, word problem solving has been gained a great deal of attention from both researchers and educational practitioners. The main objective of teaching word problems in school is to enable learners to identify and apply mathematical concepts, thereby equipping them to use mathematical knowledge inside and outside classrooms. Rasmussen and King (2000) and Timmermans et al., (2007) defined mathematical word problems as "mathematical exercises that present relevant information on a problem as text, rather than in the form of mathematical notation" (as cited in Boonen et al., 2016, p. 1). Though mathematics and language are two distinct subjects, the relation between these two have been studied extensively by many researchers (Duncan et al., 2007; Abedi & Lord, 2001; De Smedt et al., 2010). The results indicated that language abilities influence children's mathematical learning and can predict learner's math skills in the long term. Berninger (2000) categorized language into two forms: oral and literacy forms. Abilities such as phonological, grammatical, and vocabulary are included in oral language skills whereas literacy skills comprise of reading and writing skills. According to Muter et al., (2004) and Shanahan et al., (2006), oral language skills are "prerequisite of the acquisition of literacy" (as cited in Zhang et al., 2017, p. 2). Phonological processing, an oral language skill is the "conscious use of phonological information (sounds of a given language) in the speech and writing processing" (Mendes & Barrera, 2017, pp. 298 – 299). Phonological awareness a component of the broader category called phonological processing refers to "one's awareness of, and access to, the sound structure of oral language" (Wagner & Torgesen, 1987, as cited in Hecht et al., 2001, p. 196).

A longitudinal correlational study by Hecht et al. (2001) revealed a significant relation between phonological processing and mathematics computation skills. Another study by Vukovic and Lesaux (2013) has found that verbal analogies were indirectly associated to learners' mathematical knowledge through symbolic number skill. It was further reported that phonological decoding was directly correlated with arithmetic performance. These results concur with the findings of (Alloway et al., 2002; Koopen et al., 2007; Kuzmina et al., 2017; Robinson et al., 2002; Tzoneva, 2015) found that phonological awareness is significantly correlated with math fluency and skills among primary children. A similar study conducted by Jordan et al., (2010) on primary school children found that solving mathematical test items were challenging for learners with poor phonology. In the same vein, Bjork and Bowyer – Crane (2013) revealed that phonological awareness significantly predicts the learners' performance in mathematics.

Thus, it can be ascertain that word problem solving is a complex process which involves not only mental representation and text comprehension but language skills, particularly phonological awareness also have a substantial role. Several educators through their empirical findings attributed the cause of learning to "deficiency in one or more cognitive abilities, namely, phonological processing, auditory processing, long-term retrieval, attention, short-term memory, and working memory" (Masoura, 2006, as cited in Dehn, 2008, p. 95). Thus, to be mathematically proficient learners must adept in the language in which classroom instruction happens.

Taking insights from previous studies, this study aims to explore the relation between one of the aspects of phonological processing – phonological awareness and mathematics word problem solving performance. The meagerness of researches carried out in examining the relation between phonological awareness and mathematical

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word problems was one of the motivations for conducting this work.

Theoretical Framework

This study is theoretically grounded in the working memory model proposed by Baddeley and Hitch in 1974. Baddeley (1986) defined working memory as "a system for the temporary holding and manipulation of information during the performance of a range of cognitive tasks such as comprehension, learning, and reasoning" (as cited in Dehn, 2008, p. 14). The model comprises of three subsystems: ***a phonological loop, a visuospatial sketchpad, and a central executive.***

The Phonological Loop: This subsystem is a "rehearsal circuit in working memory which holds inner speech for verbal comprehension" (Solso, 2011, p. 538). This loop is comprised of two components, a phonological input store for the temporary storage of oral information and a subvocal rehearsal mechanism where the rehearsal of this information takes place. When the input is presented in oral form, it (Hitch, 1990; Logie, 1996) "gains immediate, direct, and automatic access to the phonological loop" where the information is briefly stored in phonological form (as cited in Dehn, 2008, p. 15). The function of phonological loop is to transform the information obtained from sensory stimuli into "phonological codes (Gilliam & van Kleck, 1996) that include the acoustic, temporal, and sequential properties of the verbal stimulus" (ibid). The accurate retrieval of phonological information happens when phonological codes are equated with the existing codes (i.e., phonemes and words) present in the long-term memory.

The Visual-spatial Sketchpad: This is a short-term depository for storage, processing and manipulation of visual and spatial information. Similar to phonological loop, information or images in this loop undergo rapid decay if it is not rehearsed. Most importantly, the rate of forgetting depends on stimulus complexity and of how long it has been viewed. One of the important functions served by this working memory subsystem in reading is (Baddeley, 1986) "it visually encodes printed letters and words while maintaining a visuo-spatial frame of reference that allows the reader to backtrack and keep his or her place in the text" (as cited in Dehn, 2008, p. 19). This visual storage system is further subdivided into two storage subcomponents namely, *visual and spatial* components (Baddeley, 2006; Pickering et al., 2001; Van Der Sluis, Van Der Leji, & De Jong, 2005). A study carried out by Della Sala et al., (1999) proved that a double dissociation occurred when these components were assessed.They concluded that "there are separable visual and spatial components that make up the visuo-spatial sketchpad" (Robinson-Reigler and Robinson-Riegler, 2008, p. 153).

The Central Executive: This limited-capacity core component of working memory model, controls the two subsystems and "determines both how to expend cognitive resources and how to suppress irrelevant information that would consume those resources" (Baddeley, 1986, as cited in Smith and Kosslyn, 2008, p. 259). Above all, this central component is accountable for higher level thought processing such as reasoning, language comprehension, and conceptualization and also involved in the "activation, retrieval and manipulation of long-term memory representations" (Dehn, 2008, p. 24). This precisely shows that the effect of long-term memory on the content of working memory cannot be ignored. In order to shed light on the involvement of long-term memory, a fourth subcomponent "episodic buffer" was recently added by Baddeley (2000, 2006). In essence, the function of episodic buffer is to integrate information from working memory components and long-term memory. Bringing forth the idea of working memory, empirical research findings (Gathercole & Pickering, 2000a, 2000b) have acknowledged the role of working memory in learning, especially in acquisition of language skills and mathematics in children. In essence, mathematics word problems are an integration of several aspects of language abilities such as oral and written language.

MATERIAL AND METHOD

The main objective of this study is to explore the relationship between phonological awareness and learners' performance in mathematical word problems. This study also examined whether the performance of boys and girls differ in phonological awareness. The following research questions are framed: (1) Is there any relationships exist between phonological awareness and mathematics word problem solving performance? (2) Does gender difference exist when learners' performance in phonological awareness tasks are concerned?

Based on purposive sampling technique, 40 primary school learners from grade seven with a mean age of 12.5 years participated in this study. The two reasons underlying the sample selection are: firstly, the selected sample falls on Piaget's formal operational stage (age group 11 to 15) and secondly, the sample presumably possesses procedural and conceptual knowledge required for solving mathematical word problems. Though learners have difficulty in reading, writing and performing mathematics, no children in the sample has any kind of learning disabilities.

This study has chosen a quantitative approach and exploratory - descriptive research is the research design of the study. Three aspects of phonological analysis and one aspect of phonological synthesis are used to conceptualize the independent variable – phonological awareness. Phonological analysis aspect comprises of (Hecht et al., 2001) phoneme elision, phoneme segmentation, and sound categorization, whereas, blending phonemes into words is the phonological synthesis aspect. On the other hand, learner's performance in mathematics word problems on arithmetic and geometry are measured using Mayer's (1992) four cognitive phases: Problem Translation, Problem Integration, Solution Planning, and Solution Execution.

RESEARCH PROCEDURES:

A researcher design test was employed to assess learner's mathematical word problem solving performance. This test comprises of 20 multi step word problems from two areas of mathematics, namely, arithmetic and geometry. Sixth class CBSE mathematics curriculum is used for preparing the test items, which comprises of 10 multi step word problems each for arithmetic and geometry. Four cognitive phases advocated by Mayer (1992) are used for evaluating learner's performance in word problems. In this test,

subjects are instructed to: write appropriate steps; to diagrammatically represent the information; decide appropriate computation; and execution of solution. Based on this criterion a four-point rating scale was prepared to assess the respondent's word problem solving performance and a final score was obtained for overall word problem solving performance. The value of the split-half reliability is 0 .71. The independent variable, phonological awareness is captured by administering tests on phoneme elision, phoneme segmentation, sound categorization, and phoneme blending. Each of these tests comprise of 18 items designed by the researcher. The number of correct responses is taken as the total score.

This quantitative study uses both descriptive and inferential statistics for data analysis, which has been done through SPSS version 25. As a first step, descriptive statistics such as mean and standard deviation were computed for both variables. To find out the relationship and significant difference between different measures taken, Pearson's coefficient of correlation and independent t-test were used.

RESULTS

Mean scores showed that boys displayed slightly better performance than girls in overall phonological awareness. This indicates that boys are slightly more aware than girls in focusing and manipulating individual sounds, when presented orally. Taking all the four aspects of phonological awareness, mean scores indicated that girls have slightly less ability to omit, recognize sound differences and to segment words into individual sounds as compared to boys. However, girls are better performers in phoneme blending, where the task demands the ability to combine or blend individual sounds to produce a word. Concerning the mean scores of learners' performance in word problems, it can be seen that that boys are greater performers than girls. This reveals that boys are good at problem translation, problem integration, and problem planning and problem execution and also in procedural-conceptual knowledge than girls.

Table 1: Descriptive statistics for variables

Measure	Gender	N	Min	Max	M	SD
Overall Phonological Awareness	**Boys**	20	11.500	16.500	14.825	1.244
	Girls	20	11.500	16.250	14.338	1.377
Phoneme Elision	**Boys**	20	12.000	17.000	15.700	1.689
	Girls	20	12.000	18.000	14.750	1.682
Phoneme Segmentation	**Boys**	20	10.000	16.000	13.700	2.029
	Girls	20	10.000	16.000	13.000	1.686
Phoneme Blending	**Boys**	20	13.000	18.000	15.700	1.455
	Girls	20	12.000	18.000	15.850	1.872
Sound Categorization	**Boys**	20	11.000	17.000	14.250	1.682
	Girls	20	9.000	17.000	13.750	2.221
Mathematics word problem solving performance	**Boys**	20	168.000	283.000	234.200	34.910
	Girls	20	92.000	270.000	209.500	50.094

Results from the following table 2 reveal a significant moderate positive correlation between learners' performance in phonological awareness tasks and mathematical word problems ($r = .446$, $p < .01$). Thus, null hypothesis has been rejected.

Table 2: **Correlation between overall phonological awareness and Mathematics Word Problem Solving Performance**

Correlations			
		Phonological Awareness	**Mathematical Word Problem Solving Performance**
Phonological Awareness	**Pearson Correlation**	1	.446**
	Sig. (2-tailed)		.004
	N	40	40

***< 0.01 level*

It can be observed from the following table 3, that there exists moderate significant positive correlations between phoneme elision, phoneme blending, sound categorization and mathematical word problem solving performance ($r = .408$, $p < .01$, $r = .408$, $p < .01$ and $r = .394$, $p < .05$). Thus, rejecting the null hypotheses. However, insignificant but positive correlation is reported between phoneme segmentation and word problem solving performance ($r = .107$, $p > .01, .05$). Thus, failed to reject null hypothesis.

The following table 4 results shows that the p – value is .247, which is greater than the chosen level of significance $\alpha = .05$. This indicates that the mean scores between the two groups is not significant; hence, accepting the null hypothesis. It can be concluded that significant difference in the mean scores of boys (M = 14.825, SD = 1.244) and girls (M = 14.338, SD = 1.377) does not prevail in phonological awareness tasks. This suggests that gender is not an influencing factor in learners' performance in phonological awareness tasks.

DISCUSSION

The current study explored the correlation between phonological awareness and mathematics word problem solving performance. Consistent with the prediction, it was found that significant moderate positive relation exist between phonological awareness and mathematical word problem solving performance. This concords with previous studies, which reported correlation between phonological processing abilities and mathematic skills, which includes, computation skills, math fluency, and arithmetic word problems (Hecht et al., 2000; Vukovic and Lesaux, 2013; Tzoneva, 2015; Kuzmina et al., 2019). This reveals that the present sample possess the ability to recognize individual letters corresponding to its sound, which further assists the child to use the speech sounds in processing written language. To put it in another way, as the learners' performance in phonological awareness tasks increases, their performance in word problems also increases correspondingly.

Table 3: Relation between four aspects of phonological awareness and Mathematics Word Problem Solving Performance

Correlations						
		Phoneme Elision	**Phoneme Segmentation**	**Phoneme Blending**	**Sound Categorization**	**Mathematical word problem solving performance**
Phoneme Elision	**Pearson Correlation**	1	.409**	.367*	.294	.408**
	Sig. 2-tailed		.009	.020	.065	.009
	N	40	40	40	40	40
Phoneme Segmentation	**Pearson Correlation**	.409**	1	.307	.411**	.107
	Sig. 2-tailed	.009		.054	.008	.513
	N	40	40	40	40	40
Phoneme Blending	**Pearson Correlation**	.367*	.307	1	.450**	.408**
	Sig. 2-tailed	.020	.054		.004	.009
	N	40	40	40	40	40
Sound Categorization	**Pearson Correlation**	.294	.411**	.450**	1	.394*
	Sig. 2-tailed	.065	.008	.004		.012
	N	40	40	40	40	40
Mathematical word problem solving performance	**Pearson Correlation**	.408**	.107	.408**	.394*	1
	Sig. 2-tailed	.009	.513	.009	.012	
	N	40	40	40	40	40

As a broader category of phonological processing, phonological awareness "encompasses phonological working memory skills and lexical retrieval" (Elhassan et al., 2017, p. 1). It was discussed by (Hecht et al., 2000), that phonological awareness tasks and math computation skills substantially require working memory resources (p. 197). One model that can be used to "capture proficiency in working memory as it applies to word problem solving is "Baddeley's multicomponent model" (Swanson, 2004). It was evidenced from past studies that phonological awareness was associated with word reading efficiency (Knoop - van Campen et al., 2018), which further assists learners to read and comprehend word problems effectively. Thus, it can be argued that working memory components have a substantial role in recognizing and manipulating sound structures of words and also in mathematical word problem solving performance. Most importantly, the phonological awareness tasks demands simultaneous processing and storage of information, this also validates the involvement of working memory. Since, phonological awareness necessitates the "conscious manipulation of the phonological components of speech, it is considered as an explicit process" (Cockcroft and Alloway, 2012, p.13). In contrast, implicit processing of phonemes happens in the verbal components of the working memory in particular, as they "involve unconscious speech codes" (Gombert, 1992).

From the perspective of working memory model, verbal information is maintained in phonological loop with the help of two parts of this component, namely phonological store and an articulatory rehearsal system. In order to perform the phonological awareness tasks children must (Bradley & Bryant, 1985; McBride- Chang, Wagner, & Chang, 1997; Perfetti et al., 1987; Torgesen et al., 1990) "encode and maintain accurate representations of the phonemes in words in phonological memory" (as cited in Hecht et al., 2001, p. 196). For example, performing a phoneme blending task demands the child to produce words, where the learner has to first encode and store the individual sounds in the articulatory loop. In other words, efficient differentiation and blending of each of the individual sounds require accurate encoding of phonemes. Thus, it is the phonological short-term memory (phonological store) part of phonological loop stores verbal information temporarily; and the articulatory part rescues the decline of verbal information by mental repetition or subvocal rehearsal. This conveys the critical role played by phonological working memory in oral language comprehension. Thus, "identification, manipulation and segmentation of minimum units of speech" or "phonological awareness" is essential for reading, occurs in the phonological loop.

In this study word problems were given in written form, thus how phonological awareness aids learners word problem solving performance is questionable. In this context, the involvement of the second component of working memory, visualspatial sketchpad cannot be negated, though the learner has efficient phonemic fluency. Thus, not only phonological loop but the visual cache and the inner scribe parts of the visualspatial sketchpad are also involved in word problems. It was delineated by Baddeley (1986) that while reading, this component of working memory "visually encodes printed letters and words while maintaining a visuospatial frame of reference that allows the reader to backtrack and keep his or her place in the text" (as cited in Dehn, 2008, p. 19). It was pointed out by Kemps (1999) that though visualspatial sketchpad can function independently, the two stores of each of the two components of working memory are dependent on each other. However, the acquiescence of phonological information into visualspatial component happens through (Richardson, 1996a) "the deliberate process of recoding visuospatial information into verbal information, which occurs when the individual verbalizes the names of the objects and locations to be remembered" (as cited in Dehn, 2008, p. 21). Despite the efficiency of two components of working memory in information transformation, visual-to-verbal recoding does

not happen among children until age 10. This is due to the limited capacity of the working memory to process and transform visual to verbal information.

As the age progresses, the capacity of working memory increases among typically developed children, hence they rely more on visual-to-verbal recoding. It can be argued that children having difficulty in speech-sound or oral language production and visual imagery may have impairments in phonological working memory and visualspatial sketchpad, respectively. However, the potential role of the domain-general core component of working memory, the central executive in storing, processing, managing and controlling the two domain-specific components and in long-term retrieval cannot be ignored. To sum up, the working memory model has an appreciable role in enhancing phonological awareness skills, which subsequently reflect on learners' word problem solving performance.

CONCLUSION

It is needful to affirm that the generalizability of the results to the broader population is limited by the small sample size of this study. Further, the findings are limited by evaluating only one of the aspects of phonological processing. Nevertheless, it provides necessary quantitative evidence to ascertain that impairment in the functioning of working memory resources affects phonological processing abilities, which further impose difficulty in word problem solving. Despite the fact that mathematical thinking is independent of language, children often needs language support when subjected to word problems, which demands reading and text comprehension. In conclusion, the current findings follow the general idea of association between phonological awareness and math skills. Thus, paramount importance to enhance phonological awareness skills among learners is to be provisioned at an early age. This can be done by applying appropriate phonemic awareness strategies, which includes training on precursor skills such as blending, segmenting, rhyming, visual cues and the like.

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Original Research Article

Role of Self-Defining Autobiographical Memories in Major Depressive Disorder: An Exploratory Study

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ABSTRACT

Aims/Objectives: The current study intended to explore the differences between two types of autobiographical memories, self-defining (SDM) and non-self-defining (NSDM), with reference to the phenomenological dimensions, age at incident, and personal significance of the memories across two groups of middle-aged adults (40-50 years of age) (N=10 in each group): (a) persons with Major Depressive Disorder (MDD), and (b) their matched healthy counterparts (HC).

Methods: The sample was obtained through convenience method, participants being screened with the help of General Health Questionnaire-28 and Beck Depression Inventory-II, followed by eliciting SDMs and NSDMs, three of each type, from any period of their lives, and to rating each of the memories on 10 phenomenological dimensions (in Memory Experiences Questionnaire-Short Form) and personal significance of the memories, mentioning the age at incident.

Results: Statistical analyses revealed significant difference in different phenomenological characteristics across the two types of memories (SDM and NSDM) as well as the two groups (MDD and HC). However, age at incident and personal significance were found to differ significantly across types of memories, but not across groups. Further, significant interaction effect was observed with respect to visual perspective and personal significance of memories. The present study, thus, delineates how the persons with MDD differ from healthy individuals in remembering their life events and embedding those into their selfhood.

Keywords: *Autobiographical memories, Self-defining memories, Phenomenological characteristics, Major Depressive Disorder*

INTRODUCTION

An individual's sense of identity is commonly assumed to be intimately connected to their memories of their own life, known as autobiographical memories. Brewer (1996) defines autobiographical memory as a memory for information related to self. However, remembering an event from one's life involves mentally reconstructing past experiences by reintegrating information from various sources (e.g., perceptual, contextual, semantic, emotional details) (D'Argembeau, Raffard & van der Linden et al, 2008).

Autobiographical memory and the self are two global psychological constructs, interacting, shaping, delimiting and reconstructing each other (Conway et al., 2004). A Self Memory System (SMS), as proposed by Conway and Pleydell-Pearce (2000), constitutes two chief components: the long-term self, and the episodic memory system. While the former includes all the information about the self, consisting of the autobiographical knowledge base that hierarchically organizes factual knowledge of one's experiences, and the conceptual self, comprising self-schemas and beliefs, values, attitudes that are shaped by sociocultural factors, the latter contributes to the feeling of reliving of an event specific knowledge. It is the working self that brings the two components together, on the basis of a hierarchy of goals and sub-goals that are retrieved from the conceptual self. (Conway, Singer & Tagini, 2004).

Pillemer (2001) attempted to conceptualize a personal event memory as the episodic memory of a specific event with a particular temporal and spatial occurrence, and emotional association, that results in evoking some sensory imagery and the feeling of reliving the event.

Singer and his colleagues proposed that certain structural characteristics of autobiographical memories increase their impact on personality (Singer & Moffit, 1991-92; Singer & Salovey, 1993). They called this class of memories as "self-defining memory (SDM)", and defined it as a vivid autobiographical memory which is affectively intense, linked to other similar memories, repetitively recalled, and relevant to one's enduring concerns or conflicts (Blagov & Singer, 2004). Being associated to multiple similar memories, this type of memory is easy to recall when prompted by appropriate external or internal cues. The presence of intense goal-relevant information in these memories also make them elicit stronger emotions. In essence, an SDM is characterized by a rich phenomenology as well as by a greater personal significance.

The role played by the phenomenology of autobiographical memory in many clinical disorders, though scarcely studied, previous literature suggests that autobiographical memories, especially SDMs, are found to be deeply affected by the history of depression (Williams et al., 2004, 2000).

There is a remarkable gap in the literature, created by the lack of comparative studies between the characteristics of self-defining and non-self-defining memories. Also, very few studies examining self-defining memories in depression investigated underlying concerns related to depression. The present study attempted to bridge the gap

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by comparing the profiles of the two types of autobiographical memories: self-defining memories (SDM) and non-self-defining memories (NSDM), across two groups of middle-aged adults with and without diagnosis of Major Depressive Disorder (MDD).

METHODS

Aims

The aim of the present study was to investigate the differences between SDM and NSDM with respect to different dimensions of autobiographical memories in persons with MDD and healthy controls (HC).

Objectives

1. To compare SDMs and NSDMs with respect to their ratings on 10 different phenomenological characteristics of autobiographical memory, a) vividness b) coherence, c) accessibility, d) time perspective, e) visual perspective, f) sensory details, g) emotional intensity, h) sharing, i) distancing, and j) emotional valence.
2. To compare SDMs and NSDMs with respect to (a) age of participants at the incidents described in the memories and (b) personal significance of memories.
3. To compare the SDMs and NSDMs of participants diagnosed with and currently under therapy for MDD with those of a matched HC group having no history of MDD with respect to the above-mentioned dimensions.

Hypotheses

We hypothesized that SDMs would be phenomenologically more vivid, coherent, accessible, sensorially detailed, experienced from 1st person perspective, emotionally intense, and more shared, personally significant, and events occurring at a relatively higher age than NSDMs. We also hypothesized that the phenomenological characteristics and personal significance of autobiographical memories would be different for persons with MDD, and the SDMs would be more significant for the HC individuals than those with MDD.

Participants

10 participants diagnosed by experienced psychiatrists with MDD who were undergoing psychotherapy under the supervision of trained clinical psychologists for a minimum of one to a maximum of six months comprised the MDD group, having no other comorbid psychological disorders. All of them were outpatients in the Department of Psychology, University of Calcutta, and the Clinical Psychology Center of University of Calcutta, and were contacted through their respective consultant clinical psychologists.

The HC group consisted of 10 participants without reported history of any psychological disorders. They were matched for age, sex and socioeconomic status with the MDD group. The participants were screened for presence of psychiatric disorders and subjective distress with the help of the General Health Questionnaire-28 (GHQ-28) and the Beck Depression Inventory-II (BDI-II) respectively. The inclusion criteria for the MDD group were a score of 4 or more on the former and that of 20 or more on the latter, while the same for the HC group were a score of less than 4 on the former and that of less than 13 on the latter. The detailed sociodemographic profiles of the participants are given in Table 1.

