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Editorial

Food Addiction : A New Diagnostic Category?

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Addiction is a primary, chronic disorder of brain reward, motivation, memory and related circuitry. Addiction is characterized by impairment in behavioral control, craving, inability to consistently abstain, and diminished recognition of significant problems with one's behaviors and interpersonal relationships. Behavioral addiction¹ (also called process addiction² or "non-substance-related addiction")³ is a recurring compulsion in an individual to engage in some specific activity, despite harmful consequences, as deemed by the user himself to his individual health, mental state, or social life. Many people, both psychology professionals and laymen, now feel that behavioral addiction should include psychological dependency on things such as gambling, food, sex, pornography, computers, videogames, internet, exercise, idolizing, watching TV or certain types of non-pornographic videos, spiritual obsession, cutting, mobile phones and shopping.⁴

Food addiction is a type of behavioral addiction that is characterized by the compulsive over-consumption of high fat or sugary foods despite adverse consequences.⁵ The food addicts engage in frequent bouts of uncontrolled craving, binge eating and grazing and this behavior is marked by extreme lack of restraint or control, followed by feelings of guilt and depression.⁶ Unlike bulimia, they do not attempt to compensate for their overeating with purging behaviors. The lifetime prevalence rate for food addiction in United States is estimated as 2.8%.⁷

Tolerance can develop and the food addicts may consume up to 15,000 calories daily. There may be temporary release of psychological stress. Compulsive overeaters tend to show brain changes

similar to those of drug addicts, a result of excessive consumption of highly processed foods.⁸ The ingestion of trigger foods cause release of serotonin and dopamine, thus indicating that neurobiological changes contribute to addictive process. Compulsive food addiction is known to result from overexpression of FosB, an addiction biomarker, in the D1-type medium spiny neurons of the nucleus accumbens.⁷ The conditioning to taste, smell and sight of food may play an important role in developing addiction to food. Conversely abstaining from addictive foods and food addictive process causes withdrawal symptoms. The decreased levels of serotonin result in depression and anxiety.⁸

The common behaviors of compulsive overeaters include eating alone, consuming food quickly, gaining weight quickly, decreased mobility, withdrawal from activities, feelings of guilt, a sense of loss of control, anxiety, depression and mood swings.⁷ The person may engage in actions similar to drug addicts, including uncontrolled search for the substance and in deviant behavior such as stealing or lying.⁹ The other types of behavioral addictions may get conditioned to food addiction e.g. internet and mobile phone addiction and also, exercise addiction). There are adverse physical consequences (e.g. Dyslipidemia, obesity, hypertension, diabetes, heart disease, stroke, arthritis, kidney disease and even death), psychiatric sequelae (e.g. low self-esteem, anxiety, depression, eating disorders, sleep apnea, substance and laxative abuse etc.), financial loss (due to over-eating, joining different weight loss or diet programs, absenteeism from work and loss of job) and social complications (isolation and phobia).^{10,11}

Food addiction like any other behavioral

addiction is difficult to be detected as it occurs in isolation and is socially sanctioned. The persons addicted to food can be screened by using Yale Food Addiction Scale (YFAS)¹² and Food Addiction Quiz.¹³

Early detection is vital to successful recovery. Treatment includes identifying precipitants, trigger foods, nutritional assistance, medication, psychotherapy and behavioral modification. Nutritional counselling includes providing education, keeping a food diary, slowly eliminating trigger foods and replacing harmful foods with useful foods. Fluoxetine is the only psychotropic drug approved by FDA for the treatment of eating disorder, especially bulimia nervosa.¹⁰ Off label medications include mianserin, trazodone and bupropion.¹⁴ Anti-obesity drugs and appetite suppressants may also be useful to control binge eating.¹⁵ Counselling includes how to cope with cravings, using distractions, building self-esteem and by providing support. Dental appliances (e.g. conventional jaw wiring and orthodontic wiring) are also useful in controlling compulsive overeating.¹⁶ Social support groups such as Food Addicts Anonymous, Food Addicts in Recovery Anonymous may play a useful role.

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Review Article

Cognitive Rehabilitation in Schizophrenia

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Introduction

Schizophrenia is a chronic, severe and disabling thought disorder that affects around 0.3–0.7% of people at some point in their life, or 24 million people worldwide.¹ People with the disorder may hear voices other people don't hear. They may believe other people are reading their minds, controlling their thoughts, or plotting to harm them. This can terrify people with the illness and make them withdrawn or extremely agitated. Apart from these symptoms there are certain cognitive symptoms which are subtle and include following:

- Poor "executive functioning" (the ability to understand information and use it to make decisions)
- Trouble focusing or paying attention
- Problems with "working memory" (the ability to use information immediately after learning it).²

Cognitive symptoms often make it hard to lead a normal life and earn a living. They can cause great emotional distress. Therefore, there is a need not just for relieving the symptoms through pharmacotherapy but also improving the quality of life of the patient as well as caregivers. This can be done by:

Psychosocial treatments

Psychosocial treatments help people with schizophrenia majorly who are already stabilized on antipsychotic medication. Psychosocial treatments help these patients to deal with the everyday challenges of the illness, such as difficulty with communication, self-care, work, and forming and keeping relationships. The therapist psycho educates

the patient and family members about the disorder, common symptoms or problems patients may experience, and the importance of staying on medications. It is the illness management skills with the help of which, patient with schizophrenia can take an active role in managing their own illness. Once patients learn basic facts about schizophrenia and its treatment, they can make informed decisions about their care².

Rehabilitation

Rehabilitation as defined by the WHO is the "application of measures aimed at reducing the impact of disabling and handicapping conditions and enabling disabled people to achieve social integration."³ Two components are implicit in this definition:

1. An active process through which a individual adapts or acquire the skills needed to mitigate the constraints of disease.
2. An acknowledgement is that which may need changes in the environment including the attributes of non disabled people, if optimal social integration is to be achieved.

Rehabilitation emphasizes social and vocational training to help people with schizophrenia function better in their communities. Because schizophrenia usually develops in people during the critical career-forming years of life (ages 18 to 35), and because the disease makes normal thinking and functioning difficult, most patients do not receive training in the skills needed for a job. Cognitive rehabilitation, on the other hand focuses on the various domains of cognition affected in schizophrenia such as vigilance, attention, verbal learning, visual learning, memory,

reasoning and problem solving, executive function, speed of processing, working memory, and social cognition.⁴

Considering the importance of psychosocial treatment, cognitive rehabilitation in schizophrenia was found to be a dynamic and effective method in several studies. The present study was planned to review the effective methods currently being used for cognitive rehabilitation in schizophrenia.

Methodology

To identify eligible studies for the articles/ review, we performed a search through PubMed, and Google for all the available studies of cognitive rehabilitation in schizophrenia. All review papers published after 2000 were examined. Once articles had been collected, bibliographies were manually searched for additional eligible studies. Different types of rehabilitation models were further searched.

Inclusion and exclusion criteria: All the articles/studies that included rehabilitation, cognitive rehabilitation in schizophrenia were included. Papers not written in English were excluded.

Cognitive rehabilitation models

These can be classified into three groups on the basis of the approach that they use to work with patients and are termed in accordance with literature in this area: training programs to enhance cognition, compensatory rehabilitation programs and training programs using computers.

Table – Cognitive Rehabilitation Models covered in this study

Cognitive Rehabilitation Models		
Training programs to enhance cognition	Compensatory rehabilitation programs	Training programs using computers
1. Cognitive Enhancement Therapy	1. Errorless Learning (EL)	1. Gradior
2. Attention Shaping	2. Cognitive Adaptation Training (CAT)	2. NEAR- Neuro-psychological Educational Approach to Remediation
3. Integrated Psychological Therapy for Schizophrenia (IPT)		3. MCCB- The MATRICS Consensus Cognitive Battery

1. Training programs to enhance cognition

The aim of these interventions is to improve/ increase/ train/ “restore” cognitive functioning. The training is based on laboratory tests designed to improve specific abilities in areas such as perception or memory.⁵ This group includes the following programs-

- **Cognitive Enhancement Therapy**

It was developed by Hogarty and Flesher.^{6,7}

It is a therapeutic procedure combining activities aimed at improving cognitive performance in basic cognitive functions. It works with the idea to achieve flexible forms of thinking that allow the presence of multiple alternatives as information sources (divergent thinking), the anticipation of possible consequences of the response and the appreciation of the points of views of others.

- **Attention Shaping**

It is a program based on approaches to modifying behaviour, including cognition.^{8,9} “Shaping” involves selective reinforcement of successive approximations to desired behaviour. Behaviour that is close to what is required is reinforced; inappropriate behaviour is not.

- **Integrated Psychological Therapy for Schizophrenia (IPT)**

It is based on the theoretical premise that there is a close relation between basic cognitive disorders appearing in the illness and functional deficits in the patient. The implicit idea is that tackling the former will enable faster and more profound improvement in the latter. It is administered to groups and consists of five sub-programs:

- cognitive differentiation,
- social perception,
- verbal communication,
- social skills and
- interpersonal problem solving.

These programs are hierarchically organized to achieve optimum effectiveness in the intervention. Basic skills such as concentration, concept forming, abstracting ability, perceptive ability and memory need to be practiced first to allow later development of more complex forms of social behaviour¹⁰.

2. *Compensatory Rehabilitation Programs*

The aim of these programs is to overcome or circumvent cognitive deficits to improve broader aspects of functioning by taking advantage of the unimpaired cognitive processes or by making use of help in the surroundings to train behaviour that may be of interest⁵. Within this group of programs are the following.

- **Errorless Learning (EL)**

It is a program by Terrace¹¹ and is the theoretical assumption that making mistakes can negatively affect certain groups with cognitive impairments. Two studies provide evidence that making mistakes during the learning process is especially problematic for persons with schizophrenia.^{12,13} In EL, the training task is broken down into smaller components to start training first more simple tasks and then later continue with more complex ones. During training, a wide variety of teaching methods are employed and reinforced with instructions to prevent errors occurring. Each component of a skill is over-learned by means of repetition. In EL, two main procedures are used: prevention of errors during the learning phase and automation of perfect task execution.

- **Cognitive Adaptation Training (CAT)**

It is a compensatory approach by Velligan et al¹⁴ using environmental supports and clues such as signs, check-lists, alarmed drug packaging, and encouraging the organization of belongings and the sequencing of appropriate routines such as administering self-medication and looking after oneself at home. Treatment strategies are based on a comprehensive evaluation of cognitive functioning, behaviour and the surroundings. CAT is centered on the premise that impairment in executive functioning leads to problems in developing appropriate behavior and may inhibit.

3. *Training programs using computers*

Computer programs do appear to have advantages over methods using pencil and paper, such as, for example, they allow the degree of difficulty to be systematically changed on an

individual basis: they give immediate feedback; they allow the use of various reinforcement methods and there is monitoring of the learning process. Rehabilitation programs using computers include the following:

- **Gradior**

It is a cognitive training system designed by INTRAS foundation (2000). The program allows direct interaction between the user and the computer, which manages the evaluation and the neurocognitive training in accordance with some parameters previously established by the therapist. It is aimed at people with brain injuries, dementia, schizophrenia, neuropsychiatric disorders with brain damage and mental illness or retardation. It aims to rehabilitate functions such as attention, perception, memory, orientation, calculation and language.

- **NEAR-Neuropsychological Educational Approach to Remediation**

It was created by Medalia et al¹⁵ and is based on training techniques that are intrinsically motivating, enjoyable and compelling. Training includes participating in cognitive exercises with a computer where various cognitive skills are embedded in a contextualized format.

- **MCCB-The MATRICS Consensus Cognitive Battery (MCCB)**

It is neuropsychological assessment. The National Institute of Mental Health (NIMH) Initiative, Measurement and Treatment Research to Improve Cognition in Schizophrenia (MATRICS), was designed to stimulate the development of psychopharmacological agents to improve cognition in schizophrenia majorly in seven cognitive domains : Speed of processing, Attention/vigilance, Working memory, Verbal learning, Visual learning, Reasoning and problem solving, Social cognition.

4. *Meta cognitive training*

Metacognition is the ability to think about thinking – to make judgments using the evidence from our senses combined with prior knowledge and then rank the importance (and therefore

significance) of events and interactions that are the stuff of life. Moritz and Woodward¹⁶ entitled metacognitive training (from metacognition = “thinking about one’s thinking”).

Metacognitive training (MCT), can be considered a variant of cognitive-behavioral therapy (CBT), it targets cognitive biases that are involved in the pathogenesis of schizophrenia.

Cognitive biases represent thinking distortions and processing preferences rather than performance deficits and limitations in mental capacity. MCT aims to make patients aware of these biases and to change them through exercises and education which in turn should decrease the severity and the conviction into delusional beliefs. The biases include Jumping to conclusions, need for closure, Attributional style, self-esteem, Metamemory, Bias against disconfirmatory evidence and Theory of Mind. In particular, metacognitive training may effectively complement other treatments such as cognitive-behavioral and pharmaceutical interventions. Thus, MCT is conducted in a group setting which encompasses knowledge translation/psycho education and cognitive training.

MCT is based on the following two fundamental components. The first is knowledge translation, Current research findings on cognitive biases and their link to schizophrenia/delusions are explained comprehensibly to patients and illustrated by multiple examples. The second is demonstration of the negative consequences of cognitive biases. Exercises targeting each bias individually demonstrate the fallibility of human cognition in general, with an explicit focus on thinking biases that are important in schizophrenia. Personal examples of these biases expressed by MCT participants, and discussion of ways to counter them, serve to provide corrective experiences in a fun and supportive atmosphere, yielding obvious advantages over mere lecturing. Patients are taught to recognize and counter thinking biases that are important in schizophrenia, and they are offered alternative strategies allowing them to arrive at more appropriate inferences, thus avoiding automatic ‘cognitive traps’.

It seems clear that there is considerable interest on the part of researchers and clinics in gaining a deeper, detailed insight into each of the aspects related with the cognitive impairment accompanying

schizophrenia and the impact this impairment has, in turn, on social functioning. As a logical consequence, numerous intervention programs are being designed, employed and evaluated, albeit from various different theoretical starting points, with the objective of improving cognition in schizophrenia and, by extension, social functioning.

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ERRATA

Article "**Delirious Mania — A Dimension Entity**" by
Kiran Jakhar, Ashutosh Kumar, Rahul Saha
published in 2014 (Oct.); 17(2) : 474-477 issue of the journal
should be treated as **WITHDRAWN**

Review Article

The Role of Islamic Lifestyle on Having no Stress in Modern Century

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Introduction

Stress is life. Stress is anything that causes mental, physical, or spiritual tension. There is no running away from it. All that matters is how you deal with stress. Health lifestyles are collective patterns of health-related behavior based on choices from options available to people according to their life chances.¹ From the dawn of human creation, loving and caring parents have sought to give their children a good life, a life that is equal to or even better than their own.²

The best way to live and stay healthy is to prevent health problems before they surface. A lifestyle typically reflects an individual's attitudes, values or world view. Therefore, a lifestyle is a means of forging a sense of self and to create cultural symbols that resonate with personal identity. Not all aspects of a lifestyle are voluntary. Surrounding social and technical systems can constrain the lifestyle choices available to the individual and the symbols she/he is able to project to others and the self.³ For some historians, boundaries are defined by their long-term social, political, and cultural processes.⁴ In a Weberian context, life chances are primarily socioeconomic, but more modern accounts include stratification variables like age, gender, and ethnicity.^{1,5} This definition reflects Weber's central contribution to lifestyle theory, which holds that choices and life chances interact with one another in a dialectical fashion, with choices constrained by chances and likely to be consistent with the capability to realize them. Choices are a form of agency (the process by which individuals critically evaluate and choose their course of action), while life chances are a proxy

for structure.

Good mental and physical health is the most valuable asset that humans can possess and we must strive to maximize it, and protect it. The purpose of this study is to establish a new framework to understand the role of Islamic Lifestyle on having no stress in Modern century.

Why is stress becoming a serious problem?

For decades, philosophers and psychologists have written about traumatic events, including the Holocaust, serious illness, natural disasters, and other traumatic events.⁶⁻⁸ Although people are reluctant to feel vulnerable to health risks,⁹⁻¹⁰ but stressful life events have long been associated with hypertension.¹¹⁻¹³ But stress is an unavoidable phenomenon in human life.¹³⁻¹⁶

Stress is a syndrome which consists of all the nonspecifically induced changes in a biologic system and consider it in the field of cognitive psychology.¹⁷⁻²¹ Selye (1976) suggested that subjective aspects of quality of life can be quantified and systematically analyzed. Theories that focus on the specific relationship between external demands (stressors) and bodily processes (stress) can be grouped in approaches to 'systemic stress' can be classified in physiology and psychobiology as two different categories.¹⁷

Furthermore, Lazarus stress theory has undergone several essential revisions.^{19-20,22} In the latest version of Lazarus theory, stress is regarded as a relational concept, i.e., stress is not defined as a specific kind of external stimulation nor a specific pattern of physiological, behavioral, or subjective reactions. Instead, stress is viewed as a relationship ('transaction') between individuals and their

environment. 'Psychological stress refers to a relationship with the environment that the person appraises as significant for his or her well-being and in which the demands tax or exceed available coping resources.¹⁹⁻²⁰

Most evidences came from experimental situations²³⁻²⁴ and from the assessment of the association between exposure to stressors, such as job stress,²⁵ catastrophes²⁴ and blood pressure measurement²⁶ with blood pressure. Findings from epidemiological surveys have not been homogeneous regarding the association between the occurrence of acute stressful events and sustained elevation of blood pressure.²⁷ Differences in study design, sampling criteria, population surveyed, definition of stress events, and hypertension, may account for the discrepancy of findings.²⁷ Studies show stress is not coming alone, it is almost accompanied by many other disease such as, diabetes, obesity, asthma, depression and arthritis.²⁸⁻³⁰

To gain a better understanding of how stress can lead to illness, it is useful to know how to cope with stress. Stress first introduced in 1993 by McEwen and Stellar.³¹ Problem-focused coping appears to be the most adaptive coping style as it is associated with reduced psychological distress. Alternatively, avoidant coping appears the most maladaptive as it is associated with increased distress.³²⁻³⁵ The levels of stress are different among students and also difference between male and female.³⁶ Coping style has been associated with both increased and decreased levels of psychological distress.³⁷ Both sexes would have experienced similar macro-level stresses in the workplace, including job insecurity, layoffs, and loss of income during the transition to capitalism. Research from the Czech Republic shows that the stress of men and women workers was about the same during the economic transition in that country.³⁸ Ultimately, the principal difference between the sexes comes down to a more negative health lifestyle for adult males: men excessively drink alcohol and smoke more than women, while women eat a healthier diet.³⁹ Research findings suggested that male students feel stronger stress from family factor than female ones; students in higher grades feel more stress from physical/mental, school, and emotional factors; students who take a student loan also feel more stress from physical/mental, school, and

emotional factors.⁴⁰ Researchers showed there were significant associations between personality and psychological distress in their general population study.⁴¹ Participants were randomly drawn and mailed self-report questionnaires that measured personality,⁴² depressive symptoms and anxiety.⁴³ Mental disorder in students and psychological distress,⁴⁴⁻⁴⁵ stress,⁴⁶ anxiety,⁴⁷ and depressive symptoms even in a sample of medical students.⁴⁸⁻⁴⁹ Results showed that personality predicted depressive symptoms over time, with high harm avoidance and low self-directedness associated with increased depressive symptoms⁴⁹ and also found a relation between physical-mental health specially stress and migraine headaches.⁵⁰

Islamic Lifestyle and having no stress

As Muslims, we are in direct communication with the Almighty. He is the only One Who not only Hears and Knows all, but Who can change our situation and give us the patience to deal with our difficulties."Remember Me, and I shall remember you; be grateful to Me, and deny Me not".⁵¹ Continuously relying on Allah or Tawakkul is an intrinsic part of your life as a Muslim or Muslima, and especially so during times of stress. Before you leave home for work, say 'in Your Name Allah, I put my trust in Allah, and there is no power or force except with Allah' (BismillahiTawakal to al Allah wa la hawlawa la quwwataillabillah).

This view that Islam is easy to understand and practice, is one which is derived from the primary sources of Islam. In the Quran, Allah comforts us by continuously reassuring us that He desires for us ease not hardship, despite the seemingly formidable trials and tribulations that we may sometimes face. He says:

- 'God desires ease for you, and desires not hardship'⁵¹
- 'Truly with hardship comes ease'⁵²
- 'God will assuredly appoint, after difficulty; easiness''⁵³
- 'Who so fears God, God will appoint for him, of His command, easiness'⁵⁴
- 'We shall speak to him, of our command, easiness'⁵⁵
- 'God desires to lighten things for you, for the human being has been created weak'⁵⁶

Additionally the Quran speaks extensively

about the enjoyment of life:

- ‘O children of Adam! Wear your beautiful apparel at every time and place of prayer Eat and drink but waste not by excess, for Allah loves not wasters. Say: ‘who has forbidden the beautiful gifts of Allah which He has produced for His servants and the things clean and pure which He has provided for sustenance’⁵⁷
- *And Allah says: ‘O you who believe! Make not unlawful the good things Allah has made lawful to you. But commit no excess, for Allah does not like those given to excess. Eat of the things which Allah has provided you, lawful and good, but fear Allah, in whom you believe’.*⁵⁸ To say, however, that Islam is easy and not ‘difficult’, is not to imply that Muslims will not face ‘hardship’- and here the two terms must be distinguished. Indeed, although Islam is easy to understand and practice, the whole purpose of the trial is to make manifest the degree to which an individual is steadfast (and hence sincere) in his submission to Allah- and this is precisely what is indicated by the Quranic verse: And We will most certainly test you with something of fear and hunger, and loss of possessions and lives and crops. Notwithstanding these trials however, we can find ease in this world and the next. But, this will be so only if we are firm in our faith in Allah and follow the course prescribed by Islam, as He Himself has declared: ‘But give good news to those who are patient, who, when a calamity strikes them, say: ‘Indeed we belong to God and indeed to Him we shall be returning: They are those on whom are blessings from their Sustainer, and mercy-and those, they are the rightly-guided’.⁵⁹

Ibn Abbas reported, “The Prophet, peace be upon him, at times of sorrow and grief used to supplicate, La ilaha illa Allah Al-Azim, Al-Alim, la ilaha illa Allah, Rabbul arshil Azim, la ilaha illa Allahu, Rabbus-Samawati warabbulardi warabbul arshikarim (There is no god but Allah, the Mighty, the Forbearing, there is no god but Allah, the Lord of the mighty throne, there is no god but Allah, the Lord of the heavens and the earth, and the Lord of the

throne of honor),” and Anas said that when the Prophet, peace be upon him, was faced with a serious difficulty, he would always supplicate, “Ya Hayyu, ya Qayyum, bi-rahmatika astaghithu (O the Living, O the Eternal, I seek help in Your grace). He also reported that the Prophet, peace be upon him, used to supplicate, “O Allah, there is no ease except what You make easy, and you alone can turn a difficulty into ease.” (Ibn As-sinni). Asma, daughter of ‘Amais, the wife of Prophet reported that the Prophet, peace be upon him, asked her, “Shall I tell you words that you may say in times of pain or distress. These are, ‘Allah, Allah, Rabbi la ushrikubihishai an (Allah, Allah, my Lord, I associate none with Him).” Another narration says that these words should be said seven times.

Sadibn Waqas reported that the Prophet, peace be upon him, said, “the supplication made by the Companion of the Fish (Prophet Yunus) in the belly of the fish was, La ilaha illa anta, subhanaka, innikuntuminaz-zalimin (there is no god but You, You are far exalted and above all weaknesses, and I was indeed the wrongdoer)’. If any Muslim supplicates in these words, his supplication will be accepted.” In another report we read, “I know words that will cause Allah to remove one’s distress. These are the words (of supplication) of my brother Yunus, peace be upon him,”

Ibn Masud reported that the Prophet, peace be upon him, said, “If any servant of Allah afflicted with distress or grief makes this supplication, his supplication will be accepted: O Allah, I am Your servant, son of Your servant, son of your

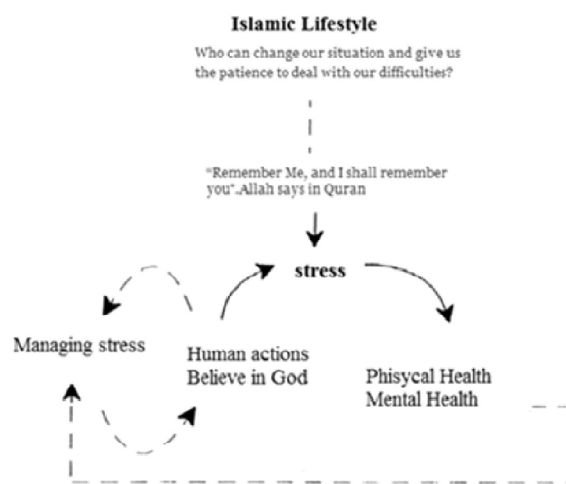


Diagram-1. Islamic lifestyle

maidservant. My forehead is in Your hand. Your command concerning me prevails, and Your decision concerning me is just. I call upon You by every one of the beautiful names by which You have described Yourself, or which You have revealed in Your book, or have taught anyone of Your creatures, or which You have chosen to keep in the knowledge of the unseen with You, to make the Quran the delight of my heart, the light of my breast, and remover of my grieve, sorrows, and afflictions." A supplication in these words will be answered. Allah will remove one's affliction and replace it with joy and happiness.

Conclusion

This research studies the role of Islamic Lifestyle on having no stress. We all suffer stress sometimes and know that the anxiety and the feeling that life is hard to cope with. The causes of stress in modern life emerge from the many obligations. According to psychology, stress is an unpleasant state of emotional and psychological arousal that people experience in situations that they perceive as dangerous or threatening to their well-being & people who live in a city come across more stressful situations than others living in the countryside. In Islamic lifestyle you should let every cell in your body know and feel that you are loved in Allah and Allah loves you. You are surrounded by love and caring. The love is all around you like warm light, comforting you, taking away all your pain and if any events happen to you Allah is seeing. You are in a place of shelter. You are in Allah's care. You are in a safe place, a good place. You have nothing to fear, nothing to regret. The past is gone, and the future has not arrived. All that exists is this peaceful moment, this safe place where you are protected and warm. You have the strength of Imaan. Know that whatever challenges you face in life, you are strong and capable. You are following Allah's guidance and that helps you having program for life. You are at harmony with the entire universe and that is peaceful. Allah is on your side and He will always be with you.

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Review Article

Borderline intelligence

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Introduction

Learning is an essential but complicated process that we follow life-long; from the moment we utter our first syllable to the time when we teach our children the same.

In today's world, unfortunately, 'learning' has become a one-size-fits-all process that is not tailored to suit a person's abilities. This conformation of learning is especially true of our conventional school systems. Some children cannot adapt with the fast-paced and rigid approach that is characteristic of such conventional teaching. Due to this, a gap forms between their true ability and their performance level and such children usually lag behind in the regular classrooms and are then dubbed 'Slow Learners' or Borderline Intellectuals.

Children with borderline intellectual functioning (BIF) also called as slow learners or individuals with borderline intelligence (BI) have an intelligence quotient (IQ) in the range of 71 to 85. Such children show impaired adaptive functioning which manifests as difficulties in academic, social, or vocational areas. A child's intellectual level and current and past levels of academic functioning should be assessed to diagnose borderline intellectual functioning.

The lack of terminological consensus and its absence in the main diagnostic classifications make it especially difficult to estimate the prevalence of BI among the general population. Consequently, BI turns out to be an invisible clinical entity. Despite its magnitude, its prevalence cannot be quantified, its diagnosis has not been implemented and there are no eligibility criteria to ensure explicit access to social or health services, protections and benefits when they are needed.

Method

Electronic databases including Academic Search Premier, EBSCO host, PubMed database and Google Scholar were searched for publications pertaining to BIF and BI, using the following key words: Borderline Intelligence, Borderline intellectual functioning, slow learners, epidemiology, definition, clinical features, diagnosis, co morbidity, education, parenting and employment. Relevant systematic reviews, consensus statements, evidence-based guidelines and a limited number of eligible case controlled studies were considered.

Definition

To create an international consensus in this field, the Catalan association Nabiu (ACNabiu) initiated the CONFIL project in 2007. The CONFIL 2007 consensus group defined BIF a "health meta-condition that requires specific public health, education and legal attention" with the following descriptors:

1. BIF is not a syndrome, nor a disorder, nor a disease. It is a heterogeneous grouping of specific neurodevelopmental syndromes, disorders or diseases and possibly of extreme variations of normality.
2. BIF can be defined as a "health meta-condition that requires specific public health attention".
3. The cognitive deficits that underlie overall IQ assessment are heterogeneous, so cognitive assessment of the individuals with BIF should not be limited to IQ measurement.
4. Not all the individuals with an IQ between 71 and 85 have limitations in activity and

restrictions in participation.¹

Epidemiology

This is a frequent health condition that, nonetheless, has barely been the object of attention for the public health system. If we look exclusively at the normal distribution of IQ, this population group would represent 13.6% of the total: other estimates place the problem in a range between 12% and 18% of the population.^{2,3}

Slow learners comprise up to 7% of the school-going population.^{4,5,6} Indian study by Karande et al⁷ revealed the mean age of slow learners was 11.9 years ($\pm$ SD 2.3, range 8-17). There were no differentiating features between the two gender groups. Their chief academic problems was difficulty in writing. Most parents (83.3%) were reluctant to consider the option of special education.⁷

Clinical Features

The majority of individuals with BI are not detected until they begin to attend school; they can even reach the end of primary school, when they are 12 years old, without being diagnosed because their apparent normality makes the problem difficult to detect. With the arrival of adolescence, the distances with their classmates in the acquisition of academic competencies increase notably, and imbalances in their behavior can arise. These individuals can begin to feel rejected socially because of their in adaptation to free time, to affective relationships, to work or to independent living.⁸ Appropriate identification and intervention efforts is further complicated because these individuals fail to meet formal disability criteria. BI individuals have the following cognitive and psychological characteristics (Table 1).

Diagnosis

Early detection at present remains a challenge, given that there are no visible features to identify child with BI, nor are there discriminating behavioral phenotypes. A complete clinical history, focusing especially in developmental aspects, along with detailed clinical examination and observation and the pertinent biomedical investigations should be done. Secondly, IQ needs to be established by administering both verbal and non-verbal intelligence tests (Table 2). Altered cognitive functions are

common in BI so a proper cognitive assessment encompassing language, attention, memory, visual-spatial function, executive functions is must along with other evaluation.

Next, assessing the presence of a neuro-developmental disorder is recommended. Given the high psychiatric comorbidity found in BI, assessing the presence of behavior, anxiety, affective and psychotic disorders is recommended.¹

Table-1. Attributes of Individuals with Borderline Intelligence

Cognitive characteristics:

Slow to react and perceive
Little curiosity about new things
Ask few questions
Rote memorize facts
Cannot make mental associations
Lack fluency, clarity and precision in language
Have concrete thinking
Difficulty in transferring knowledge across areas
Poor retention and recall in learning

Psychological and Physical Characteristics :

Over dependency on teacher and parents
Retarded physical growth
Infantile behavior
Poor motor co-ordination
Low self concept and self confidence
Limited vocabulary
Less emotional stability
Apathetic and listless

Table-2. Age related Intelligence test for assessment of BI

Verbal Intelligence Tests	Age (yrs)
BSID. Baylel scale of Infant Development	0 – 2.5
MSCA. McCarthy Scales of Children's Abilities	2.5 – 8.5
WISC-IV. Weschler Intelligence scale for Children	6 – 16.9
WPPSI. Weschler Preschool and Primary scale of Intelligence	4 – 6.5
K-ABC. Kaufman Assesment Battery for children	2.5 – 12.5
K-BIT. Kaufman Brief Intelligence Test	4 – 90
Nonverbal Intelligence Tests	
Raven's Progressive Matrices	12 – 65
Leiter-R. Leiter International Perormance scale, Revised	2 – 20.9

Comorbidity

Various neurodevelopmental and psychiatric disorders are co-morbid with BI. Neurodevelopmental disorders most commonly associated with BI are Generalised Developmental disorders (high functioning autism and Asperger's syndrome), Specific learning disorders (Specific reading disorder and Specific disorder of arithmetical skills) and Attention deficit hyperactivity disorder. In psychiatric co-morbidities Hassiotis et al found that BI individuals have more emotional, substance use, personality, adaptation and social problems than general population.⁹ Dekker et al found that in contrast to Moderate- Severe ID, the distribution of psychopathology in BI is that we find greater frequency of anxiety and behavioral disorders.^{10,11} Chaplin et al found more severe psychotic symptoms in BI patients with schizophrenia than with patients of normal intelligence with schizophrenia.¹² Schonfeld et al found that children and adolescents with BI were vulnerable to mental and social problems because of their low-normal intelligence, low scholastic performance and abandoning school at early ages which further leads to psychological and socioeconomic deprivation in later life.¹³ Dekker also found that psychopathology in the parents, having single parents, stressful events and other individual factors such as temperament or the existence of associated hyperactivity with low intelligence have an added deleterious effect.¹¹

Parenting in BI

Relatively little is known about the quality of parenting among families of children with borderline intelligence, despite evidence that these children are at heightened risk for maladaptive outcomes. The lack of specific disability diagnosis for children with borderline intelligence usually leads to parents' misinterpretation of their child's problems. Low levels of parental involvement have been linked with child maladaptive outcomes, including increased oppositional and externalizing behavior problems.¹⁴

Parents of BI are unsure how to assist their children at home. They should be provided information about BI which will make them understand their child's needs and would lower their anxiety. Parents should be made to understand and adapt to the limited capabilities of children with borderline intellectual functioning by adjusting

behavior and expectations accordingly, which will pave the way for greater self acceptance and school success. Following suggestions can be given:¹⁵

- A. Develop patience :
Show support and encouragement by learning the art of patience. This will help wards to know that their parents have faith and trust in them regardless of their limitations.
- B. Accept and except best efforts :
Understand their child intellectual capabilities and accept performance according to their capabilities'.
- C. Allow extra time:
Provide extra time for accomplishment of academic and non academic tasks. Providing necessary time requires patience and good time management on parents' part.
- D. Recognize strengths
Pay attention to what child does well. Help them build on their strengths.
- E. Keep the door of communication open.
Discuss about school, personal life, friendships and career options. This will assist in effective decision making.
- F. Be involved in education process
Be aware of home work and regularly communicate with teachers personally.

Education and BI

Under the label BI, you can find students with totally different trajectories. Apart from scholastic performance, students with BI have many difficulties in education. These following difficulties and strategies to overcome these deficits are discussed in Table 3.

Inclusion, employability and policy making

End of schools marks the crisis stage for individuals with BI. They often land up being unemployed leading to poor quality of life. Employment is a determining factor for improving the quality of life of individuals with BI. Consequently, the generalized acknowledgement that employment is the key to social insertion in the current society acquires a special meaning in the population of individuals with BI.¹

Proper assessment by health personal, creating job opportunities along with design and

Table-3. Educational difficulties Strategies to overcome deficits

1. Preference of concrete material	—	Use of audio-visual aids
2. Problems with organization of knowledge	—	Relate all new activities to previous lessons
3. Difficulty in generalizing material	—	Provide direct instructions of every academic skills
	—	Extensive guided practice of these skills
4. Difficulty in applying new academic information	—	Teach at appropriate pace to to increase practice opportunities
5. Deficits in academic motivation due to	—	Develop adequate learning skills,frustration and failure teacher
	—	student relationship and peer
	—	peer relationship willincrease motivation

implementation of appropriate policies by policy makers could eliminate the obstacles that prevent the integration of individuals with BI into work and social environments.

Training and research

First and foremost point is to acknowledge the problem of BI is an unseen condition. Training education professional, pediatricians and other people in mental health system to detect individuals with BI at an early age is also required.

For research in the area of BI there should be consensus at national and international level for assessment and diagnosis of BI which would help to explore into finer aspects of BI.

Conclusion

Research in this area is the need of the hour .There is certainly a hope of improvement in people of BI if intervened at early stage. Consensus at national and international level for assessment and diagnosis of BI is urgently needed.

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Delhi Psychiatric Society Awards, 2014

- Dr. Ravi Nehru Memorial Award won by M.S. Bhatia and Ravi Gupta.
- Dr. Ravi Pande Memorial Award won by Priyanka Gautam, Shruti Srivastava and M.S. Bhatia

Review Article

Sexsomnia – An Update as a Well Established Parasomnia

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Introduction

There are wide variety of sleep disorders known and understanding these phenomena is associated with many complexities. These sleep disorders can result in complex behaviors during sleep which may carry forensic and legal implications. These undesirable behavior or experiential phenomena arising from the sleep period are called parasomnias.¹

Parasomnias are typically classified by the sleep state from which they arise: non-rapid eye movement sleep (NREM) and rapid eye movement sleep (REM). NREM parasomnias include: confusional arousals, sleep- walking disorder, and sleep terrors. REM parasomnias include REM sleepbehavior disorder and Isolated sleep paralysis.²

The prevalence rate of parasomnia in adults is less than 6% and is indicative of psychopathology, while in children, parasomnias are considered normal and the prevalence is found to be more than 15%.³

There are frequently documented behaviors as nocturnal emission, sexual dreams and sleep orgasm which have long been recognized by researchers as a normal part of sexual activity.⁴ Now it is well known that complex sexual behavior including complete intercourse can occur in these parasomnia and is recognized by various terms as “sleepsex”, “atypical sexual behavior during sleep”, sexual behavior in sleep and “sexsomnia”.

In the last decade this distinct parasomnia gained widespread recognition which was termed as “Sexsomnia” by Shapiro N, et al.⁵ and it include distinct behaviors of the sexual nature during sleep.

Classification

In classification for sleep disorders it was

recognized in International Classification of Sleep Disorders-2nd Edition (ICSD-2)⁶ as a parasomnia classified as a variant of confusional arousals and sleepwalking.

Schenk CH⁷ gave first classification for sleep related disorders and Abnormal Sexual Behaviors and Experiences. It included following categories:

1. *Parasomnia with abnormal sleep related sexual behaviors:* sexual vocalizations/talking/shouting, masturbation, fondling another person, sexual intercourse with or without orgasm, agitated/assaultive sexual behaviors. Further divided into following categories: Confusional arousals (with or without obstructive sleep apnea), Sleepwalking and REM sleep behavior disorder.
2. *Sleep related sexual seizures:* It can present as sexual vocalizations/ moaning/ shouting, masturbation, libidinal hyperarousal, genital arousal, ictal orgasm, sexual automatisms, agitated/assaultive sexual behaviors.
3. *Sleep disorders with abnormal sexual behaviors during wakefulness and wake- sleep transitions:* It include Kleine-Levin syndrome, severe chronic insomnia and Restless legs syndrome.
4. *Special clinical considerations:* It includes Narcolepsy (compelling sexual hypnagogic/hypnopompic hallucinations and REM-onset dream attacks, cataplectic orgasm), Sleep exacerbation of persistent sexual arousal syndrome, Sleep related painful erections and increased sexual activity, Sleep related dissociative disorders,

Nocturnal psychotic disorders, Hypersexuality after nocturnal awakenings and Miscellaneous.

Diagnostic and statistical manual of mental disorders, 5th edition (DSM 5)⁸ has added Sexsomnia as a legitimate diagnosis and place it into a formal, established classification. The DSM-5 describes non-rapid eye movement (NREM) sleep arousal disorders as “recurrent episodes of incomplete awakening from sleep,” and now includes Sleepwalking and Sleep terrors, which include the specifier “with sleep related sexual behavior (sexsomnia).” According to DSM 5, in Sexsomnia varying degree of sexual activity occur as complex behavior arising from sleep without conscious awareness.

Risk Factors for Sexsomnia

1. *Stress and fatigue:* Stress is among the most common precipitants of parasomnias in adults. A sustained or coincidental exposure to stressful condition or too much fatigue, were often reported to be associated with sexsomnia.^{9,3}
2. *Sleep deprivation:* Sleep deprivation is also associated with sexsomnia less frequently.^{9,3}
3. *Alcohol and other drug consumption:* Alcohol consumption, though frequently found to be associated but the recent highlights in International Classification of Sleep Disorders (ICSD-3)¹⁰ state that, in the presence of alcohol intoxication, disorders of arousals should not be diagnosed. Diagnostic and Statistical Manual of Mental Disorders⁸ also has removed alcohol from the list of possible triggers for sleepwalking, and also added a section on the differential diagnosis of alcohol blackout. Caffeine has been less frequently associated with sexsomnia.^{9,3}
4. *Ongoing or past history of sleepwalking:* It has been documented that people demonstrating sexual behavior in sleep usually disclose past or ongoing sleepwalking in their sleep history. Sexsomnia is frequently found to be associated with other parasomnias.^{9,3}
5. *Family history of parasomnia:* It is documented that family history of parasomnia

was found positive in relatives in almost all cases of sexual behavior in sleep.⁹

6. *Existence of a sleep apnoea.*¹¹
7. *The presence of a bed partner:* It has been noted in the published literature that there was a close physical proximity between the defendant and the victim like sleeping in the same bed or same room or the same home, in all the cases.^{11, 12}

Clinical Features and Diagnosis

Sexsomnia has been predominantly documented in young adults. The results of an internet survey reveal greater representation of females, and wider age distribution with mean age of 30.4 years. The respondents reported having multiple episodes of Sexsomnia.¹³

Clinical features of Sexsomnia, include sexual arousal with autonomic activation which can result in nocturnal erection, vaginal lubrication, nocturnal emission or orgasm. It also include sexual vocalization and talking, masturbation, sexual fondling, and sexual intercourse.^{6,14,15}

Sexsomnia has features in common with other non-rapid eye movement arousal parasomnias, such as sleepwalking and has some distinct features that separate it from sleepwalking. There is widespread autonomic activation and sexual arousal is more frequent. Duration of Sexsomnia possibly exceed 30 minutes, motor activities are relatively restricted and specific, and some form of dream mentation is often seen.^{4-6,15}

It was said that it is impossible to diagnose Sexsomnia definitively. Diagnosis is made on the basis of clinical history and documentation of episode from bed partner or an eye witness. There are no medical tests to diagnose Sexsomnia, apart from nocturnal polysomnography (PSG) which is suggested to be used to study the overnight sleep patterns of an individual to diagnose Sexsomnia.^{15,16} According to literature following factors can be taken into account for diagnosing Sexsomnia:¹⁶

1. family history of sleepwalking or prior episodes of sleepwalking;
2. confusion or automatic behavior during the event;
3. disorientation/confusion when awakened;
4. amnesia for the event ;
5. presence of triggering agent, such as the

use of drugs, sleep deprivation, stress or fatigue;

6. no attempt to conceal the event and
7. the behavior is out of character for the individual.