Table 1. Sociodemographic Profiles of the Participants

	Total Sample	*MDD Group*	*HC Group*	*Value of Appropriate Test Statistic*	*p-value*
Cases [n(%)]	20	10(50)	10(50)		
No. of Male Participants [n(%)]	6	3(15)	3(15)		
Age [M(SD)]	45.05 (2.91)	45.2 (2.97)	44.9 (3.00)	0.23[a]	>0.05
Educational Qualification					
Higher Secondary Level	7	4	3	0.48[b]	>0.05
Graduate	10	5	5		
Post Graduate	3	1	2		
Relationship Status					
Unmarried	1	0	1	0.00[b]	>0.05
Married	18	9	9		
Widowed	1	1	0		
Nature of Family					
Nuclear	15	7	8	0.40[b]	>0.05
Joint	2	1	1		
Extended	3	2	1		
No. of Children					
None	4	3	1	1.29[b]	>0.05
One	14	6	8		
Two	2	1	1		
Occupational Status					
Non-working	7	4	3	0.34[b]	>0.05
Service	8	4	4		
Self-Employed	5	2	3		
Total SES Index Score[1] [M(SD)]	21.45 (1.93)	21.6 (1.96)	21.3 (2.00)	0.34[a]	>0.05
History of Significant Event in Last 5 Years					
Reported	4	3	1	1.25[b]	>0.05
Not reported	16	7	9		
History of Significant Physical Illness					
Reported	1	0	1	0.00[b]	>0.05
Not reported	19	10	9		
History of Any Psychological Disorder					
Reported	10	10	0	12.8[b]	<0.05
Not reported	10	0	10		
GHQ Score	8.15 (5.15)	13.9 (2.28)	2.40 (1.07)	14.41[a]	<0.01
BDI-II Score	16.15 (12.44)	28.10 (2.69)	4.2 (1.55)	21.38[a]	<0.01

MDD= Major Depressive Disorder
[1]Computed following the latest revision of Kuppuswamy's Socio-Economic Status Scale (Sharma, 2017)
n=No. of individuals; M=Mean; SD=Standard Deviation
[a] Independent Samples t-test , [b] Pearson's Chi Square Test

Measures

Information Schedule

The Information Schedule was used to know the basic demographic details of the participants, like age, sex, relationship status, employment status, number of children, monthly family income, history of any significant life event in the last five years, history of any significant physical illness, and history of any psychological illness (along with the year of diagnosis and the duration of treatment).

General Health Questionnaire-28

The General Health Questionnaire-28 (GHQ-28), developed by Goldberg (1978) is a screener tool used to detect probable non-psychotic psychiatric disorder in community settings, comprising of four subscales: somatic symptoms, anxiety/insomnia, social dysfunction, and severe depression. It can be scored on a binary scale, with a cutoff score of 4 (Sterling, 2011). The GHQ-28 has been found to have high test-retest reliability (0.78 to 0.9) (Robinson and Price, 1982), excellent interrater and intra-rater reliability (Cronbach's α 0.9–0.95) (Failde and Ramos, 2000), and high internal consistency (Failde and Ramos, 2000). It also correlates well with the Hospital Anxiety and Depression Scale (Sakakibara et al., 2009) and other measures of depression (Robinson and Price, 1982).

Beck Depression Inventory-II

The Beck Depression Inventory Second Edition (BDI-II) is a 21-item self-report inventory, intended to assess the presence and severity of cognitive-affective and somatic-vegetative symptoms of depression. Each item is scored on a four-point Likert scale from 0 to 3, with higher total scores representing greater depression severity. The scale has a high internal consistency, with Cronbach's α of about 0.92 for outpatients and 0.93 for college students, along with high test–retest (administered 1 week apart) reliability of 0.93 (Beck, Steer & Brown, 1996).

Request for Autobiographical Memories

- **Request for Self-Defining Memories**

The request for SDMs was the one used by Sutin and Robins (2007) in Memory Experiences Questionnaire that was adapted from Moffit and Singer's Instructions for the Self-Defining Memory Request (Singer & Moffit, 1991-92), as follows:

"Please describe a memory that is personally meaningful to you. It can be either positive or negative, but it should convey the most important experience you have had that helps you to understand who you are and how you arrived at your current identity. It may be a memory about any kind of experience, but it should be something you have thought about many times and is still important to you, even as you are recalling it now. Please describe the memory in detail: what happened and when, whom you were with (if anyone), and how you felt or reacted."

Please describe two other such memories.

- **Request for Non-Self-Defining Memories**

The request for NSDMs was generated by the researcher adapting it from Moffit and Singer's Instructions for the Autobiographical Memory Request (Singer & Moffit, 1991-92), as follows:

Now please describe another memory of your life which you yourself was a part of. It can be either positive or negative. It should convey an important experience you have had but not necessarily helps you to understand who you are or how you arrived at your current identity. It may be a memory about any kind of experience, but it should be something you have thought about many times. Please describe the memory in detail: what happened and when, whom you were with (if anyone), and how you felt or reacted.

Please describe two other such memories.

Memory Experiences Questionnaire-Short Form (MEQ-SF)

Luchetti and Sutin (2016) developed a short form for developed a psychometrically sound instrument, Memory Experiences Questionnaire (MEQ) (Sutin and Robins, 2007) , to use in case of eliciting several memories from the same individual within limited time, and also to conduct research on specific populations where literacy, attention and cognition are limited. It includes 31 items across 10 phenomenological dimensions (*vividness, coherence, accessibility, time perspective, sensory details, visual perspective, emotional intensity, sharing, distancing,* and *valence)* of autobiographical memories.

Each scale showed acceptable internal consistency (median alpha = .79), along with high correlation with its corresponding long-form scale (median r = .95) (Luchetti & Sutin, 2016).

Data Collection

Data were collected from the participants individually after getting informed consent from them, at a quiet place comfortable for them in a particular order: a) Information Schedule, b) General Health Questionnaire and Beck Depression Inventory-II (BDI-II) as screening inventories, c) Request for 3 SDMs, d) Request for 3 NSDMs (requests for SDMs and NSDMs were counterbalanced across the participants), e) Rating the 6 memories on the Memory Experiences Questionnaire-Short Form (MEQ-SF) and two supplementary statements assessing participants' age at incident and level of personal significance of the memory. For the MEQ-SF, instructions were read aloud first, followed by probing as required.

The memories recalled audio-recorded with consent of the participants. Rest of the responses were taken in pen and paper. The data collection session was followed by debriefing.

There was no limitation of time. The average time taken for collecting data from each participant was about 90 to 120 minutes, allowing for short breaks as and when required.

Scoring

The responses of each participant on each of the inventories (GHQ-28, BDI-II, and MEQ-SF) were scored by the researcher following the respective scoring manuals.

Statistical Analyses

All statistical analyses were performed using SPSS-16 after testing all for assumptions of statistics.

- **Means** and **standard deviations** of the scores on ten different phenomenological dimensions age at

incident, and personal significance were computed separately for SDMs and NSDMs.

- **2 X 2 Mixed Analyses of Variances (ANOVAs)** were conducted to test for the presence of significant main effects of within-group variable (SDM and NSDM) and within-group variable (MDD and HC) as well as their interaction effects with respect to various phenomenological dimensions, age at incident, and personal significance of the elicited memories.

RESULTS

Transformation of Data

Since three memories were recalled by each participant for each type of memory, the mean of the scores of each participant on a particular variable (except content, where frequencies were considered as scores) for the three memories of a type was considered as her/his score on that variable for that type of memory. This method was adopted from that employed by Moffit and Singer (Moffit & Singer, 1994).

Table 2. Means and Standard Deviations of the ratings of participants in the MDD and HC groups on the 10 phenomenological dimensions, age at incident, and personal significance of SDMs and NSDMs

		MDD Group		***HC Group***	
		SDM	*NSDM*	*SDM*	*NSDM*
		M(SD)	*M(SD)*	*M(SD)*	*M(SD)*
Phenomenological Dimension	*Vividness*	4.12(0.46)	3.42(0.59)	4.46(0.37)	3.90(0.67)
	Coherence	3.09(0.49)	3.71(0.47)	3.67(0.63)	4.11(0.36)
	Accessibility	4.47(0.47)	3.21(0.83)	4.37(0.61)	3.26(0.64)
	Time Perspective	3.56(0.59)	3.56(0.56)	3.77(0.65)	3.43(0.55)
	Sensory Details	1.92(1.01)	1.70(0.81)	3.45(0.65)	3.07(0.73)
	Visual Perspective	4.16(0.89)	2.66(0.43)	4.16(0.41)	3.64(0.69)
	Emotional Intensity	3.69(1.35)	2.89(0.78)	4.11(0.59)	2.93(0.96)
	Sharing	1.60(0.98)	1.65(0.61)	2.89(0.72)	2.97(0.68)
	Distancing	2.27(1.15)	3.00(0.86)	2.68(0.68)	3.50(0.75)
	Emotional Valence	1.80(0.80)	2.65(0.95)	2.99(0.91)	3.48(0.96)
	Age at Incident	24.00 (5.16)	22.1(4.95)	28.47 (2.82)	20.30 (8.83)
	Personal Significance of Memories	4.57(0.16)	2.47(0.57)	4.84(0.18)	1.77(0.57)

$N_{(Clinical)}$=10; $N_{(Control)}$=10;
SDM= Self-Defining Memory; NSDM= Non-Self-Defining Memory
M=Mean; SD= Standard Deviation

The values of F ratios for the main effects and interaction effects obtained from the series of 2 X 2 factorial mixed Analysis of Variance (ANOVA) conducted separately are tabulated in Table 3.

Significant main effects of type of memory were observed for the phenomenological dimensions of vividness, coherence, accessibility, visual perspective, emotional intensity, and distancing, as also for the age at incident and personal significance of the memories.

Significant main effects of group of participants were also found for the phenomenological dimensions of vividness, coherence, sensory details, visual perspective, sharing, and emotional valence, as well as for personal significance of the memories.

Table 3. F ratios (at df=1,18) for the main effects of type of memory (SDM and NSDM) and group of participants (MDD and HC), and their interaction effects with respect to 10 phenomenological dimensions, age at incident, and personal significance. The corresponding effect sizes (partial eta squared) are given in parentheses.

		Main Effects		*Interaction Effect*
		Type of Memory	*Group of Participants*	*Type of Memory* Group of Participants*
Phenomenological Dimension	*Vividness*	9.84* (0.353)	9.71* (0.350)	0.13 (0.007)
	Coherence	9.39* (0.343)	12.02** (0.400)	1.11 (0.016)
	Accessibility	29.48** (0.621)	0.02 (0.001)	0.11 (0.006)
	Time Perspective	2.36 (0.116)	0.03 (0.002)	2.38 (0.117)
	Sensory Details	1.60 (0.082)	27.25** (0.602)	0.12 (0.006)
	Visual Perspective	37.62** (0.676)	5.59* (0.237)	9.12* (0.336)
	Emotional Intensity	16.90** (0.484)	0.43 (0.023)	0.61 (0.033)
	Sharing	0.14 (0.008)	20.39** (0.531)	0.01 (0.000)
	Distancing	7.21* (0.286)	2.97 (0.142)	0.02 (0.001)
	Emotional Valence	4.92 (0.215)	14.14** (0.440)	0.33 (0.018)
	Age at Incident	7.66* (0.299)	0.50 (0.027)	2.97 (0.142)
	Personal Significance	402.65** (0.957)	2.51 (0.123)	14.10** (0.439)

$N_{(Clinical)}$=10; $N_{(Control)}$=10;
SDM= Self-Defining Memory; NSDM= Non-Self-Defining Memory
** significant at 0.05 level of significance*
*** significant at 0.01 level of significance*

Significant interaction effect was observed for the visual perspective of the memories.

The effect sizes of all the significant effects (main and interaction) were observed to be large (>0.14), according to the guidelines by Miles and Shevlin (2001).

DISCUSSION

Phenomenological Characteristics of Autobiographical Memories in Individuals Suffering from Depression

Across both types of memories, the participants with MDD rated their memories to be less vivid, impoverished in sensory details, and less coherent, compared to their HC counterparts. These findings are similar to the results obtained in earlier studies. In a study by Lolich and colleagues (2017), the group of individuals with MDD differed significantly from the control group on the numbers of visual imagery details recalled in their memories, (though not differing significantly on their intensity) and on the intensity of sensoriality irrespective of the modality involved. Luchetti and Sutin (2018) also reported an inverse relationship of loneliness and anhedonic depression with vividness and sensorial details of autobiographical memories. As Greenberg and Knowlton (2014) point, visual imagery plays a fundamental role in autobiographical

memories and in cognitive functioning in general, which is why preserving the evocative quality would offer considerable adaptive benefits. Again, sensory processing is a relevant function in the emergence of memory phenomena according to the experience-centered approaches (Holmes & Mathews, 2010). The results of the present study, further, support the studies that argue that the more specific the representation process in memory, the larger the amount of information that is accessible in an experience (Werner-Seidler & Moulds, 2011).

Overgeneralization of autobiographical memories of depressed individuals have also been reported in numerous previous studies (Luchetti, Rossi & Montebarocci, 2016; Kuyken, Howell & Dalgleish, 2006). Williams and Mathews (1996) has proposed a process that he refers to as *"mnemonic interlock"* to account for the observed data on overgeneralized memory. Williams' model assumes that memory retrieval is a hierarchical process in which an individual first accesses a category of events and then uses the category to search for a specific exemplar (Rubin, 1996). Since the memories of depressed individuals are characterized by their more intrusion-related distress, negative emotions and interfering nature (Newby & Moulds, 2011) these individuals are more likely to develop a habitual tendency to passively avoid the "punishing consequence of recollection" of specific memories, and their searching process ends at the categorical level only, thereby resulting in overgeneralized memories. This may, therefore, be a coping strategy adopted by the persons suffering from depression. An alternative (though not mutually exclusive) explanation for overgeneralized memory is that it stems from depletion or diversion of processing resources to rumination and depression-related concerns (Rude et al., 1999)

Autobiographical memories of depressed individuals are further characterized by their being experienced from the 3rd person or "observer" perspective, a finding reported in a number of previous studies (Luchetti & Sutin, 2018; Werner-Seidler & Moulds, 2011). Previous studies revealed the influence of self-perspective on the self-relevance of the autobiographical memories (Libby & Eibach, 2002; Libby, Eibach & Gilovich; 2005). In the present study also, though the participants with MDD reported of having experienced the SDMs from the 1st person perspective as well like those in the control group, the NSDMs of the former were found to be experienced from a greater degree of 3rd person perspective than those of the latter. Therefore, it might be reflected that the memories where self is not well-represented are more likely to be seen from the observer perspective by both the depressed and non-depressed individuals, but this phenomenon is more prominent in case of the former.

While healthy subjects usually display an "observer" perspective towards their negative memories, and a "field" perspective towards the positive ones by attributing the former and the latter to an earlier different self and a current self respectively, (Libby & Eibach, 2002) depressed individuals have been found to display less ''field'' perspective for positive events, indicative of their possible difficulty in attributing their positive memories to their current self (Lemogne et al., 2006). This may also be a relatively permanent cognitive style adopted by the individuals suffering from depression.

Among other purposes, the autobiographical recalls have been linked with socialization goals (Harris, Rasmussen & Bernsten, 2014). In the present study, the autobiographical memories of participants in the clinical group have been found less likely to be shared compared to those of the participants in the control group, irrespective of the type of memories. Such findings, having also been reported in previous studies (Lolich, Azzollini & Vazquez, 2017) are in line with the lack of social support characteristic of depression cases (Conway, 2005).

It is noteworthy here that all these phenomenological aspects of autobiographical memories of individuals suffering from depression are intricately related to both intensity as well as valence of the emotions associated with the memories. Unlike the previous studies reporting greater emotional intensity of the memories recalled by the depressed individuals (Lolich, Azzollini & Vazquez, 2017) the present study has not revealed any such difference in emotional intensity of memories between the clinical and control group. A possible reason accounting for such a finding may be the effect of therapy on the participants in the clinical group, that could not be controlled. However, their memories have been found to be more negatively valanced than those of the control group. This may be attributed to the negative views depressed individuals hold about themselves and the world constituting the *negative cognitive triad* (Clark, Beck & Alford, 1999).

Age at Incident of Self-Defining and Non-Self-Defining Memories in Major Depressive Disorder

Irrespective of their diagnosis of MDD, both the groups of participants reported the events in SDMs to have taken place significantly later in their lives, compared to those described in the NSDMs. This significant difference in age at incidence may be. It may also be observed that SDMs are more concentrated in the 20s of the participants, whereas NSDMs extend back in the late teens. These findings hint that the individuals must cross the threshold of a certain age for the episodes occurring in that period of their life to be strongly linked with their sense of self and identity, and encoded as SDMs, irrespective of presence of depressive features.

This further supports the evidence of *reminiscence bump* in the autobiographical memories of adults, which may be defined as the period of life, events from which, are most frequently elicited in a free recall task (Rubin, Wetzler & Nebes, 1986).

Personal Significance of Self-Defining and Non-Self-Defining Memories in Major Depressive Disorder

The participants with MDD reported their SDMs to be more personal significant than NSDMs, a trend congruent with their HC counterparts. However, it was also observed that the personal significance of SDMs was somewhat less and that of NSDMs was somewhat more in the MDD group than in the HC group. In other words, the participants with MDD were observed to have a relatively less differentiated sense of personal significance attached to the memories with

varying degrees of self-definitional aspects, compared to the control group participants.

According to Beck's cognitive theory of depression, the persons suffering from depression are characterized by dysfunctional beliefs known as *depressogenic schemas*, which are rigid, extreme, and counterproductive, which lead to the formation of the belief of an inadequate self, which is again a cognitive bias predominant in depression (Clark & Beck, 2010). Due to this cognitive bias, the individuals may consider their SDMs to testify to their negative views about themselves. But since these memories, painful for the sense of self, are not completely faded away, and are partially retained (as evident from the phenomenological characteristics), the individuals may reduce the personal significance of these memories to make them less painful.

LIMITATIONS

The present study is not beyond limitations. These are discussed as follows:

Firstly, the sample size was not adequately large to generalize the findings.

Secondly, the accuracy of the recalled memories could not be checked as no relatives/informants of the participants were interviewed. However, the focus of the present study was the memories of the events *recalled* by the participants rather than the accuracy of the actual events that had *happened*.

Thirdly, the findings may be affected to some extent by the procedural components like completing questionnaires as also by some experimenter-elicited demands in the recall of memories. Thus, the main challenge of this research was to strike a balance between the ability to maintain ecological validity and maintaining control over memory retrieval.

Fourthly, the use of antidepressant or other types of psychotropic drugs by the participants, which might have an effect on memory, could not be controlled.

Despite the research limitations, the results reached can be highly useful in further research on the theme.

IMPLICATIONS

Eliciting autobiographical memories and life stories of clients with different clinical conditions including depression being a critical aspect in the regular clinical practice (Singer et al., 2012), findings of the current study may provide valuable resources for practicing clinicians by shedding light on the role of autobiographical memory in the development and maintenance of depression, thereby contributing to a better understanding of as well as the therapeutic interventions for the same.

Scope for Further Research

The present study opens the window for a plethora of further studies on related topics. SDMs of persons with MDD may be studied with the help of qualitative paradigm to understand the role of narratives in self and autobiographical memories. Investigation of the neurocognitive basis of SDMs in MDD may also enlighten future researchers and clinicians.

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Original Research Article

"Reads are Many, but Citations are Less": What are the Research Metrics of Indian Clinical Psychology?

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ABSTRACT

The clinical psychology training of our country is based on the scientist-practitioner model. Hence research is part and parcel of our practice. This study explores research usage metrics of clinical psychology faculty across RCI recognized institutions in India. Further, it delves to understand whether we cite and quote our research vis-à-vis the research usage metrics of our peers in state-run non-profit institutions of the U.S. It uses one online social platform of ResearchGate for data collection. In a purposive non-random sampling using inclusion and exclusion criteria, two samples (N=78) consisting of research profiles of clinical psychology faculty members were taken -- from India (n=38) and the other from the U.S. (n=38). Results depict the scores on various usage metrics of ResearchGate of the Indian sample. Significant differences emerge in all research usage metrics between the two samples. Focus on the citations depicts abysmal numbers with the available reads. Reasons are explored for the research metric differences observed. Directions and suggestions to uplift our scientific reputation are provided.

Keywords: *Research, Usage, Metrics, US, ResearchGate, Research Interest*

INTRODUCTION

Much scholarly information is available using the internet and social websites today (Mas-Bleda et al., 2014). The online mode of sharing research brings many usage metrics available.

One of the largest academics, social networks is ResearchGate (Mathews, 2016). It is a European private social networking virtual platform connecting researchers and their research across the globe. The website hosts researchers of all disciplines to share information openly and intends to bring science outside the laboratory or field. A researcher's scientific collaboration is obtained through various usage metrics of their publications, citations, questions, answers, projects, and recommendations of another peer's work. ResearchGate generates total "interest" garnered and the other usage metrics of the items posted by the author. It has an author-level metric score called the R.G. score. This score reflects an author's work as received by their peers in ResearchGate (ResearchGate, n.d.-a).

The authors of the present study had assessed a small purposive sample of clinical psychology (C.P.) researchers who had a high number of reads but with lesser than 7 % citations (Iyer & Manickam, in press). This paper is an attempt to explore the research metrics of Indian CP researchers in detail. Secondly, an assessment of "us" citing enough of "our" research, was needed. In the Indian context, decades back, the issue of low citation was put forward by Andrade and Choudhury (1994) on the research citing and awareness of psychiatric research in one of the leading Indian journals on psychiatry. Again, a similar article revisited how poor citing of our "own" research becomes a barrier to the impact factor of the Indian psychiatry journals. Unawareness and pure disdain were explored for insufficient citations (D'cruz & Andrade, 2021).

The following research questions guided our study.

Research Questions

The research question that we wanted to assess is as follows:

1. What are the research metrics for Indian researchers of C.P. from India and the U.S.?
2. What is the pattern of research metrics between the Indian and U.S. C.P.s?

METHOD

Data was obtained through a non-random and purposive strategy. There are two sets of samples, one the Indian CP researchers and the other the U.S. CP.

Indian Sample of C.P.

Firstly, through the list of approved Institutions imparting M.Phil. training in clinical psychology across India (RCI; Rehabilitation Council of India, 2021). Apart from the list, the National Institute of Mental Health and Neurosciences (NIMHANS) is included as an institution of national importance. Secondly, a manual search of the institutions registered in the ResearchGate was conducted. From the institutions' profiles, the members belonging to clinical psychology departments or clinical psychology members in the department of psychiatry were noted. Thirdly only faculty members of C.P. were included. Lastly, extraction of researcher metrics was conducted, followed by an analysis of the usage metrics. The researchers' inclusion criteria were as follows: 1. The profiles should have a R.G. score of more than 5.00 or equal and above ten publications. 2. Publications by C.P.s working in government or private institutions under RCI-approved training centres or institutes of national importance. 3. Online data on research metrics in ResearchGate only. The Preferred Reporting Items for Systematic reviews and Meta-Analyses (PRISMA; Page et al., 2020) was utilized to review the researcher's profile in ResearchGate. The format of the PRISMA flow diagram has been modified as per the inclusion and exclusion criteria. Figure 1 was generated using software (Welson, 2009).