Etiology

It is evident that sexsomnia is multifaceted and complex in etiology.⁴ It is common for family members to have similar parasomnias thus indicating a genetic component to parasomnias. Relation to stress, sleep deprivation, drugs and positive family history,^{3,9} indicate that biopsychosocial model can be well applied to sexsomnia as well.

Howell MJ² describe that sleep walking and related disorders occur due to incomplete dissociation of NREM sleep into wakefulness. He has described implication of two pathological processes that lead to this sleep–wake boundary dysfunction. First process promote NREM parasomnia by impairing arousal mechanisms that deepen sleep and enhance sleep inertia and second are the conditions that cause repeated cortical arousals causing sleep fragmentation. Second process implicate Central pattern generator which are functional groups of neurons that give rise to the stereotyped parasomnic behaviors through activation in NREM parasomnias and Amnestic behaviors characterizing these conditions are also related to the isolated activation of Central pattern generator with a relative paucity of activity in brain regions that control executive function and memory.^{2,17,18}

Consequences and Health Hazard

Physical injuries: Parasomnias can be a health hazard for an individual or his/her bed partner. It is well documented that the bed partners of people with sexsomnia can suffer physical injuries as ecchymoses, lacerations from the sexual assaults. Patients can also be injured and there are reports of injuries as bruised penis and fractured digits.^{9,19}

Psychosocial consequences: Common social problem related to these parasomnias are disruption of family life, anxiety in family members regarding the safety of the individual, embarrassment after the fact. This can create problems in interpersonal relationships. The patients and bed partners often experienced an array of emotions involving

bewilderment, shame, guilt, despair, alarm, anger, denial, low self-esteem.¹⁹

Medicolegal implication: Sexsomnia can result in criminal behavior and it is reported that in cases of sexsomnia the criminal charges ranged from sexual touching to rape. According to studies of medico-legal cases of sexsomnia, sexual offence is criminally reported only when the defendant is not a relative or when the victim is a minor. The trial outcome was in favor of the defendant in all sexsomnia cases.^{9,20}

Differential Diagnosis

The differential diagnosis of parasomnia is established by nocturnal Electroencephalography (EEG) and polysomnography (PSG) with video monitoring. These techniques can help to eliminate the other possible diagnosis.

1. **REM sleep behavior disorder:** REM sleep behavior disorder (RBD) is a rare condition in which patients physically act out their dreams. During normal REM sleep, we experience loss of muscle tone and activity. Persons with RBD do not experience loss of muscle tone and activity like normal REM sleep, and can engage in dream-enacting behavior. Unlike sexsomnia, RBD occurs toward the end of the night, patient can be easily awakened, without any disorientation or amnesia for the event.²¹
2. **Nocturnal epileptic seizures:** It is very difficult to distinguish sleep-related seizures from sexsomnia, especially nocturnal frontal or temporal lobe seizures because, sexual hyperarousal, ictal orgasm, and ictal sexual automatisms can occur in sleep-related seizures.¹⁵
3. **Temporal lobe epilepsy:** There are case reports of abnormal sexual behavior during sleep in Temporal Lobe Epilepsy and one must consider it while evaluating a case of insomnia, as the disorientation or perplexity is a commonly associated feature.²²
4. **Brain insult or lesion, toxic reaction, or neurodegenerative disease:** One must rule out any type of brain insult, before making a diagnosis of Sexsomnia, as the psychiatric symptoms can occur in any of these.¹⁵

5. **Malingering.** It may be difficult to differentiate malingering or willful sexual assault from sexsomnia. A careful history, physical examination, Interviewing family members and PSG can help clarify the diagnosis.^{22,23}

Management

Patients with parasomnias, sleep apnoea, restless leg syndrome, or with any other risk factor for Sexsomnia, should be evaluated in detail with their bed partner. Screening psychological testing and psychiatric evaluation, e.g. Minnesota Multiphasic Personality Inventory, Beck Depression Inventory, can be done on a case-to-case basis.¹⁹

Nocturnal Electroencephalography (EEG), polysomnography (PSG) with video monitoring and upper/lower limb EMG monitoring are strongly recommended in evaluating the complaint of sleepsex.^{19,21}

The treatment approach may need to be step-wise and include avoiding sleep deprivation, healthy sleep hygiene, avoiding alcohol and drugs, treating primary sleep disorders that may precipitate disorders of arousal, that may fragment sleep and precipitate events, and ensuring safety of sleep environment.^{21,24}

The medications are required to treat any identified medical, neurological, or psychiatric disorder. Treatment of Sexsomnia is same as other NREM parasomnias. There may be a role of antidepressants,¹⁵ but they should be used with caution, as there are reports of citalopram causing Sexsomnia.²⁵ Benzodiazepines such as clonazepam, are effective treatments for RBD and NREM parasomnias. Melatonin and various other medications have been studied, but data supporting the use of these agents is still lacking. Individual or couple's psychotherapy are required to address any interpersonal issues, stress and the consequences of Sexsomnia.^{19,21,24}

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Original Article

Psychosocial Correlates of HIV in Women living with HIV/AIDS- A Hospital based study

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Abstract

Introduction: HIV/AIDS epidemic turned into pandemic nature and further disseminating from high risk groups to general population has become a major challenge as well as public health issue. Based on previous literature Psychosocial variables like perceived social stigma, perceived stress, coping self efficacy and perceived social support were taken to see the association among HIV positive women. **Objectives:** (1) To study and assess the perceived Stigma, Stress, Coping and Social support of women with HIV/AIDS. (2) To compare the above dimensions among widows and women with HIV/AIDS living with their spouse. **Method:** The study was carried out in Integrated counselling and Testing centre (ICTC) and Anti-retroviral therapy (ART) centre of Gauhati Medical College and Hospital. Interview method was undertaken by trained interviewer(who is he/she)to obtain data from each patient. These HIV positive women for interview were 18 years and above. The scales of perceived stigma, stress, coping self efficacy and social support were translated into Assamese and administered. **Results:** The prospective study included a sample of 84 women both widows and married living with HIV/AIDS. The samples who represented during the study period of four months were considered 38 (thirty eight) were widows and 46 (forty six) were married living with theirspouses. **Conclusion:** The finding addresses four components of HIV/AIDS related perceived stigma, perceived stress, coping self efficacy and Social support. Despite the differences in negative attitude towards People living with HIV/AIDS. The study can inform health care providers about the dimensions of the stigma experience of HIV-infected women and how they attempt to cope with it. By gaining this type of awareness and understanding, supportive interventions can be planned.

Keywords: Perceived stress, Stigma, Coping, Social support, Marriage.

Introduction

HIV/AIDS has grown from an infection that at first was seen as affecting gay men in a few American cities into a pandemic and currently Public health issue. Psychosocially, HIV/AIDS is a chronic illness with a long-term, incapacitating, terminal, and stigmatizing character. As is the case with other chronic illnesses, HIV/AIDS unleashes a devastating effect on affected families. Changes in family roles and relationships drain on the family economy and deprivation, emotional distress, and caregiver burden are frequently observed outcomes,

particularly contemporaneously when policies of community care and reduced social expenditure are forcing families to undertake the responsibility for their ill members. These effects are influenced by various family related factors such as structure, life cycle, processes, support systems, and belief systems as well as extra-familial influences, such as socio-cultural beliefs and health care services¹.

Today HIV infection and AIDS related deaths still continue to rise. The Government of India estimates that about 2.40 million Indians are living with HIV (1.93, 3.04 million) with an adult

prevalence of 0.31% (2009). Children (<15 years) account for 3.5% of all infections, while 83% are the in age group 15-49 years. Of all HIV infections, 39% (930,000) are among women² India's highly heterogeneous epidemic is largely concentrated in only a few states — in the industrialized south and west, and in the North East. Assam being the gateway to all the other six states and two of the states are high prevalence states Nagaland and Manipur thus it has become a great concern in rise of the epidemic. A person can remain asymptomatic for many years even after HIV infection and can function as the carriers of the virus and transmit to others through the exchange of body fluids. HIV infection produces a variety of manifestations that ranges from no symptoms to spectrum of syndromes called as AIDS. HIV damages the immune systems and allows the body suspect to a broad range of medical and neuropsychiatric conditions. Though there is no cure for HIV, prevention is much easier rather than comparison to any other infectious diseases. However, recent report by O'Connor and Earnest,³ mentions, HIV/AIDS stigma in South Asia documents failure to respond to key social drivers. Among the general population stigmatizing attitudes are high from community health care providers, local policy makers leading to poorer access of health services and much needed prevention, treatment, care and support.

Trend shows high poverty levels, skewed gender relations, large scale migration, low levels of literacy, unsafe mobility, lack of awareness, cultural myth, misconception, silence and resulting stigma regarding sex, sex and sexuality and HIV, commercial sex and unprotected sex with multiple and concurrent partners, male resistance to condoms use, high prevalence of Sexually Transmitted Infection, low status of women, resulting in inability in negotiating safer sex and women's limited control over and access to economic resources⁴. Global and local evidence shows that women also bear significant brunt of the psychological, social and economic burden because of HIV related to the following areas. Women experience greater degree of psychological distress as compared to men. Women undergo psychological reactions which are mostly maladaptive - include guilt, anxiety, helplessness, hopelessness and frustration as a result of HIV/AIDS infection⁵.

The infected people are stressed due to stigma of the infection. Most often due to the societal values, people judge them as sinners and HIV as the punishment or wrath of the sinful deeds. Majority of infected persons go through number of stages of psychological stresses. Diagnosis is often kept as secret and transfer it to their sexual partners and this chain keeps growing vertically and horizontally. HIV today is not only a health issue rather is a developmental issue involving various psychosocial and economic aspects. Most of the studies reported in India with regard to HIV/AIDS have mainly focused on to explore the knowledge, attitude and beliefs of people⁶. Though a number of studies available in western context, explored on the psychosocial factors of the people living with HIV/AIDS there is scarcity of indigenous literature in this area needed to give health-care providers a more sophisticated and standardized approach to the patient which integrates acute and chronic care, and prevention and treatment. Definition and implementation of a standard of primary-care delivery will serve as the basis for ongoing quality-improvement efforts⁷. The respondents are taken primarily from hospital, reflecting community by large since these women come for treatment, medication and management. The current study by the researchers is an attempt to understand the perceived stigma, perceived stress, coping self efficacy and perceived social support of widows and married women living with spouse with HIV/AIDS in Assam (India).

Materials and Methods

The Present prospective study was carried out with HIV/AIDS patients attending Antiretroviral therapy (ART) centre and Integrated counselling and testing centre (ICTC) in Gauhati Medical College and Hospital, Guwahati, Assam during 2012 to 2013. The study was on women who were married and widows targeting the general population and interview were conducted based on questionnaires, included 84 HIV diagnosed cases of HIV Positive patients. A structured interview schedule prepared in English and translated into Assamese language was the tool for data collection. The Research Objectives and method were explained to the patients, and informed/verbal consent was obtained from them before the data were collected. Random

sampling method was used to select the target population for the study. Open ended interview schedule questionnaires was conducted by the Researcher (who is he/she) based on the perceived stigma, perceived stress, coping and perceived social support were given to the study population. All women living with HIV/AIDS were interviewed by trained and skilled research investigator (who is he/she).

The questionnaires consisted of two sections: Section one dealing with patient's socio demographic characteristics (Age and Education) as independent variable. Section two has four dependent variable perceived stigma, perceived stress, coping and perceived social support of HIV positive women and to find out associations among the different variables. The data collected by using structured interview, the data was entered to computer and data were analyzed using SPSS – 20 and presented by means of tables and diagrams.

Results

They are shown in Table-1 and Fig. 1 to 3.

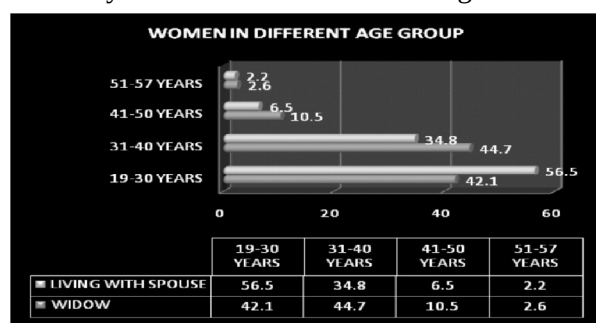


Fig. 1: Age wise distribution of Patients (Widows & Married living with spouse)

	Overall Coping Self efficacy	Perceived Stress	Personalized Stigma	Disclosure subscale	Negative Self Image	Public Attitude	Stigma Overall	Social Support	Friend Support	Family Support	Other Support	Education	Age Group
Overall coping	1.000												
Perceived Stress	-.411**	1.000											
Personalized Stigma	-.202	.086	1.000										
Disclosure subscale	-.004	.132	.632**	1.000									
Negative Self Image	-.243**	.157	.926**	.645**	1.000								
Public Attitude	-.191	.085	.951**	.740**	.908**	1.000							
Stigma Overall	-.178	.106	.964**	.762**	.941**	.986**	1.000						
Social Support	.288**	-.225*	-.331**	-.287**	-.354**	-.345**	-.350**	1.000					
Friend Support	.122	-.114	-.265*	-.257*	-.244*	-.261*	-.260*	.801**	1.000				
Family Support	.318**	-.206	-.260*	-.228*	-.323**	-.279*	-.296**	.872**	.483**	1.000			
Other Support	.291**	-.257*	-.334**	-.264*	-.347**	-.356**	-.352**	.923**	.650**	.742**	1.000		
Education	.257	-.081	-.073	-.013	-.023	-.064	-.059	-.040	-.156	-.087	.128	1.000	
Age	.095	-.172	-.085	.100	-.038	-.062	-.060	-.043	-.093	-.005	-.021	.077	1.000

Table 1: Correlation table

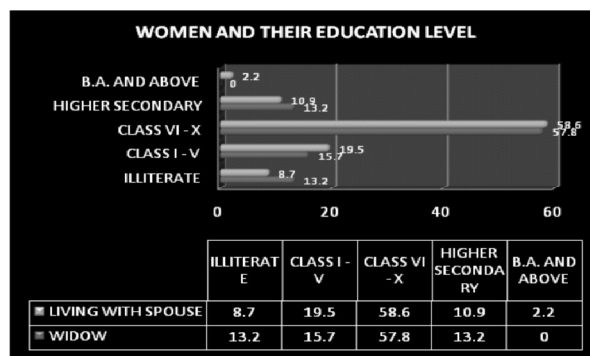


Fig. 2: Education level of the respondents

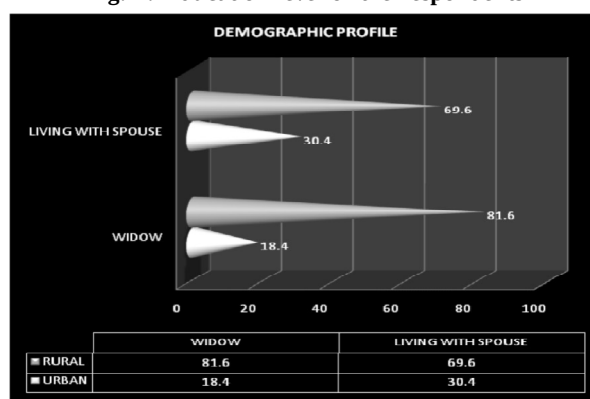


Fig. 3: Demographic Profile of locality of the respondents

Discussion

The present study examined the Psychosocial Correlates of HIV in Women living with HIV/AIDS. The result of the present study is discussed with reference to the research in Women living with HIV/AIDS of the respondents 38 were widows and 46 were married and living with their spouses.

Analyzing the socio-demographic profile, it is

evident from the results that majority of them belong to prime age group, i.e., between 19-30 years 42.1% and 44.7% of between 31-40 years become widows. Altogether between the age group of 19-40 years, 87% were widows infected with HIV. Among the group 90% married women living with spouse are infected between age group of 19-40 years, 56.5% belong to 19-30 years and 34.8% belong to 31-40 years (Figure 1). Most of these women were in their reproductive age group of between 19-40 years this is also economically productive age-group and hampers personal and financial development of women.

Personalized stigma is negatively correlated with education level, meaning that when education level is more personalized stigma decreases ($r = -0.07$). Personalized stigma is negatively correlated with age, implying that as age increases personalized stigma decreases ($r = -0.08$). Perceived stress is negatively correlated to other supports ($r = -.257$ $P < 0.05$). If perceived stress increases perceived support decreases. Social support is significantly positively correlated with overall coping, i.e., if social support increases coping also increases ($r = 0.291$, $p < 0.01$). Personalized stigma is negatively correlated to all the domains of perceived social support, viz. support from friend ($r = -.265$ $P < 0.05$), support from family ($r = -.260$ $P < 0.05$) and other support ($r = -.334$ $P < 0.01$). Disclosure is negatively correlated to all the domains of perceived social support, viz., support from friend ($r = -.257$ $p < 0.05$), Family ($r = -.228$ $p < 0.05$) and other support ($r = -.264$ $p < 0.05$). Negative self-image is negatively correlated to all the domains of perceived social support, viz., support from friend ($r = -.244$ $p < 0.05$), support from family ($r = -.323$ $p < 0.01$) and other support ($r = -.347$ $p < 0.01$). Public attitude is negatively correlated to all the domains of perceived social support, viz. support from friend ($r = -.261$ $P < 0.05$), support from family ($r = -.279$ $P < 0.05$) & other support ($r = -.356$ $P < 0.01$) (Table-1).

The study findings implicate the need for understanding the psychosocial profile of the women with HIV/AIDS in both married women and widows while providing services to them. A set of complex social, economic and cultural factors makes the epidemic intense. The epidemic is expanding vertically and horizontally. Gender norms that construct women as caregivers, mothers and

nurturers exacerbate stigma directed toward HIV-positive women therefore a failure in personal and social roles. Female literacy has advanced in the past decade but the same is not reflected in the study (Fig. 2). These women belong to reproductive and economically contributing age- hampers personal, social, psychological and economical development affecting Human development index of a nation. In the study majority of women belong to rural background and with low education, resulting another layer of stigma onto females preventing from being diagnosed, accessing services, and receiving familial and community support. Both the married women and widows were having higher stigma in the domains of personalized stigma, disclosure, negative self-image and public attitudes. Majority of the respondents who are not having knowledge about the illness perceived severe stress.

Emotional counseling is vital for women who are deeply affected by HIV/AIDS. Providing both formal and informal counseling is vital for infected and affected women. Psychiatric social workers and psychologists need to provide counseling and develop training for community health workers, Multi-purpose workers in providing basic counseling.

Interventions such as ART (expand it), family, vocational and peer counseling would address these modifiable factors influencing Quality of Life, thereby improving the Quality of life of People Living with HIV/AIDS.

Need for ART, can be emphasis. Educating for long term usage of ART medication and follow-up to the infected persons. Long term counseling is one way that women can be supported. This requires formal counselors, like the community health workers, trained nurse and Psychological counselors to attend complex problems or to work with collaboration.

Our findings on HIV-related stigma underscore the complex relationship between internalized shame and perceived stigma, and their relationship with depression. To address mental health problems associated with HIV/AIDS, researchers, program developers, and clinicians should also pay close attention to helping PLWHA (people living with HIV/AIDS), to strengthen their self-esteem and their sense of belonging to a community, including the connections with other significant persons in their lives, while dealing with HIV-related stigma and

discrimination in the community. Both social and psychological aspect needs to be integrated and incorporated into the programs.

A major concern of policy makers and planners in the Region has lacked in a comprehensive approach to human resource development in the North East Region, towards skills development, promotion of entrepreneurship in agriculture, trade, and industry, among youth to achieve a spirit of self-reliance. The Central Government policies of continuing financial assistance and subsidy have resulted in a culture of dependence, and low ambition for educational and economic achievement. As an outgrowth of this, problems of unemployment and inadequate skills for productive participation in economically –have increased. The women needs special attention in conflict as those women does not have control over their body, sexuality and reproductive health services.³

A paradigm shift is needed to give health-care providers a more sophisticated and standardized approach to the patient which integrates acute and chronic care, and prevention and treatment. Definition and implementation of a standard of primary-care delivery will serve as the basis for ongoing quality-improvement efforts.

After sustained implementation we must define and measure on quality of care, nurse performance, and short-term outcomes for specific illnesses, and its effect on the health system—eg, the triage of severely ill patients, screening for and integration with chronic disease programmes, establishment of a robust referral network from health centers to district hospitals, and generation of efficiencies and cost savings to the health system.

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Original Article

Internet Addiction in adolescents and its relation to depression

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Abstract

Background: The internet is a recent technology which affects the life of people. It has emerged as an important tool since 1960. Today everyone uses the internet as it has become a necessity of today's life. The growing dependency upon internet however becomes a reason for some psychological problems also. Excessive use of internet known as internet addiction is common among the adolescents, which eventually causes many physical and psychological problems among them. The present study deals with this particular phenomenon of internet addiction and how it affects the level of adolescents. **Methodology:** This study was conducted in 16 to 18 years old adolescents from Sunbeam School of Varanasi city in India. Young's Diagnostic Questionnaire, CES-D (Centre for Epidemiological Studies Depression) along with personal data blank was administered. The data was collected from 100 internet addicted and 100 non-addicted adolescents. **Results:** It was found that internet addicted adolescents were more depressed than non-addicted adolescents. The correlation between Internet addiction and depression was found to be strong. **Conclusion:** The result supports the hypothesis which indicates that the internet addiction leads to depression.