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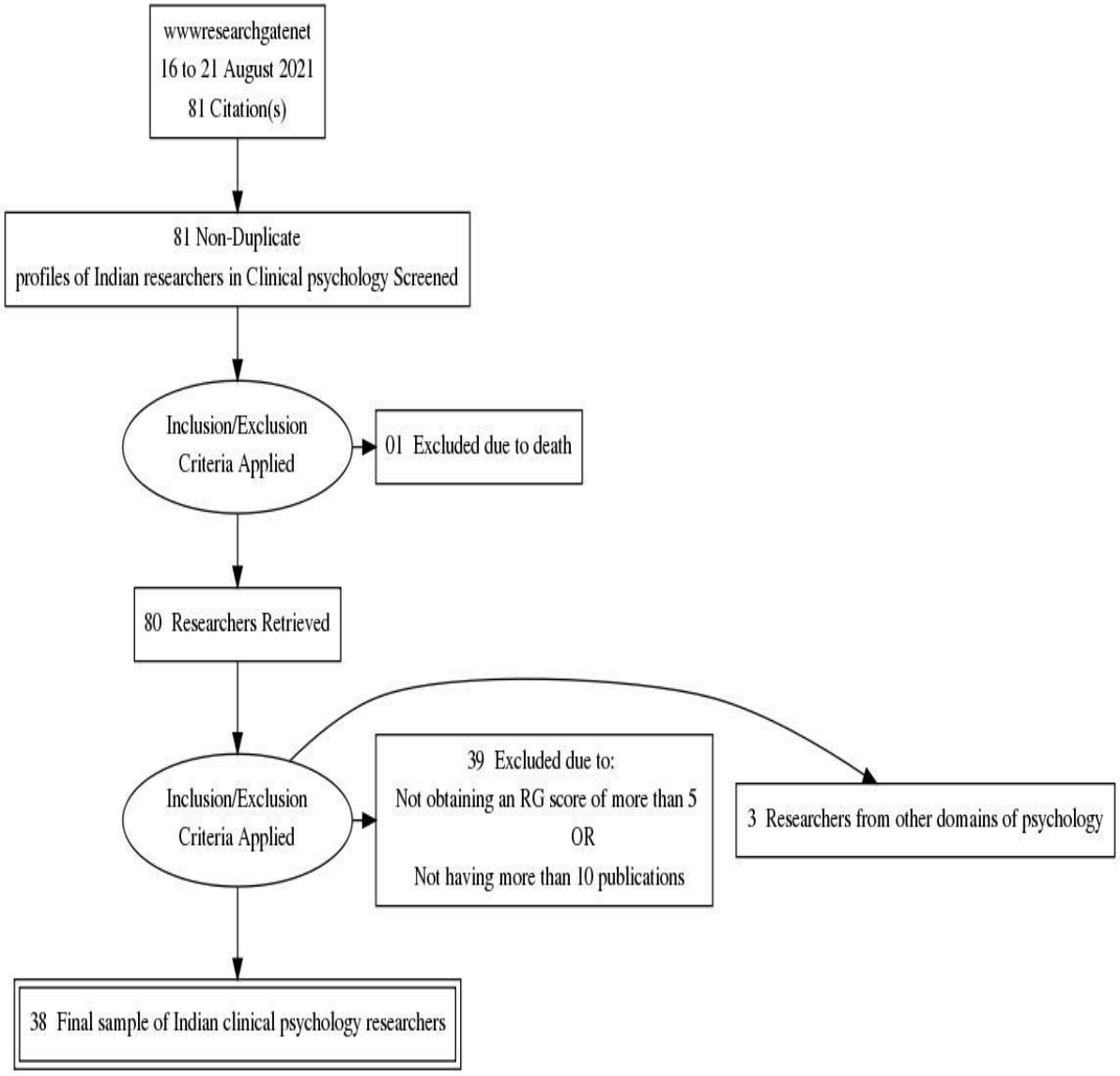
As the algorithms of the metrics for each profile change each week (ResearchGate, n.d.-b), the third week (16--21) of August 2021 was considered for the data collection.

U.S. Sample of C.P.

The U.S. sample of C.P.s are from the top ten best-ranked public, non-profit institutions running APA accredited clinical psychology programs of 2020 (Morse et al., 2021; U.S. News, n.d.). From the list of top ten universities, the first 38 profiles were sequentially recruited to match the number from the Indian sample of C.P.s. Only the faculty members of C.P. departments who had a profile registered with ResearchGate were recruited. A similar protocol of extraction of researcher metrics was conducted as for the Indian sample of C.P.s. The third week (16--21) of October 2021 was considered for the data collection.

Figure 1: PRISMA flow diagram on the Indian sample



Note. The flow diagram depicts the recruitment of the sample from the database of www.researchgate.com.

Data Analysis

The data were recorded and analyzed using SPSS (version 23.0; IBM Corp, 2015). Descriptive statistics were computed for the data obtained.

RESULTS

The results obtained could be classified into three inter-linked sections based on the research questions raised:

a) Descriptive statistics on usage metrics of Indian and U.S. researchers of C.P.

b) Differences between the Indian and US CP research metrics

Descriptive statistics on usage metrics of Indian and U.S. researchers of C.P.

Table 1 provides for the research metrics of clinical psychology research in India. The total sample is 38. Each research profile of the sample has been extracted for its various usage metrics. R.G. scores, number of citations each profile has obtained, the total number of publications, research interest garnered, whether the researchers are from government or private institutions, and the percentage of citations based on the reads of the profiles.

Table 1: Research Metrics of C.P. Researchers from India

Sr No.	R.G. Score (A)	Number of Citation (B)	Number of Reads/ Counts/ Hits (C)	B / C * 100 (D)	Number of Publications (E)	Research Interest Generated (F)	Institution type: G or P
1	8.41	134	2497	5.37	8	90.9	G
2	6.13	74	621	11.92	12	45.4	G
3	8.19	49	5792	.85	13	52.4	G
4	14.36	119	15742	.76	33	177.0	G
5	7.97	69	3712	1.86	19	73.4	G
6	11.27	30	8653	.35	24	49.0	G
7	11.7	84	2687	3.13	38	68.9	G
8	17.63	361	25721	1.40	68	316.1	G
9	15.4	209	3574	5.85	23	133.1	G
10	6.45	59	8908	.66	24	85.2	G
11	8.04	13	2690	.48	6	26.0	G
12	8.12	76	15625	.49	26	142.5	G
13	19.74	206	18041	1.14	55	206.6	G
14	21.62	674	37087	1.82	75	655.2	G
15	29.67	429	13409	3.20	103	420.5	G
16	21.52	205	5286	3.88	21	177.0	G
17	21.34	324	44604	.73	86	511.6	G
18	9.67	12	2837	.42	57	52.4	G
19	24.74	409	14714	2.78	51	333.5	G
20	34.28	1119	13589	8.23	97	757.0	G
21	24.46	559	38438	1.45	88	629.6	G
22	16.04	120	4268	2.81	21	94.6	G
23	14.23	226	24140	.94	26	255.7	G
24	24.48	459	73625	.62	70	503.1	G
25	29.11	860	10435	8.24	60	569.0	G
26	14.08	143	44693	.32	62	264.2	G
27	12.95	332	8928	3.72	20	255.7	G
28	27.87	781	47859	1.63	138	781.4	G
29	26.74	683	16759	4.08	90	543.6	G
30	13.01	110	4793	2.30	34	123.4	G
31	5.51	29	15474	.19	9	98.3	G
32	5.73	87	3562	2.44	15	72.4	P
33	5.51	6	845	.71	40	10.8	G
34	5.01	270	8448	3.20	7	214.9	G
35	6.6	11	12820	.09	25	86.5	G
36	9.54	20	7046	.28	26	70.7	G
37	7.2	5	135	3.70	3	3.5	G
38	-	10	2622	.38	17	33.4	P

Note. The research parameters and metrics for the sample are provided.
RG = ResearchGate; G = Government; P = Private.
N = 38

Table 1 depicts only two researchers out of 38 from the private institutions and the rest from the governmental institutions.

Table 2 presents a different picture. The sample of 38 researchers of US CP faculty from the top ten U.S. universities was assessed for their research metrics. The sample is from governmental institutions only.

All the column headings are obtained from the research dashboard in ResearchGate profiles. The D column in Tables 1 and 2 is obtained by dividing the citations (B) brought in each profile by the number of reads/counts (C) on a profile.

Table 2: Research Metrics of C.P. Researchers from the U.S.

Sr No.	R.G. Score (A)	Number of Citation (B)	Number of Reads/ Counts/ Hits (C)	B / C * 100 (D)	Number of Publications (E)	Research Interest Generated (F)	Institution type: G or P
1	36.10	2342	19886	11.78	81	1661	G
2	39.48	5977.00	48836.00	12.24	119	3798	G
3	40.11	10094	82977	12.16	183	5821	G
4	38.81	2745	55160	4.98	119	2028	G
5	34.7	2425	10387	23.35	65	1348	G
6	37.48	1847	6617	27.91	86	1070	G
7	27.82	2955	34425	8.58	38	1781	G
8	33.17	1035	4970	20.82	54	627.7	G
9	27.28	4197	31943	13.14	42	2357	G
10	38.61	6465	137062	4.72	232	4388	G
11	26.93	910	8408	10.82	37	537.7	G
12	30.67	1105	7604	14.53	41	677.6	G
13	32.1	4344	64190	6.77	82	2847	G
14	30.39	1826	13419	13.61	56	1045	G
15	23.99	1026	6477	15.84	31	577.6	G
16	38.15	7020	25401	27.64	105	3791	G
17	39.29	2697	32424	8.32	134	1668	G
18	32.19	838	32619	2.57	57	605.2	G
19	37.62	3663	8891	41.20	70	1978	G
20	40.8	7177	37513	19.13	162	4142	G
21	41.51	6667	48241	13.82	173	4011	G
22	46.65	41974	692124	6.06	373	26479	G
23	31.13	5983	16578	36.09	48	3120	G
24	33.99	10317	9352	110.32	74	5323	G
25	30.68	569	3616	15.74	39	364.2	G
26	32.52	2733	7334	37.26	75	1423	G
27	24.97	454	7046	6.44	49	377.4	G
28	36.65	4270	9967	42.84	83	2187	G
29	37.94	4290	20153	21.29	95	2326	G
30	44.54	17418	187785	9.28	275	9786	G
31	20.33	1743	8585	20.30	30	978.4	G
32	43.77	9959	91743	10.86	279	6165	G
33	42.64	9929	48222	20.59	179	5451	G
34	34.08	2771	10142	27.32	104	1476	G
35	34.08	2297	6160	37.29	54	1261	G
36	47.31	9157	58216	15.73	332	5141	G
37	40.04	3950	7109	55.56	132	2067	G
38	24.46	348	361	96.40	19	178.1	G

Note. The research parameters and metrics for the U.S. sample are provided.
RG = ResearchGate; G = Government.
N = 38.

In sum, the Tables (1 & 2) provide data from the profiles of C.P. researchers for the samples.

b) Differences between the Indian and US CP research metrics

Tables 3 and 4 provides an analysis of the data from the Tables 1 and 2. For the Indian sample of C.P. researchers, Table 3 depicts a median R.G. score of 12.98 with a high variation (IQR = 13.77). The maximum R.G. score obtained by the sample was 34.28. The average number of publications is 41.84 (SD = 32.70). The publications' range was high and hugely varying from a minimum of three to a maximum of 138. Therefore, the research interest garnered is about 137 but with a higher variation (IQR = 285). This could imply the considerable variation each research profile has in the sample. It speaks of the uneven nature of research metrics in this present sample. The descriptive for the Indian sample depicts the number of reads to be greater with high variation compared to the citations obtained. The number of reads is seventieth times the number of citations in this

sample. The percentage of citations for the profiles is as low as 0.09 and is 11.9 %. On average, about 2.4% are the citations based on the reads.

The U.S. sample of C.P. researchers' presents a different picture. Table 3 depicts a median R.G. score of 35.40 with a low variation (IQR = 8.94). The maximum R.G. score obtained by the sample was 47.31. The average number of publications is 110.71 (SD = 87.28). The publications' range was high and hugely varying from a minimum of 19 to a maximum of 373. Therefore, the research interest is also increased at a median of 2003 but with a higher variation (IQR = 3015.40). This again implies a significant variation in each research profile has in the sample. The descriptive for the U.S. sample also depicts the number of reads to be greater with high variation compared to the citations obtained. The median number of reads is only six times the median number of citations in this sample. The percentage of citations for the profiles is at 2.57% and is not more than 110.32 %. On average, about 23.25% are the citations based on the reads.

Table 3: Descriptive statistics on the research parameters

Research Parameters	Descriptive Statistics									
	Indian CPs [a]					US CPs [b]				
	Mean	SD	Range	Mdn	IQR	Mean	SD	Range	Mdn	IQR
RG Score	-	-	0.00 - 34.28	12.98	13.77	-	-	20.33 - 47.31	35.40	8.94
Research Interest	-	-	3.50 - 781.40	137.80	285.00	-	-	178.10- 26479	2003	3015.40
Number of Publications	41.84	32.70	3.00 - 138.00	-	-	110.71	87.28	19 - 373	-	-
Number of Reads	-	-	135 - 73625	8918	13508.50	-	-	361 - 692124	18232	40853.25
Number of Citations	-	-	5 - 1119	127	328.75	-	-	348 - 41974	3309	4950
Average percentage of citations vis-à-vis reads	2.43	-	0.09 - 11.92	-	-	23.25	-	2.57 - 110.32	-	-

Note. The mean, median, IQR, SD, and range of the research parameters for the sample are provided.
RG = ResearchGate.
N = 76 (^{a}n = 38, ^{b}n = 38).

Table 4: Comparison of Indian and U.S. research metrics

Research Metrics	Indian CP Researchers[a]	US CP Researchers[b]	Mann-Whitney U Test	
	Mean Ranks	Mean Ranks	Z	p
RG Score	20.93	56.07	6.94	.000**
Research Interest	20.92	56.08	6.94	.000**
Number of Reads	31.75	45.25	2.67	.008*
Number of Citations	20.24	56.76	7.21	.000**

Note. Differences between the Indian and U.S. sample on various research usage metrics.
RG = ResearchGate
N = 76 (^{a}n = 38, ^{b}n = 38).
*p < .05, **p < .001.

The difference between the samples is significant across all the research metrics (Table 4). They depict the low citations (p<.001), reads (p<.05), research interest (p<.001), and therefore lower R.G. score (p<.001) of Indian samples in comparison to our peers in the U.S. Thus, the Tables (3 & 4) provide us the pattern of the research usage metrics between the samples.

DISCUSSION

The research metrics are high, with a higher number of citations in the U.S. sample. Our reads are not poor, but the number of citations is abysmal. Overall, our scientific reputation needs upliftment.

Many concordant and interesting articles have emerged to support our findings and assist the authors of the study in putting forward some guidelines for better metrics from clinical psychology. The metrics are high in a few profiles, mainly in the moderate and low tail-end of most of the clinical psychology faculty in our country. Overall, the average percentage of citations appears to be relatively low in comparison to the U.S. sample.

Our scientific reputation is poor in comparison to our peers from the west. The median value of the R.G. score of the Indian sample is 12.98, with a very high variation. It indicates the unevenness of our researcher's profiles. The median value of US CP researchers is 35.40, with a low variation. Many factors such as the number of years of experience, the network of collaborations, recommendations from peers, the impact factor of journals, and the number of publications could contribute to this score's unevenness. Since these findings are only

preliminary, a detailed understanding of the number of Indian profiles that the present sample recommends, reads, cites, and follows could take the lead.

Further, a "read" in ResearchGate is defined as simple access to the research publication (ResearchGate, n.d.-b). Indian sample depicts high variation, more than the median value of the sample, like the U.S. sample. Interestingly, Subelj et al. (2014), in their computational model of citation on over 60 years of Web of Science data, revealed that most (about 85%) of the cited papers are never read. They are copied from other papers, and the probability of citing a paper is only about 30%. Simkin and Roy Chowdhury (2002) report of scientists copying someone else's reference without reading the paper in question. These points could be valid for our Indian researchers of the present study. We could be "citing without reading in this internet era," as Simkin and Roy Chowdhury (2002) analyzed. Hence this could not lead to many citations from our domain emerging, perhaps. Another reason could be difficulty retrieving the articles of our "own" work online.

Citations simply are the number of times a researcher's work/publications gets cited (ResearchGate. (n.d.-c). It is also possible that some citations are obtained after years of publication (Perneger, 2004). But it needs to be stated that easy and quick access to our articles and papers attract more reads and subsequent citations (Perneger, 2004). The meagre average percentage of the citations could be due to the tendency of Indian researchers to look at mostly the articles from high-impact journals compared to other articles in non-high impact journals (Nishy & Rana, 2016). Peer competition could be a major reason for pure disregard of Indian research, which we could retrieve (Andrade et al., 2000). One major problem that we would face due to non-citing of our own is the resultant poor impact factor of our journals (D'cruz & Andrade, 2021). A few first-world countries dominate the "top" journals, and we need to start citing, reading research pertinent to our cultural context, and befitting it in the broader world context (Mason & Merga, 2021). Moreover, our journals do carry some good and diverse articles.

Although this requires further input and analysis by peers of this domain, a few observations that contribute enhance reads and subsequent citations could be as follows.

1. We could look to build on research work already conducted on a particular topic. We seek to replicate based on the western studies with their template modified for our Indian subcontinent samples. Much original work could be conceptualized from us, from which the west could take the lead (Singh, 2010).
2. The use of Indian search engines such as Shodhganga (Shodhganga: A reservoir of Indian theses at INFLIBNET, n.d.) could help mine Indian research and authors. It might refine and extract valuable information.
3. We could mentor our master's students, pre-doctoral and doctoral scholars of psychology (and clinical psychology), the importance of original research work, and the need to improve the existing database with additional research findings (Manickam, 2008). The opportunities and ideas in young scholars and post-graduate students should add to the research database on a current topic.
4. As highlighted by Galundia (2018), poor funding and bleak prospects in research are significant de-motivators to publish high-quality research work in reputed journals. Who funds the research in clinical psychology also needs exploration. Prabhu and Hirisave (1990) viewed that funding research in clinical psychology is neglected by the Department of Science & Technology (DST) and Indian Council of Medical Research (ICMR) since they consider clinical psychology as a 'soft subject 'or as 'social science' whereas Indian Council for Social Science and Research (ICSSR) view the CP falling outside their purview. Though RCI regulates clinical psychology, they do not fund research in clinical psychology and therefore, in depth and longitudinal research that can be impactful are not carried out except the 'surface level' or 'cross sectional' studies led by individual CPs. Professional associations like the Indian Association of Clinical Psychologists (IACP) could assist in bringing this to the light of our policymakers and the government.
5. Independent ethical approval houses or institutions to grant ethical approval to independent researchers will bring quality research in our domain of clinical psychology.
6. Making ourselves available online and promoting as much as possible on various social networking sites could make it easy to retrieve, and lead to more readers and citations of our research. The visibility and the citations of CP's are likely to improve if the past issues of our major journals are digitised and made available in open-source repository.
7. More internal collaborations amongst Indian clinical psychology members could bring new ideas to test in the empirical realm.

Most Indian CP researchers of this social platform belonged to government institutions. It is also possible that many C.P. faculty move from private to government institutions. Nevertheless, the profiles of C.P. faculty researchers from private institutions are low. Another observation by the present study's authors was that more than the faculty members, many post-graduate students, and research scholars were registered with ResearchGate. It is concordant to a similar analysis on Mendeley, where Mohammadi et al. (2015) found that most readers were Ph.D. and post-doc researchers and post-graduate students. Moreover, many senior researchers were not seen with their publications online in ResearchGate. It could be due to more young researchers than seniors being drawn to the latest technology tools or web networking (Mas-Bleda et al., 2014).

CONCLUSION

Much of the problems listed could be resolved if scientific and personal communication amongst the researchers is enhanced for the more significant benefit of clinical psychology. It is interesting to note that four decades ago

Basavanna (1981) raised 5 pertinent questions to the clinical psychologists in India that appears to have high relevance even in the current context. The questions were:

> 1. What is our contribution to theory and practice of clinical psychology? 2. Have we, any one of us, published something that has fired the imagination of the young researchers in the field? 3. Have we evolved some impressive models for imparting clinical skills to our youngsters? 4. What is our rating in the internal and international scene? 5. How often an Indian clinical psychologist is being quoted in academic circles abroad? (p. *i*).

One must keep in mind that he had aired these at a time when impact factor or the rating index for research publications were not in place. The challenge is open even now and it is for current clinical psychology faculty and practitioners to respond. The authors hope that with the advancement enabling the researchers to have access to statistical packages and AI based Electronic Health Records like Trias that ease the collection of data and generation of analytics, citation of our research can take a quantum leap (Manickam, 2021).

We invite all our colleagues and peer researchers to join the online platforms of publishing their research. In the words of Andrade et al (2000), if we don't read, cite, and recommend our country's research, who will?

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Original Research Article

Psychometric Properties of the Hindi Version of Metacognition Tools for Clinical and Non-Clinical Samples

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ABSTRACT

Background: Metacognition Questionnaire (MCQ)-30 and MCQ-Short and Modified (MCQ-S&M) are widely used psychometric tools to measure the metacognitive beliefs of clinical as well as non-clinical populations. However, there is a lack of Hindi psychometric tools of metacognition with evident psychometric properties. Therefore, the present study aimed to translate the existing metacognition questionnaires viz. MCQ-30 and MCQ-S&M into Hindi language, and further evaluate its psychometric properties in the Indian setting.

Method: Based on purposive sampling technique, MCQ-30 and Hospital and Anxiety and Depression Scale (HADS) were administered on 145 patients diagnosed with depression and anxiety and 355 non-clinical participants. Similarly, MCQ-S&M and HADS were administered on 126 patients with schizophrenia disorder. After collection of the data, internal consistency, test-retest reliability, and convergent validity of both MCQ-30 and MCQ-S&M were examined. Lastly, the factor structure of MCQ-30 and MCQ-S&M were evaluated using Exploratory and Confirmatory Factor Analysis.

Results: Hindi versions of MCQ-30 and MCQ-S&M have good internal consistency and temporal stability. The alternate form reliability of MCQ-30 was statistically significant. Both MCQ-30 and MCQ-S&M indicated significant convergent validity as the subscales had significant correlations with depression and anxiety. Lastly, the factor analysis of MCQ-30 yielded the five-factor model through both EFA and CFA. The EFA of MCQ-S&M identified the seven-factor model as in the original scale, however, the results of CFA did not fit the seven-structure model.

Conclusion: The results suggest that the Hindi-translated versions of MCQ-30 and MCQ-S&M have sound psychometric properties to measure the metacognitive beliefs of participants of anxiety and depression and schizophrenia disorder respectively.

Keywords: *Metacognition Questionnaires, Hindi Adaptation, Factor Structure*

INTRODUCTION

Metacognition is a higher-order cognitive function that encompasses one's awareness about own thoughts and cognitive functions (Crick & Clark, 1994; Dienes & Perner, 1999). Wells and Purdon (1999) defined 'metacognition as "the aspect of information processing that monitors, interprets, evaluates and regulates the content, and process of its organization" (Wells & Purdon, 1999).

Recent conceptualization of cognitive behavior therapy (CBT) focuses on 'metacognition' apart from the beliefs regarding one's inner and the external world. Researchers have postulated a cognitive model that integrates researches related to information processing with Beck's schema theory (Wells & Matthews, 1996), and the model is termed as the Self-Regulatory Executive Function (S-REF) model (Wells, 1995; Wells & Matthews, 1996). The Self-Regulatory Executive Function (S-REF) model explains how Metacognitions provide top-down generic procedures for inflexible and maladaptive coping responses (Kraft, Jonassen, Stiles, & Landrø, 2017).

The S-REF model posited a cognitive framework that comprises three interrelated levels namely, automatic processing, attention-driven voluntary processing, and belief structure. As per the model, perseveration of certain thoughts, threat monitoring, and failure in the modification of problematic beliefs play a significant role in amplifying and maintaining psychological symptoms (Matthews & Wells, 2016; Wells, 2007; Wells & Carter, 2001; Wells & Matthews, 1996). This top-down cognitive architecture has been incorporated in understanding the development of several psychological problems such as Generalized Anxiety Disorder (Wells, 2005, 2007; Wells & Carter, 1999), Obsessive-Compulsive Disorder (Fisher & Wells, 2008; Wells & Papageorgiou, 1998), Post-traumatic Stress Disorder (Holeva & Tarrier, 2001; Reynolds & Wells, 1999), social phobia (Wells, 2007; Wells & Carter, 2001); panic disorder (Wells, 2007; Wells & Carter, 2001); depression (Papageorgiou & Wells, 2003), substance abuse (Toneatto, 1999), hypochondriasis (Bouman & Meijer, 1999), psychosis (Palmier-Claus, Dunn, Taylor, Morrison, & Lewis, 2013), schizophrenia (Hill, Varese, Jackson, & Linden, 2012; Lobban, Haddock, Kinderman, & Wells, 2002; Perona-Garcelán et al., 2012; van Oosterhout, Krabbendam, Smeets, & Van Der Gaag, 2013), hallucination proneness (Larøi, Van der Linden, & Marczewski, 2004), presence of hallucinations (A. Morrison & Wells, 2003; A. P. Morrison, Wells, & Nothard, 2000), anorexia nervosa (Cooper, Grocutt, Deepak, & Bailey, 2007) and gastrointestinal disorders (Lenzo et al.,

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2013). Moreover, the role of metacognitive beliefs has been reported in non-clinical samples also in the perception of stress (Spada, Nikčević, Moneta, & Wells, 2008).