Introduction

Internet addiction has generally been defined as an inability to control the use of the Internet, causing psychological, social, family, school and work impairment.^{1,2}

Although internet has made life a lot easier by making information more accessible to all and creating connections with different people around the world, but it has also led many people to spend too much time in front of computer leading to an internet or computer addiction. Thus, psycho-logists and educators are interested in studying the negative impacts of its use, and the related physical and psychological problems.³

Research on internet addiction shows that the greater use of the internet is associated with social and psychological variables such as, decline in the size of social circle, depression, loneliness,⁴ lower

self-esteem and life satisfaction,⁵ sensation seeking,⁶ poor mental health,^{2,7} and low family function.⁸

Although Internet addiction has been recognised and studied as a "social problem" for decades, it has not been classified as a psychological or mental illness. So there are no standard definition and diagnostic criteria of internet addiction included in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5) (American Psychiatric Association, 2013). Because internet addiction remains unclassified in the medical, psychological, and mental health field, no universally accepted definition of it exists. Empirical research has provided a number of working definitions of internet addiction that have been modified from other accepted definitions of addiction, e.g., substance dependence, pathological gambling and technology addiction. The findings from the modified Delphi Technique,^{9,10} suggest that

internet addiction, as defined for this study, was indeed seen to be parallel to other addictions such as substance dependence, pathological gambling, and technology addiction. The Delphi panel subsequently agreed on a definition of internet addiction as repetitive Internet use leading to abnormal behaviour which causes negative consequences to its users or others in the community in any way, such as psychological, physiological, behavioural, sociological or other important functional impairments.

Adopted criteria¹¹ of internet addiction by Goldberg, 1996 included the symptoms such as:

1. Tolerance (i.e., needing more and more time online to gain the same satisfaction).
2. Withdrawal symptoms when not connected (i.e., anxiety, psychomotor agitation, and obsessive thinking about what is happening on the internet)
3. Craving (i.e., accessing the internet more often and for longer periods of time)
4. Negative life consequences such as job loss, financial problems, marital and family relationship difficulties

Many studies have shown positive association between internet addiction and depressive disorders in adults. Study conducted by Dixon¹² stated that excessive internet usage does lead to social isolation of some sort – be it voluntary or not, it does affect a person's relationships. Too much of this social isolation may lead to one feeling lonely in extreme cases. This is a sign of depression if prevailing for weeks. Similarly, Ha et al¹³ have also conducted their study among South Korean adolescents and found a significant association between internet addiction and depressive symptoms along with suicidal ideation.^{14,15} In the same year a research was also conducted on 452 Korean adolescents to evaluate the link between depression and internet addiction. The results showed that OCD and depressive symptoms were significantly linked with Internet Addiction.

Another study conducted by Morrison & Gore¹⁶ on the relationship between excessive internet use and depression explored the concept of Internet addiction and examined the relationship between addictive symptoms and depression and the results showed that those who regard themselves as

dependent on the Internet report high levels of depressive symptoms. Those who show symptoms of Internet addiction are likely to engage proportionately more than the normal population in sites that serve as a replacement for real-life socialising. The study conducted by Kratzer and Hegerl¹⁸ and Alavi, Alaghermandan, & Maracyetal,¹⁸ reveals that anxiety disorder was found in adult problematic internet users. ADHD symptoms, depression, social phobia, and hostility were high among adolescents with internet addiction in Taiwan.^{19,20} Excessive gaming was associated with severe depression, social phobia and internet addiction symptoms in Taiwan.

The present study aims to investigate the gender differences. The study is significant from the point of view to know the other important factors influencing the adolescents towards internet addiction. Majority of the studies have portrayed 'Asian' as homogeneous cultural group. A very few studies have been conducted on Indian sample. The present study is an attempt to fulfil this gap.

Incorporating above mentioned gap in literature and considered potential importance of variables included in the present study, the following objectives were prepared:

Objectives

- To examine the relationship between internet addiction and depression among adolescents.
- To examine the gender differences in internet addiction and depression among adolescents.
- To compare the level of depression of the more internet addicted and less addicted adolescents.

Hypotheses

Based on prior findings and theoretical background the following hypotheses were formulated on the basis of research objectives.

1. Internet addiction and depression would be positively correlated.
2. Boys would be more addicted towards internet and depressed as compared to girls.
3. More addicted adolescents would have higher level of depression as compared to less addicted adolescents.

Methodology

Sample

Inclusion Criteria

A sample of 200 adolescents from Sun beam School of Varanasi city of India aged 16 to 18 years (100 male & 100 female both) were selected for the study. Data was collected through purposive sampling. Self-report inventory which gathers the personal information about the participants was used to collect details regarding their personal mobiles, laptops and other gadgets with internet access, time spent online for private purposes etc.

Exclusion Criteria

The adolescents who were not using personal mobiles, laptops and other gadgets with internet access, time spent online for private purposes etc. were not enrolled for the study.

Demographic variables		Number	Percentage
Gender	Boys	100	50%
	Girls	100	50%
Gadgets	Personal Mobile	123	61.5%
	Personal Computer	95	47.5%
	Personal Mobile & Computer Both	93	46.5%
	No Gadgets	43	21.5%
Total No. of Hours	Boys	45 hours per week	
	Girls	36 hours per week	

Research Design

The present study follows a correlational design in which the correlation was assessed between the level of internet addictions and level of depression i.e., high or low among 16-18 years old adolescents. Independent variable (IV): is the level of internet addiction i.e., internet addicted if scored high on Internet Addiction Test (IAT) and normal user if scored low on Internet addiction test (IAT). Internet addiction is the term for excessive internet use which causes severe disturbances in normal functioning. Dependent variable (DV): is the level of depression among adolescents due to the effect of IV i.e. internet addiction. Depression is a state of low mood and aversion to activity that can affect a person's thoughts, behaviour, feelings and sense of well-being. It is measured with the help of The Centre for Epidemiologic Studies CES-D Depression Scale. If participants score 16 or more on this scale

they were categorized as depressed and less than 16 as normal.

Psychometric Evaluations

1. **Personal data blank** is a kind of self-report inventory which gathers the personal information about the participants. Personal data blank was developed by the researcher to gain information about age, gender, location, educational status, socio economic status, parents' education, parents' working/non-working status, siblings, family type, personal mobile, laptops and other gadgets with internet access, time spent online for private purposes etc.
2. **Young's Diagnostic Questionnaire (YDQ)**²¹ Young (1998) developed the Young's Diagnostic Questionnaire (YDQ) to measure Internet addiction disorder. It is a 20 – item questionnaire, answered in a 5-point likert scale. It covers the degree to which their internet use affects their daily routine, social life, productivity, sleeping pattern and feelings. The minimum score is 20 and the maximum score is 100. The higher the score, the greater the problems internet use causes. Young suggested that a score of 20 – 39 is an average online user who has complete control over his/her usage; a score of 40-69 signifies frequent problems due to internet usage and a score of 70-100 means that the internet is causing significant problem. IAT shows potential to be a good basis for valid instrument and high face validity.
3. **The Centre for Epidemiologic Studies CES-D Depression Scale (CES-D)**²² (Radloff, (1977) CES-D has been developed as a tool to detect the symptomatology of depression in general populations, rather than as a scale to diagnose clinical depression. It is reliable, valid and functional even in large samples and other professionals apart from medical doctors can also use it. The scale has good psychometric qualities and can be used in research without major risk of error although it can never replace clinical diagnosis.²³ The CES-D scale displays

satisfactory convergence validity compared with other scales of depression and its sensitivity exceeds 0.90, whereas its potential to detect non-depressive cases is over 0.55.^{22,24}

Results

With regard to the CES-D scale it was found that 9.0% of participants suffer high levels of depression, 18% medium levels, 18.3% low levels of depression whilst 54.6% were found to be at a normal level. The mean CES-D score $\pm$ SD: 16 ± 10 . The internal consistency of the CES-D was evaluated using the Cronbach's alpha coefficient which was estimated at: 0.88. The score is the sum of the 20 questions. Possible range is 0-60. A score of 16 points or more is considered depressed.

Table-1: Significance of difference of mean scores of internet addiction of boys and girls

Variables	Boys (N = 100)		Girls (N = 100)		t
	Mean	SD	Mean	SD	
Internet Addiction	43.25	15.39	38.17	13.44	2.485*
**P > .01		*P > .05			

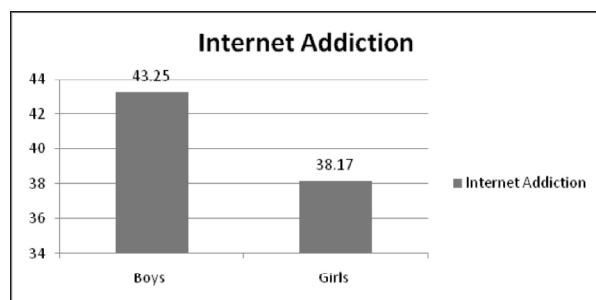


Table-2: Significance of difference of mean scores of boys and girls

Variables	Boys (N = 100)		Girls (N = 100)		t
	Mean	SD	Mean	SD	
Depression	16.65	7.88	15.57	7.148	1.014*
**P > .01		*P > .05			

In the present study the objective was proposed to see the gender differences in internet addiction and depression among adolescents. The result table 1 has revealed that there was significant difference

in internet addiction among boys and girls ($t = 2.485$, $P > .01$). The mean score of boys ($M = 43.25$) and girls ($M = 38.17$).

Table 3: Summary of correlational analysis between internet addiction and depression

Depression	Internet Addiction
	.597**
**P > .01	*P > .05

Table 3 shows the result of Pearson's Product correlational analysis. The analysis that internet addiction is significantly correlated with depression ($r = .597$, $P > .01$).

Discussion

Boys exhibited significantly higher internet addiction than girls. These findings of present study resemble and validate the previous findings such as those of Scherers²⁵ who reported gender as one of the predictive factors for internet addiction. Griffith²⁶ and Chou and Hsiao²⁷ also explained similar findings. In a study revealed that more male students were classified with internet addiction than female students. Our findings corroborated the earlier work suggesting that boys scored higher as compared to girls. The result table 2 revealed that there was significant difference in depression among boys and girls ($t = 1.014$). The mean score of boys was 16.65 ($SD \pm 7.88$) and girls was 15.57 ($SD \pm 7.148$). Boys exhibited significantly higher depression than girls. No previous study has been done which shows the gender differences in depression. However the studies demonstrated higher internet addiction in boys as compared to girls. So we can interpret that the major consequences of internet addiction is more in boys than girls. The plausible explanations of these findings are that the structure of Indian society is patriarchal where boys have more rights and privileges in comparison to girls. In general, boys are given priorities in their families and have access to personal gadgets and also they are more independent so they can access internet from cyber cafes outside their home more frequently. In normal Indian families boys are less accountable and freer from their house hold works in comparison to girls so they have generally more free time which they can spend on internet. These are some of the possible reasons for boys showing higher tendency towards internet

addiction.

These findings of present study resemble and validate the previous findings such as those of Young & Rodgers,² found that increased levels of depression are associated with those who become internet addicted. Similarly Morgan and Cotton,²⁸ found that more use of internet causes more depression. Studies have revealed that depressive symptoms were significantly linked with internet addiction. In another study Morrison and Gore¹⁶ explored that internet addiction is linked to depression such that those who are dependent on internet report high levels of depressive symptoms. Similarly in a very recent study, Akýn and Çetin²⁹ also investigated that internet addiction has a direct impact on depression. Our findings corroborated the earlier work suggesting that internet addiction and depression are significantly correlated. The possible explanations of this finding are that depression is determined by the level of internet use. The internet is very useful tool in present lifestyle however the dependency upon the internet can also cause many physical and psychological problems. The overuse of internet affects the mental health of a person. The excessive internet use interferes in daily functioning of an individual. It starts with inadequate sleep, irregular food intake, poor performance, severe head and muscle pain, social isolation, sense of virtual reality and these symptoms lead to psychological problems such as depression, anxiety, stress, loneliness and decrease in self-efficacy. Some researchers have found positive effects in terms of social relationship while others report that prolong internet uses increases the potential for depression, loneliness and other psychological and emotional problems.^{30,31} Depression is the major consequence of internet addiction and they are positively correlated as high internet addiction leads to depression.³⁰

In normal Indian families boys are less accountable and freer from their house hold works in comparison to girls so they have generally more free time which they can spend on internet. These are the possible reasons that the boys show higher tendency towards internet addiction.

Conclusion

Addiction destroys human beings and their relationships. Internet addiction is no exception.

Internet addiction is evolving into an essential part of life. In spite of the widely perceived merits of this tool, psychologists and educators have been aware of the negative impacts of its use, especially the over or misuse and the related physical and psychological problems. Adolescence is an important period for developing a positive self-concept and self-identity by setting goals and exploring sound values. This is done through interaction with significant members of the family, friends, and others. Developing successful and appropriate interpersonal relationships forms the basis of efficiently carrying out one's social, occupational, and economic roles. Therefore, when an effective relationship is not properly developed during this stage of life, various mental and adjustment problems could arise viz: depression, anxiety, aggression, maladaptiveness, etc.. People who do not have good interpersonal relationships in the real world may choose to depend on the Internet for communication and entertainment needs and the over dependency on the internet leads to depression and other problems.

On the basis of above discussion it can be concluded that the first hypothesis that is Internet addiction and depression are positively correlated is proved and accepted. The second hypothesis that is boys are more addicted towards internet and depressed as compared to girls. The third hypothesis i.e. more addicted adolescents would have higher level of depression as compared to less addicted adolescents has also been proved and accepted.

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Original Article

To Compare Psychological Morbidity among Students appearing for Final Professional MBBS Examination and Civil Services Examination

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Abstract

Background: Present educational system is most competitive and lesser opportunities in educational institutes and services later on. High expectations of family and future insecurities among students force them to take pressure of competitive exams beyond their compromised abilities by various factors. It leads to psychiatric problems among students at very young age. **Aim:** To compare psychiatric morbidity in students appearing for civil services and final year MBBS examination. **Material and Method:** two study groups of students for MBBS and of civil services were made and students were subjected to structured and standardized PGI-HQ 1 and SCL-80 scales to assess psychiatric morbidity. Data was collected and later subjected to analysis using chi square and p value. **Results:** Using ICD-10 diagnostic criteria 11% of medical students were found to have Depression [F32] and 7% students were found to have Generalized Anxiety Disorder [F41.1]. Various other symptoms as detected on SCL-80 subscale were depression 18%, interpersonal sensitivity 26%, phobia 9%, anxiety 9%, OCD 26% and anger hostility in 20% of medical students. **Conclusion:** MBBS and Civil services exam is one of the toughest exams to appear for which subject students to rigorous physical, psychological and financial burden putting them to high risk for various psychiatric problems. Timely intervention at various levels of stress can make them perform better and keep them healthy psychologically.

Key words: SCL-80 (symptom check list), ICD-10(international classification and statistical manual of disease), Psychiatric Morbidity, Civil Services Exams

Introduction

The nation holds many expectations from students for many progress works which can be contributed only if they have sound mental health and are free from unnecessary tensions. Psychiatric illness appears in student community due to discrepancy between student expectations and actual realization. The tensions may be in terms of personal, economic or social maladjustment.¹

Tremendous impact of socio-economic status was found on academic achievements of students

and it was found that students of high socio economic status families have better avenues for academic growth both at home and at school. Scholastic performances are better when good academic climate, teaching and learning strategies are available.² Bandura too examined how diverse sources of influence i.e. socio-economic status, familial, peer and self. The processes operate in concert to shape the course of academic achievement.³

Ameerajan states that boys show better

performance than girls with regards to their academic performance which may be interpreted in terms of attitude and motivation involved. Males in our culture are the earning members of families and thus they might have looked at the value of education in the context of getting job and making their career which has not been the case with females.⁴ Richman et al during medical training found that females were significantly more likely than males to report gender discrimination, exclusion from informal setting, discomfort from sexual humor, and unwanted sexual advances. Abuse was significantly related to most psychopathological outcomes, controlling for preexisting psychopathology. Males low in masculinity and females low in femininity were most likely to report abuse.⁵

Guthrie et al states that even at the preliminary stages of medical training, medical course is very stressful. The psychological well-being of medical students needs to be more carefully addressed and closer attention paid to the styles of medical teaching that may provoke avoidable distress.⁶

Medical education is emotionally taxing endeavor which can disrupt both physical and mental health. Pressure of work, preparing for examinations and acquiring professional knowledge, skills and attitudes were reported as the most stressful aspects of medical training. Transition periods particularly between school and medical profession, preclinical training to approaching qualification were highlighted as particularly stressful.⁶ A perceived lack of support from the medical fraternity also appeared to add to the student's level of stress.⁷

According to study conducted by Simpson and Budd medical student wastage leads to adverse emotional and social consequences for individual students and financial difficulties and morale problems for medical schools. Fewer mature students than expected they found that the students coming from low socio economic background and having family problems were both associated with either decrease in academic performance or increased attrition rate. Most of students who left entered another degree course; science degrees were the most popular suggesting that medical students experience psychological

distress and symptoms of burnout during their medical training.⁸

According to studies of reports of American Media East Asian Students, especially those in higher education are nervous, depressed, develop personality disorder and generally over burdened by pressures of trying to maintain higher level of academic excellence.⁹

Flisher pre-examined psychotropic drug use by final year university medical students. The response rate was 96.2%. 17.8% of respondents indicated that they had used a total of 32 psychotropic drugs - 18 used benzodiazepines, 6 used stimulants, 4 used beta-blocker, 3 used antidepressants.¹⁰

Material and Methods

Sample Size

To study psychiatric morbidity among students appearing in the examination, two diverse groups of students were taken up. Group A constituted the students of MBBS final year due to appear in examination in a month were selected and group B of students appearing for all India civil services (main group) were contacted for comparison study. Group A consisted of total 100 medical students (50 were boys and 50 were girls). Group B consisted of total 75 students, (35 were fresher's and 40 were repeaters). Students were explained the purpose of study and their consent was taken for participating in this project.

Inclusion criteria

1. Student's consent that they were willing to participate in the study.

Exclusion criteria

1. Students with any major medical ailment, already diagnosed psychiatric

Illness, abusing substance or drugs was excluded. Moreover students who did not give the consent to fill the Performa seriously and thoughtfully were excluded.

Location of the study

The study was conducted in district Patiala. At Patiala, Government Medical College was the place for the study

Instruments

1. **Personal Biodata Performa**

The Performa included items or variables to study. The socio-demographic profile includes age, education, category, domicile, marital status, academic record, and economic status of parents, educational and occupational profile of parents, time and expenditure in academic and non-academic activities and choice of subject made by the students.

2. **Symptom Check List-80 (SCL-80).**

It consisted of 80 items. These 80 items are further divided into nine subscales namely:

Depression subscale (13), Anxiety subscale (10), Interpersonal sensitivity subscale (10), Somatization subscale (12), Phobic anxiety subscale (7), Obsessive compulsive neurosis subscale (10), Anger hostility subscale (6), Paranoid ideation subscale (8), Additional symptoms subscale (7).

The items included in each subscale are listed in the scoring key. The sum total of all the students was computed out of a maximum of 320. Each item had maximum score of four, depending on the severity of symptom. The score one was given when student complained of a little bit of symptom, score four for extremely severe. The severity of symptom in each subscale was divided into Absent/Mild/Moderate and severe depending upon the total score obtained by a given subject in the said subscale. For this purpose, maximum score obtained by any given subject was taken into consideration. If a given subject scored between 25-50% of the maximum score, he/she was placed in the category of mild. If the score was between 50-75%, she was placed in the category of moderate, if the score obtained was 75-100%, he/she was placed in the category of severe. If the score obtained by a given subject was 0-25%, he/she was placed in the category of absent.

3. **PGI Health Questionnaire N-1(PGI-HQ 1)**

It consists of two areas

1. Area A: Area A has 16 items
2. Area B: Area B has 22 items.

The subject was required to put a (Ö) against questions/item he/she agreed with. The number of ticks in section A and B indicated the respective scores, which were then added to give a total score. If a candidate ticked more than 10 items (question) he/she was considered to be neurotic or had marked propensity to develop neurotic symptoms under

stress.

Data Collection and analysis

All the instruments were administered personally to the subjects. Any queries regarding any question were also explained. At the beginning a number of socio-demographic variables were noted down in a Personal Biodata Performa, Then, symptom check list-80 and PGI Health Questionnaire-1 were administered. Again, the symptoms were assessed clinically according to ICD-10 (international classification and statistical manual of disease) criteria. The data collected was subjected to statistical analysis and chi square and t test were applied to test the statistical significance.

Results

This study was conducted with the aim to find out the psychiatric morbidity among the students appearing in the final professional MBBS examination. The study sample consisted of 50 male and 50 female students, while the control group consisted of 75 students who were preparing for all India civil services mains examination.

While studying the socio-demographic attributes of Medical students, it was seen that male and female were equal in number and were significantly ($p < 0.001$) younger in age with mean age 23.06 vs. 25.44 of group B students. The academic records of students in medical group shows that they scored significantly higher ($p < 0.02$) score till their graduation. Majority of students in Medical group had chosen the subject by their own and only 22% students, parents had decided for them, while in IAS group all the students had made the choice at their own.

While analyzing the socio-economic background of parents it was found that although educational qualification of parents of Medical group was significantly lower ($p < 0.001$) than parents of IAS group, yet economic status of parents was comparable in both groups.