There are several questionnaires designed to assess metacognitive beliefs such as Anxious Thoughts Inventory (Wells, 1994); Though Control Questionnaire (Reynolds & Wells, 1999), and Metacognition Questionnaire (MCQ) (Cartwright-Hatton & Wells, 1997). The latter has been most widely used by researchers because of its sound validity in assessing metacognitive beliefs (Larøi, Van der Linden, & d'Acremont, 2009). The MCQ initially had 65 items, which was time-consuming due to its length; therefore, the authors further designed a brief version of the questionnaire which is known as Metacognition Questionnaire – 30 (MCQ-30) (Wells & Cartwright-Hatton, 2004). The tool has five subscales with six items each, namely positive beliefs about worry, cognitive self-consciousness, cognitive confidence, negative beliefs about the uncontrollability of thoughts and corresponding danger, and need to control thoughts (Wells & Cartwright-Hatton, 2004). The questionnaire has been found highly relevant for patients with anxiety and mood disorders (Sharma, Mehta, & Sagar, 2016) and healthy controls (Gupta & Bashir) in assessing their metacognitive beliefs. Keeping in view the relevance of MCQ-30, it has been adapted in eight different languages e.g. French (Larøi et al., 2009), Greek (Typaldou et al., 2010), Korean (Cho, Jahng, & Chai, 2012), Russian (Sirota, Moskovchenko, Yaltonsky, & Yaltonskaya, 2018), Serbian (Marković, Purić, Vukosavljević-Gvozden, & Begović, 2019), Spanish (Ramos-Cejudo, Salguero, & Cano-Vindel, 2013), Turkish (Tosun & Irak, 2008) and Italian (Quattropani, Lenzo, Mucciardi, & Toffle, 2014).

Furthermore, from the original MCQ 65-item questionnaire, a short and modified version (MCQ-S&M) was created to assess the metacognitive beliefs in patients with psychotic disorders, specifically those with auditory hallucinations (Lobban et al., 2002). This tool has 28 items, divided into seven subscales viz. positive beliefs about worry, cognitive self-consciousness, cognitive confidence, negative beliefs about the uncontrollability of thoughts and corresponding danger, the importance of consistency of thoughts, beliefs about normal experiences of unwanted intrusive thoughts, and unwanted thoughts (Lobban et al., 2002). The tools MCQ-30 and MCQ-S&M have twenty common items.

Review of literature suggests that there have been several researches in India that have identified the role of metacognition in the symptomatic manifestations of patients with major depressive disorder (Sharma et al., 2016), obsessive-compulsive disorder (Tarafder & Mukhopadhyay, 2018), learning (Jaleel, 2016) and academic procrastination (Gupta & Bashir). However, no attempt has been made to adapt MCQ-30 and MCQ-S&M in Hindi and validate it for the Hindi-speaking population. Therefore, the purpose of the present study was to translate MCQ-30 and MCQ-S&M into Hindi language. Further, to evaluate the psychometric properties of MCQ-30 and MCQ- S&M in non-clinical as well as patients with anxiety or depressive disorder and patients with schizophrenia respectively.

METHOD:

Participants: Purposive sampling technique was used for the selection of sample. The present study was conducted on three groups in the year 2019 from July-October. The socio-demographics of the three groups are presented in Table 1. The inclusion and exclusion criteria for the groups are as follows:

Group A: It consisted of 126 patients with schizophrenia selected from the psychiatric ward of recognized hospitals in India. The inclusion criteria were as follows: (a) Patients were diagnosed by the concerned psychiatrist according to ICD-10 Diagnostic Criteria for Research. (b) Patients were educated above Class 8th standard, with an understanding of Hindi language. (c) The age range of the participants was between 18-65 years. Patients with co-morbidity of any other significant physical, neurological and psychiatric conditions like history of substance abuse, mental retardation and epilepsy were excluded. Patients who had undergone ECT in last one week were also excluded from the study.

Table 1: Sample Characteristics

Socio-Demographics		Schizophrenia (N=126)		Anxiety Or Depression (N=145)		Non-Clinical (N=355)	
		Male	Female	Male	Female	Male	Female
Marital Status	Unmarried	29	17	34	25	117	98
	Married	26	54	49	37	69	71
Education	Secondary	46	58	22	17	18	18
	Higher Secondary	6	8	49	36	21	17
	College And Above	3	5	12	9	147	134
Age Group	18-25	27	19	12	12	101	93
	26-35	11	17	27	15	37	20
	36-45	11	17	19	21	17	26
	46-55	4	10	13	9	14	21
	56-65	2	8	12	5	17	9

Group B: It consisted of 145 patients suffering with anxiety and/or depressive disorder selected from the psychiatric ward of recognized hospitals in India. The inclusion criteria were as follows: (a) Patients were diagnosed by the concerned psychiatrist according to ICD-10 Diagnostic Criteria for Research. (b) Patients were educated above Class 8 with an understanding of both Hindi and English language. (c) The age range of the participants was between 18-65 years. Patients with co-morbidity of any other significant physical, neurological and psychiatric conditions like history of substance abuse, mental retardation and epilepsy were excluded. Patients who had undergone ECT in last one week were also excluded from the study.

Group C: This group constituted of 355 non-clinical participants mainly students and research scholars and non-teaching staff residing at the campus of a University. The inclusion criteria were as follows: (a) The age range of the

participants was between 18-65 years. (b) Participants with an understanding of both English and Hindi language. Lastly, participants with a history of any psychiatric illness were not included in the study.

Tools:

Metacognition Questionnaire – Short and Modified (Lobban et al., 2002): The MCQ-S&M is a short and modified version of MCQ-65, assesses individual differences in seven factors important in the metacognitive model of psychological disorders. It has 28 items and the responses are measured on a 4-point Likert scale. The seven subscales of the MCQ-S&M are: cognitive confidence, positive beliefs about worry, cognitive self-consciousness, negative beliefs about uncontrollability of thoughts and danger, experiencing unwanted thoughts, importance of consistency of thoughts, and beliefs about normal experience of unwanted thoughts. The scale has high face validity and internal consistency reliability (0.7).

Metacognition Questionnaire-30 - (Wells & Cartwright-Hatton, 2004): The MCQ-30 is a brief version of MCQ-65, measures metacognitive beliefs in five subscales namely – positive beliefs about worry, cognitive self-consciousness, cognitive confidence, negative beliefs about uncontrollability of thoughts and danger, need to control. The responses are measured on 4-point Likert scale. The scale is good internal consistency reliability (ranging from 0.72-0.93), test-retest reliability (ranging from 0.59-0.87). The scale has good construct and convergent validity.

Hospital Anxiety and Depression Scale –(Rishi et al., 2017)

It is a self-administered rating scale assessing the presence and severity of anxiety and depression through seven items each in Hindi language. Scoring for each item ranges from 0-3, wherein three denotes highest anxiety or depression level. The scale is internally consistent with values of 0.76 & 0.80 for anxiety and depression respectively.

Statistical Analysis:

To calculate factor structure of the questionnaires, exploratory factor analysis (EFA) and confirmatory factor analysis (CFA) were carried out using SPSS 20.0 and IBM SPSS Amos (version 24) respectively. Cronbach's Alpha was computed to measure internal consistency reliability of MCQ 30 and MCQ S&M. Pearson's Product Moment Correlation was calculated to assess the alternate form reliability and test-retest reliability of MCQ-30. Lastly, convergent validity of both the tools were measured by computing correlation coefficients between the scores of the translated tool and scores of tool measuring anxiety and depression.

Procedure:

The permission had been sought from the author of the scales (MCQ-30 and MCQ-S&M) for Hindi translation and psychometric validation of the said tools. Thereafter, ethical approval was obtained from the Human Ethical Committee of the institute from where data was collected. Subsequently, the original version of MCQ-30 and MCQ-S&M were given to three bilingual mental health professionals for Hindi translation. Of the three translations, the most suitable translation was selected and given to another three bilingual mental health professionals for back-translation. These back-translated statements were compared with the original scales, and necessary modifications were made wherever applicable. The tools did not have any culturally-sensitive item; therefore, cultural adaptation of any item was not required. Patients with schizophrenia were selected on the basis of the above-mentioned inclusion and exclusion criteria for the assessment of psychometric properties of MCQ-S&M. Similarly, patients with anxiety and/or depressive disorders, and non-clinical controls were selected for adaptation of MCQ-30. Initially, the written informed consent was obtained from each participant, and the socio-demographic details were also recorded.

For the adaptation of MCQ-S&M, the Hindi-translated version of MCQ-S&M along with HADS was administered on patients with schizophrenia (Group A). For the adaptation of MCQ-30, the Hindi-translated version of MCQ-30, the original version of MCQ-30 along with HADS were administered on patients with anxiety and mood disorders (Group B) and non-clinical controls (Group C). In addition, it was carefully noted that if any participant had any difficulty in understanding any particular word or phrase during the time of administration of the translated tools. Furthermore, to assess the test-retest reliability of MCQ-30, the translated tool was re-administered on non-clinical controls after the temporal interval of thirty days. Finally, obtained responses were statistically analyzed for the estimation of the psychometric properties, i.e., reliability and validity of Hindi translated version of MCQ-S&M and MCQ-30.

RESULTS

Factor structure of MCQ-30 and MCQ-S&M

To assess the factor structure, and consequent construct validity, both exploratory and confirmatory factor analyses were conducted. Exploratory factor analysis of the Hindi version of MCQ-30 using principal component analysis was carried out. To identify the suitability of data to conduct factorial analysis – Bartlett's and KMO tests were conducted and scree plot was used to identify the number of factors. On the clinical sample, the findings indicated a significant Bartlett's test (χ^2= 6096.34, p= 0.0001) and a KMO measure of 0.91. The scree plot (Figure 1) revealed a break of slope after five factors and the component matrix (Table 2) extracted five factors. The five factors had the following eigen values 10.6, 6.2, 4.5, 3.2, and 1.9, and explained 88.13% of total variance. Similarly, on the non-clinical sample, the analysis indicated significant results on the pre-requisite measures, i.e., Bartlett's test (χ^2= 8722.61, p= 0.0001) and a KMO measure of 0.89. The scree plot (Figure 2) and component matrix (Table 2) identified five factors with eigen values 5.4, 5.1, 4.5, 4.0, and 3.2 respectively. The factors explained 74.36% of total variance. On conducting exploratory factor analysis of MCQ-S&M, it was observed that the Bartlett's test (χ^2= 3520.70, p= 0.0001) and KMO measure (0.74) were significant, the scree plot (Figure 3) and component matrix

(Table 3) indicated seven possible factors of MCQ-S&M. The eigen values of the seven factors were 7.3, 4.2, 3.1, 2.7, 2.1, 1.9, and 1.6 respectively, contributing to 83.15% of variance.

According to Byrne (2010) (Byrne, 2010) and Joreskog and Sorbom (1993) (Jöreskog & Sörbom, 1993), the most common fit indices are χ^2, GFI, CFI and RMSEA. On the other hand, Kline (2005) (Kline, 2005) suggests that at a minimum, the following indices should be reported – the model chi-square, RMSEA, CFI and SRMR. The results of the CFA on the clinical sample (Figure 4) indicated an acceptable level of goodness of fit index as per the following measures – χ^2/df = 1.62, RMSEA= 0.06, CFI= 0.96, GFI= 0.89, and RMR= 0.04 (Table 4). Similarly, on the non-clinical sample (Figure 5), the dimensions of Hindi version of MCQ-30 indicated satisfactory goodness of fit as measured by the following indices - χ^2/df = 1.69, RMSEA= 0.04, CFI= 0.97, GFI= 0.91, and RMR= 0.02 (Table 4). On the other hand, the results of the confirmatory factor analysis of MCQ-S&M (χ^2/df = 3.97, RMSEA= 0.15, CFI= 0.72, GFI= 0.65, and RMR= 0.09) (Table 4 and Figure 6) indicated that the factor structure of the tool is unsatisfactory and does not fit the model.

Reliability and Validity of Hindi version of MCQ-30 on Clinical and Non-Clinical Participants

The psychometric validation of the Hindi version of MCQ-30 was conducted on both clinical and non-clinical participants. Internal consistency was examined using Cronbach's α coefficients and for the participants with anxiety and/or depression the values ranged between 0.89-0.95 for the five subscales (Table 5). Similarly, the coefficients for internal consistency among the non-clinical participants ranged between 0.88-0.94 (Table 6). The values demonstrate very high internal consistency reliability of the five dimensions of Hindi version of MCQ-30 among both clinical and non-clinical participants.

The results of the alternate forms reliability indicated that the correlation valued between the original and the translated tool ranged between 0.81-0.92 for participants with anxiety and depression (Table 5) and 0.86-0.94 for non-clinical participants (Table 6). Furthermore, test-retest reliability was examined on the non-clinical participants and the scores ranged between 0.62-0.88 (Table 6). It suggests that the Hindi translated version of MCQ-30 has high temporal reliability on the non-clinical participants.

FIGURE 1: SCREE PLOT OF HINDI VERSION OF MCQ-30 (Clinical)

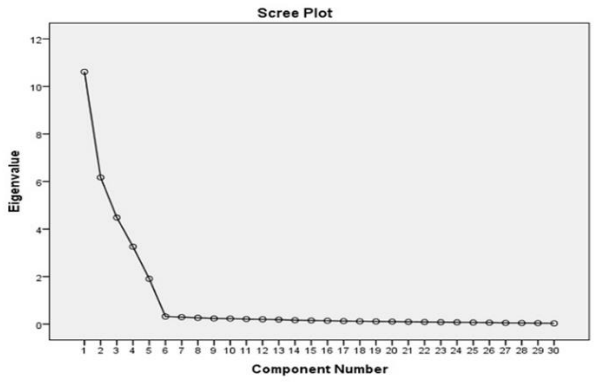


Table 2: Factor loadings of items included in the analysis (MCQ-30 – both clinical and non-clinical)

Items	Anxiety or Depression Factors					Non-Clinical Factors				
	1	**2**	**3**	**4**	**5**	**1**	**2**	**3**	**4**	**5**
Positive Beliefs About Worry										
Item 1	.341	.003	.151	**.948**	-.318	.063	.012	-.002	**.861**	-.020
Item 7	.378	.037	.128	**.946**	-.364	.093	.020	.036	**.859**	-.090
Item 10	.351	.002	.183	**.952**	-.408	.152	-.018	-.031	**.868**	-.048
Item 19	.323	.043	.119	**.914**	-.370	.153	-.090	.004	**.825**	-.043
Item 23	.158	.088	.101	**.895**	-.269	.048	-.036	.051	**.769**	.010
Item 28	.222	.071	.116	**.941**	-.294	.117	-.064	.064	**.808**	-.017
Negative Beliefs About Uncontrollability										
Item 2	.517	-.334	.123	.254	**-.937**	.130	.046	.024	-.070	**.872**
Item 4	.523	-.295	.173	.251	**-.945**	.131	.104	-.001	.016	**.849**
Item 9	.586	-.356	.098	.294	**-.956**	.131	.075	.002	-.056	**.820**
Item 11	.523	-.346	.133	.360	**-.936**	.063	.114	.065	-.055	**.738**
Item 15	.553	-.260	.226	.470	**-.906**	.039	.042	-.047	-.014	**.723**
Item 21	.505	-.306	.204	.418	**-.920**	.090	.052	.037	-.013	**.729**
Cognitive Confidence										
Item 8	**.936**	-.179	.048	.219	-.493	**.880**	-.040	.000	.011	.162
Item 14	**.942**	-.177	.105	.277	-.534	**.918**	-.013	-.040	.107	.149
Item 17	**.956**	-.178	.120	.309	-.575	**.937**	-.074	-.015	.173	.085
Item 24	**.914**	-.097	.036	.343	-.479	**.882**	-.015	-.048	.073	.091
Item 26	**.907**	-.213	.183	.208	-.586	**.864**	-.039	.097	.157	.100
Item 29	**.922**	-.127	.134	.374	-.553	**.913**	.001	.026	.151	.063
Need to Control										
Item 6	.180	**-.943**	-.116	-.080	-.284	-.032	**.876**	-.072	-.081	.073
Item 13	.184	**-.965**	-.081	-.047	-.308	-.031	**.868**	-.026	-.050	.099
Item 20	.192	**-.971**	-.062	-.043	-.354	-.028	**.889**	-.114	-.025	.066
Item 22	.157	**-.951**	-.038	-.041	-.328	-.018	**.872**	-.080	-.045	.091
Item 25	.126	**-.952**	-.062	-.036	-.338	-.047	**.857**	-.060	.019	.066
Item 27	.118	**-.967**	-.072	-.039	-.320	-.016	**.897**	-.091	-.007	.083
Cognitive Self-Consciousness										
Item 3	.073	.108	**.917**	.071	-.103	-.032	-.106	**.799**	.043	-.035
Item 5	.058	.036	**.892**	.103	-.150	-.030	-.063	**.873**	-.018	.011
Item 12	.088	.078	**.906**	.124	-.141	.032	-.081	**.918**	.032	-.005
Item 16	.169	.049	**.926**	.176	-.177	.011	-.031	**.915**	.032	.006
Item 18	.084	.053	**.928**	.144	-.206	.021	-.083	**.929**	.021	.076
Item 30	.088	.096	**.940**	.136	-.136	.024	-.085	**.929**	.028	.043

Table 3: Factor loadings of items included in the analysis (MCQ-S&M)

Items	Factors						
	1	**2**	**3**	**4**	**5**	**6**	**7**
Positive Beliefs About Worry							
item 1	**.781**	.246	.021	.091	.348	-.066	.124
item 2	**.890**	.285	.276	.046	.363	.088	.003
item 3	**.914**	.206	.211	.041	.385	-.012	.041
item 4	**.877**	.309	.177	-.001	.512	.244	.094
item 5	**.915**	.290	.256	.088	.374	.107	.074
Negative Beliefs About Uncontrollability							
item 6	.438	.074	.235	-.012	**.937**	.115	.103
item 7	.358	.144	.060	.001	**.925**	.069	.021
item 8	.438	.186	.150	-.058	**.923**	.230	.097
item 9	.395	.130	.153	-.068	**.943**	.104	.121
item 10	.425	-.013	.130	-.091	**.914**	.107	.078
Cognitive Confidence							
item 11	.128	.108	**.836**	-.025	.066	.039	-.179
item 12	.200	.145	**.883**	.210	.134	-.037	.076
item 13	.281	.216	**.814**	.174	.215	.104	.204
item 14	.230	.201	**.886**	.144	.093	.172	.042
item 15	.123	.193	**.843**	.162	.214	.160	.212
Cognitive Self-Consciousness							
item 16	.182	**.828**	.215	.237	.181	.026	.358
item 17	.341	**.864**	.120	.152	.237	.070	.109
item 18	.263	**.847**	.188	-.007	.058	-.061	.246
item 19	.209	**.871**	.172	.017	-.014	.033	.193
item 20	.306	**.887**	.149	.243	.100	-.005	.160
Importance of Consistency of Thoughts							
item 21	.044	.076	.092	**.913**	-.069	-.149	-.047
item 22	.009	.093	.021	**.909**	-.128	-.134	-.100
item 23	.123	.144	.223	**.882**	.019	.108	.154
item 24	.041	.187	.204	**.870**	.005	.087	.146
Beliefs About Normal Occurrence Of Unwanted Thoughts							
item 25	.079	-.003	.110	-.039	.136	**.988**	-.003
item 26	.021	-.004	.055	-.020	.101	**.987**	.014
Unwanted Thoughts							
item 27	.047	.273	.095	.049	.095	-.023	**.966**
item 28	.095	.217	.028	.012	.067	.039	**.967**

FIGURE 2: SCREE PLOT OF HINDI VERSION OF MCQ-30 (Non-Clinical)

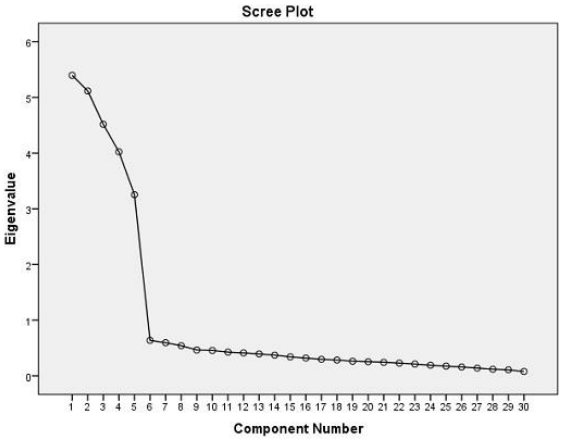


FIGURE 3: SCREE PLOT OF HINDI VERSION OF MCQ-S&M (Psychosis)

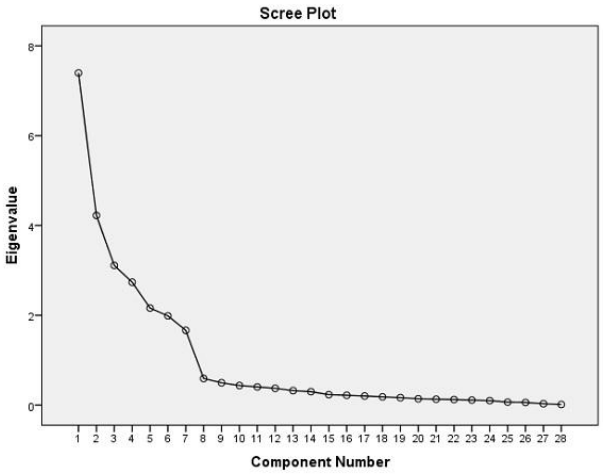


FIGURE 4: PATH DIAGRAM (CFA) OF HINDI VERSION OF MCQ-30 (Clinical)

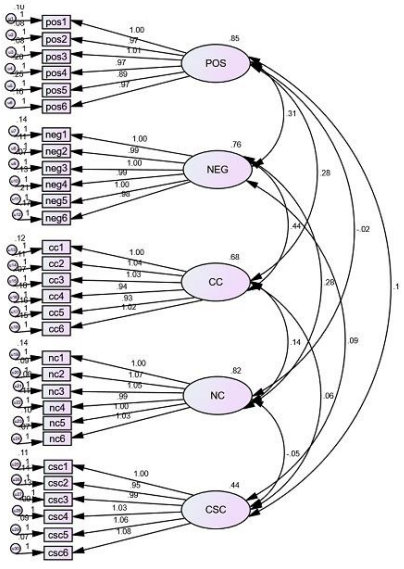
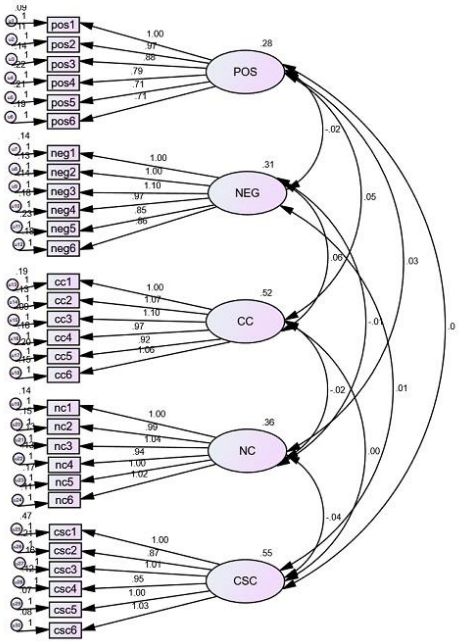


FIGURE 5: PATH DIAGRAM (CFA) OF HINDI VERSION OF MCQ-30 (Non-Clinical)



Convergent validity of Hindi version of MCQ-30 was examined by calculating Pearson Product Moment Correlation Coefficients between the subscales of the tool and the related constructs, i.e., anxiety and depression. For the non-clinical sample, all the five subscales significantly correlated with anxiety (Table 6). Similarly, significant correlations were reported between the dimensions of Hindi version of MCQ-30 and depression, except for the subscale measuring cognitive self-consciousness (Table 6). Regarding the clinical participants, significant correlations were observed between the dimensions of Hindi version of MCQ-30 and depression and anxiety, except for the subscales measuring cognitive self-consciousness and cognitive confidence (Table 5).