Analyzing the daily routine and pattern of time spent in various activities during the last one year, it was found that in both groups more than 75% students spent 7-8 hr in self study and 90% spent 2-6 hrs in coaching. As regards the recreational activities, medical group had very

Table 1: Sociodemographic attributes of the subjects

		Group A		Group B		Level of significance
		N	%age	N	%age	
Sex	Male	50	50	55	73.33	X ² = 9.722 p < 0.01 HS
	Female	50	50	20	26.67	
Age (in years)	22-24	100	100	41	54.67	X ² = 56.264 p < 0.01 HS
	25-27	—	—	24	32.00	
	28-31	—	—	10	13.33	
	Range	22-24		23-30		t=19.3 p < 0.001
	Mean age	23.06 ± 0.14		25.44 ± 2.18		
Domicile	Urban	74	74	55	73.33	X ² = 0.009 p < 0.05 NS
	Rural	26	26	20	26.67	
Marital status	Un-married	100	100	70	93.33	X ² = 6.862 p < 0.02 HS
	Married	0	0	5	6.67	

Table 2: Time spent in Recreational activities

Activity	Average Time spent	Group A		Group B		Level of significance
		N	%age	N	%age	
Watching TV	0-1 hr.	86	86	70	93.33	$X^2 = 2.381$ $p > 0.05$ NS
	1-2 hrs.	9	9	3	4.00	
	2-3 hrs.	5	5	2	2.67	
Other reading journals (magazines and novels)	0-1 hr.	35	35	14	18.67	$X^2 = 10.152$ $p > 0.01$ HS
	1-2 hrs.	40	40	48	64.00	
	2-3 hrs.	25	25	13	17.33	
Games	0-1 hr.	83	83	65	86.67	$X^2 = 0.441$ $p > 0.05$ NS
	1-2 hrs.	10	10	7	9.33	
	2-3 hrs.	7	7	3	4.00	
Music	0-1 hr.	87	87	65	89.67	$X^2 = 0.569$ $p > 0.05$ NS
	1-2 hrs.	8	8	6	7.67	
	2-3 hrs.	5	5	4	3.67	
Hobbies	0-1 hr.	79	79	63	84.00	$X^2 = 0.007$ $p > 0.05$ NS
	1-2 hrs.	12	12	8	16.67	
	2-3 hrs.	9	9	4	5.33	
Others gossiping walking	0-1 hr.	48	48	35	46.67	$X^2 = 0.030$ $p > 0.05$ NS
	1-2 hrs.	50	50	36	48.00	
	2-3 hrs.	2	2	4	5.33	

little time for reading extracurricular material like magazines, novels and majority of medical students visited friends and relative frequently to ease their stress unlike IAS students who preferred to study non-academic material and rarely visited friends and relatives.

On analyzing the PG1- HQ-1 score it was found that 30-35% had enough psychiatric symptoms to be labeled as neurotic with mean score 9.03 in medical students and 8.09 in IAS students.

Further analysis of the score of SCL-80 scale

Table 3: Score on PGI HQ-1

Social life	Group A		Group B		Level of significance
	N	%age	N	%age	
<10 non-neurotic	65	65	52	69.33	$X^2 = 0.363$
>10 Neurotic	35	35	23	30.67	$p > 0.05$ NS
Range	0-26		1-19		$t = 1.19$
Mean $\pm$ SD	9.03 ± 5.22		8.09 ± 4.95		$p > 0.05$ NS

Table 4: Comparison of Mean Score of psychiatric symptoms on SCL-80

Psychiatric symptoms	Groups	Mean $\pm$ SD	t	p	s
Depression	Group A	8.59 ± 6.53	2.32	< 0.01	HS
	Group B	12.02 ± 12.72			
Anxiety	Group A	4.65 ± 4.28	0.47	> 0.05	NS
	Group B	5.24 ± 11.45			
Interpersonal sensitivity	Group A	6.78 ± 4.73	1.97	< 0.05	S
	Group B	8.62 ± 7.60			
Somatization	Group A	4.66 ± 4.56	3.56	< 0.001	HS
	Group B	9.33 ± 12.04			
Phobic anxiety	Group A	3.24 ± 2.95	3.66	< 0.001	HS
	Group B	5.90 ± 6.43			
Anger Hospitality	Group A	4.65 ± 4.11	0.96	> 0.05	NS
	Group B	5.34 ± 5.39			
Paranoid ideation	Group A	5.45 ± 3.69	0.08	> 0.05	NS
	Group B	5.40 ± 4.48			
Obsessional compulsion	Group A	7.92 ± 5.39	1.68	> 0.05	NS
	Group B	9.46 ± 6.76			
Additional	Group A	6.87 ± 3.42	5.02	> 0.05	NS
	Group B	7.69 ± 6.50			
Total (SCL=80)	Group A	50.81 ± 29.26	2.83	$N0.01$	NS

Table 5: Clinical diagnosis according to ICD-10

			Group A		Group B		Level of significance
			N	%age	N	%age	
F32 Depression	Mild	14-26	5	5	6	8	$X^2 = 9.288$
	Moderate	27-29	—	—	5	6.6	$p < 0.001$
	Severe	40-52	6	6	10	13.3	HS
	Total		11	11	21	100	
F 41.1 GAD			7	7	13	17.3	$X^2 = 4.64$ $p < 0.005$ S
F45 Somatization			6	6	4	5.33	$X^2 = 0.035$ $p < 0.05$ NS
F40 Phobia			—	—	—	—	
F42 OCD			4	4	3	4	$X^2 = 0$ $p < 0.05$ NS

revealed that various symptoms of psychiatric morbidity were present in 7% - 43% among medical students. Most common symptom present among medical students was on 'paranoid subscale' being in 43% and least symptom was that on 'somatization subscale' being in 7% of medical students. However among IAS group 18% - 44% students exhibited various symptoms of psychiatric morbidity. Most common symptom present was in OCD subscale i.e. in 36% of students and least common was in anxiety subscale i.e. in 28% of students. On comparison in group A, significantly ($p < 0.01$) more number of female students i.e. 26% showed higher score in depression vs. 6% male students.

On comparing the total mean score of two groups on SCL-80 it was found that mean score of Medical group i.e. 50.81 was significantly ($p < 0.05$) less as compared to mean score of IAS group i.e. 70.01. Further the mean score on various psychiatric symptoms on SCL-80 revealed significantly ($p < 0.001$) lesser score with respect to depression, somatization, and phobic anxiety in Medical students.

Using ICD-10 criteria, clinically significant ($p < 0.001$) less number of Medical students had Depression [F32] i.e. 11% and Generalized Anxiety Disorder [F411] i.e. 7% as compared to IAS group in which number of students who had Depression was 21% and Generalized Anxiety Disorder was 17.3%.

Discussion

Career in medicine and as civil servant, besides being one of the noble professions, continues to hold considerable attraction for students looking for respectable and lucrative jobs. It offers rewarding opportunities both in service sector as well as in private practice. It affords opportunities to serve the people and make good earning but becoming a civil servant or doctor is not an easy job. It needs a lot of hard work, patience, long study hours and lot of sacrifices in their social and recreational life. The present study is an effort to find out the psychiatric morbidity among the students who were appearing in the final professional MBBS Examination and civil services mains examination. Students were interviewed few days before their

examination, which is most stressful period for students.

Shirali and Nijhawan measured dogmatism in students between 18-24 year of age and found that dogmatism was significantly ($p < 0.01$) related to both to economic class and rural - urban background.¹¹ In our study, Mean age for medical students was 23.06 and mean age for IAS aspirants was 25.44 and more than 73% of students in both groups were from urban background and very few were from reserved class. Vaz et al conducted a study to assess stress levels among first year medical students aged between 18 and 24 years who had spent about seven months in the medical school in Zimbabwe.¹² Further Rao and Begum found psychiatric morbidity was more in college students in 5.1% vs. 3% illiterate youth and further more in males (88%) and from rural areas (16%). Stress factor in students was mainly education and non fulfillment of ambition where as family factors dominated in illiterate youth.¹³

Valgum found that students who chose medicine were very Person Oriented and were influenced by many external factors, the most effective being parents advice, liking teacher, and friend's influence, their success in examination career master and counselor's assistance.¹⁴ Our study concludes significantly higher ($p < 0.02$) medical students in their academics scored persistently high and of them significantly less ($p < 0.001$) chose subject by themselves in 78% cases in medical group compared to IAS group in which all the students has chosen the subjects by their own wish. Adugobo found that difference between counseled aid and non- counseled students was significant ($p < 0.05$) in only one of eight factors of parents advice. Non-counseled (13.29%) were more than counseled students (17.49%) who chose subject with regard to parent's advice. He also hypothesized that previous academic achievement had no effect on the choice made by students.¹⁵

Gill and Sidhu found that academic achievement of students is significantly ($P < .001$) and directly related socio-economic status of parents of students.¹⁶ we concluded from Socio-demographic attributes of parents of students that educational qualification of father in medical group was significantly ($p < 0.001$) lower than IAS group

with 8% fathers of students in medical group were doctors and none of them was PCS or IAS vs. 2% and 5% respectively. Economic status of parents of students showed no significant ($p > 0.05$) difference. Mothers of students in both groups in >55% cases they were not doing any job i.e. house wives. Wangoo and Khan (1991) studied concluded that socioeconomic status of students studying in private schools is significantly ($p > 0.01$) better than that those studying in government schools. They also inferred that there is significant ($p > 0.01$) and positive relationship between socioeconomic status and academic achievement of students.¹⁷

Analyzing the pattern of time spent daily during the last one year by the students, it was found that about 75% of students in both group spent 7-8 hrs in self study, about 90% spent 2-6 hrs in coaching indicating that in both groups their daily 9-14 hrs are spent in studies. This rigorous schedule of intense studies does not leave much time for spending in recreational activities and for social interaction. Students in both groups spend only 1-2 hrs in various recreational activities. IAS group students preferred staying alone in free time and preferred general awareness books in leisure time.

Foorman and Lloyd concluded that social and psychiatric symptomatology would be negatively correlated, i.e. that students who described themselves as experiencing more social support would be less symptomatic. These findings in conjunction with a few isolated studies in the social literature, led the authors to conclude that in certain settings such as medical school, social ties may present competing demands on an individual's time and energy which have potentially detrimental as well as beneficial effects on mental health.¹⁸

Parmar concluded that significantly ($p < 0.001$) more number of medical students showed neurotic symptoms as compared to Arts students indicating severe mental stress due to highly competitive exam for entrance. Our study concluded on PGI-HQ-I that enough psychiatric symptoms in 1/3 of students to be labeled as neurotic with mean score of 9.03 Vs 8.09 in medical students and IAS students respectively.¹⁹ Trivedi et al concluded that high achieving students

have significantly ($p < 0.01$) low neuroticism scores on Eysenck Personality Inventory than low achieving students and high anxiety levels in low achievers.²⁰

Vaz et al concluded among 109 students, 64.5% of the students were at various levels of stress. About 11% reported very high levels of stress, 12% of the students were at serious risk of suicide and about 20% at lesser risk of psychological and emotional depression.¹² In our study, the mean score on Symptom Check List (SCL 80) in medical students (50.81 ± 29.26) is significantly ($p < 0.05$) less than mean score of IAS students (70.04 ± 58.91) indicating less psychiatric morbidity in medical students than IAS group. Most common symptom present among medical students was on 'paranoid subscale' being in 43% and least symptom on 'somatization in 7% of medical students compared to IAS students in whom OCD symptoms were in 36% of students and anxiety subscale in 28% of students. On comparison in group A, significantly ($p < 0.01$) more number of female students i.e. 26% showed higher score in depression vs. 6% male students. Parmar using SCL-80 subscales on Medical students found depressive symptoms in moderate to severe range in 71.5%, anxiety in 75% and paranoid ideation in 58% vs. 41%, 45% and 39% respectively in arts students.¹⁹

Aggarwal using Coronell Medical Index on medical students found that 24% had depression 17.3% had anxiety, 5.8% had OCD, 5.8% had OCD schizophrenia and 9.2% have psychosomatic illness.²¹ Our study found significantly less ($p < 0.001$) depression (mean score 8.59 vs 12.02) somatization (4.66 vs 9.33) and phobic anxiety (3.24 vs 5.90) in medical students as compared to IAS students. We using ICD-10 criteria found that significantly ($p < 0.001$) less number of Medical students had Depression [F32] in 11% and Generalized Anxiety Disorder [F41] in 7% cases vs. 21% and 17.3% IAS students. Among medical group 5% had mild and 6% had severe depression vs. 8% and 13.3% IAS students respectively. Telch et al too studied a large non-clinical sample of college students and showed that approximately 12% of sample experienced at least one panic attack and that 2.36% met DSM III-R Criteria for Panic disorder. No sex

difference in over-all panic attack prevalence was reported but men showed significantly more panic related worry than women and women reported a higher frequency than men.²²

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Original Article

Are prisons turning into de facto Psychiatric units?

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Abstract

Background: The law enforcing agencies due to high political pressure have filled state prisons with people, who are in urgent need for the management of their drug use problems. This study was planned with a motive to understand the current changing needs of Indian prisons. **Objective:** To study the pattern of drug abuse and the criminal and demographic profile of the jail inmates who were admitted at the de-addiction facility of jail. **Settings and Design:** A cross-sectional study from an Indian jail. **Materials and Methods:** A total of 66 prisoners who were being treated at the De-addiction facility. The subjects were assessed by the WHO based ASSIST Questionnaire and by the investigator designed proforma. **Results:** Among the 66 subjects majority of them were male (98.4%), less than 30 years (35%), married (53%), having rural background (63.6%) and heroin dependent (87.8%), booked for illegal possession of drugs (73%), high risk behaviour (47% IV drug abuser). ASSIST Scores indicate high Specific Substance Involvement Score and Life-time Substance use Score with tobacco and opioids, **Conclusions:** High prevalence of IV drug abuse in Indian prisons is an alarming situation. The adequate management of such persons in prison, with minimising associated risk for blood-borne infections has come up as an important issue, in the wake of rising number of arrests under NDPS Act.

Key words: Prisoners, Addiction, NDPS Act, IV drug usage, Blood-borne infections.

Introduction

India is fast emerging as an important transit point for drugs coming from Golden crescent at its western borders and Golden triangle at its eastern borders. The rising world pressure to isolate terror groups in Pakistan and Afghanistan has forced these clandestine groups to indulge in the production and trade of illicit drugs for their survival. The north western part of India, bordering Pakistan is among the worst affected due to its geo-political conditions. Moreover India is also ranked the third largest producer of synthetic opium products, through large scale illicit diversions after Afghanistan and Burma.¹

The severity of the addiction problem in this region could be estimated from the fact that a staggering 75% of the border state (Punjab) youth is hooked to drugs, almost every third family has one addict and 30% of the jail inmates of the state

have been arrested for illegal possession of drugs under the Narcotic Drugs and Psychotropic Substances (NDPS) Act.² The consumption of opiates in this state is three times the national average reported.³ A study on a similar topic which came to much controversy due to its political implications quoted that 70% of its youth are hooked to drugs or alcohol.⁴ Another report on drug abuse and alcoholism in this state by the Ministry of Youth Affairs and Sports (2011) says that 40% of its youth in the age group of 15-25 years have fallen prey to drugs.⁵ Also the state has maximum number of opium seizures among rest of India, in last few consecutive years.⁶ The gravity of the problem in this region could be sensed from the fact that a nearby village of about 400 households has witnessed registration of 390 cases for violations under the NDPS Act in year 2013, with nearly 100

villagers declared as proclaimed offenders and 150 were sent to jail in year 2014.⁷ Among the 2 lakh IDU (Intravenous drug user) users in India,⁵ there is high HIV prevalence among people who inject drugs in Punjab (26.1%), which is three times compared to the national average (9.2%).⁸

Punjab's falling growth rate contributing to unemployment seems to be one of the reason attributing for more young people falling prey to drugs.⁹ An overwhelming majority of the addicts are between the ages of 15 and 35, with many of them unemployed and frustrated by unmet expectations.¹⁰

Punjab accounted for half of all illicit drugs seizures and cases registered under illegal possession of drugs in India in year 2013.⁶ With more than 70% of the 18,000 inmates in various jails across the state, hooked to drugs and a large number of them are suspected to be HIV positive,¹¹ the adequate management of such patients has emerged as a challenging situation in the state. Prison conditions are hard on mental health in general, because of overcrowding, violence, lack of privacy, lack of meaningful activities, isolation from family and friends, uncertainty of life after prison, inadequate health services.¹² Imprisonment is detrimental to mental health, and is not a good place to care for people with mental health problems.¹³ The factors associated with the prison setting combine with the life history and sub cultural practises of people who inject drugs, to provide a greatly heightened environment for health related risk.¹⁴ Drugs have become established at the heart of prison life throughout the world, and are often now 'the central medium and currency in prison subcultures'.¹⁵ Some prisoners use drugs in prison to fight boredom and to help them deal with the hardships of prison life or to overcome a crisis situation, such as bad news, conviction and sentencing or violence. Imprisonment thus sometimes seems to provide reasons for taking drugs or continuing the habit or causes relapse after a period of withdrawal.¹⁶

The best estimate of the current world prison population is 10.1 million, a figure rising to 10.75 million if the 6,50,000 individuals detained in China's 'detention centres' are included¹⁷ and this number is fast rising.¹⁸ Prisons are fast taking the place of 'Mental Hospitals' throughout the world. There are three times as many mentally ill people in US prisons

than in mental health hospitals, and the rate of mental illness in prisons is two to four times greater than in general public.¹⁹ One report from the bureau of Justice from United States estimates that 16% of the adult inmates in state prisons are mentally ill.²⁰ Urgent action is needed in order for prisons not to become twenty-first centuries' asylums for people with poor mental health, and that mental health problems of prisoners are often related to drug problems, bad prison conditions and a poor development of diversion schemes for mentally ill prisoners.²¹

Basically prisons are not made with a therapeutic intent, these are places constitutionally required to protect and atleast minimally care for detainees. But it is now fast being recognised that persons who have mental illnesses and/or abuse substances are more likely to be detained in prisons than in treatment facilities, especially in countries that lack adequate mental health services.²² Poor conditions within prisons and lack of psychiatric treatment could cause further deterioration of mental health.²³ One glaring example of the increasing recognition by the governments as prisons being places for treatment and rehabilitation has come up recently when, the state of California Department of Corrections (CDC) adopted "Rehabilitation" as a part of its official title, becoming the "California Department of Corrections and Rehabilitation" (CDCR).²⁴

People who inject drugs are vastly over-represented, often accounting for 50% of prison inmates, but only 1-3 of the broader community.²⁵ Globally, progress has been made in implementing HIV programmes in the community,²⁶ however HIV prevention, care and treatment have largely been neglected in prisons.²⁷ But despite all these advances, drug users still have extremely poor access to life-saving HIV prevention and treatment services, such as harm reduction programs or antiretroviral therapy.^{28,29} The adequate management of HIV is emerging as a major health challenge for prison authorities^{30,31} because substance use disorders³² and injecting drug use³³ are common among incarcerated populations. The prevalence of HIV in prison varies and in some prisons and it is up to 100 times higher than in the community.³⁴ Prisons are not only hot spots for high risk behaviours, such as injecting drug use, which can lead to infection

from blood borne diseases, but also blind spots in our societies, when it comes to treating drug using prisoners with a dignity they deserve. As 10% of the HIV infections occur through injectable drug use,³⁵ so its proper management has emerged as one of the major human rights and public health issues that prison system encounter today.³⁶ Outbreaks of HIV infection in prison associated with shared injecting equipment have been reported in several countries.³⁷⁻⁴⁴ In Thailand, the first epidemic outbreak of HIV in the country probably began among injecting drug users in the Bangkok prison system in 1988.⁴⁵

European study on health problems arising in prison highlighted three main issues: substance abuse, mental health problems and communicable diseases and these three problem areas are closely interrelated.⁴⁶ Authors of this study, see the importance of this study in the light of the above mentioned facts and the demographic profile of the country compared to the rest of the world, which shows that India has highest number of people in this socially productive segment and this population is quite vulnerable to addiction. This study is an attempt to study the pattern of drug abuse and its correlation with the criminal and demographic profile of the subjects in a prison setting.

Aims and Objectives

The aim of the present study was to assess the pattern of drug abuse along with their criminal and demographic profile and associated factors with drug usage among jail inmates who were being treated as inpatient at the De-addiction facility at a Central Jail in Punjab.

Materials and Methods

- **Study setting:**

This study is carried out in the Modern Central Jail at Faridkot, Punjab. It has about 2500 inmates, both convicts and under-trials. Among the 2500 inmates there are 100 females. On an average 60-70 people come and go daily in the prison.

- **Sample Selection:**

This study included subjects who were being treated as inpatient in a separate facility for De-addiction purposes in the jail in the month of September–October 2014. Before conducting

this study a prior permission from the Jail authorities and an ethical approval from the Institutional Review board of GGS MC & Hospital Faridkot were taken. The inclusion criteria include those who were admitted at the De-addiction treatment Facility for problem with drug use and have agreed to participate the study through an informed consent. The exclusion criteria included those with severe communication difficulties, severe mental and behavioural disturbances, must not be intoxicated or going through severe withdrawal at the time of the assessment.