FIGURE 6: PATH DIAGRAM (CFA) OF HINDI VERSION OF MCQ-S&M (Psychosis)

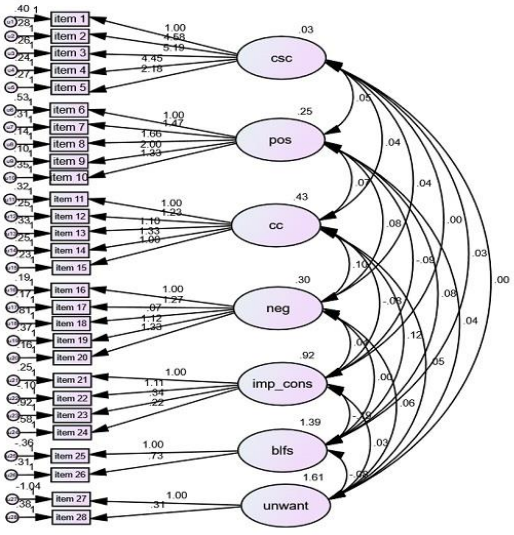


Table 4: Indices of Confirmatory Factor Analysis of Hindi Version of MCQ-30 and MCQ-S&M

SCALES	χ^2	Df	χ^2/df	RMSEA	CFI	GFI	AGFI	RMR	NFI
MCQ-30 (Anxiety or Depression)	641.54	395	1.62	0.06	0.96	0.89	0.74	0.04	0.90
MCQ-30 (Non-Clinical)	668.15	395	1.69	0.04	0.97	0.91	0.87	0.02	0.93
MCQ-S&M (Schizophrenia)	1248.29	329	3.97	0.15	0.72	0.65	0.57	0.09	0.65

RMSEA = Root mean Square Error of Approximation; CFI = Comparative Fit Index; GFI = Goodness of Fit; AGFI = Adjusted Goodness of Fit; RMR = Root Mean Square Residual; NFI = Normed-Fit Index

Table 5: Reliability and Validity of Hindi Version of MCQ-30 (Clinical Population – Diagnosed with Anxiety or Depression)

Dimensions	Cronbach's Alpha	Alternate Forms	Anxiety	Depression
Positive Beliefs About Worry	0.93	0.90	0.18*	0.17*
Negative Beliefs About Uncontrollability	0.91	0.91	0.37**	0.39**
Cognitive Confidence	0.94	0.81	0.14	0.13
Need to Control	0.89	0.81	0.45**	0.30**
Cognitive Self-Consciousness	0.95	0.92	0.12	0.12

*significant at 0.05, **significant at 0.01

Table 6: Reliability and Validity of Hindi Version Of MCQ-30 (Non-Clinical)

Dimensions	Cronbach's Alpha	Alternate Forms	Test-Retest	Anxiety	Depression
Positive Beliefs About Worry	0.88	0.86	0.62	0.44**	0.30**
Negative Beliefs About Uncontrollability	0.91	0.91	0.83	0.14*	0.13*
Cognitive Confidence	0.92	0.94	0.78	0.46**	0.42**
Need To Control	0.90	0.92	0.88	0.14*	0.15**
Cognitive Self-Consciousness	0.94	0.93	0.79	0.13*	0.09

*Significant At 0.05, **Significant At 0.01

Psychometric Properties of MCQ-S&M on Patients diagnosed with Schizophrenia

To assess the psychometric properties of Hindi version of MCQ-S&M, internal consistency reliability was calculated. The Cronbach's α for the seven dimensions indicated a range of 0.75-0.94 (Table 7). Convergent validity, as calculated by computing correlation between the dimensions of Hindi version of MCQ-S&M and depression and anxiety, indicated that the additional dimensions – the

importance of consistency of thoughts and beliefs about normal experience of unwanted thoughts had a significant association with depression and anxiety (Table 7). Additionally, the pre-existing dimensions of the original version of MCQ-65 such as – negative beliefs about controllability of thoughts, cognitive confidence and cognitive self-consciousness also had a statistically significant association with depression and anxiety for the patients diagnosed with schizophrenia.

Table 7: Reliability and Validity of Hindi Version of MCQ-S&M (Schizophrenia)

Dimensions	Cronbach's Alpha	Anxiety	Depression
Positive Beliefs About Worry	0.89	0.30**	0.22*
Negative Beliefs About Uncontrollability	0.76	0.28**	0.27**
Cognitive Confidence	0.91	-0.21*	0.18
Cognitive Self-Consciousness	0.81	0.23*	0.20*
Importance Of Consistency Of Thoughts	0.75	0.27**	0.40**
Beliefs About Normal Occurrence Of Unwanted Thoughts	0.91	-0.27**	-0.20*
Unwanted Thoughts	0.94	-0.14	0.16

*significant at 0.05, **significant at 0.01

DISCUSSION

The present study aimed to translate the Metacognition Questionnaires viz. MCQ-30 and MCQ-S&M into the Hindi language and determine its psychometric properties for Hindi speaking population. The psychometric properties of Metacognition Questionnaires were assessed with three groups of participants, namely, patients diagnosed with depression or anxiety, healthy controls having no history of psychiatric disorders and patients with psychotic disorders such as schizophrenia, to have a broader generalization of the findings.

As MCQ-30 is a more applicable psychometric tool to measure metacognition of the persons with anxiety and depression (Wells & Cartwright-Hatton, 2004) and the general population (Wells & Cartwright-Hatton, 2004); therefore, measures of reliability such as internal consistency and alternate form reliability of the MCQ-30 were assessed on patients with anxiety and depression, and non-clinical participants. As, MCQ-S&M is suitable for measuring the metacognitive beliefs of psychotic patients (Lobban et al., 2002); therefore, reliability measures of the Hindi version of MCQ-S&M have been examined on patients with psychotic disorders such as schizophrenia

The present study identified the factor structure of MCQ-30 and MCQ-S&M by calculating both exploratory and confirmatory factor analysis. The results of the construct validity of MCQ-30 highlights that the five-factor model fit the data for both clinical and non-clinical participants, as in the original version of MCQ-30 and other translated versions (Cho et al., 2012; Larøi et al., 2009; Marković et al., 2019; Quattropani et al., 2014; Ramos-Cejudo et al., 2013; Sirota et al., 2018). The five-factor solution offers more than 50 % variance which is far more than the original version (Wells & Cartwright-Hatton, 2004) of the tool. Regarding the construct validity of MCQ-S&M, the results of the exploratory factor analysis using the method of the principal component analysis revealed seven distinct and inter-correlated factors reflecting different aspects of metacognition as identified in the original scale (Lobban et al., 2002). However, the result of the confirmatory factor analysis does not fit the seven-structure model. It is probable that the lesser sample size is to blame for the poor model fit as the standard sample size recommendation is a 1:10 item-to-participant ratio. (Brown, 2015; Harrington, 2009). Apart from the sample size, other possible reason behind the results could be the inclusion of patients with schizophrenia disorder only. There are several extraneous factors involved while working with patients with schizophrenia, for example, studies have showed deficits in vigilance, slowed reaction time, selective attention and sustained attention (Elvevåg, Duncan, & McKenna, 2000; Fioravanti, Carlone, Vitale, Cinti, & Clare, 2005; Perlstein, Carter, Barch, & Baird, 1998) in patients diagnosed with schizophrenia.

The internal consistency of the Hindi translated tool was measured by Cronbach's Alpha and the computed values for MCQ-30 were higher than the original MCQ-30 (Wells & Cartwright-Hatton, 2004) and the other adapted versions of the scale (Cho et al., 2012; Cook, Salmon, Dunn, & Fisher, 2014; Fisher, Cook, & Noble, 2016; Grøtte et al., 2016; Marković et al., 2019; Martín et al., 2014; Spada et al., 2008; Yılmaz, Gençöz, & Wells, 2008). The alternate form reliability of MCQ-30 was also satisfactory on both clinical and non-clinical groups. Similarly, the internal consistency reliability of MCQ-S&M was also at par with the original version of the tool (Lobban et al., 2002). The test-retest reliability of MCQ-30 was assessed on non-clinical participants, and findings indicate the presence of its temporal stability of all five dimensions of MCQ-30. However, many previous MCQ-30 adaptation studies did not assess test-retest reliability (Cho et al., 2012; Larøi et al., 2009; Marković et al., 2019).

Convergent validity of the Hindi translated tools was assessed by computing the correlation coefficients between the dimensions of MCQ-30/ MCQ-S&M and the dimensions of HADS. The subscales of MCQ-30 viz. pertaining to uncontrollability and need to control the thoughts showed high correlations with total HADS score for the participants diagnosed with depression or anxiety. The findings are at par with the previous studies conducted in this line (Cho et al., 2012; Cook et al., 2014; Fisher et al., 2016; Grøtte et al., 2016; Marković et al., 2019; Martín et al., 2014; Quattropani et al., 2014; Ramos-Cejudo et al., 2013; Spada et al., 2008; Yılmaz et al., 2008). Therefore, it would be reasonable to interpret that, individuals who

believe that they need to be in control of their thoughts and pay detailed attention to how their mind operates, subsequently intensify the importance of worrying, which may in turn strengthen the beliefs that worrying is uncontrollable and dangerous. As hypothesized in the S-REF model, development and activation of beliefs related to uncontrollability of thoughts lead to unhealthy coping strategies such as though suppression and anxiety (Cartwright-Hatton & Wells, 1997; Wells & Carter, 2001). Thus, the findings of the present study reveal that there is a significant relationship between MCQ-30 and the tendency to feel depressed and anxious.

The non-clinical group also presented a significant and positive relationship between the dimensions of MCQ-30 viz. positive beliefs about worry as well as cognitive confidence and depression and anxiety. The present findings have been corroborated in Spanish population (Ramos-Cejudo et al., 2013), wherein positive beliefs about worry had the strongest relationship with pathological worry. Thus, from the present findings suggest that individuals who believe that the process of rumination is a useful coping strategy and they have a tendency to use this strategy to face anxiety-provoking situations (Spada et al., 2008).

Moving on to the convergent validity of the Hindi translated version of MCQ-S&M; as hypothesized in the original scale (Lobban et al., 2002), the modified subscales – the importance of consistency of thoughts and beliefs about the normal experience of unwanted thoughts had a significant relationship with both anxiety and depression. The findings can be linked to the cognitive consistency theory of auditory hallucinations (A. P. Morrison, Haddock, & Tarrier, 1995). When the need to maintain consistency among thoughts is over-emphasized, the thoughts and beliefs those are not similar to the existing belief structure may be misattributed to an external source which is further turned into experiences such as auditory hallucinations and the consequent distress. Therefore, the subscale of the importance of consistency of thoughts can help in understanding the occurrence and maintenance of hallucinations and the depression related to hallucination.

Although the study covers both clinical and non-clinical participants, it has certain limitations. Temporal stability of MCQ-S&M and MCQ-30 on clinical participants could not be assessed due to the non-availability of the participants. Alternate form reliability of the Hindi translated version of MCQ-S&M could also not be calculated due to lack of bilingual participants. Moreover, there was no screening tool used to recruit participants for the non-clinical group, the participants were only clinically interviewed regarding the history of psychiatric illnesses and further included in the non-clinical group. Lastly, future studies on the psychometric evaluation of the MCQ-S&M should incorporate samples from other psychotic disorders also, so as to confirm the seven-structure model of the scale.

Nonetheless, the Hindi version of the metacognition questionnaires can help researchers better understand the mechanism of action behind MCT for emotional disorders. Future research on treatment changes in metacognitive beliefs could help researchers better understand how MCT minimizes the symptoms of emotional disorders in Hindi-speaking adults.

CONCLUSION

The Hindi translated version of MCQ-30 and MCQ-S&M both are brief, reliable and valid instruments to measure metacognitive beliefs of their target population. These scales would be extremely valuable and successful for therapists and academics working in the fields of cognition, metacognition, and cognitive therapy, particularly in India and its subcontinent's Hindi-speaking regions.

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Original Research Article

Psychotherapeutic Components in Chottanikara Healing: A Qualitative Analysis

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ABSTRACT

When the contextual management of a psychiatric condition is considered, the role of faith healing is crucial. When modern medicine replaced the religious explanations to health and illness by the scientific virtue of experimentation, faith healing was somehow pushed away from the mainstream treatment. There is a lacuna in terms of exploring the Psychotherapeutic benefits or rather, a psychological analysis of faith healing apart from numerous head counting and socio demography-oriented studies. The present study is an attempt to fill in this gap of exploring faith healing traditions in terms of their working mechanism and generating a therapeutic explanation of the same. The study aimed to explore psycho-therapeutic components in faith healing in psychiatric cases. The study considered the faith healing temple *Chottanikara* healing tradition. The total sample consisted of 100 out of which, 50 were neurotic patients according to ICD -10 and remaining 50 were caregivers visiting the healing Centre. Data was analyzed using interpretive phenomenological inquiry. Results and discussion indicated the psycho-therapeutic components in these healing traditions within the phenomenological framework by generating a central theme and sub-themes. The study implied the necessity of faith healing traditions to be a part of mainstream psychiatric practice, indicating the importance and relevance of clinical accommodation.

Keywords: *temple healing, neurotic conditions, cultural context, clinical accommodation, qualitative accounts*

INTRODUCTION

Faith healing can be defined as a practice that focus on the cure of different physical and psychological conditions, through the strategy of prayer, rituals and similar methods based on the belief that the divine power addresses the ailments through the pathway of worship. Faith healing has been popular in the history from time immemorial addressing different forms of complaints through the collective strategies of divine intervention by the healer who belonged to a respective religious doctrine. Faith healing is an alternate form of therapy for many among the Indian population (Raguram, 2002). Faith healing may occur in a *Hindu* temple, a *Dargah* and allied. In fact, when it comes to the treatment of mental conditions, there is an alignment between and healers and the healed to approach deities of all the religious doctrines (Kakar, 2012). Temples and *Dargahs* may often work in collaboration with the mental health professionals even when the modality of treatment for them individually would be entirely different (De Looze, 2011). India has travelled, much beyond the lunacy act, with its dynamic reforms in the field of mental health. However, people still find their "cure" in diverse religious centres. The cost and quality of psychiatric and allied medical services and the specific stigma attached to the treatment of psychiatric conditions drain away psychiatric patients to their "religious therapies". Faith healing temples henceforth complicates the scenario of the mental health system in India (Siddiqui, Lacroix & Dhar, 2017). The social and economic factors further push the ordinary man towards the faith healer (Trivedi and Sethi, 1980). Physical and emotional problems, when become intense, project faith healing as a better option, such that the supernatural forces come prominent in the picture. Religious sites and pilgrim centers are definitely "the landing points" for ordinary men who think their healer have a better say over negative spirits than their physician.

Chottanikara healing tradition, which is the subject matter of enquiry in the present study. *Chottanikara* temple is one of the traditional and renowned temples of Kerala. It is located in Ernakulum district. Previously, the location of the temple was a huge forest area and it used to be the habitat of the tribal people with indigenous knowledge of herbs and traditions. According to the mythology, there used to be a tribal king called *kannapan* who took care of his one and only daughter after the death of his better half. He safeguarded the tribal community as well. He worshipped goddess "*Durga"* and sacrificed a cow daily at her altar as a part of holy ritual that they believed to bring welfare to the community. These cows were stolen by their fellow men as instructed by their tribal Lord, who never felt it was a wrong deed because of the belief that it was all for the mother goddess he worshipped. One fine day, the tribal lord's daughter came to see a calf with the mother cow (brought to be slaughtered) and started to take care of it with utmost care. As years passed, the calf grew into a healthy cow who became the girl's trusted comrade. However, her father decided to slaughter the cow for the welfare of the community for some scarcity that occurred in the community. The daughter did not agree, which changed his mind. One day, the daughter passed away. He took care of the calf, just like his daughter. Following this, he saw a dream with "a sage" and a "sitting calf" made of stone.

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When he woke up, he saw the stone in place of the calf. There was an idol of the sage as well. The tribal lord started his worship. The sacred stone was named *Lakshminarayana* symbolically representing lord *mahavishnu.* The tribal community had to shift from this region and years passed away. Village women who came to their daily chores here, accidently excavated the old deity in the form of an idol. The presence of the goddess in her three forms of *Saraswathi, Durga* and *Lakshmi* was worshipped. Miracles began to occur, and the temple was constructed. The spiritual path was initiated by reputed priests in the temple, and it became a source of wish fulfilment and healing place for the believers. Tantric practices, Vedic chants, providing food for the needy all became additions to the prosperity of the temple healing practice. The goddess is perceived to be *Shakti* who is referred as the better half of Lord *Shiva* himself along with sub deities, understood as *Upadevathas* within the upper and lower temple shrines. The temple is known for its healing power for addressing "possession disorders" where the process involves regimen-bound agendas of dietary practices, chanting practices, and performing the ritual that has attracted followers from different parts of the world (Menon, Nathawat & Thangal, 2017).

Religion has got a major role in the implementation of psychotherapy services in India. The colonial period had a great deal of difficulty in establishing the foundations of modern medicine. Psychiatry was of course not special. The traditional modalities of treatment like the Ayurvedic practices, the siddha traditions and allied did not keep the gate open for the introduction of asylums, as they gave a different approach to the treatment of disorders, specifically, mental disorders. They were a threat to the existing social and familial systemic structure. The premier lunatic asylums were constructed in regions of Bombay, Calcutta and Madras (Somasundaram, 1984; Sébastia, 2009). The therapy implemented in these asylums made a superficial bonding between the Colonial and Indian population, such that, the mentally retarded, the criminals and the street wanderers were all kept together in the asylum. Hospitals functioned to discipline and not to create an environment, that is safe for the patient to be treated in alliance with the cultural environment. Psychotherapy was provided without knowing the caste, religion and allied, creating disturbances in the belief frameworks of existing healing traditions (Furnham, 1994; Sood, 2016; Sébastia, 2009). The British Lunacy act in no way addressed the integration of faith healing tradition in modern psychiatric practice.

There are often multiple requests to incorporate faith healing traditions to medical practice (Atkinson, Fleenor, Lerner, et al. 2018). Such requests are often put forward by the family of the patient. The application of ethical principles in the faith healing tradition varies from one culture to another. The clinician on the first hand could reject these requests. Those who are trained in evidence-based therapies may not find faith healing practices appealing due to their involvement with superstitions and mythical practices. Some practitioners have indeed found the request for a faith healing tradition to be a mockery of their clinical skill. The outright rejection of an interest in faith healing tradition without justification would be against the acknowledgement of autonomy of the client another approach would be giving a midway answer which includes nor acceptance or rejection of the faith healing tradition. Since, medical professionals of a particular modality may not be familiar with the healing principles of another domain; the tendency to become judgmental may not be professional enough. However, a pinch of caution would still be acceptable. Some professionals may endorse the faith healing tradition. This would be applicable to clinicians who believe in the independent functioning of faith healing tradition. These clinicians take up the stand of a social avenger in endorsing faith healing tradition. The reason for endorsing a faith healing tradition could also be due to their assumption that, faith healing tradition works on "placebo effect" (Kent, 2019). The issue of non-maleficence comes when the clinician endorsing potentially harmful faith healing practices. Hence, it may be accepted if the tradition will indeed benefit the client. A very different perspective from all of this would be the inquiry of beliefs about faith healing tradition, which the patient and their relatives hold. This helps the clinician to explore the variety of promises and pitfalls held in such practices. Here the autonomy of the client and the clinician is maintained (Sarkar, 2014).

There is no right and wrong approach or stand to be taken by the clinician. It is indeed necessary to have knowledge on a variety of faith healing traditions. Many provide relief, many may be placebo, and many may be potentially dangerous. In whatsoever ever conditions, the health care provider should always remind the patient about the harmful effects of faith healing tradition, if at all any. Clinical decision making is indeed a task that requires a lot of caution. The accommodation of faith healing tradition would be hence context specific, unique to the socio-cultural milieu and pathology based. A worm's eye view will be necessary for the clinician to understand true rules of accommodation of faith healing tradition.

Research in faith healing traditions has been head counting in nature. The research inquiries in this regard were based on the number of people attending faith healing traditions and the reason for the same. The research by Kakkar (1972) and colleagues have pioneered the use of a theoretical model in explaining psychiatric cases that visited 14 faith healing centers in India from different modalities of belief. There are researchers who looked into the relevance of the faith healing environment (temple settings) as a cure of neurotic conditions. Another category of researchers explained the ill effects of faith healing traditions with respect to the ethical aspects involved. However, considering the diversity of the faith healing traditions, there was a lacuna in explaining the "technical know-how" of faith healing traditions or rather an exploration of psychotherapeutic components in the process of faith healing. Exploration of a psychotherapeutic perspective is needed to understand the process of faith healing from a scientific lens. There were research attempts that explored the necessity of accommodation of indigenous healing traditions in mainstream psychiatric practice as there is a significant population that opted faith healers over clinical psychologists and psychotherapists (Sharma, Gupta,

Saxena, et al. 2020). The modern medical science does not consider spiritual and faith healing traditional treatment as a science (Peprah, Gyasi, Adjei, et al. 2018). Therefore, the spiritual and faith healing practices day by day stop practicing in this modern era, it seems like as if completely abolished as the treatment part of mental illness (Dein, 2020). In this regard this study attempted to throw light regarding spirituality and faith healing practices by collecting samples from *Chottanikara* temple where spiritual and faith healing modalities are followed. Henceforth the present study was a research attempt to fill in the lacuna of a qualitative exploration to understand the process of respective healing modalities in terms of their psychotherapeutic components, so as the findings of the study can be implemented as part of the psychotherapeutic modules in the treatment of psychiatric patients keeping patient safety and ethical consideration.

On a summary on research till date, there has been multiple studies that reflected on the diversity of faith healing traditions in different communities. There have been studies with respect to the safety and ethical aspects of faith healing tradition and their authenticity. There are studies that indicated the scenario where, treatment gets delayed when individuals approach faith healers before approaching medical practices. Some studies have indeed reflected on the necessity for mainstream medical practices whether they are general health-related or psychiatry to collaborate with the indigenous healing traditions indicating the necessity of a community healing approach for different rural and suburban areas respectively. It is interesting to note that, some researchers have taken a selective theoretical perspective in understanding faith healing and clinical manifestation within difference centers of healing. It is to be noted that there have been isolated studies that addressed clinical symptoms expressed after natural calamities. Concerning Chottanikara healing tradition, there has been very limited research explorations. However, further explorations are needed within the qualitative and psycho-therapeutic domain to incorporate or think about incorporating faith healing to the mainstream clinical practice.

METHOD

Aim and Objectives

The study aimed to explore the psycho-therapeutic components in chottanikkara healing tradition in psychiatric patients. Objectives were to understand pattern and order of faith healing practices at faith healing places and to examine the psycho-therapeutic components in faith healing through qualitative strategies.

Participants

Sample number was 100 out of which, 50 patients according to the anxiety and depressive spectrum according to ICD - 10 and remaining 50 were caregivers visiting the renowned temple of chottanikkara. Patients within the age group of 18 -45 was selected. Male and female genders were included in the study. Patients who fall in the depressive and anxiety spectrum disorders according to the ICD 10 criteria Patients within the third gender were excluded from the study. Patients with chronic and acute psychotic conditions, comorbid medical conditions, who belonged in the third gender and those who were on pharmacological intake also met the exclusion criteria. Caregivers who were close to the patients and who had significant and reliable information in both the genders met the inclusion criteria. Caregivers who had unstable psychiatric conditions, who took either psychotherapeutic or pharmacological assistance, and who belonged in the third gender were excluded from the study.

Research Design

The study design was chosen to be qualitative cross sectional and exploratory research in nature.

Procedure

Patients and caregivers were personally approached for the involvement in the study and informed consent were taken from the concerned patients, caregivers, and faith healing centers. They were clearly explained regarding confidentiality will be maintained, the findings shall be discussed with the supervisors only and also informed that at any time of research they can withdraw from study due to any kind of respective reasons.

Ethics clearance was availed from Amity university Rajasthan, Jaipur. Patients and caregivers were selected at random using computerized random sampling method who fulfilled inclusion criteria. Information was gathered about patients by using specially designed Socio-demographic data sheet, Motivational factor sheet, Hamilton Anxiety and Depression Scale to identify social-demographic details, anxiety, and depression of them.

Interview schedules were used for collecting data from patients and caregivers attending Chottanikara Healing Temple. Data collection was completed based on the visit, stay and facilities with the temple system and participant availability. After the completion of data collection, they were thanked and appreciated for the participation in the study.

Qualitative Analysis

Qualitative analysis included the methods of interpretive phenomenological inquiry. With respect to phenomenological inquiry, the subject under study was the experience of healing from the patient and caregiver perspective. The questions for experiential assessment were formed in a manner that were open ended in nature and that involved the ritualistic process of healing modalities. Transcripts in phenomenological inquiry were categorized on the basis of experiential similarities. These experiential similarities became the categories within the data. The categories were further split into sub thematic categories. The sub themes were arranged from higher to lower order themes in terms of their ritualistic significance. There was a common order that controlled these themes and that was categorized as the central theme.