Information about the pattern of the drug abuse was assessed by the use of WHO based ASSIST questionnaire (Alcohol, Smoking and Substance Involvement Screening Test) to screen problem or risky use of tobacco, alcohol, cannabis, cocaine amphetamine type stimulants, sedatives, hallucinogens inhalants, opioids and ‘other drugs’ that do not fall into the previous 9 categories. This instrument has an excellent concurrent, construct, discriminative, predictive validity and test-retest reliability across different cultures and can adequately screen for low, moderate and high risk substance use for any substance.⁴⁷ Among the substances screened, only two are legally permissible in Indian settings and none permissible in prison settings of the country. It is a relatively brief, instrument comprising eight questions that are designed to be administered by a health-care provider using paper and pencil and takes five to ten minutes for getting necessary information. The ASSIST questionnaire obtains information from subjects about lifetime use of mentioned substances and associated problems over the last 3 months. It can identify a range of problems associated with substance use including acute intoxication, regular use, dependence or high risk use and injecting behaviour. The eight questions in the instrument along with their ratings are:

Question 1 asks about which substances have ever been used in the subject’s lifetime and is rated as 0 & 3.

Question 2 asks about the frequency of substance use in the past three months, which gives an indication of the substances which are most relevant to current health status and is rated from 0 to 6 depending upon the frequency of use.

Question 3 asks about the frequency of experiencing a strong desire or urges to use each substance in the last three months and is rated from 0 to 6 depending upon the urge.

Question 4 asks about the frequency of health, social, legal or financial problems related to substance use in the last three months and is rated from 0 to 7 depending upon the frequency of problems.

Question 5 asks about the frequency with which use of each substance has interfered with the role responsibilities in the past three months and is rated from 0 to 8 depending upon the frequency of deficit functioning. Tobacco is specifically not rated through this item.

Question 6 asks if anyone else has ever expressed concern about the subject's use of each substance and how recently that occurred and is rated from 0 to 6.

Question 7 asks whether the client has ever tried to cut down or stop use of a substance, and failed in that attempt, and how recently that occurred and is rated from 0 to 6.

Question 8 asks whether the client has ever injected any substance and how recently that occurred and is rated from 0 to 6.

Information on the socio-demographic data, criminal profile, and expenditure on drugs was taken through the investigator designed proforma from each subject. Out of 66 subjects, 64 completed the study. Two subjects could not complete the study as they got bail orders during their treatment as inpatient.

Data Analysis

Results are expressed as percentages for qualitative variables and using mean and standard deviation for quantitative variables.

Results

A total of 66 subjects took part in the study. It included one female. Out of these 66 subjects majority were under trials (62.1%). Table 1 shows the socio-demographic profile of the study subjects. Majority were males (98.4%), married (53%), under matriculate (51.5%), Sikhs by religion (85%), came from rural background (63.6%) and work as farmers (30%). The age range of the study group was 22-55 years (median age = 28, standard deviation = 8.1).

Table-1. Socio-demographic Characteristics

Parameters	Subjects (n)	Percentage (%)
Age :		
Upto 25 years	16	24
26-35 years	31	47
36-45 years	9	14
45-55 years	4	6
> 55 years	0	0
Sex:		
Male	65	98.5
Female	1	1.5
Religion :		
Sikh	56	85
Hindu	8	12
Christian	1	1.5
Muslim	1	1.5
Marital Status:		
Never Married	29	44
Married	35	53
Divorced/Separated	2	3
Family :		
Nuclear	27	41
Joint	39	59
Residential information:		
Rural	42	64
Urban	24	36
Educational status:		
Illiterate	23	35
Under Matriculate	11	17
Matriculate	15	23
Graduate	14	21
Post-graduate	3	4
Occupation:		
Farmer	20	30
Students	3	3
Self-employed	10	24
Employed	18	27
Unemployed	6	9
Player	2	3
Labourer	7	11
Monthly family income (INR) in thousands.		
< 10	12	18
10 to 25	35	53
26 to 40	7	11
41 to 55	4	6
56 to 70	2	3
> 70 K	6	9

Our this data is in agreement with the demographic profile in a similar study conducted in a De-addiction Centre in Punjab showing male (100%), married (76%), resident of rural areas (85.5%), and working as farmers (42.5%).⁴⁸

The median monthly family income of the subjects was found to be 20 thousand per month and median family size was 5. One similar report

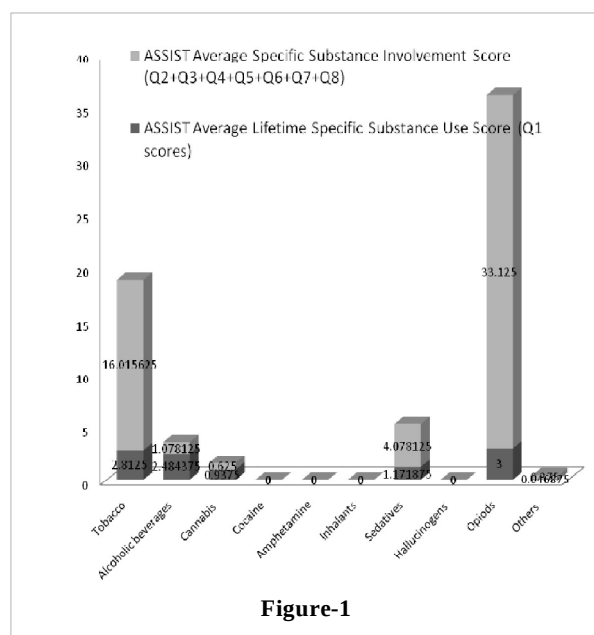


Figure-1

finds, Drug use on a national level is most noticeable “among the working poor”⁴⁹ whereas in this state, “the problem is prevalent in middle-class enclaves”.⁵⁰

As per the present study, the predominant substance used in the prison is Heroin (100%) and it was Poppy Husk (45%) prior to imprisonment. The results are in accordance to a UN Report, based on the data from 203 drug treatment centres across India (collected during March 2000 to November 2001), which singled out Punjab as the state with the highest levels of abuse of opium as well as propoxyphene, a commonly injected drug⁵¹. Thirty percent of our study subjects admitted of using more than two substances at the time of their admission to this Drug Deaddiction Facility. Ninety-four percent the study subjects were using psychoactive drugs prior to getting imprisoned and the average time since they were using these drugs prior to imprisonment was 6.4 years. Seventy-three percent of the study subjects were currently facing charges under NDPS Act.

There are 16 million people who inject drugs worldwide⁵¹ and there are an estimated 165,000 IDU in India,⁵³ and it is common for people who use illicit drugs to experience periods in custody.⁵⁴ In our study, 31 subjects (47%) persons were currently using intravenous route for drug delivery and 87% of this IDU group started using this method

Table-2. Crime Profile (65 subjects)

Parameters	Subjects (n)	Percentage (%)
Duration since imprisonment:		
< 1 month	5	8
1-12 months	35	54
1-3 years	18	28
< 3 years	7	10
Current legal status :		
Undertrial	40	61.5
Convict	25	38.5
Cases :		
NDPS	48	74
Murder and related	10	15
Others	7	11
About Recidivism :		
Persons with prior history of arrests	27	41.5
Persons with a prior history of arrest related to drug related crime	11	17
Persons who have committed crime to directly or indirectly support or related to drug intoxication	34	52
Persons who have received punishment in the Jail for aggression / Violence / Disciplinary problems directly or indirectly related to drug use.	7	10

after coming to prison. 84% of the ID users reported sharing of the needles and syringes with other inmates and 26% reported sharing with unlimited people. As per the present study, average median age when subjects first started taking drugs is 20 years and is 26 years when they started using Intravenous route for drugs. So a difference of about 6 years, which has a special significance, in terms of time period for medical intervention, till the drug use behaviour becomes more hazardous. An international study quotes that 10% of the HIV infections occur through injectable drug use.³⁵ The average time duration after which subjects who were

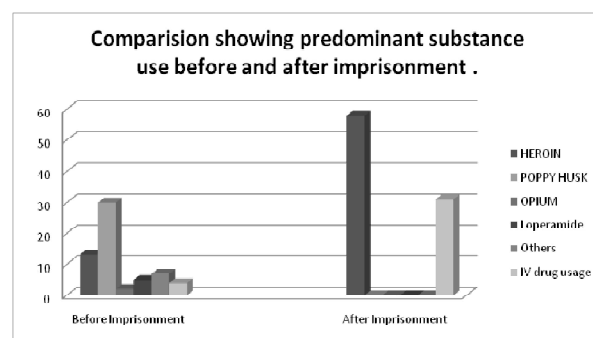
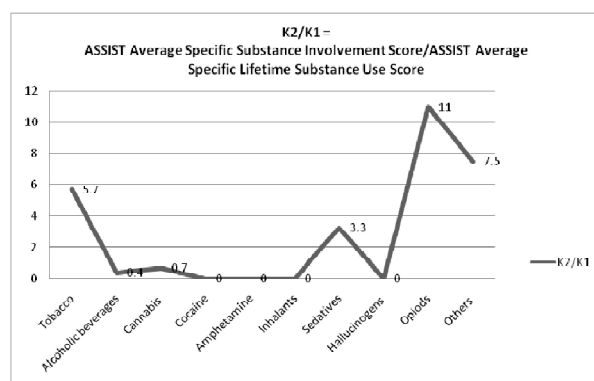


Figure-2

Table-3. ASSIST SCORES

Psychoactive substances	ASSIST Cumulative Lifetime Specific Substance Use Score = $\Sigma Q1+SD$	ASSIST Average Lifetime Specific Substance Use Score $K1= \Sigma Q1/64$	ASSIST Cumulative Specific Substance Involvement Score = $\Sigma(Q2-Q8) + SD$	ASSIST Average Specific Substance Involvement Score $K2= \Sigma(Q2-Q8)/64$	K2/K1
Tobacco	180 + 0.731	2.81	1025 + 8.75	16.0	5.7
Alcoholic beverages	159 + 1.18	2.48	69 + 3.29	1.0	0.4
Cannabis	60 + 1.40	0.93	40 + 2.56	0.6	0.7
Cocaine	0	0	0	0	0
Amphetamine	0	0	0	0	0
Inhalants	0	0	0	0	0
Sedatives	75 ± 1.47	1.17	261 ± 8.94	4.0	3.3
Hallucinogens	0	0	0	0	0
Opioids	192 ± 0	3	2120 ± 7.53	33.1	11.0
Others	3 ± 3.58	0.04	24 ± 3.20	0.3	7.5

**Figure-3**

using ID route, started using ID use after imprisonment was 4.2 years. However maximum number of subjects (19% of the ID users) started using IDU within a year of their imprisonment.

Subjects were assessed for the pattern of drug abuse and factors associated with drug usage through WHO based ASSIST Questionnaire and investigator designed Performa respectively. Life-time Specific Substance use score for different substances were calculated from the results of Item 1 of that substance on the ASSIST Questionnaire. ASSIST Substance Specific Involvement Score calculated as cumulative score for Item 2 to Item 8. Findings of the ASSIST Questionnaire are summed up in Table 3 and Figure 1. Figure 2 shows change in pattern of drug use by the subjects after imprisonment. Ratio of the mean Substance Specific Involvement Score to mean Life-time Specific Substance Score indicates average bio-psycho-social

morbidity associated with the use of particular substance in life. This ratio, in a way is indicative of the addictive potential of a substance along with its adverse consequences on the subject over the period. Figure 3 illustrates this ratio for different substances in the study subjects.

Discussion

The present study shows predominant heroin use, potentially risky behaviour, and high adverse bio-psycho-social implications related to drug abuse in prisoners. These results are quite in accordance to the other studies in prison settings worldwide. Over-representation of males in this study is in accordance with the prevalence of addiction in the society at large in the region. This disproportionate representation is indicative of the role of social factors in the epidemiology of Substance dependence. Higher number of subjects from rural background in our study is in accordance with the other studies of this region.

Results show that high percentage of people arrested for illegal possession of drugs are actually consuming these substances and there is good tendency of inmates to shift from oral drug use to IV drug use, over a period of time. The lack of easy availability of drugs in prison settings significantly contributes to changing the pattern of drug usage by jail inmates to intravenous route. So these places can turn out to be a breeding place for blood-borne diseases. High ASSIST scores in the study indicate high bio-psycho-social morbidity related to usage of

various substances. So there is need to understand the importance of specialist training of medical doctors working in prisons for the adequate management of drug dependence in prisoners.

As majority of the study subjects are under trial and have been detained for illegal possession of drugs (NDPS Act), probably for personal use, this somewhere lends support to the global voice for the need to decriminalise the use of drugs per se. This will ultimately lead to better psychosocial rehabilitation of persons with substance use disorders. Despite of the fact that there is a growing demand world over to acknowledge addiction as a medical problem, rather than an issue with Criminal Justice System, there are still as many as 1000 executions that occur worldwide for drug offences each year.⁵⁵ The UN Special Rapporteur on the right to health has called on UN member states to “decriminalise” or de-penalise possession and use of drugs.⁵⁶

It is a now an established fact beyond doubt that lifestyle management has got essentially an important role in handling the recurrent nature of this biopsychosocial problem, which has attained a dangerous proportion in our society. Governments have a responsibility to provide adequate services for drug offenders.⁵⁷ The prisons can turn up as important places in bringing the life style changes in the life of a prisoner. The regimented life style of these prisons designed with an idea of mental health promotion; can prove a boon for patients with drug dependence, who for the reason of their behaviour are also at risk for blood-borne diseases. As in the community, where there has been evidences for over a decade that HIV epidemics among IDUs can be prevented, stabilised, and reversed,⁴⁴ there is a hope for a solution to this problem in prisons also. The incidence of HIV among drug users globally has declined to roughly one-seventh of its level reported in the late 1980s.⁵⁸

Limitations

The major limitation is that it is a cross-sectional study, with limited subjects and the findings are based on one time observation and the inmates of a single prison, but still sincere efforts have been made to adequately assess the pattern and the associated factors with dependence of drug abuse among the jail inmates.

Conclusion

Rising levels of addiction in the society and increasing implementation of the law enforcement agencies are turning prisons into de-facto psychiatric units. It is an undisputable fact throughout the world that incarcerated individuals are much more likely to be suffering from mental illness and substance abuse disorders than people outside of prison and jails.⁵⁹ Like most countries around the world,⁴⁴ people at high risk of HIV infection are also over-represented in Indian prisons. The importance of implementing HIV interventions in prisons was recognised early in the epidemic.⁴³ There is an emerging need to understand the changing requirements of Indian prisons for the management of such prisoners with substance use disorders and all prisons should have functioning treatment programmes for opioid dependence.⁶⁰ There is higher prevalence of addiction in cases admitted for illegal possession of drugs (NDPS Act) and there is good likelihood of turning these patients into IV drug abusers over the period of time. Adequate management of such cases provide an excellent opportunity to handle the high risk behaviour of this young population and saving their precious lives from the dragnet of dreadful blood-borne diseases. At the same time, it is also important to recognise that there is excess of health problems in the prison population, which exceeds level found outside of prison. Given the scope and urgency of the issues involved, governments have a legal and ethical obligation to provide a standard of healthcare even greater than that available in the community.⁶¹ Proper redressal of such issues will reduce recidivism rate and improve the quality of life of these prisoners. It is high time to give due importance to the mental healthcare needs of these potential ‘hot and blind’ spots of the society in a true spirit of rehabilitation.

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Original Article

Effect of short term Hospitalization on Management of Obsessive Compulsive Disorder

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Abstract:

Background: Obsessive Compulsive Disorder (OCD) which was considered a relatively rare disorder earlier has now known as the fourth most prevalent psychiatric disorder and the 10th most disabling of all medical disorders. **Methodology:** We studied and compared the effect of hospitalization on 20 patients with moderate to severe obsessive compulsive disorder (OCD) with a similar group treated on outdoor basis. Patients of both the groups had to satisfy rigorous selection criteria and were well matched for age, gender and education status to overcome the confounding variables. Both groups were treated on fluoxetine 40-80 mg/day monotherapy along with 2 session of cognitive behavior therapy per week. Strict planned routine structuring was instructed to be followed at home as well as in hospital. Y BOCS scores and subjective wellness on Likert scale were assessed and compared on 1st evaluation thereafter, in 1st week, 2nd week and 3rd week respectively. **Results:** It was found that mean scores decreased and mean difference increased at the end of 3rd week in both the patient groups but was found to be significantly more in the inpatient group. **Conclusion:** The hospitalized, intensive and individualized treatment protocol in the cases with moderate to severe OCD have better outcome in comparison to outpatient treatment alone.

Keywords: Obsessive compulsive disorder, YBOCS, Cognitive behavior therapy, Hospitalization

Introduction

Obsessive Compulsive Disorder (OCD) which was considered a relatively rare disorder earlier has now known as the fourth most prevalent psychiatric disorder in the epidemiological catchment area survey (ECA)¹ and the 10th most disabling of all medical disorders in an early burden of disease study.² There is only one epidemiological study in OCD from India which found lifetime prevalence of 0.6%.³ This rate is considerably lower compared to the 2-3% rate reported in the European and North American studies.⁴⁻⁵ OCD is characterized by obsessions and compulsions that are distressing, anxiety provoking and difficult to control (synopsis).⁶ Treatment options include both pharmacological including SSRI as the first line treatment options as

well as non pharmacological management in form of exposure and response prevention and cognitive behaviour therapy.⁷ A number of studies have confirmed the efficacy of exposure (for obsession) and prevention for compulsions.⁸ Yet, it is well known that some patients do not respond to medication and outpatient cognitive behaviour therapy alone. One of the biggest challenges in OCD is managing inadequate responses to the combination therapy and these patients may require intensive and individualized treatment protocol in form of inpatient treatment. While majority of the patients might experience significant reduction following outpatient treatment.^{9,10} However, about 30% of the patients are treatment refractory and continue to have distressing residual symptoms.¹¹⁻¹² Thus, we

purposely planned this study to compare the response effect of short term hospitalization in the patients with moderate to severe OCD and to the response to treatment in the outpatient and inpatient group.

Material & Methods

The study aimed to compare the effect of hospitalization in 20 patients with moderate to severe Obsessive Compulsive Disorder (OCD) (group B) with a similar group of 20 patients moderate to severe form of OCD patients who received treatment as outdoor patients of the psychiatry department (group A), at Subharti Medical College, Meerut. It was a non-invasive case control study where two groups of diagnosed cases of moderate to severe OCD with no other psychiatric comorbidities were constituted and were matched for age, gender and education. All subjects were at the outset explained in detail about the purpose of the study and were included only after receiving a written informed consent. Group B patients were further explained about the process of hospitalization for Intensive daily interventions and had consented for the same. Both Group A and group B patients fulfilled the inclusion criteria of giving informed consent, belonging to the age group of 18-55 yrs with a confirmed diagnosis of OCD according to Diagnostic and Statistical Manual for Mental Disorder – IV (DSM IV) (APA, 1994) Criteria and had Yale Brown's Obsessive Compulsive Scale scores (Y BOCS) between 16-31 (moderate to severe); also, subjects should have passed at least tenth, according to Indian Standards. Patients with history of significant medical conditions or any any significant other Axis I/Axis II disorders and history of psychoactive substance dependence or significant abuse were excluded. Subjects satisfying the selection criteria were then studied along with the usage of Yale Brown Obsessive Compulsive Scale (Y BOCS checklist and scale) and structured clinical interview for DSM – IV (1994) for Axis I Disorders (SCIDI) was further applied. An effort was made to evaluate them on the same day of inclusion to avoid less at follow up. However, the patients unwilling to be tested same day were then evaluated on a mutually convenient day. Likert's rating was done for subjective wellness four times during interventions. Total fifty patients were screened for

the purpose of study between 1.01.2011 to 1.07.2011, however 10 patients were excluded due to non fulfillment of exclusion criteria. Patients in both the groups were treated on monotherapy of fluoxetine 40-80 mg/day. Intensive Cognitive Behaviors therapy (CBT) session were carried out weekly (90 min one – two day/week for 3 weeks) in group A. Sessions were carried out by a team of two therapists. Routine structured set for the purpose of study was planned and advised to be followed up at home by group A patients. Intensive CBT sessions (90 min sessions on 6 days per week for 3 weeks) were done along with a strict routine structuring on standard protocol set was advised for the group B patients. CBT sessions included psychoeducation of individual, family of patient and both the OCD patients, exposure response prevention techniques (ERP), cognitive therapy including thought stopping and verbal reattribution techniques and cognitive restructuring. The data collected was tabulated and was analyzed using appropriate statistical tools.

Routine Structuring according to set Protocol for the study (Daily Routine Cart)*

• DAILY ROUTINE OF IPD OCD PATIENT

- | | |
|---------------------|--|
| • 6 to 6.30 am | • Wake up |
| • 6.30 to 7 am | • Fresh up |
| • 7 to 7.30 am | • Morning walk in campus garden |
| • 8 to 8.30 am | • Yoga Class |
| • 8.30 to 9 am | • Breakfast |
| • 9 to 9.30 am | • Doctors Round |
| • 9.30 to 10 am | • Rest |
| • 10 to 10.30 am | • Group Orientation Classes |
| • 10.30 to 11.30 am | • Activity Room, Games Indoor Drawing, Painting |
| • 11.30 to 12 pm | • Rest / Personal Proff activities |
| • 12 pm to 1 pm | • C.B.T. Session |
| • 1 to 2 pm | • Lunch |
| • 2 to 3 pm | • Rest |
| • 3 pm | • Doctors Round |
| • 3 to 4 pm | • Listening calming music |
| • 4 to 4.30 pm | • Tea |
| • 4.30 to 6 pm | • Yoga + visit to the temple/ offer namaz in the campus + evening walk |
| • 6 to 7 pm | • Outdoor Games in the campus |
| • 7 to 7.30 pm | • Reading books & writing articles |
| • 7.30 pm | • Doctors Round |
| • 8 to 8.30 pm | • Dinner |
| • 8.30 to 9.30 pm | • T.V. |
| • 9.30 pm | • Go to bed |

Results

The two well matched group of twenty patients each of moderate to severe OCD received treatment on OPD and IPD basis. The socio-demographic profile of the patients of both the group was found to be more or less similar. Majority in all the group were in age group of 18-26 years, were male, graduate, married, Hindu, of urban background, with family income between 5000-7500 rupees and mostly were unemployed (Table 1). Majority of cases in group A had single obsessions (60%) while cases in group B had equal distribution of having single and multiple obsessions. Most common type of obsessions were contamination in both group A (80%) and group B (70%), followed by doubt (45%) in group A and (45%) group B (table 2). Majority of cases in group A had multiple compulsions, while the group B had equal distribution of having single and multiple compulsions. Most common compulsion in both the groups was cleaning/ washing followed by checking and counting (Table 2). All the cases in both the groups had YBOCS scores between 24-31 and were diagnosed as Severe type of OCD; their mean scores were 28.5 (group A) and 29 (group B). Mean of the duration of illness in group A and group B patients was found to be 3.45 years and 3.9 years respectively. On comparing the mean of Y BOCS scoring of OPD (group A) and IPD (group B) cases it was observed that the mean scoring of group A patients decreased from 28.35 from 1st evaluation to 19.05 after 3 weeks while in group B IPD patient the mean scoring decreased from 1st evaluation from 29 to 11.5 after 3 weeks of intervention table (Table 3-4). On observing the weekly changes in the YBOCS scoring in the OPD cases (group A) between the 1st evaluation and 2nd was 2.5, that increased to 5.95 between 1st and 3rd and the difference was 9.3 between 1st and 4th evaluation. In the IPD group (Group B) the mean scoring difference between the 1st and 2nd evaluation was 8.15, 12.9 between 1st and 3rd evaluation and 17.75 between 1st and 4th evaluation which was significantly better than the difference of mean scores in the other group thus highlighting the rapidity of response in the inpatient group (Table 5). On the Likert's scale of subjective wellness the two groups showed improvement by the end of 3rd week of

intervention. In group A by the end of 3rd week nineteen patients scored 2 (i.e. somewhat better) and only one scored 3 (i.e. moderately better) respectively (Table 6). In group B, twelve patients by the end of 3rd week scored 4 (considerably better) and 8 (significantly better) (Table 7).

Table-1. Comparison of both the OPD and IPD group on Socio Demographic details

Variable	Group A OPD N = 20	Group B IPD N = 20
Age in yrs		
18-26	13 (65%)	13 (65%)
>26 to 36	5 (25%)	5 (25%)
>36 to 46	2 (10%)	2 (10%)
>46	0	0
Mean Age in yrs	26.45 ± 5.99	27.1 ± 6.86
df = 2 p = 1.00 i.e. N.S.		
Gender		
Male	12 (60%)	12 (60%)
Female	8 (40%)	8 (40%)
Df = 1 p = 0.7469, N.S.		
Education		
X – XII	7 (35%)	7 (35%)
Graduate	8 (40%)	8 (40%)
Post Graduate	5 (25%)	5 (25%)
Df = 2 P = 1.00, N.S.		
Domicile		
Urban	14 (70%)	13 (65%)
Rural	06 (30%)	07 (35%)
Marital Status		
Married	8 (40%)	8 (40%)
Unmarried	12 (60%)	12 (60%)
Religion		
Hindu	18 (90%)	17 (85%)
Muslim	1 (5%)	2 (10%)
Sikh	1 (5%)	1 (5%)
Other		
Family Income (Rs. Per month)		
Upto 2500	0	0
2501 – 5000	6 (30%)	4 (20%)
5000 – 7500	12 (60%)	15 (75%)
More than 7500	02 (10%)	1 (5%)
Occupation		
Unemployed	8 (40%)	9 (45%)
Student	5 (25%)	4 (20%)
Housewife	3 (15%)	1 (5%)
Service	3 (15%)	2 (10%)
Business	0 (0%)	4 (20%)
Professional	1 (5%)	0 (0%)

Table-2. Shows Distribution of Obsessions and Compulsions In Group A and Group B

Obsessions	Group A OPD N = 20	Group B IPD N = 20
Single	12 (60%)	10 (50%)
Multiple	08 (40%)	10 (50%)
Types		
Contamination	12 (80%)	14 (70%)
Doubt	09 (45%)	09 (45%)
Aggressive	0 (0%)	2 (10%)
Sexual	3 (15%)	1 (5%)
Hoarding	0 (0%)	1 (5%)
Religions	3 (15%)	3 (15%)
Symmetry and Exactness	2 (10%)	2 (10%)
Somatic	1 (5%)	6 (30%)
Compulsions		
Single	5 (25%)	10 (50%)
Multiple	15 (75%)	10 (50%)
Types		
Cleaning/washing	12 (60%)	14 (70%)
Checking	08 (40%)	10 (50%)
Repealing	6 (30%)	5 (25%)
Counting	5 (25%)	4 (20%)
Ordering	2 (10%)	2 (10%)
Hoarding	0 (0%)	1 (5%)

Table-3. Y BOCS Scoring Mean and S.D. of OPD Patients at Various Intervals of Intervention

S.No.	1st evaluation	1st week (7th day)	2nd week (14th day)	3rd week (21st day)
1	28	26	21	18
2	30	27	24	19
3	29	27	22	20
4	26	23	20	18
5	27	25	21	17
6	31	30	27	23
7	30	27	24	21
8	29	27	25	20
9	25	23	20	18
10	28	26	22	19
11	27	24	20	17
12	31	28	25	20
13	29	27	25	20
14	28	26	23	19
15	30	27	24	20
16	26	24	20	18
17	29	26	24	20
18	30	27	22	20
19	29	25	21	18
20	25	22	18	16
Mean	28.35	25.85	22.4	19.05
± S.D.				

Table-4. Y BOCS scoring mean and S.D. of IPD patients at various, interval of intervention

S.No.	1st evaluation	1st week (7th day)	2nd week (14th day)	3rd week (21st day)
1	30	20	15	10
2	28	21	18	11
3	31	20	10	8
4	29	20	18	13
5	31	21	16	14
6	31	25	20	15
7	30	20	16	13
8	29	19	15	9
9	28	21	16	14
10	27	20	17	13
11	30	24	20	15
12	28	23	18	13
13	26	17	15	9
14	30	21	18	9
15	31	26	20	15
16	27	19	13	10
17	27	20	15	9
18	29	19	13	9
19	30	21	15	8
20	28	20	14	8
Mean	29	20.85	16.1	11.25
± S.D.				

Table 5: Difference in Means of Y BOCS scoring in Group A and Group B

	OPD (Group A)	IPD (Group B)
Mean scoring difference from 1st and 2nd evaluation	2.5	8.15
Mean scoring difference from 1st and 3rd evaluation	5.95	12.9
Mean scoring difference from 1st and 4th evaluation	9.3	17.75

Discussion

There have been some work in determining the effectiveness of Intensive Residential Treatment (IRT) program for severe refractory OCD in the West. However, there are no studies till date which take into the consideration the additive benefits as well as rapidity of response in case of hospitalization in OCD patients from our country. To the best of our knowledge this is a first study of its kind as there are no formalized OCD hospitalization outcome studies that have been completed to date in India.

Table 6: Likert Scale for Subjective Wellness on OPD patients (Group A)

S.No.	Lickerts Score on 1st Evaluation	Score after 1st week of evaluation	Score after 2nd week of evaluation	Score after 3rd week of evaluation
1	1	1	2	2
2	1	1	1	2
3	1	1	1	2
4	1	1	1	2
5	1	1	1	2
6	1	1	1	2
7	1	1	1	2
8	1	1	1	2
9	1	1	1	2
10	1	1	1	2
11	1	1	1	2
12	1	1	1	2
13	1	1	1	2
14	1	1	1	2
15	1	1	1	2
16	1	1	1	2
17	1	1	1	2
18	1	1	2	3
19	1	1	1	2
20	1	1	1	2

Table 7: Likert Scale for Subjective Wellness on IPD patients (Group B)

S.No.	Lickerts Score on 1st Evaluation	Score after 1st week of evaluation	Score after 2nd week of evaluation	Score after 3rd week of evaluation
1	1	2	3	5
2	1	2	3	4
3	1	2	4	5
4	1	2	3	4
5	1	2	3	4
6	1	3	4	5
7	1	2	3	4
8	1	2	4	5
9	1	2	3	4
10	1	2	3	4
11	1	2	3	5
12	1	2	3	4
13	1	2	3	4
14	1	3	3	5
15	1	2	3	4
16	1	2	4	5
17	1	2	3	4
18	1	3	3	5
19	1	2	3	4
20	1	2	3	4

Moreover, this innovative residential therapeutic approach have been studied in mostly refractory OCD cases unlike our study where we studied both moderate as well as severe OCD cases.¹³⁻¹⁵ Similar to our findings these studies demonstrated residential treatment as an effective treatment for severe, refractory OCD and also concluded that in treatment resistant OCD residential treatment yielded an initial rapid reduction in OCD symptoms, followed by a slower decline after the first month.¹⁵

It can thus be opined that hospitalization along with the standard management of pharmacological and non pharmacological treatment options in OCD patients can result in significant improvement as observed in declining YBOCS scoring and also rapidly improve the subjective well being of the patients. The possible reasons could be that in severe cases totally controlled environment can help in adherence to instructions and prevent relapse; a kind of brief immersion, also hospitalization can help in cases who are motivated, but are unable to follow instructions on their own at homes and are thus better managed in hospital setting. Moreover, careful monitoring can be done in supervised structured hospital environment. More importantly, for a brief period family related stressors and cues are mostly reduced. Also the encouraging, non judgmental hospital staff along with therapist on regular basis can help in boosting the morale of demoralized patients. Brief hospitalization also is cost effective especially for patients who are coming from distance for treatment.

Conclusion

Role of brief hospitalization and intensive individualized treatment for moderate to severe type of OCD is definitely thought provoking and with possible positive benefits. Although, it will be too premature to conclude as the study could only be interpreted in view of certain limitations, most importantly due to the small sample size, however, further studies should be planned with a larger sample to conclusively reflect on the finding. Various other category of OCD like mild, moderate can be compared with intensive treatment after hospitalization and on OPD basis. Various stages of onset of illness can be compared right from recent onset to onset for few years.

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Original Article

Gender Patterns of Mobile Phone Users

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Abstract

Background: In the last two decades there is a tremendous increase in use of mobile phones. Mobile phones have a substantial role in almost everybody's life. They have strongly embedded in individual's personal and social life. The manufacturers of mobile phones cater almost all the needs of a user. But a large number of studies have indicated the negative effects of mobile phones as well. The prevalence of mobile networks have precipitated a feeling of social identity for various groups of people especially youth and women. The mobile phones have emerged as a symbol of self identity. They serve as an object to support his or her self-image and self-esteem. There has been an increase in research examining the gender differences among mobile phone users. **Aim:** The present study is an attempt to explore the gender differences in mobile phone usage, involvement, identity and self esteem among mobile phone users. **Material and Method:** A sample of 100 adults (50 males and 50 females) at least graduate in the age range of 21- 40 using mobile phones was administered Mobile Usage Scale by Datta & Ray (2011), Mobile Phone Involvement Questionnaire by Walsh et al (2010), Aspects of Identity Questionnaire by Cheek et al (1994) and Rosenberg Self Esteem Scale by Rosenberg (1965). **Results:** No differences in the usage and involvement of mobilephone between male and female adults were evidenced. Significant gender differences were observed on aspects of identity as well as on self esteem. **Conclusion:** The present research reveals interesting gender differences in mobile users providing good groundwork for other researchers who aspire to explore such psychosocial variables.

Keywords: Mobile phone usage, Involvement, Self identity, Social identity, Self esteem

Introduction

In the last two decades the emergence of technological devices especially the mobile phone has strongly embedded in almost everybody's lives. It has become the indispensable part of individual's social and work life. Mobile phones have amazingly burgeoned in the developing countries. As stated by Rai,¹ "India is the fastest growing market with nearly 6 million additional mobile phone subscriptions per month". Since mobile phones became available in 1994, subscriptions increased at a compound annual growth rate of 95 percent. "The number of mobile phones per 100 inhabitants in India increased from 0.4 in 2000 to 20 by 2007, and surpassed landline phones by 2004", according to International

Telecommunication Union.² According to Katz and Aakhus,³ "the spread of mobile phones is affecting people's lives and relationships and affects how people interact when face to face or, rather and increasingly, face-to-face-to-mobile-phone-face, since people are ever more likely to include the mobile phone as a participant in what would otherwise be a face-to-face dyad". Coghill defined mobile phone as "the most radiative domestic appliance ever invented".⁴

In 2007, a leading Indian news magazine, India Today, reported that 70% of urban youth between the ages of 18 and 30 years owned a mobile phone, but only 23 percent of them owned a computer or a laptop.⁵ Young people are attracted towards the latest

trends, styles, aesthetic beauty and features of mobile phones. Mobile phones increase the social inclusion and connectedness of people as well as provide a sense of security at the time of crisis and urgency.⁶ A substantial amount of data show the potentialities of mobile phones suggesting that they shorten the social time and space;⁷ strengthen users' family bonds;⁸ serve as liberator to women;⁹ access information from anywhere, are productive and efficient and capture memories.¹⁰ They make us thus, more independent, by increasing our mobility and freedom.¹¹ While mobile phones are extremely attractive as a tool for communication and interpersonal interaction, there has been an increased risk in its problematic use.¹² The negative aspects of mobile phone users include lack of good manners, disruptive to public environment,¹³ school environment and poor scholastic achievement.¹⁴ Other negative effects include addiction, manifested as over dependency, which can cause problems such as emotional stress, damaged relationships and falling literacy.⁶ Serious consequences include increased academic probation, expulsion from universities, disrupted marriage life, financial and relational problems.¹⁵

The identity of young adults has drastically been influenced by the use of social media specifically personal communication media such as the mobile phone. Among other factors mobile phones have developed the identity of individuals' as mobile identity by making changes in every walk of their lives starting from their personal lives to the relations between friends and families, and to the emotional, social and intellectual challenges which are intervened through the use of the mobile phone. There are essentially different components of the social identity, which although related, may operate relatively independently of each other.¹⁶ An individual's personal identity includes a composition of enduring characteristics such as internalized goals, values, moral concerns and affective components as well as externalized roles and behaviours.¹⁷ Ling & Yttri¹⁸ and Kalogeraki & Papadaki¹⁹ explored the different features of mobile communication among adolescents and found its role in manifesting self identity which acts as an emancipative tool from the familial environment that boosts the sense of autonomy and independence in them. Thus, mobile phones have become an

important part of many young adult's self identity²⁰ to the extent that some young people perceive they are nothing without their phone.¹⁴

Mobile phone is an important and substantial tool that serves as an object to fulfill the needs of its owner to support his or her self-image and self-esteem.²¹ Self-esteem refers to the global appraisal of oneself positively or negatively. Self-esteem is defined as "a positive or negative orientation toward oneself; an overall evaluation of one's worth or value".²² Self-esteem has consistently been linked to addictive behavior.²³ Baumeister²⁴ opined that low self-esteem may lead to self-defeating behaviour in order to escape self-awareness. A large number of studies have shown that low self-esteem is closely related to problematic mobile phone use²⁵ and many other kinds of addictive behavior like alcoholism;²⁶ drug abuse;²⁷ smoking and gambling;²⁸ addictive internet use²⁹ and addictive sexual behaviour.³⁰ It has also been proved that people with low self-esteem are most likely to incline to look for approval, assurance, and admiration from their peers, thereby indulging in attractive things.¹²

There has been an increase in research examining the gender differences among mobile phone users. The conversations on mobile phone by females are lengthier⁶ and regular³¹ than males. As stated by Baron and Campbell³¹ females are more relationship oriented as compared to males therefore they use more mobile phones to alleviate interpersonal interaction. According to Balakrishnan & Raj⁶, "females are more likely to use mobile phones to keep in touch with their family members, to share experiences and to look for emotional support whereas males only contact their parents to keep them happy". Another study indicated that females made more cell phone calls and sent more SMS messages than males.³² During adolescence females use more mobile phones than males³³, whereas during young adulthood (over 20) it is the reverse. Devís-Devis et al.³⁴ studied the pattern of usage of new technology among school students and concluded that boys spend more time on using mobile phone than girls do. Mehrotra and Nguyen³⁵ established that men spend more time in conversation over a mobile phone per day than women do, with women spending the majority of their talking time at night. The differences in the mobile phone's usages between teenage female and

male users derive from their differentiated developmental process of forming their gendered identity as well as their adult one.³⁶ The use of mobile phone has impacted the society in general and the youth in specific. Differences among males and females in terms of mobile phone usage, involvement, identity and self-esteem with inconsistent results continue to be a topic of substantial interest. Keeping in mind the above issues the present study was undertaken to explore the gender differences in mobile phone usage, involvement, identity and self-esteem of mobile phone users.

Material and Methods

Design

A two group design was undertaken in which Group I consisted of 50 males using mobile phones whereas group II comprised of 50 female mobile users.

Sample

A purposive sample of 100 in the age range of 21-40 years atleast graduate using mobile phones of both sexes was selected from Haryana on the basis of their availability.

Tools

Mobile Usage Scale by Datta & Ray³⁷ consists of 50 items to assess the degree to which persons use mobile phones. It has four domains i.e. enjoyment and relaxation purpose, perceived utility, perceived safety and perceived autonomy and intrinsic motivation which is based on five point scale ranging from 1 (strongly disagree) to 5 (strongly agree). The possible score range from 50-250. Higher scores indicate higher usage of mobile phone.

Mobile Phone Involvement Questionnaire by Walsh et al³⁸ consists of 8 statements which are on seven point scale ranging from 1 (strongly disagree) to 7 (strongly agree). Higher scores reflect higher involvement with mobile phone. It has moderate reliability of 0.78.

Aspects of Identity Questionnaire (AIQ-IIIx) by Cheek, Tropp, Chen and Underwood³⁹ measures identity in three domains i.e. personal identity, social identity and collective identity. It consists of 35 items to be answered on a five point scale ranging from 'not important' to 'extremely important'. The inner

reliability (Cronbach's alpha) of the subscales was found to be 0.84 (personal identity), 0.86 (social identity) and 0.86 (collective identity) shows apparent validity.

Rosenberg Self Esteem Scale by Rosenberg⁴⁰ consists of 10 statements related to overall feelings of self-worth acceptance. The items are answered on a four point scale ranging from 'strongly agree' to 'strongly disagree'. The scores range from 10-40. Higher scores indicate a higher level of self-esteem. It has high test-retest reliability ranging from 0.82 to 0.88 and Cronbach's alpha for various samples ranged from 0.77 to 0.88.

Procedure

The present study was designed to explore the gender differences in mobile phone usage, involvement, identity and self-esteem of mobile phone users. The above said tools were administered to all the participants after explaining the purpose and instructions. After collecting the data, the scoring was done and data was tabulated. For statistically testing the significance of difference between the two groups t-test for uncorrelated means was employed.

Results and Discussion

The study sample consisted of 100 adults, out of which 50 were males and 50 were females. The mean age of males was 31.18 ± 2.04 years and the mean age of females was 30.60 ± 2.76 . About 60% of the adults belonged to urban area and the remainder were from rural background out of which 56% males and 64% females were from urban background. Majority of adults (73.16%) belonged to nuclear family and around 48.56% males and 56.67% females were married.

The mean scores, standard deviations and t-values of mobile phone usage, involvement, identity and self-esteem have been depicted in Table 1.

It is apparent from the table that there exists no significant difference among male and female participants on mobile phone usage and its involvement except for perceived safety. This infers that male and female respondents equally use their mobile phone for relaxation and enjoyment purpose. They similarly perceive its utility, autonomy and intrinsic motivation as well as overall use. This simply attributed to the fact that mobile phone have become

Table-1. Comparison between males and females on mobile phone usage, involvement, identity and self esteem

Variables	Male		Female		t-value
	Mean	SD	Mean	SD	
Mobile Phone Usage					
Enjoyment & Relaxation Purpose	21.86	4.29	20.70	4.14	1.37
Perceived Utility	59.00	11.27	59.42	11.39	0.18
Perceived Safety	32.82	7.03	36.92	6.96	2.93**
Perceived Autonomy & Intrinsic Motivation	45.72	9.46	44.80	8.50	0.51
Total	161.40	27.05	161.84	27.64	0.08
Mobile Phone Involvement					
	34.58	9.95	34.44	10.30	0.069
Aspects of Identity					
Personal Identity	31.30	6.88	35.82	7.66	3.10**
Social Identity	21.60	4.15	24.62	5.27	3.18**
Collective Identity	23.40	5.22	25.86	5.13	2.37**
Self Esteem					
	17.58	4.19	19.60	3.63	2.57**

** p <.01

part and parcel of their lives and they have provided a platform for not only for commercial and trade purposes but also most importantly for social connectedness. Male and female have embodied mobile phone technology in their lives equally both at cognitive as well as behavioural level. A survey in 'India Today' found that young people use mobile phones mainly to communicate with family members and friends as well as to listening to music, downloading ringtones or wallpapers, playing mobile games and receiving sports updates.⁴¹ In addition to this young people irrespective of gender use mobile phones to get involved and participate in social and political issues. Thus the charm for mobile phones is gender neutral. A few studies observed no significant difference between male and female with regard to mobile phone usage which are in accordance with the present study.^{42,43,44}

Significant differences were observed on perceived safety where females feel that mobile phones not only provide empowerment by giving better access to social services but also they serve as their lifeline. In the sense females use their phones as a safety and security device in order to contact others when are in danger or crisis.^{6,38} Because of the safety reasons some parents insist their daughters

than sons to keep their mobile phones with them all the time.⁴⁵ The present study coincides with the study conducted by Balakrishnan & Raj⁶; North, Johnston & Ophoff⁴⁶ and Walsh et al.³⁸ who concluded that the increased use of mobile phone is that females are more concerned for their safety than the males.