DISCUSSION

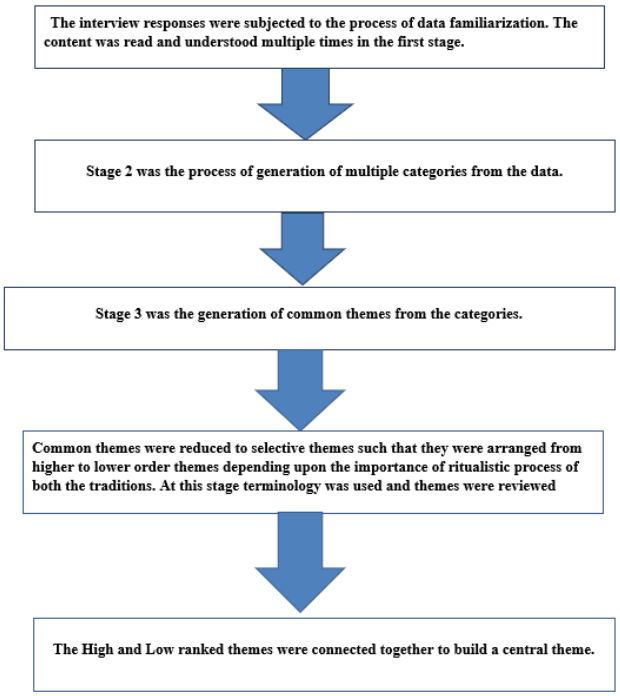
Phenomenological Account

The Phenomenological Conceptualization of Chottanikara Healing Tradition

From a phenomenological perspective, faith healing could be conceptualized as an experience. The experiential understanding of a phenomenon is defined by the element of subjectivity. Thus, the process of *Chottanikara* healing

tradition is subjectively assessed as an experience considering the patients and caregivers who undergo the process of healing. The backdrop of an experience becomes complete with the phenomenological presence of temple in itself. The process of *Chottanikara* modality was observed from the eyes of participants so as to derive an integrated phenomenological thematic framework. The temple environment, the way of life, vegetarianism, *bhajan*, exorcism, trance and conjuring become the integral components for answering the qualitative part of the research question. The experiential gestalt becomes incomplete without considering the research questions formulated which included the motivating factors towards faith healing, the know-how of healing and the outcome of healing. Rather than devising, preconceived yardsticks of psycho-therapeutic components in understanding faith healing, components were explored within the availed transcripts.

Flow Chart Explaining Interpretive Phenomenological Inquiry (Module adopted from Qualitative Research Methods in Psychology, Combining Core Approaches, Nollaig Frost)



The omnipotent researcher observed the *Chottanikara* healing tradition using a direct enquiry of healing experience, healing process, bhajan, ritualistic conduction, the underlying symbolisms and temple environment to generate transcripts that were verbal, observational, and pictorial in nature. The transcripts were divided into codes and further represented as meaningful units. The meaningful units gave a central theme and sub-themes of the experiential account of *Chottanikara* healing tradition.

The Process of Interpretive Phenomenological Inquiry

The process of analysis included the collection of transcripts using the strategy of semi structured interview, participant, and non-participant observation. The omnipotent researcher entered the *Chottanikara* temple healing tradition in a non-directive and open-ended manner. The experience of attending the temple, the rituals performed, the prayers attended were narrated by the patients and the caregivers. Specific questions were asked to individual subjects regarding the healing process, the symptomatic manifestation and healing outcome. The process of interpretive phenomenological inquiry was conducted in three stages. First, the responses indicated were noted word by word with adequate descriptions in the initial stage. The second stage of the process progressed with the task of identifying themes that described the phenomenological experiences of the participants that got integrated into a core theme. In the third stage, the core theme or the cluster was explained with respect to sub-themes and vice versa which brought a thematic framework respectively.

The individual responses were analyzed primarily by reading again and again. At this stage, a wide range of unfocused thoughts and observations in response to texts were generated. There were images, pondering questions and association attempts that were generated. Notes at this stage were generated as the initial form of coding. Then these associations were put into labels that represented various sections of the text from the transcripts. The theme titles were reflections of the particular constructs that explained the essential nature of the experiential account. Terminology was introduced as a part of providing structure to the themes. Firstly, the interrelation to the themes and later on, their connection was formulated. The sub-themes were put into a hierarchical code and described in relation to the cluster or master theme.

The cluster theme and the sub-themes were restructured repeatedly by the researcher who went back and forth with the data. Table 2.1 elaborates the sub themes generated with quoted verbatim from the transcript. Themes that represented the transcript accurately were the ones that got incorporated into Table 2.1. The master theme and sub-themes were later represented by the diagram 2.2. The process of thematic selection was cyclical in nature and higher order themes were checked against the lower order themes. The omnipotent researcher made sure that the themes were grounded in the data in itself.

Narration of Sub-themes

This section explains the process of sub thematic generation. The transcripts, including interview verbatim, were analyzed. Labels were formed, codes were generated, and sub themes were created. The hierarchy of themes brought structure to the thematic generation. Lower order themes were generated in relation to higher order themes as demarcated from the transcripts.

To begin with the sub themes, “Religiosity” becomes the preliminary sub theme. “Religiosity” as a sub theme was manifested at different levels in the therapeutic continuum within the Chottanikara healing tradition. It is the extent by which the individual and the family get involved in the practice of Chottanikara healing tradition by their faith and adherence to the deity, “Chottanikara *amma*”. Rather than a placebo effect, it is this religious adherence that indeed takes up the nature of a therapeutic adherence making a strict basis for belief and practice of *Pooja and Badha Thullal* respectively (Radhakrishnan, 2020). This becomes

an important motivating factor for patients to reach the center and follow the rules of the healing tradition, in order to lay the foundation in it, for the therapeutic healing process.

"Vegetarianism" was generated as the second sub theme. Vegetarianism is an important component in the Chottanikara healing tradition. It is not merely an abstinence from the consumption of non-vegetarian diet or purely the consumption of vegetarian diet alone. However, it indicated the strict practice of a lifestyle during the stay at the temple. Getting up at early morning, praying at significant intervals when the *Pooja* is conducted, consuming the sacred ghee, and getting enough sleep exerts an influence on the individual within the psycho-social paradigm. The mind and the body are actively involved in the curative process by the patient himself or herself.

"Healing Environment" was generated as the third sub-theme. The temple becomes an indigenous clinic for accommodating patients and their caretakers. The mere presence at the temple was experienced to be calm and relaxing and "thought free". The routine followed, the peaceful and calm atmosphere away from the city life became an important factor for patients to feel better. Being away from their life stress and staying at the shrine gave a break from the distress that they experienced.

"Unconditional Positive Regard" was generated as the fourth sub-theme. The deity at the temple was regarded as a source of love and support irrespective of the shortcomings within oneself or within the family. The mythological background of the temple support this "perceived image" that the deity holds. This kind of a view helps the individuals to open up towards the temple rituals and become active in following the temple healing tradition, devoid of any kind of scrutiny from self-blame and that of family and society.

"Integrative Approach" was generated as the fifth sub-theme. The *Chottanikara* healing modality has been composed of three parts that are connected to one another. The healing modality begins from the shrine of Lord *Ayyappa* who diagnose the nature of the problem or the *"Sankat"* (through the priest). Secondly, the affected is taken to the shrine of lord shiva or "*vidyanath*" (lord of healers) who initiates the healing process. Thirdly, the affected is presented at the higher and lower altars of the goddess completing the meditative chanting as well as the conjuring process respectively.

"Suggestion" was generated as the sixth sub-theme. The element of therapeutic suggestion is clearly seen in the conduction of *badhathullal.* This is a state of trance where the affected who are therapeutically suggestive get into the trance prior to the process of conjuring. Here the causative factors of disturbance are believed to be taken away by the goddess creating a platform of communication through the medium of trance.

"Catharsis" was generated as the seventh sub-theme. Beginning from the initial stage of assessment towards the conjuring state, the *Chottanikara* healing tradition provides the platform of catharsis in the therapeutic continuum. The affected and the family are provided with a chance to vend out emotions at the higher as well as at the lower altar during the process of *bhajan* and *Guruthi.* Anger, self-loath and different kind of negative emotions is expelled at different levels enhancing positivity.

"Therapeutic closure' was generated as the eighth sub-theme. *Chottanikara* healing tradition ends up with the process of giving a word to the goddess. After the conjuring process, the negative forces within the affected, whether defined by magico-religious beliefs or mental discomfort or symptomatic manifestation of any nature is transferred symbolically to the banyan tree creating the sense of closure or termination of the healing process creating a sense of relief and comfort respectively.

Table 1.1 : Indicating Sub-themes with Corresponding Verbatim (Chottanikara Temple)

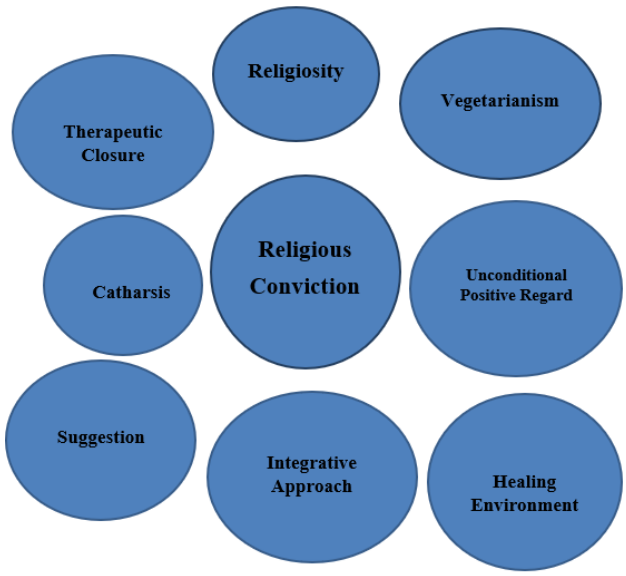
Sl. No.	Sub Themes of the Phenomenological Account	Verbatim According from Sample Cases
1.	Religiosity	"There is no question of effectiveness, being a Hindu, I believe in Chottanikara amma and she will handle everything".
2.	Vegetarianism	"It was disturbing in the beginning, to get up this early and practice the diet and Pooja and not to sleep in the afternoon and chant, but now we all feel systematic and "fresh".
3.	Unconditional Positive Regard	"Mother goddess will forgive all our mistakes. She will not hate anyone. We are her children".
4.	Healing Environment	"The temple is away from noise, there is no one to bother and simply sitting here feels I am all better".
5.	Integrative Approach	"God ayyappa will not forget to find the problem, lord shiva is the greatest vaidya and goddess will not leave the "*Sankat"* away from the banyan tree. There are *devathas* around to protect".
6.	Suggestion	"I felt there is something that wanted to get out of the body. I was in possession of my faculties, still I feel, I am supposed to obey to the rhythm and start saying my problem aloud and turn around".
7.	Catharsis	"When I shouted loud and said my problems and cried in front of the goddess for *Guruthi Pooja*, I felt very relieved and liberated.
8.	Therapeutic closure	Here there is relief. Once the temple is reached, there is a solution to all the problems. The *Guruthi* is an end way to all the issues.

The Thematic Framework

The sub-themes were gathered and arranged in a hierarchical order, so as to create a connection with the master theme. The sub-themes generated the master theme of religious conviction. The sub-theme of "Religiosity" explained the perception and experience of *Chottanikara* healing tradition as a set of rules that govern the curative process. It catalyzes the process of healing in terms of believing and obeying the ritual. The sub-theme of religiosity progressed to the sub-theme of vegetarianism which created a systematic way of living, thinking, and behaving in terms consuming food, medicinal ghee and resting and chanting the name of goddess. The third sub-theme of unconditional positive regard creates a comfort channel of communication between the affected and the goddess without the fear of being judged or scrutinized. The sub-themes of religiosity, vegetarianism and unconditional positive regard becomes the lower order themes which generates the higher order themes of healing environment, integrative approach, suggestion, catharsis, and therapeutic closure. The healing environment of *Chottanikara* temple provides an integrative approach of assessment, cure initiation and healing creating an environment of suggestion, trance, catharsis, and emotional vending, ensuring therapeutic closure.

Looking at the escalation of lower order themes to higher order themes and their connective pattern, the central theme manifested would be religious conviction. Individuals who are coming to the Centre of Chottanikara healing tradition are guided by the sense of guilt and shame specifically depicted in the symptomatic manifestation within the neurotic spectrum of conditions along with the vulnerability towards a sense of prosecution by the authority. This explains their active involvement in the suggestive process of "*badhathullal"*.

Figure 1.1: *Sub-themes and Master Theme*



Summary and Conclusion

Faith healing can be defined as a practice that focus on the cure of different physical and psychological conditions, through the strategy of prayer, rituals and similar methods based on the belief that the divine power addresses the ailments through the pathway of worship. Faith healing for many is a form of alternate medicine, for some, it is a kind of supernatural healing and for the other, it is purely spirituality. Touching with the hands, visiting shrines, drinking the holy water blessed by religious chants and versus could be some of the versions of faith healing. Considering this, temple healing traditions is another specific type of faith healing modality that follows the individual temple healing cultural values, mythological explanations, and ritualistic activities.

The literature review indicated the presence of a qualitative lacuna in the faith healing research along with the absence of clinical trials those established the efficacy of selective faith healing traditions through experimental research. Unlike psychotherapy, faith healing tradition does not hold a common code of treatment that could be generalized across the population. Faith healings across the globe are henceforth different. The present study was an attempt to fill in the void of a theoretical perspective in explaining faith healing through a psycho-therapeutic lens. Reviewing the components in two diverse faith healing traditions, the studies aimed to bridge in the theoretical gap in explaining the know-how of *Chottanikara* healing tradition and give the qualitative findings through the strategy of phenomenological inquiry. The study aimed to explore the psycho-therapeutic components in faith healing in psychiatric cases. The total sample consisted of 100 out of which, 50 were patients within the anxiety and depressive spectrum according to ICD -10 and remaining 50 were caregivers visiting Chottanikara Healing Tradition. The study had employed a qualitative cross sectional and exploratory research design. The psychometric tools used were Socio- demographic sheet, interview schedule, motivational factor sheet, Hamilton anxiety scale and depression, ICD -10 classification system and Module for phenomenological inquiry was used. Data collection was completed based on the visit, stay and facilities with the temple system and participant availability. After the completion of data collection, they were thanked and appreciated for their cooperation in the study. Phenomenological Inquiry was used to analyze the data. Results indicated the psycho-therapeutic components that could be incorporated in mainstream mental health practice respectively.

Suggestion

- These findings being exponential in nature, the future studies could utilize each component for further research.
- The psycho-therapeutic factors that moderate and mediate healing process in these traditions can be studied in the future

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Brief Research Report

Visuo-Spatial Abilities across Age Groups: A Cross-Sectional Study

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ABSTRACT

Although the visuo-spatial ability is one of the major components of fluid intelligence, it has not been explored much. Moreover, the researchers who have explored this area have restricted with one or two age groups but have not explored across different age groups. The objective of this study is to examine the differences in the visuo-spatial abilities of children, adolescents, young, and middle-aged adults and also the gender difference in them. This is a cross-sectional study comprising of four different age groups such as children, adolescents, young adults and middle-aged adults with 30 participants each (a total of 120 participants) with 56 males and 64 females. The visuo-spatial ability is measured using the Block Design Test (BDT) taken from Weschler's intelligence scales- WISC-IV and WAIS-IV. The statistical techniques used are t-test, and ANOVA. The results showed significant differences in the visuo-spatial abilities of different age groups and a curvilinear pattern was obtained with children displaying the least ability, followed by middle-aged adults, adolescents, and young adults. Unlike the other components of fluid intelligence, like working memory and processing speed that show significant gender differences, this study did not find any gender difference in the visuo-spatial abilities of individuals.

Keywords: *Visuo-spatial abilities, block design test, children, adolescents, young adults, and middle-aged adults.*

INTRODUCTION

The human brain that is responsible for several cognitive abilities undergoes enormous changes from childhood to adulthood (Crone, 2009). The competence of a person is known with his intellectual abilities which is comprised of not one or two, but a combination of different cognitive abilities. These cognitive abilities fall under two broad categories of intelligence such as fluid intelligence and crystallized intelligence, as originally proposed by Cattell and Horn, (1963). A number of intelligence measures are correlated with the performance on the Block Design tests (BDT), a measure of visuo-spatial abilities, suggesting that these tests assess important aspects of intellectual functioning (Salthouse, 1987; Koenis et al., 2015).

BDT is a multifaceted asset that seems to measure multiple cognitive functioning. Block design is a performance test and involves detailed focused processing (Muth et al., 2014), which is regarded to be a first of its kind to assess visuo-spatial ability (Johansson & Wahlin, 1998). It not only measures the non-verbal abstract conceptualization (Sattler, 1974) and spatial visualisation (Sattler, 1974; .Kaufman, 2001) but, performance on such tasks are considered to be the predictors of cognitive functioning such as spatial measures (Groth-Marnat & Teal, 2000) and general intellectual measures (Snow et al., 1984; Shea et al, 2001).

Visuo spatial abilities are essentially important for independent functioning as they aid in numerous activities such as perceiving objects visually and locating them in space which help us to navigate our environment safely (de Bruin et al., 2016). Visuo-spatial abilities are a combination of different types of cognitive abilities (Burggraaf, 2018).

These are grouped under three spatial task categories such as spatial perception, spatial visualization, and mental manipulation of two- and three-dimensional objects (Heyes et al., 2012). Visuo-spatial abilities are assessed as part of a comprehensive neuropsychological evaluation (Zink et al., 2018) and also for the research purpose that is driven out of inquisitiveness. The components involved in visuo-spatial tests include tasks that involve recognition of patterns and understanding the dimensions (Johansson & Wahlin, 1998). Some of the typical visuospatial tasks are Block Design, Mental Rotation, figure disembedding and Navon Figures (Muth et al., 2014), copying figures, reproducing geometric designs (Lezak et al., 2012), constructing patterns using blocks (BD; PsychCorp, 2008; Wechsler, 1955). While some researchers consider BDT to be a measure of fluid spatial ability (Schretlen et al., 2000), others consider it to be a visuo-spatial test that measures abstract reasoning, an important component of fluid reasoning (Stevenson & Gernsbacher, 2013), or fluid intelligence (WAIS-IV, Bugg et al., 2006). BDT is found to be highly correlated with general intelligence, which is referred to as the fluid intelligence by some researchers (Marshalek et al., 1983; Snow et al.,1984).

Apart from contributing significantly to the spatial and perceptual organization factor, the findings from the factor analytical studies of Wechsler scales have shown the block design test to be the fourth-best measure of general intelligence "g" among the 12 subtests and the best estimate of "g" among the performance scale subtests (Maxwell, 1959; Cohen, 1959). This is one of the reason that it is being used widely in all of the popular measures of intelligence (Shah & Frith, 1993).

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The performance tasks that test the intelligence or its components such as visuo-spatial tasks, processing speed, or mental manipulations are the tests to assess cognitive functioning. This functioning is the outcome of various cognitive processes that develop and mature at different points of time as an individual grows (Burggraaf, 2018). The developmental stages of childhood and adolescence are characterized by both the development of the brain as well as cognitive processes. This brain development and cognitive maturation occur in parallel during childhood and adolescence (Casey et al., 2000) to which the intellectual functioning is strongly associated (Koenis et al., 2015). As this cognitive function continues to mature until late adolescence or the young adulthood (Casey et al., 2005; Crone et al., 2006), it is appealing to study the performance in the non-verbal visuospatial domain due to its high demand on cognitive reasoning (Burggraaf, 2018).

There are varieties of cognitive tasks, whose timing of maturation also vary from tasks to tasks (Diamond, 2002). While the areas responsible for the sensory and motor processes mature early during the childhood, the cognitive functions that involve top-down approach mature during late adolescence (Casey et al., 2005).

As the maturation of different cognitive processes vary with age, a large emphasis has been laid on age differences on the performances of different cognitive tasks such as processing speed (Sheppard & Vernon, 2008; Nettelbeck & Burns, 2010), working memory (Johnson et al., 2010; Pliatsikas, et al., 2019), and visuo spatial abilities (Wahlin et al., 1993). A number of cross-sectional studies have reported age related decline beginning in the young adulthood and continuing gradually throughout the lifespan (de Bruin et al., 2016; Verhaeghen & Salthouse, 1997), in the general visualization (Gv) and Fluid Reasoning (Gf) tasks (Horn & Cattell, 1966; Horn & Hofer, 1992). The performance of older individuals on the block design tests have been found to be significantly lower than the young individuals (Wahlin et al., 1993) which is similar to the results of other cognitive tasks mentioned earlier. Apart from age difference, performance in some cognitive tasks such as processing speed (Burns, &Nettelbeck, 2005; Camarata, & Woodcock, 2006), and working memory (Harness et al., 2008; An et al., 2018) display gender differences also. Consistent with similar cognitive tasks, studies on BDT have also shown gender difference in favour of males (Colom et al., 2002; Ronnlund & Nilsson, 2006), which has also been revealed from the standardized sample of WAIS-R and WAIS III (Lynn, 1998). Contrarily, few recent studies have shown little or no gender difference in the performance of visuo-spatial tasks. The gender difference, if seen at all, is small and occurs in tasks that involve mental rotation (Luciana et al., 2005).

The other versions of visuospatial tasks such as one minute DOT and two-minute DOT have also shown absence of gender difference (Killgore & Gogel, 2014; Burggraaf et al., 2015; Burggraaf et al., 2018). This study aims at exploring the visuo-spatial abilities of children, adolescents, young adults and middle-aged adults with respect to differences in their performance across varying ages and gender.

METHOD

Participants

The participants included in this study were taken from four different age groups such as children (9-11 years old), adolescence (12-19 years old), young adults (20-35 years old) and middle-aged adults (36-55 years old) with each group consisting of 30 participants. The sample comprised of 120 participants with 56 males and 64 females. Sampling technique adopted was purposive sampling, a non-random sampling technique, but as the data was normally distributed, parametric tests were used to analyse the data. The participants were selected based on the inclusion criteria that were set by the researcher. They were required to have normal vision and motor functioning to perform the task. The participants were tested for vision using Ishihara colour blindness test and were also checked for motor functioning like finger movements and object lifting ability by asking the participants to squeeze a sponge ball and lift the cubes given. Based on these inclusion criteria, 30 participants were taken for each of the four age groups. All the participants were taken from Bengaluru, India. Children and adolescents were taken from a Central Board of Secondary Education (CBSE) school, and permission for their participation was sought from the Headmistress of the school. The informed consent was also obtained from the young and middle-aged adults who were willing to participate in the study.

Materials

The Block Design Test (BDT) used in this study is a sub-test of the Wechsler scales –that is designed for both children (WISC-IV) and adults (WAIS-IV). BDT is included as one of the core subtests in its perceptual reasoning index. The test requires the participants to view a picture and recreate a two-dimensional pattern using a set of white and red blocks within a specified time limit for each pattern. The raw scores obtained by the participants are then converted to their respective age-based scaled scores as per the manual.

Procedure

The participants had given their consent prior to the test. They were individually administered in a distraction free space. The first two trials given as sample items in the manual were demonstrated to the participants and were clearly instructed about the time limit also. Every trial was stopped once the participant had crossed the stipulated time limit and the test was stopped when the given consecutive number of failures was reached by the participants. The scores for every trial were given based on the time taken by the participant in making the right pattern as mentioned in the manual.

Statistical analysis

The software used to analyze the data statistically was IBM SPSS version. 22. Kolmogrov- Smirnov test was used to check the normal distribution of the data. The test statistic obtained was 0.103 and as the data was normally distributed, parametric tests such as t-test and Analysis of Variance (ANOVA) were employed, to find the difference between the groups based on gender and age respectively.

Results

The results were obtained after analyzing the data with appropriate statistical techniques. The gender difference in the performance of Block design test was found using the t-test and the difference across the four different age groups was found using ANOVA. The results obtained are as follows.

Table: 1 Gender difference in the visuo spatial abilities.

	Gender difference		*t-value*	*p*
	M	SD		
Male (N=56)	11.2679	2.895	1.611	0.11
Female (N=64)	10.4531	2.642		

Significance Level: 0.05

The Table1 shows difference between males and females in their visuo-spatial abilities which is measured using the Weschler's block design test (BDT). The obtained *t (118) = 1.611* is not significant at 0.05 level indicating that both males (*N= 56; M=11.2679; SD= 2.895*) and females (*N=64;M=10.4531; SD=2.642*) are similar with respect to their visuo-spatial abilities and do not have any significant difference.

Table 2: Difference in Visuo-spatial ability among different age groups

	N	M	SD	F	Sig.
Children	30	7.9000	1.18467	142.530	0.000
Adolescents	30	11.8000	0.80516		
Young Adults	30	14.3333	1.42232		
Middle Adults	30	9.3000	1.64317		

It is clear from the ANOVA table, that there are significant differences between all the four groups in their visuo-spatial abilities with *p<0.05*.

From the Post hoc comparisons, the differences between all the four groups obtained are found to be significant. It is found that the children have obtained the lowest score in the visuo-spatial abilities than all the other three groups. The mean score of children *(M=7.900; SD= 1.184)* is significantly lower than the adolescents *(M=11.80; SD=0.805),* young adults *(M=14.33; SD= 1.422),* and middle-aged adults *(M=9.300; SD=1.643).*

Adolescents, whose mean score is *(M=11.80; SD=0.805),* have significantly higher visuo-spatial ability than the children *(M=7.900; SD= 1.184),* and the middle-aged adults *(M=9.300; SD=1.643),* but not the young adults *(M=14.33; SD= 1.422).* These differences are significant at p<0.05 (p=0.00).

Taking young adults into consideration, it was found that they have outperformed all the other groups with significant differences. The young adults have scored the highest *(M=14.33; SD= 1.422)* among all the four groups, indicating to have the highest visuo-spatial abilities than children *(M=7.900; SD= 1.184),* adolescents *(M=11.80; SD=0.805),* and the middle-aged adults *(M=9.300; SD=1.643).*

When middle-aged adults *(M=9.300; SD=1.643)* are taken into account, they have lower visuo-spatial ability than adolescents *(M=11.80; SD=0.805),* and young adults *(M=14.33; SD= 1.422)* but higher ability than children *(M=7.900; SD= 1.184).*

DISCUSSION

The intellectual abilities are measured using a wide range of cognitive tasks involving both crystallized and fluid intelligence. Such tasks require the ability of abstract reasoning, generating, transforming and manipulating different types of novel information in real time, that involve both sensory and motor functions such as working memory, attention, visuo-spatial skills, and many more. One such task is block design test, which is used in this cross-sectional study to assess the differences in the visuo-spatial abilities of children, adolescence, young adults and middle-aged adults. The difference in the performance across different age groups and gender has been explored in this study using block design test (BDT), which is quite a good measure of visuo-spatial abilities.

It is observed from the table 1. that there is no significant gender difference in the visuo-spatial abilities across ages and is supported by researchers (Killgore & Gogel, 2014; Burggraaf et al., 2015; Burggraaf et al., 2018). It is reported by some researchers that gender difference in visuo-spatial abilities exist, only when the task at hand involves mental rotation and the reason being the difference in applying different weightage to the geometrical reference cues (Collaer & Nelson, 2002; Holden et al., 2015).

The age related difference in visuo-spatial abilities has also been an important concern for cognitive researchers. A large emphasis has been laid on the age differences in cross sectional data by Wechsler and other researchers (Kaufman, 2001) and a considerable gradual decline from early to late adulthood has also been reported (Kaufman et al.,1989). From the table (2), the results show a curvilinear pattern in the performance of visuospatial abilities with children being at the lower extreme of the curve, that begins to increase gradually through adolescence upto late adolescence or young adulthood, where the performance is at its peak, followed by a gradual decrease beginning in the middle adulthood period. The increase in performance that begins with adolescence is supported by researchers such as Shah and Frith (1993). Also, Burggraaf et al., 2015 and 2018 have reported a similar increase in performance through late adolescence.

It is concluded that the young adults have the highest visuo-spatial abilities, followed by adolescents, middle-aged

adults, and children, attributing the rise in performance during adolescence and young adulthood to the areas associated with the cognitive functions, in particular those that involve the top-down approach like BDT, that mature during the late adolescence (Casey et al., 2005; Burggraaf, 2018).

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Brief Research Report

Emotional Intelligence of Working and Non-Working Women in an Indian City

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ABSTRACT

Emotional intelligence to a greater extent is influenced by factors like environment, financial independence, family, and thought process. Considering financial independence, it is usually assumed that career-oriented women are less emotionally inclined than women who take up traditional jobs like homemaking and nursing their children as a full-time engagement.

This study aimed at understanding the difference between the emotional intelligence of these two groups, if any, and analyzing the source of these differences. Author compared the level of emotional intelligence of working and non-working women in Jaipur, India and explored further how it affects their performance in balancing life.

Keywords: *Emotional Intelligence, Workingwomen, Non-working women, India, performance*

INTRODUCTION

Emotional Intelligence is the ability to be sensitive to one's emotions, to understand where they stem from, and to focus more on the root of the occurrence than what appears at the surface. It also includes the ability to use emotions and channel them through words and actions, influence, and energy for the betterment of yourself and the ones around you (Cooper & Sawaf, 1997). Alternatively, emotional intelligence is also be defined as the ability to keep a track of your feelings and emotions, and be mindful of others too. It also means that you learn to segregate between your feelings to channel your thoughts and actions accordingly(Palmer, Gignac, Ekermans, & Stough, 2008) .

The general definition of emotional intelligence can be summed up as the alternative ability to segregate one's emotions well, express themselves better, and perceive others' thought process well. Emotionally intelligent people are comfortable expressing their emotions, understanding others' emotions, facilitating thoughts, and stimulating intellectual growth. Obtained results identified the differences and challenges and they were likely to facilitate governing agencies and policy makers to support working and nonworking women.

Emotional Intelligence in working and non-working women in metropolitan Indian cities:

In the Indian sociocultural set up, women are expected to play multiple roles within the family as a primary caregiver. Mother, daughter, wife, daughter-in-law, sister, and so on. They are usually at the receiving end of these responsibilities that need to be catered to compulsorily. In such a scenario, women who opt for working outside the home tend to face difficulty in coping with tasks within the home and at work. The psychological conditions for an average Indian woman are quite daunting and the benefits of working cannot live up to them.

The pressures of managing multiple roles alone can take a toll on both the mental and the physical health of the woman, with added responsibilities of looking after babies in the midst of it all.

An Indian homemaker is often taken for granted; her work is assumed to be easy, negligible, and replaceable. This is a generalized statement and situations are changing for the better in many metropolitan cities and progressive households. But the larger picture portraying such norms cannot be denied. On the other hand, a working woman may derive certain satisfaction at her workplace in the form of appreciation or monetary benefits, which may compensate for the lack of overall acknowledgement.

This devaluing the homemaker's contributions may lead to an unsatisfied lady in an unhappy marriage as compared to their working counterparts. This study was an effort in understanding the differences in their emotional intelligence due to the hardships the women of each category faced. According to a study, the average household income of families with women working as a homemaker was much higher than that of families with women working outside homes. Even so, the former set of women was more depressed and unhappy with their lives than the latter (Soomro, Riaz, Naved, & Soomro, 2012).

This condition may also stem from the fact that Indian non-working women, on an average, have more children than their working counterparts. Also, the former were seen to be generally less educated than the latter which could also be the source of their unhappiness and depression. Non-working women are often thanklessly expected to take up the job of nursing, cooking, raising kids, running errands, completing household chores, and other backend duties leaving little to no time for oneself.

Education gives one a vision and imparts a better understanding of life in general, which the non-working women may be missing out on (Sharma, 2019).

Observations of another research indicated that working women excelled over non-working women in terms of emotional intelligence and desire for social freedom, and the respondents belonging to high emotional intelligence group, high desire for social freedom group and working group preferred smaller personal space (Kumar & Devi, 2016).

RESEARCH OBJECTIVES

An attempt was made in this study to find out any significant difference, if any, in the emotional intelligence

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levels of the working and non-working women in Jaipur, a metropolitan city of India.

Hypothesis:

- Null Hypothesis - H01: There is no significant difference between home makers and working women with respect to their Emotional Intelligence.
- Alternate Hypothesis - HA1: There is a significant difference between home makers and working women with respect to their Emotional Intelligence.

Methodology:

For this research Quantitative research methodology was used. Research questions were constructed to test the hypothesis. Research tool SurveyMonkey was used to collect the data. For this research convenience sampling has been used. Respondents in the age group of 20-60 years residing in Jaipur suburban region were recruited as sample of this study. A group of total 400 respondents were studied, which consisted of 200 homemakers and 200 working women. Verbal consent of all 400 subjects was obtained to participate in the study.

Tools for data collection and analysis: Emotional intelligence scale developed by Hyde et.al. was used in this study; Which contains 34 elements that decipher the level of emotional intelligence of the participants. This scale was administered on both the groups; housewives and working women of Jaipur suburban region (Hyde, Pethe, & Dhar, 2002).

Correlation values less than 0.19 were neglected since the sample size is 400. But no items were dropped from the questionnaire since all had correlation values more than 0.19.

The next assessment of the reliability measure was made with the use of Cronbach's alpha on all the 34 items. It consists of estimates of how much variation in scores of different variables is attributable to chance or random errors (Espinoza-Venegas, Sanhueza-Alvarado, Ramírez-Elizondo, & Sáez-Carrillo, 2015).

Any coefficient beyond 0.7 is always considered for further analysis and is rendered sufficient. In this study, Cronbach's alpha was 0.9. This, therefore, was considered as a threshold for sifting the sample data. The data was analyzed using an independent sample t Test.

Research Results:

Table 1 shows the number of working and nonworking women, with the research showing. Working women intelligence level is measured 5.48 whereas non-working women was measured at 5.15. Emotional intelligence of both the working and non-working women is very similar.

Figure 1 depicted the demographic factors such as age range of the respondent as well as number of working women working in Government and private sector. Figure shows that more young women work in the private sector than their older counterparts. Private jobs generally were more demanding in India than the government job. Some of the young respondents in the age group of 20-30 felt more pressure to juggle between home and working life.

Table 1: Emotional intelligence of working and non working women

Status	Number	Emotional Intelligence levels
Working women	200	5.48
Non-working women	200	5.15

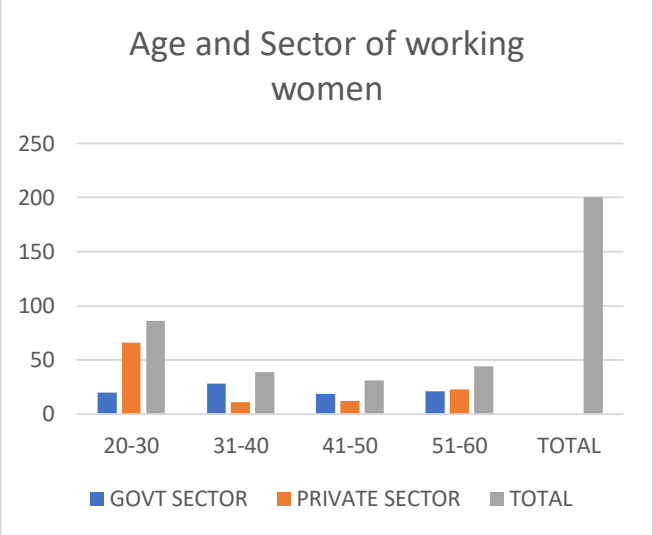

Figure 1: Age of respondent working in Private and Government sector

Research Findings:

Indian women's lives are considered incomplete without marrying and having babies. Although the nation is progressing towards a more modern approach, a lot of families are undergoing this transition even today (Patil, 2016).

This is taking a heavy toll on the lives of these Indian women who are juggling with their careers and household duties. It becomes difficult for the married women to continue with their careers and for the unmarried women to dodge the pressure of settling down with the right man.

As per the questionnaire prepared to assess the conditions of women, working or non-working, there were 6 major aspects of study to determine the status of the subjects.

These were:

1. **Satisfaction:** The working women were found to be more satisfied with their lives, their marriages, and their jobs than their non-working counterparts.
2. **Security:** Financial security obviously is enjoyed more by the working women since they have some cushion to fall back upon on rainy days.
3. **Dedication:** The non-working women were found to be more dedicated to homemaking, nursing, cooking, and looking after children than in making a career even if presented with an opportunity to do so. Younger, unmarried working women could dedicate themselves completely to their career since they aren't obliged to run a household. Consequently, the older, married working women often found themselves torn between household duties and office work, being able to

dedicate themselves to one aspect completely. This is an even bigger problem after having children owing to the lack of childcare services in Jaipur.

4. **Appreciation:** Both sets of women claimed to work better if appreciated frequently. As mentioned before, the working women are often not able to dedicate themselves to their jobs owing to family pressures and household duties. Homemakers, too, are assumed to be the bearers of backend jobs. Hence, both categories of women are not appreciated enough.
5. **Motivation:** Working Women are motivated to climb the ladder of success in their respective fields because it gives them the recognition and the back-up they need. Non-working women, on the other hand, are less motivated to carry out their daily chores without any compensation or appreciation. They are often looking for external validation to stay motivated in their endeavors.
6. **Compensation:** While 73% working women derived compensation in the form of monetary benefits and recognition, 86% non-working women believed they are often taken for granted.
7. **Time constraints:** Working women are seldom able to work late nights, stay beyond working hours, travel inter cities for work, and give more input than they usually do because they're required to handle household duties and cater to family duties as well. Only as little as 30% of working women claim to have the support of their spouses when it comes to handling daily household chores.

The emotional intelligence levels of both the categories of women are not extremely different from one another. The workingwomen do show slightly higher results that may be attributed to other aspects of personality than emotional intelligence. Working and employed women are self-confident, career oriented, and possess exceptional leadership qualities (S. Sharma, 2018). They have their priorities set and have a sense of financial security as well. Non-working women generally do not possess these qualities although there are umpteen exceptions in both categories (J. Sharma, Dhar, & Tyagi, 2016). This is not to claim that working women do not depict interest in homely activities, they rather seek other, better opportunities for self-improvement outside their home with a little financial security as well (Totuka, 2013).

As per another research, working women are generally more satisfied with themselves, their marriages and their lives than non-working women (Afroz, 2016) . Considering these aspects, the scores for emotional intelligence of both types of women are found to be similar. Hence, we can safely conclude that women possess a fairly similar level of emotional intelligence as far as their professions are concerned.

CONCLUSION

The study concludes that there is absolutely no difference between women employed outside of home and those that take up home making activities as a full-time engagement. It is unfair to name them 'working' and 'non-working' since both categories of women are equally devoted to their tasks. Having said that, financial independence does bring plenty of choices and opens doors to better alternatives, a luxury that women working as homemakers seldom enjoy. There may be no difference in their emotional intelligence, but money does bring forth a sense of confidence and security that all women deserve.

This does not imply that women who prioritize their careers are uninterested in homely activities and women working within the home are completely devoted to their jobs. The level of commitment varies from person to person. There are plenty of other factors that can influence one's emotional intelligence. These include education, upbringing, company, and the environment one belongs to as a whole. Emotional intelligence levels vary from individual to individual, but there isn't any specific difference between an average working and a non-working woman in an Indian city as far as emotional intelligence is concerned.

Future Research:

There is great scope for detailed study in this subject. Although this research considers working and non-working women at large, there is little study in certain aspects like the effects of marriage, childbirth, education, travelling to and fro, sexual abuse, sexism, and other such social evils standing in the way of women pursuing their careers. This research is only limited to an extremely small fraction of women living in the metropolitan region of Jaipur. There are women from many different walks of life, lifestyles, cultures, languages, and outlooks residing in Indian cities. This study is, hence, cannot be generalized.

There is a need for broader data collected from across the country and a deeper study so that better knowledge can be acquired regarding women from different lifestyles and career.

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Brief Research Report

Negative Transformational Process: The Maladaptive Nature of Accommodation in Relationships

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ABSTRACT

The theoretical focus is to understand the role of emotional regulation in the dyadic interactions and to account for well-being in marital relationships. Emotions are concealed or expressed at the level of human processing. Therefore, masking emotional expression becomes a threat to well-being. The model brings a distinction between the adaptive and maladaptive transformation of motivation by enabling the bridge between interdependence theory and emotion regulation theory. Transformation of motivation is defined as the shift in the person understanding and interpretation of the situation as defined by the interdependence theory. The activation between emotional stimuli and regulatory mechanism would signify that transformation occurs during the interpretive stage of the situation. It is therefore aiding in providing a concise description of effective use of emotional coping strategy in marital interaction by questioning long-term outcomes in relationships. The current paper reviews the emotional interdependence found in couple's interactions and the process of shift aiding in accommodating difficult emotions. The process model is based upon the theoretical underpinnings in interdependence theory and emotional regulation theory wherein the process of taking a decision involves reappraisal of the weighted advantage. This weighted advantage if seen as a profit, the person mostly likely to take the adaptive route. If there are alternatives that are perceived opposed to the weighted advantage, the emotional regulation strategies hence become maladaptive. This supports the given model indicating that well-being will be decreased if the transformational process involves suppressive nature which in turn leading to maladaptive coping patterns among the partners.

Keywords: *Emotion regulation, Dyadic Interaction, Interdependence, Communication, Marital relationship, Transformation of Motivation*

1.1 INTRODUCTION

Interpersonal relationship is seen as a mandatory bond for any individual who are in the process of establishing human connections. But the study on marital relationships were lagging because it became the language of the commoners. Even though relationships seemed like a common language, it had a need to be refined. The researchers looked for refinement in the areas of interaction and exchanges that partners have amongst themselves (Reis, Collins and Berscheid, 2000). Interactions elicit emotions which are concealed or expressed at the level of human processing. These evaluations that arise during the interaction seems desirable based on the potential outcomes that are counterbalanced by the partners. The masking of emotional expression might reduce outer experience but not the inner experience which poses a threat to individual's well-being (Velotti *et al.*, 2015). S.T Fiske's in 1992 described interactions in terms of socio-cognitive processes as a key issue for the development and maintenance of relationships. Another component of interaction is with the basis of emotions where certain positive and negative emotions arise within the context of individuals in interaction (Fiske, 1992). The interactions functions on the basis of mutual dependence that the individual has or perceives in a relationship. This interdependence is clearly being seen as an influencing factor and analyzes the dyadic behavior in the general course of relationship (Arriaga, 2010). Emotions are mutilated or dominated in the dyadic interaction especially involving themselves in regulating the emotions (Richards, Butler and Gross, 2003). The extent to which the inner qualities of emotions will be evident and indistinguishable with the expression is anonymous. These expressions are sometimes manifested in an intense manner and individuals usually have lesser control over the evaluation of the emotional stimuli. The evaluation leads us to the functional effects of coping by bridging the concept of 'emotional regulation' (Lazarus, 2006).

The present paper introduces a model to re-examine some of the flaws in the interdependence theory of Transformation of motivation by comparing it with regulatory mechanisms. This helps to understand the maladaptive nature of accommodation in Interaction. The relationship studies have aimed at improving well-being in couples and to alleviate their functioning within the sub-system. But the interaction process of transformation of motivation leading to well-being is debatable because the shift in transformation is based on the weightage of profit vs loss. The relationship satisfaction and well-being due to transformation of motivation is un-defined. The aim of the study is to understand the influence of emotion regulatory mechanisms in interaction and to account for well-being in the transformational process. Finally, the paper would be able to differentiate the adaptive and maladaptive nature of the process of transformation in interactions.

1.1.1 Theory of interdependence on dyadic interactions

The theory of interdependence was introduced by Kelley and Thibaut in 1959 which studied interpersonal relationships from a social psychology perspective. The interdependence focuses on within-person and between

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person processes on the influence of affect and cognition in dyadic interactions. The interdependence uses two formal tools to explain the interaction outcomes in terms of matrices and transition lists. The matrices and transition list inspired by game theory depends on the situation, needs, outcomes and motives which contributes to a shift in reacting to the situation. The interdependence introduces a core characteristic of interaction known as the "transformation of motivation" which is the shift in the person understanding and interpretation of the situation. (Lange and Rusbult, 2012).

The complexity of human interaction and emotional exchanges lies in the social relationships especially among romantic partners. The model integrates the role of context and personality in the perceptions of the interaction which is mutually dependent on each other. This is being understood by the frequent interaction's individuals have over a period of time where each partner affects one another by habituated emotional patterns or evaluative patterns of the perceived stimuli. The interactions are being evaluated along an affective dimension where it will be activated if the benefits or outcomes are at the positive valence in interaction. The valence associated with interaction is perceived to be subjectively experienced as an actual outcome which represents satisfaction in relationships (Arriaga, 2010). The model explains the adaptive pattern of interaction that integrates emotions and cognitions to explain relationship satisfaction.

1.1.2 Emotion regulation

The process of emotion generation is being functioned at a multi-level processing of emotional stimuli. The activating agent in a context would be to attend most relevant goals in the environment. When these goals are battled among other relevant goals, it produces a resulting emotion. The elicited emotions are contained within a macro-level of subjective, behavioral and physiological measures of the emotions. Thus, leading us to adjust our needs to the context to accommodate the emotion with the goal (Gross, Sheppes and Urry, 2011). The emotion regulation on the other hand requires the modification of the emotion generative process and improvises certain motivated strategies to influence emotion generation. The two distinction which brings the goal-directed regulatory strategy at play is hedonic and instrumental. The hedonic aspect would require individuals to change their emotions to be less negative or more positive while instrumental aspect attains to achieve long-term goals. The process of emotional regulation involves five families of strategies: situation selection, situation modification, attention deployment, cognitive change and response modulation (Gross, Sheppes and Urry, 2011).

The model distinguishes between antecedent focused and response focused emotional regulation strategies. The antecedent-focused are the evaluations that require prior activation to the emotional stimuli while response focused happens after the turn of events. These strategies are consciously and automatically activated. The two types of the regulation strategies are: cognitive reappraisal and expressive suppression. The cognitive reappraisal involves consciously reducing the emotional impact of the situation by evaluation while expressive suppression is an inhibition of the ongoing emotion (Gross and John, 2003).

1.1.3 Regulatory mechanisms in Interaction

The Interaction process involves the selection of the situation that is being modified by the outcomes i.e., the response to the situation structure based on the available alternatives. The available alternative is dependent on the context and long-term benefits that induces a positive valence in individuals (Rusbult and Van Lange, 2008). The context would help understand and predict the expression of the emotion (Clark and Taraban, 1991). It was found that the intensity of emotional experience and degree to which it is expressed are positively associated with interrelatedness with the interaction partner (Reis, Collins & Berscheid,2000). The emotional regulation is at play when the interacting situation requires modification and cognitive change in turn leading to response modification (Gross, Sheppes and Urry, 2011).

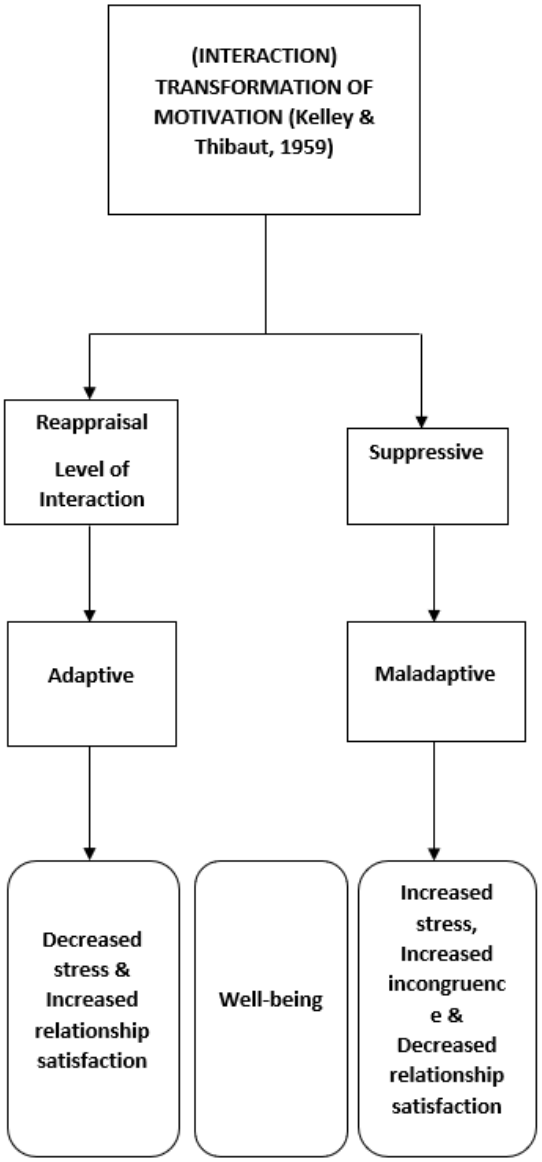

Figure 1 explain the dimensions of interactional process in transformation of motivation based on emotional regulation strategies

1.2 CONCEPTUAL METHODOLOGY

1.2.1 Expressive suppression as an aid in the transformation

Emotions unfold in interaction when occasional suppression of emotional expression is desirable. There are links that is found between emotional expression, social relationships and well-being where it brings a distinction between the emotional experiences during a conversation and those provoked by one's partner (Butler *et al.*, 2003). The psychological shift in the transformational process depending on the broader consideration by evaluation of alternatives might require regulating emotions to fit in the context. The suppressive nature of emotional regulation down-regulates the behavioral component of the emotional response. This also reduces the memory of the interaction by forgetting particular aspects due to the increase in cognitive load. The distraction have led to lesser responsiveness and closeness among the partners (Butler *et al.*, 2003).

1.2.2 Re-appraisers in the transformational process

The reappraisal component might require reappraisal ability for the regulation of the negatively interaction. The reappraisal frequency and well-being will increase only if the reappraisal ability is effective. This generalizes to the concept that if individuals use reappraisal frequently at least with little success, it is considered to be a powerful tool. The important factor that is measured in terms of reappraisal ability is said to improve life satisfaction through increasing the cognitive control of events. The set-shifting task (task requiring effective shift in situations) has been seen as a product of reappraisal ability where positive correlation was found with the cognitive measures such as attention (McRae *et al.*, 2012). The increased attentional span in assessing and evaluating the conversation will not necessarily depend on the long-term possibilities but will depend on the emotional quality of the event experienced. The emotional regulation does integrate into the transformational process of shifting one's internal focus or expectations into a desirable outcome.

Therefore, the activation of the emotional stimuli and bridging the gap between both the regulatory mechanism would signify that the transformation takes place during the interpretive stage of the situation. It requires an individual to assess the goal by carefully channeling the emotion for the benefit of the marital relationship. This helps understand the quality of interaction to be a necessary component in the maintenance of relationships and sustaining the well-being in the relationship.

1.2.3 Ambiguity in transformational process: An explanation on well-being

The transformational process leading to accommodative behavior is seen to increase relationship satisfaction and couple's well-being but when it is being observed under the factors of intrinsic personality factors arising in conditions of interaction structure, the results are different. The study by Finkel and Campbell in 2001 explores the area of self-control and accommodation in interaction. The psychological process involved in the transformational process requires discounting of one's self interest and inoculating partner's self-interest. The results show that if individuals are pre-disposed to develop control over the emotions, there is pro-relationship outcomes in the relationship and couple's well-being. Therefore, the control of one's emotions and impulses seem to be a major contributing factor in enhancing the pro-relationship motivation by accommodating one's impulses (Finkel and Campbell, 2001).

The well-being would be accountable based on the expectations and broader consideration of outcomes doesn't necessarily enhance the relationship satisfaction but tends to alleviate stress. This supports the given model indicating that well-being will be decreased if the transformational process involves suppressive nature which in turn leading to maladaptive coping patterns among the partners. These maladaptive patterns can stem from the incongruence that is created by disregarding the self-interest and bringing in other's self-interest. These will lead to stress and decreased well-being which confirms that transformational process on relationships does not always guarantee well-being.

1.2.4 Consequences of suppressive pattern of transformational process

This brings us to the consensus that transformational process has two dimensions: adaptive and maladaptive. The adaptive dimension indicates that the process involves the use of reappraisal strategy where it supports the earlier hypothesis on improved well-being and decreased incongruence in the pro-relationship transformation. The maladaptive dimension focuses on the suppressive nature of transformational process where certain level of incongruence due to the discount of one's self-interest and increased stress leading to lesser well-being can account for the long-term problems in relationship.

The relationship is perceived as favorable when transformation of motivation is used in relationship interaction but the frequency of the suppression and reappraisal needs to be evaluated to confirm the long-term satisfaction of the pro-relationship and couple's well-being. The model proposes that if the frequency of the suppressive transformation is reduced, it will lead to decreased incongruence by improving well-being of the couples in the interaction situation. If the short-term goal of using maladaptive dimension produces a favorable outcome by the use of suppressive transformation, it will not necessarily lead to a long-term outcome because as previously mentioned the frequency and intensity contributes to the regulation of emotions. Otherwise, habituation of the emotional regulation strategy will lead to maladaptive coping and distressed relationship.

1.3 IMPLICATIONS

The model extends the application in the understanding of emotional difficulties in families especially couple's interaction in relationships. If the interdependence theory on interactions and social relationships is applied in the area of marital counselling or family therapy, the maladaptive factors need to be addressed to avoid problems in interventions. The nature of the transformational process paves way to form new understanding of emotional regulation as a factor.

1.3.1 Relationship specific emotional coping: a new arena in interdependence theory

The model integrates the understanding of the interdependence theory with the emotion regulation process to conceptualize the consequence of using maladaptive strategy in transformation of motivation and the use of adaptive strategy. These adaptive strategies are necessary to improve the long-term benefits in the relationship and improve the well-being of the individuals. The well-being cannot be accounted based on the outcomes as mentioned by the interdependence theory. Therefore, it gives a concise description of the process in terms of the effective use of emotional coping strategy in marital interaction.

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Case Report

Cognitive Behaviour Therapy in Treatment of Internet Addiction: Case Studies

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ABSTRACT

Background; Increasing use of the internet and easy availability, accessibility and affordability of internet on a computer, laptop and smartphones affected individual's lifestyle, abilities and way of getting satisfaction. The way of satisfaction attracting attracts individuals for using the internet more and more which leads them to addiction. Several studies in various countries have been done regarding the use and misuse of the internet, the prevalence rate of internet addiction, and effects of internet addiction on individuals' life, however, research on the treatment of internet addiction seems to be limited in India

Aim: To assess the effectiveness of cognitive-behavioural therapy for the treatment of internet addiction in India.

Method: Case study method has been used.

Procedure: Twelve sessions of cognitive behaviour therapy were conducted with two cases diagnosed with internet addiction. **Tools;** The effectiveness of the therapy session was monitored with Internet Addiction Symptoms Score by comparing pre-test and post-test results and parent's verbal feedback.

Result: Internet Addiction Symptoms Score and the verbal feedback showed a significant reduction in the level of dependency and also change in way of coping strategies and behaviours in both cases. After intervention both the cases are using the internet in a healthy manner, improving their academic performance and interpersonal relationships with family members and friends.

Conclusion: Findings of the case studies, confirmed that cognitive behaviour therapy is an effective treatment method for Internet Addiction Behaviour.

Keywords: *Internet, Addiction, Cognitive , Behaviour, Therapy*

BACKGROUND

Internet Addiction behaviour is a new challenge for individuals, family and society. Easy accessibility, affordability and availability of facilities, services, needful content materials and attractive content attract and facilitate everyone to use the internet. During the use of the internet, individuals' level of satisfaction and pleasure is compelling them to spend more and more time on the internet, gradually everyone is becoming dependent knowingly or unknowingly. The constant over dependency and unconditional satisfaction develop addiction in an individual. The term internet addiction was first used by Goldberg in 1995. Young (1996) defines internet addiction as "Excessive time spent on internet activities and online relationship than other activities of offline"

According to DSM – 5 (2013) as: I) excessive use, often associated with a loss of sense of time or a neglect of basic drives; II) withdrawal, with feelings of anger, tension, and/or depression when the computer is inaccessible; III) tolerance, with the need for better computer equipment, more software, or more hours of use; and IV) negative repercussions, with arguments, lying, poor achievement, social isolation, and fatigue (American Journal of Psychiatry, 2008). As per the definition of internet addiction disorder prevalence rate varies from country to country from 2.3% to 20.3% in adolescents (Ha et al., 2006) while 47% of high school students are using the internet at the level of internet abuse in South Korea. All about 462 million Indians were using the internet in the year 2016 in comparison to 100 million in 2010, so 36.5% of the population are using the internet in India. The internet is used for research work, to seek knowledge and information, for communication, for business, money transactions, travelling and for entertainment while on the other hand, the internet is also used for watching pornography, excessive gaming, chatting for long hours, online shopping and even gambling. The prevalence of internet addiction was found to be 0.8%, 19.5% and 58.2% respectively as severe to moderate to mild levels (Sushma, et al 2018). Another study reported that 57.7% of professional college students met internet addiction criteria and out of the 38.7% was to be found depressed (Subhashini & Praveen, 2018). Prevalence rates of Internet addiction ranged approximately from 1.0% to 18.7% worldwide (Pontes, Kuss & Griffiths, 2015). Many other studies reported co-morbid psychiatric disorders and emotional problems are associated with internet addiction disorder such as anxiety, depression, eating disorder, attention deficit hyperactivity disorder, and aggression (Chih-Hung, et al. 2009; Sapda, 2014; Lee, et. al. 2014; Lam, 2014 and Kuss & Lopez-Fernandez, 2016). Such co-morbid conditions impaired an individual's day to day functioning. Studies depicted that Internet Addiction is causing damage in personal, social, physical and mental aspects of life, such as job loss, marital dissatisfaction, divorce, family disagreements, social isolation, academic failure, absenteeism or exclusion from school and classrooms, sleep disturbances, musculoskeletal pain, tension headache, eating problem, fatigue, vision problems, and cognitive abilities like verbal communication, calculation and memory (White, 2011, Cheung & Wong, 2011 and Maurya et. al. 2018).

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In India, internet addiction disorder is rarely reported by patients or informants. Mostly they came for treatment of the co-morbid condition. However, research studies suggested that internet addiction can be treated by psychotherapies. Young (1996) was the first one who considers internet addiction as a disorder and she treated a number of patients by cognitive behaviour therapy (CBT) in her clinic [2]. Young and Davis's Cognitive behaviour therapy models of internet addiction treatment are the most comprehensive and functional models. Cognitive behaviour therapy is a therapeutic approach that develops a therapeutic relationship between patient and therapist and teaches patients to recognize and understand their thoughts, feelings and behaviours and their relationship with each other. They are trained to identify their thoughts and feelings that trigger addictive behaviours. CBT also teaches different coping strategies and promote treatment adherence and relapse prevention. Young's cognitive behaviour therapy for internet addiction is limited to time and takes 12 sessions; the initial stage of therapy is focused on the assessment of specific behaviours related to internet activities such as time, purposes and situations in which the impulse control problem causes the greatest difficulty. After detailed assessment behavioural strategies are to be planned to train the client for time management, daily activity schedule monitoring and involvement in the development of alternative activities. The self-monitoring activity helps a client in the identification of the usual pattern of internet using behaviours, and to develop alternative activities. Along with these strategies exploring causes leading to isolation, limited social life on the internet than real life, and how can one move in real-life situations. As therapy starts more focus is on the cognitive assumptions, core beliefs and cognitive distortions which have developed and affects an individual's feeling and behaviour. Researches emphasized the positive effect of cognitive behaviour therapy for the treatment of internet addiction disorder (Young, 1999, 2000, 2007, 2011; Davis, 2001; Erden & Hatun 2015; Du, Y., Jiang, W., Vance, A., 2010; Kuss, 2016).

In the view of studies which were conducted in other countries on internet addiction disorder, it was planned to use cognitive behaviour therapy for the treatment of patients suffering from internet addiction. **Aim**: This study focused on the effectiveness of cognitive behaviour therapy in India. **Method**: Research Design; Individual Case Study Design was used. **Sample Size and Sampling Techniques**; Case study method was used for obtaining the objective of the study. Total two cases were taken, **Tools;** Internet Addiction Symptoms (eight internet addiction symptoms given by young) were monitored by using 0 to 10 point self-made visual analog scale. **Procedure;** The therapy sessions were designed for twelve sessions by trained and registered Clinical Psychologist, each session lasting approximately 45 minutes. The patient's necessary consent and permission were obtained before starting the therapy session for the study within the framework of ethics.

DESCRIPTION OF CASE

Case 1

Mr. H. 16 years old boy suffering from internet addiction was brought by a parent to "Vikalp" a non-Pharmacotherapy Center, Ghaziabad for psychotherapy. According to his parents he has significantly declined his study performance, living alone, irritable by nature that makes him socially isolated. His compulsive video watching and online gaming had increased and it poorly affected his interpersonal relationships and declines his motivation for study. He began watching videos and playing games from starting but last one year he has started playing an online game with his school friends. Initially, he played for an hour daily and up to 4-5 hours on the weekends, with strict time limitations as set by his parents. For the last year, he is not able to control himself. Sometimes he is trying to hide and if anyone asked, he becomes irritable and aggressive. He is the single child of his parents. His parents were working but his mother has resigned from her job because of his problem. According to the patient "he was neglected by parents from the beginning. He had no friends, no one likes me but now he started making friends and enjoying with them, his parents are controlling him that makes him irritable" he also reported that he has college friends group on WhatsApp and sometimes they are discussing important topics, knowledge and information." The severity of internet behaviour was monitored by self-made visual analog scale on the basis of young's Internet Addiction Symptoms (IAS); before the intervention, he got a total score of 58 and after the 10 CBT sessions (11th session) he got a total score only 26 which indicates significant improvement. The patient and his parents were also reported significant changes in his lifestyle and way of problem-solving approach and he has total control over online activity.

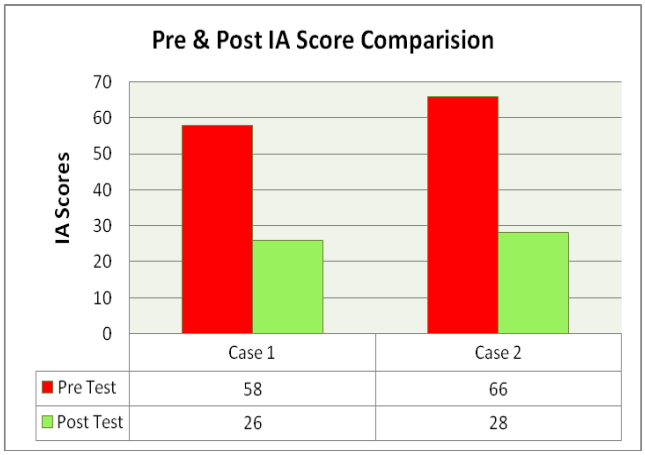
Description of cognitive behaviour therapy (CBT) Sessions

Phase	Description
1 (Session 1 & 2)	Assessment of internet addiction behaviour and associated problems. Psychoeducation about internet addiction behaviour, identified triggers and maintaining factors that increased internet addiction and associated problems.
2 (Session 3 - 6)	Behavioural strategies: Training of activity scheduling for breaking the routine of internet use, self-monitoring, time management and developing alternative activity of internet and homework assignments.
3 (Session 7 - 10)	Cognitive restructuring: "Just a few more minutes on Internet won't harm me." "I have to answer my friends immediately; otherwise, they will not forgive me." "If my friends don't give "likes" on my posts or my photos, it is a signal that they don't like me or that I did something wrong." "If I disconnect from the Internet, I will miss important things." " Internet is necessary for me, without internet I can't do anything."
4 (Session 11)	Review of therapy sessions; progress monitored and reinforcement was given for continued recovery with feedback
5 (Session 12)	Prepared for relapse prevention through new real-life experiences, beliefs and behaviours, social skills, way of coping with problems, verbal communication and termination of sessions.
Follow-ups	In follow-up sessions, the patient stated that he is using the internet for a limited period as a pattern was developed during the sessions. He did not feel any deprivation when he was offline and did not experience any problems in relationships with family and friends because of the internet.

Case 2

Mr. R. 19 years old male suffering from internet addiction was brought by parents in OPD. According to his parents, he has significantly declined his academic performance, is irritable by nature that makes him socially isolated and increased smoking behaviour. His compulsive pornography watching and online gaming had increased and it poorly affected his interpersonal relationships with family members as well as his friends and stopped going for classes last one month. He was watching videos and playing games online but last six months he has started watching pornography and online chatting with girls at midnight. He is sleeping in day time instead of at night. Initially, he played video games for an hour daily with strict time limits but last six months he is unable to control it. According to the patient "I have no problem with the internet. Instead of the internet, they are creating problems in my life because they do not like me and do not want to see my happiness. I am using the internet for getting knowledge, information and entertainment. The severity of internet addiction and pornography consumption behaviour were monitored by self-made visual analog scale on the basis of young's Internet Addiction Symptoms (IAS) and Pornography consumption Inventory (PCI) before the intervention he got a total score of 66 on IAT and 55 on PCI. After the 10 CBT sessions (11th session) he got a total score of 29 on IAT while 16 on PCI which indicates significant positive change. The patient and his parents also reported significant changes in his behaviour, lifestyle and way of coping with stressful situations. He has better control over online activity.

RESULTS



DISCUSSION

These case studies were planned to assess the effectiveness of the cognitive-behavioural therapy, which is expected to help individuals to cope with internet addiction disorder and develop healthy internet using skills for a better life.

The, both cases were diagnosed with internet addiction disorder and their pre-test score on internet addiction severity score also suggested that they were suffering from moderate to severe level of internet addiction disorder. Before starting intervention, cases were conceptualized and psychological case formulations were made to use Davis's (2001) Cognitive Behaviour Therapy Model. The treatment strategy was implemented in a structured way as planned with patients by a trained therapist. The intensive therapeutic intervention started with behavioural strategies such as activity scheduling and self-monitoring activity that helps the patient to manage his behaviour and facilitate a level of insight about his problems that further became helpful in the restructuring of cognitive errors by using the Socratic questioning technique and progress of the therapeutic intervention. In the last phase of intensive therapeutic intervention relapse prevention techniques were also thought to help the patients to maintain progress and prevent relapse. The post-test was conducted to assess the impact of therapy sessions on the patient. The patient's post-test scores on IAT were 26 and 28 in comparison to pre test scores. These scores depicted no symptoms of internet addiction. Also, the patient's improving interpersonal relationships family and friends, academic performance and their feedback on the time spends on online activities indicate the success of the therapeutic sessions of cognitive behaviour therapy which is similar to other research studies in various countries (Young, 1999, 2000, 2007, 2011; Davis, 2001; Erden & Hatun 2015; Du, Y., Jiang, W., Vance, A., 2010; Kuss, 2016) .

CONCLUSION

The pre-test and post-test scores of the patient, feedback of the parents and the researchers' (therapists') observations strongly indicate that the objectives of the study were obtained. On the basis of this finding, it can be concluded that Cognitive behaviour therapy is an important technique for the treatment of internet addiction disorder. This study suggests to researchers, clinicians and therapists to focus on the intervention and treatment of internet addiction instead of only assessment and exploration by using young's cognitive behaviour therapy model.

Challenges: The Internet has become necessary for an individual's life. In this condition, complete abstinence is not possible so that, maintenance of the motivation level of the patient for controlling their behaviour on the internet is a big challenge associated with needs, pleasure and satisfaction.

Application of The Study; The study will become useful for clinicians and therapists to make a plan for the treatment of internet addiction.

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In the Memory of

Professor S. S. Nathawat

(1946 – 2020)

A TRIBUTE

A stalwart of Clinical Psychology and Positive Psychology in India, Prof Sangram Singh Nathawat joined heavenly abode on 21st of November, 2020 at his native village, Asti Kalan, Jaipur, Rajasthan. The Psychology fraternity is deeply obliged to and duly remember his knack of clinical service, effective teaching, adeptness in research, influential but democratic academic administration, superb leadership, scientific & solicitous supervisor, and, indeed, his ever-lasting sense of humour. His family is left with his wife, three brothers, three sons, one daughter and four grandchildren.

Prof. Nathawat was born on 20th June, 1946. He was the eldest son in a farmer's family of Thakur Nandi Singh Nathawat. After high school, he completed his graduation from Rajasthan University, Jaipur in 1964; Master's in psychology from Jodhpur University, Jodhpur, Rajasthan; Postgraduate Diploma in Medical & Social Psychology in 1969 from NIMHANS, Bangalore and PhD from Kurukshetra University, Kurukshetra, Haryana in 1976. He was the highest learned person and a source of inspiration in his village till his last breath. Recently on the last 30th June, 2020, he resigned from the Amity University Rajasthan (AUR), Jaipur on account of some health-related complications, where he worked as Professor Emeritus, Head- Centre of Positivism & Happiness, and Professor & Founding Director-Amity Institute of Behavioural and Allied Sciences (AIBAS). The AUR feels indebted to him where Prof. Nathawat founded and steered flagship professional programmes of M.Phil. & PhD in Clinical Psychology- a distinct programme for some states of the north-western region of India for fulfilling a dire need of mental health professionals in the country.

He served and nourished Clinical and Positive Psychology for more than three decades in India through clinical services, university level of teaching & training as well as excellent research works. Prof. Nathawat taught at some noted universities of Northern states of India like Jodhpur University, King George Medical University, Lucknow; Kurukshetra University, Haryana and University of Rajasthan, Jaipur. He joined the Rajasthan University, Jaipur in 1976 and retired in 2006 from the position and rank of the most senior Professor & Head at Department of Psychology, in the entire university.

In addition, he served as a Visiting Professor at Punjab University, Chandigarh for a short period in 2008 on being auspiciously invited by the University Grant Commission (UGC), New Delhi, and later in the same year, he was awarded with a major project by the UGC titled "Positive Psychological Capital in Relation to Psychological Well-being in Senior School Students". He completed the project successfully and submitted its report on 28th October, 2009. Earlier, he delivered pedantic lectures on Health & positive Psychology, Stress Management, Clinical and Applied Psychology and Counseling Psychology at several prestigious Institutions and Universities in India, taught M.D. Psychiatry students at SMS Medical College, and students of technological studies at Malviya National Institute of Technology (both in Jaipur) for several years. He was a regular columnist of the prestigious Times of India on Career Counseling (wrote twice weekly) for four years from Feb 18, 1998 to 2002. He organized several workshops on Stress & Anger Management, EQ, IQ & SQ, Positive Psychological Capital & Well-Being, Social skills etc. in corporate sectors including Bosch, India Oil, Indian Institute of Quality Management & other management institutes.

As a researcher, Prof. Nathawat published over 100 research papers in National and International Journals. His scholarly work titled "Suicidal Behaviour and Attitudes towards Suicide among Students in India and Netherlands: A cross-cultural comparison" was highly appreciated which was warmly placed in: Advances in Suicidology, a prestigious publication of World Health Organization (WHO, 1989). He solicitously considered learners & scholars of Hindi medium and published a book in 1998

on ‘Vyavaharik Manovigyan’ (Applied Psychology) from the prestigious *Rajasthan Hindi Granth Academy*. Besides, he warmly accepted an accountability in the Indian Association of Clinical Psychologists and successfully edited the prestigious ‘Indian Journal of Clinical Psychology (IJCP) for more than 6 years (from 1996 to 2002). He held the honor of being the Honorary General Secretary of Indian Association of Clinical Psychologists (IACP) and Past President of IACP as well. Subsequently he accepted the responsibility of editing the book titled ‘PostGraduate Psychiatry by Ten Teachers’ with J.N. Vyas (Aditya Medical Publishers, New Delhi; 2003). Later he edited another book with similar title of “Essentials of Postgraduate Psychiatry” in collaboration with J.N. Vyas, Manilal Gada & V.K. Razdan in three volumes (published by Paras Medical Publisher, Hyderabad in 2005). Both the books are popular and considered very good reference books by beginners. He supervised a high standard of more than thirty-two Ph.D. theses and some of his research scholars are still completing their Doctoral Research. He presented many research papers and regularly attended several national and international conferences

He steered his professional interests towards Positive Psychology in post-retirement phase and formed the ‘Positive Psychology Association of India’. His voracity in Positive Psychology inspired him to publish a book titled ‘New Facets of Positivism’ in joint authorship of Ashok K. Chauhan in 2011, (MacMillan, Delhi). His other scholarly manuscript is likely to be released soon as a book in Positive Psychology titled ‘Cultivating Positivism & Happiness’ in 2021-22.

His administrative acumen was evident in positions held like Head of Department of Psychology, Convenor Board of Studies, Director Students’ Advisory Bureau; Director, Adult and Continuing Education; and Director, P.G. School of Humanities, etc. at Rajasthan University, Jaipur. He was also in the panel of experts in Public Service Commissions, selection of professors in universities and examiner of Doctoral Research. He was an active and effective life member of several professional organizations including Indian Science Congress, Indian Association of Clinical Psychologists, and Indian Association of Psychologists, and Mental Health Authority, Government of Rajasthan.

Good bye Professor Nathawat…. rest in peace. You will be always remembered by us for your significant contribution to the discipline of Clinical Psychology and IACP.

Editor; with inputs from Professor Anand Prakash Ph.D. ; Amity Jaipur

Professor S. S. Nathawat
(1946 – 2020)

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