It has been observed that on all the aspects of identity females score significantly high than males implicating that females associate mobile phones as a mark of maturity, self-independence, privacy and autonomy from parents and siblings. They feel that mobile phones have become an ubiquitous channel for social interactions by activating a new sense of social identity in them. According to them mobile phones seem to attach to a number of favourable, affirmative personal and social elements which are essential for identity formation and social image. More women than men have incorporated the mobile phone as a central component of their personal existence by integrating it into their lifestyle as concluded by Geser.⁴⁷ This observation is in line with the present study.

Results pertinent to gender differences in self esteem showed significant difference between genders for self esteem with females having more self esteem than their counterparts inferring that

mobile phone serves as a symbol of support and security for females sustaining their self esteem. Females claim to have better relationships either with family or friends and keep in contact with their family members, to share experiences and seek emotional support as compared to males.⁶ The mean scores of male and female respondents fall within the normal range, with females reporting more scores than males although the range was similar. According to the study conducted by Walsh et al³⁸ suggest that mobile phones facilitate young people's connectedness to each other and improve one's self-esteem by feeling loved by others.

Conclusion

The findings of the present study discovered no significant difference between male and female adults on mobile phone usage and involvement except for perceived safety with females emphasizing on using mobile phones for security and safety purpose as they are more vulnerable. Regarding the aspects of identity the females showed more signs of social and personal identity than their male counterparts. Significant differences were observed as well with respect to self-esteem with females tend to use mobile phones as status symbol which in turn enhance their self-esteem. The access of mobile phones is an emerging area of concern. The present research offers an insight for other researchers who aspire to explore such psychosocial variables. There is an emergent need for extensive research to ponder upon more psychosocial factors associated with mobile users.

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Original Article

The relationship between the epistemology with death thoughts in students of Neiriz Payamnur University

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Abstract

Background: Death is a fact that certainly invites the human wisdom to challenge and everyone [according to him/her self fight with it more and more in life field. **Aim:** the purpose of this study was researching the relationship between epistemology with death-thought in the students of Nei-riz Payamnur University. **Methods:** 214 students from Nei-riz Payamnur University were recruited by accidental sampling and questionnaires on death thoughts and epistemology were filled. Data were analysed using appropriate statistical tools. **Results:** the results show that epistemology has a positive and meaningful relation with death-thought and is a good predictor for that. **Conclusion:** Based on the study results, we may conclude that the increase of epistemology in a person leads to an increase in thoughts about death and it should be programmed in order to bolster epistemology and death could be drawn as deliberative field.

Key words: Beliefs of epistemology, Death-thoughts.

Introduction

Death is one of the biggest puzzles of human life and is not a strong phenomenon that comes to our realm from outside. However it's the origin of our life and is a fact that we are unable to deny that. Death is one of the basis of the thoughts of thoughtful person during the whole historical era.¹ During the human history, various thoughtful, philosophers, theosophists and psychologists have told many about death and thinking about that and have plowed roles in the creation of death thoughts during the history and have had their own marks on it.² In fact thinking about death as the basic conditions of human has made the life meaningful and if we want to live meaningfully, thinking about life is necessary.³

Psychologists (sometimes ago) didn't understand the concept of death in this transition cycle of

life and even reviewing that wants pleasant to them, but in the last thirty years, death has been reviewed in psychology field.⁴

The definition of death, from the aspect of physiology, is cessation of living functions and from psychological point of view, meaning may differ for different people. Imam Ali said, "almotoGayate" it means death is the end of earthy life, this definition is the most factual meaning of death.¹ There isn't anyone who hasn't had a thought about death for challenge and every person has faced that challenge for many times.

Thus we could understand the death thought as equal to human origins in time and history.⁵ We can divide the whole attitudes toward death to two kinds: positive and negative and not everyone sees death at the same way.⁶

For many people, understanding death is difficult

because they know death as cessation of life and the unknown⁴ and we could say that they don't have avoidance attitude toward death- but the fact is that the followers of these approaches think about death.⁴ Attitudes toward death and thinking about that are affected by various cognitive variables.⁷ One of these cognitive approaches that can affect death-thoughts are beliefs of epistemology.

Epistemology is a branch of philosophy that studies the origin of belief and human wisdom.⁸ These beliefs and epistemology are a group of theories that happen through thinking and learning.⁹ The experts of behavior science are researching about the origin and changes of cognition, and how these theories of epistemology affect the human thought. The epistemology are those believes that people have about knowing and thinking and these believes are, part of cognitive processes and affect the attitudes and behavior of human.

Shomer (1990) has reviewed the epistemology in independent aspects and has put them in four aspects that are: belief in absoluteness of science, knowing the ability to learning as original, belief in the fast process of learning and belief in the simplicity of science.¹⁰ The way of getting the science and belief of human about death is affected. Haidger [as a philosopher] says that our knowledge about life is in relation with death-thoughts and has dedicated many of parts of "life and time" book to this subject.²

Spinuza [because of his logics] talks specially about death and deep-thoughts about life predominant to death and death thoughts² but Yalum (2003) mixes thinking about death and life together and says, the physical death destroys us but death thoughts save us.¹¹ Also Yasrebi (2001) mentions that persons think about death in a special way and this shows that the process of knowing and learning of them have affected death thoughts.¹ Various researches have demonstrated the relation between thinking about death and epistemology beliefs⁹ People who have the epistemological believes in them, have thought about death as the first and the lasting disturbances.¹² Researchers have mentioned that if we get death as framework for meanings and internal values, we'll have an ability to make special decisions about death and dying.¹³

The humanity thinks about getting the science and formulating the thoughts about the following

questions that what is death? What is the relation between death and life? Why we should die? How is death? How can we resolve- death? Do we have any soul that is non-perishable? What is the end place of this soul after death? The studies of death-thoughts is on inter-field major and shows that the researches review death from its negative point that is accompanied- by fear and stress, in this research, the researchers view death in the two aspects of tendency and avoidance. According to the mentioned text above, there is a need to know and understand the epistemology to death thoughts. Thus our goal in this research is answering to this question that, do the epistemology beliefs have any relation with death- thinking in university students.

Methodology

In this study, we'll research and discuss about the framework of plan that is one of the most important parts of each research.

The study population were Neiriz payomnur university students in 2014. The method of sampling was simple- random and 214 persons were chosen as sample group and the questionnaires were distributed among them, and after gathering information, they were analyzed using SPSS 16.

Measuring tools

Death thoughts scale: This scale has been made by Hosseinchari, Naruei and Seifuri (2012).⁵ In this respect, some speeches about death thought were made. These tools were given to psychology experts to specify the appropriate tools and their relation with the subject. In the result of this process some words were deleted. At last, a volume with 26 words was made. For getting the effect of this tool, they use factor analysis with the method of main factors and varimax circle. KMO FACTOR IS 0.74 and the coefficient KroitBartlet [$p < 0.001$, $df = 352$, $\chi^2 = 72.11$] showed that the sample is efficient for basis of getting for analysis. The result of analysis was getting to two factors. The two factors [according to the content of speech] were called tendency and avoidance death thought. The amount of factor was between 0.3 and 0.63.

Scale of epistemology: Shomer for measuring the epistemology beliefs in 1990 made a tool of 63 speeches with the method of Likert that was numbered in a fifth pack. Such that the option,

completely agree was 5 and completely disagree was 1.

Shomer [1993 and 1997 from Hoofer and Pentrich, 1997] in their other studies have reported kronbach alpha between 0.45 and 0.70. The validity of this test in Iran was first approved by Marzugi in 1995,¹⁴ and then Mahmoodi in 2000 by factor analysis and this showed the validity and reliability. Also in a research by Sepehri and Latifian (2005). The index of KMo was 0.76 and the numerical index of χ^2 in kroitBartlet test was 727 that was in a meaningful level of 0.001. The result of validity with re-examining of questionnaire was 0.74 the internal equality of each factor was in this changing between 0.63 to 0.85. Also the validity of questionnaire [by using kronbach method] was between 0.54 and 0.71.

Procedure

In this research, first with going to Nei-riz Payamnur University the vital coordinations were done in order to gather the information, and then each student was given a questionnaire of epistemology beliefs and another questionnaire about death-thought and the questionnaires were all compiled and analyzed.

Statistical Analyses

The method of analyzing was descriptive and deductive that in descriptive method, raw information and input were classified by special

methods and were reported consequently. In deductive part, the aim was clarifying the relation, intensity and direction of student's ideas about each aspect. For doing the research we have used SPSS software, Pearson's correlation coefficient and simple-line regression coefficient that shows the relation, intensity and direction.

Results

Table-1 includes descriptive information of the participants. The number of participants in this research was 214 students. [University students]. All the students were studying in three levels that is BA, MA and Phd. In table 1 mean and standard deviation of grades for epistemology and death-thought have been given.

The results of table 2 indicates the relation of epistemology and death- thought using Pierson-correlation coefficients, and shows that the indices of epistemology with death-thought have positive and meaningful relation and indicates that with increasing the epistemology beliefs in people and students, thinking about death has increased in them.

As you can get from table 2, the amount of variance analysis F is (50/08) that, indicates the epistemology variables with death-thought indices, and the results show that it predicts the epistemology beliefs and the indices of death-thought.

According to amount of Beta, Simplesness [B: 0.62] isn't as a variable of death-thought predictor.

Table 1. Descriptive statistics of variables

Variables	Numbers	Min	Max	Mean	SD	Variance
Simplicity	214	37.0	47.0	41.45	3.11	9.70
Absoluteness	214	17.0	39.0	25.47	6.48	42.11
Innateness	214	24.0	34.0	28.05	2.82	7.98
Quickness	214	18.0	30.0	21.60	3.60	13.00
pistemology	214	125.0	184.0	1.50	17.45	304.68
Death- thought	214	87.0	121.0	1.04	9.83	96.73

Table 2 The correlations coefficients of research variables

Variables	Simplesness	Absoluteness	Innateness	Quickness	Epistemology	Death thought
Simplicity	1					
Absoluteness	0.79**	1				
Innateness	0.89**	0.65**	1			
Quickness	0.71**	0.43**	0.87**	1		
Epistemology	0.94**	0.81**	0.95**	0.83**	1	
Death- thought	0.43*	0.08	0.47**	0.31**	0.40**	1

(* $p < .05$, ** $p < .001$)

Table 3 The regression analysis of multivariate for predicting death-thought

Variables	SS	Df	MS	F	Sig
Regressions	10015,98	5	2003,19	50,08	0,001
Residual	6719,41	168	39,99		

Table4: Unstandardized coefficients and Standardized coefficients variables

Epistemology coefficient	Unstandardized coefficients		Standardized coefficients	T	Sig
	B	S.D.E	Beta		
Simpleness	0,19	0,52	0,062	0,36	0,71
Innateness	-0,096	0,76	-0,028	-0,12	0,89
Quickness	3,83	0,40	1,40	9,41	0,001
Death-thought	2,58	0,23	1,70	11,24	0,001
Total	16735,40				

Correlation variable: death-thought

Innateness with [B: 0.028] isn't a meaningful predictor for death-thought. But quickness, according to Beta [B: 1.40] is a good predictor for death-thought.

Discussion and conclusion

The goal of this study is to review the relationship of epistemology beliefs with death-thought in order to review the constructs of epistemology beliefs; it has been "the questionnaire of Shomer epistemology beliefs 1990". And the results of this research are matched with the theoretical basis. But the previous researches about that were few and from the point that the researcher hasn't accessed to the past researches, there wasn't any possibility for comparing the research findings.

It has been proposed that in future research, we will pay attention more to this issue in order to elaborate on the effects of epistemology on death-thought. Only the human beings know about their death. All the creatures will die but they don't know that they will die, except human. The human doesn't know from beginning of creation but gradually knows what death is. The creatures that don't have death and don't know it don't have any anxiety and stress related to it. Since human beings knows a whole lot about death his/her thought about death increases, so, we can say that the view toward death and thought about death are affected by various cognitive coefficients [kanu, 2005].

One of these cognitive variants that can affect death-thought is epistemology beliefs. As indicated

in the research we can predict death-thought from epistemology beliefs. Yalum (2003) has mixed the death-thought with life and mentions that: the physical death destroys us, but death-thought saves us.¹¹ Also Yasrebi (1999) says that, the people think about death in special way that indicates the process of knowing [understanding] and learning has affected the death-thought, in fact, wisdom allows us to think about death.¹

As a result, according to the results of this research we can answer to the first question of this research that, Is there any relation between epistemology beliefs and death-thought and we can have this results that the expansion of epistemological beliefs area(field)/ have helped us more in death-thought.

According to the results of present study, those items are being proposed as research proposals, the repetition of similar study in other universities with bigger sample size, the reviewing of more variables about death-thought and reviewing the relation of other variables with death-thought.

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Original Article

Perceived Social Support and Self-Esteem as Predictors of Celebrity Worship

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Abstract

Introduction: Para-social relationships are one of the most significant influences of media. It can take forms of intense attachments to celebrities which show psychological hallmarks of real relationships. An off-shoot of para-social relationships is Celebrity Worship. It is the seemingly abnormal phenomenon whereby persons with assumed intact identities become virtually obsessed with one or more celebrities which can affect their day-to-day lives. Need of research in this area is due to relation of celebrity worship with attitudes and behavior of individuals. **Aim:** The purpose of this research is to study perceived social support and self-esteem as predictors of celebrity worship in Indian participants. **Method:** Sample size of 109 was taken from various schools, colleges and internet forums in India. Purposive sampling method was used to gather a pool of data, from the age group (15-25 years). **Results:** The results showed negative correlation between Celebrity worship and perceived social support. Also regression analysis was employed to find if perceived social support and self-esteem predicted the level of celebrity worship. It was found that perceived social support significantly predicted level of celebrity worship.

Keywords: Para-social relationships, Celebrity worship, Self-esteem, Perceived social support.

Introduction

The media has a large impact on people's lives. People are transferred into an "artificial social world" through media consumption.¹ Here they are bombarded by thousands of media figures-Actors, Musicians, sport figures, politicians etc. As people become more and more involved with the media, a relationship is formed between the viewer and the media figures. Audience involvement may be conceptualized in different forms. One of them is Parasocial Interaction.

Horton and Wohl² used the term "parasocial" first in reference to the interaction between media personalities and members of the audience. Through the use of forms of medium like television and movies people feel like they have an intimate association with the media figures. Continuous

observing and collecting information about them make people relate to them at various levels. In course of time they feel like they know the media figures like they know their friends. A fake bond is formed between media figures and the viewers which is one sided and non-dialectical. The relationship does not generally mutually develop and lacks reciprocity.

Idolization of celebrities is common among the adolescent and the young adult. Individual's worship of celebrities deserves attention from parents, educators, and media researchers because it is likely to be associated with his/her attitudes and behaviors.

A celebrity is a person of distinction or fame. The adoration of celebrities as idols or models is a normal part of identity development in childhood and adolescence,³ but beyond this form of parasocial

interaction is the seemingly abnormal phenomenon whereby persons with assumed intact identities become virtually obsessed with one or more celebrities—similar to an erotomanic type of delusional disorder. This type of obsessive-like behavior is known as celebrity worship.⁴ The extent of idolizing can differ from individual to individual and is influenced by various factors like situations, personality etc.

McCutcheon, Lange and Houran (2002)⁴ developed the Celebrity Attitude Scale (CAS), on the basis of which three distinct dimensions of fandom have emerged, which vary in terms of the parasocial interaction between fans and celebrities and the purpose they serve:

- 1) *Entertainment-social* : This is the lowest level of celebrity worship. Celebrities are a source of entertainment and social interaction and fans are attracted to a favorite celebrity because of their perceived ability to entertain and capture one's attention. It comprises attitudes and behaviours like 'My friends and I like to discuss what my favourite celebrity has done' and 'Learning the life story of my favourite celebrity is a lot of fun'.
- 2) *Intense-personal*: This stage is the intermediate level of celebrity worship. Here the individual has a strongly personal aspect of attraction to a celebrity; a person may feel something bad happening to a celebrity as though he or she were experiencing it personally. This stage arguably reflects individuals' intensive and compulsive feelings about the celebrity. For example, 'I have frequent thoughts about my celebrity, even when I don't want to'.
- 3) *Borderline-pathological*: This is the most extreme expression of celebrity worship. This factor is thought to reflect an individual's social pathological attitudes and behaviours that are held as a result of worshipping a celebrity. For example, 'If I was lucky enough to meet my favourite celebrity, and he/she asked me to do something illegal as a favour I would probably do it'.

Different theoretical perspectives are given by researchers which provide guidance for explaining

the phenomena of "Celebrity Worship".⁵

McCutcheon et al⁶ proposed an Absorption-Addiction model to explain such cases of celebrity worship. According to this model, a compromised identity structure in some persons facilitates psychological absorption with a celebrity in an attempt to establish an identity and a sense of fulfillment. The dynamics of the motivational forces driving this absorption may in turn take on an addictive component, leading to more extreme (and perhaps delusional) behaviors to sustain the person's satisfaction with the parasocial relationship. Maltby et al⁷ outlined a second context which emphasized the role of erotomania. Erotomania is a disorder in which a person has a delusional belief that another person, usually of a higher social status (eg. a celebrity) is secretly in love with them. Maltby et al⁷ suggested that there is a resemblance between erotomaniac type of delusional disorder and the phenomenon of celebrity worship. This was supported by findings of an association between celebrity worship and a number of "Cognitive Defects". Maltby et al⁷ gave an explanation which seeks to counterbalance the causal direction of "Absorption-Addiction", suggesting that as individuals reach higher levels of Celebrity worship, there is a change in their clinical profile. Maltby et al propose a Reflective Hypothesis, which uses a personality context, to suggest that 'celebrity worship' originates from a disposition (i.e. intense fantasy proneness, tendency for uncontrollable thoughts) to the behavioural characteristics of celebrity worship.⁷

Several studies examined the relation of Celebrity Worship with different constructs. Maltby, Day, McCutcheon, Martin and Cayanus⁸ examined the relationship between celebrity worship, cognitive flexibility and social complexity. Cognitive flexibility predicted unique variance in intense personal aspects of celebrity worship. Individuals who engage in celebrity worship for intense-personal reasons are unable to implement alternatives to problems and unable to deal with novel or unusual situations. Maltby et al⁶ found that the intense personal celebrity worship dimension was related to higher level of depression and anxiety. In another study Maltby et al⁸ in 2004 found that Intense personal Celebrity worship dimension was related to higher levels of stress, negative affect and report of illness.

Maltby et al⁷ examined Celebrity worship and obsessiveness, ego identity, fantasy proneness and dissociation. It was found that low levels of celebrity worship were not associated with any of the clinical measures, but intense personal levels of celebrity worship were related to fantasy proneness and borderline pathological level of celebrity worship shared a greater association with fantasy proneness and dissociation.

Self Esteem: Self-esteem is an attitude about the self and is related to personal beliefs about skills, abilities, social relationships, and future outcomes. Chinese research conducted by Cheung and Yue³ has shown that teenagers who worship 'key' family members, teachers, or other people with whom they came into regular contact tend to show higher levels of self-esteem and educational achievement compared with worshippers of TV stars. This is understandable given that the admiration of those who are able to provide tangible benefits and inputs into adolescents' lives would be more likely to provide a greater positive impact than those celebrities with whom only a parasocial relationship is enjoyed. Chia and Poo⁹ found that adolescents' celebrity worship is associated with, materialistic values, self-esteem as well as life satisfaction. Maltby and Day¹⁰ explored among young adults whether celebrity worship predicted the incidence of elective cosmetic surgery within the period of eight months after controlling for a number of known predictors of elective cosmetic surgery. After controlling for a number of known predictors of elective cosmetic surgery, intense-personal celebrity worship of a celebrity whose body shape was admired by the participant predicted the incidence of elective cosmetic surgery within an eight month period.

Perceived Social Support: Gottlieb¹¹ defined social support more broadly as the "process of interaction in relationships which improves coping, esteem, belonging and competence through actual or perceived exchanges of physical or psychosocial resources". Perceived support refers to an individual's belief that social support is available, is generally considered positive or negative, and provides what is considered needed by that individual. , perceived support may be best seen as a stable, individual difference variable characteristic.¹²

It can be said that people who are lonely and people who has adequate social support will differ in their level of celebrity worshipping. Lonely persons might be especially attracted to one-sided relationships with celebrities because these relationships are undemanding. It is not necessary for lonely persons to communicate with the celebrities they encounter regularly on radio, television, and in magazines. Relationships with celebrities do not force lonely people to experience the discomfort that typifies their interactions with "ordinary" people.⁶ In one study it was found out that loneliness would be positively related to a measure of the strength of one's bond to a favorite celebrity, especially when that celebrity was highly visible in the media (and could therefore be more "available" to meet the needs of the shy or lonely person). The results provided marginal support for their study.⁶

Celebrity worship isn't something new. It is only reaching new abnormal extremes because the media is reaching new pervasive and invasive extremes. Saturation celebrity coverage has had an inoculating effect on society, particularly young adults and has made them extremely media savvy.

A lot of people, who fall deeply into celebrity worship, may just be inviting abnormal pathology to happen. But the fact that it comes out in the form of idolization of a particular celebrity is less important than recognizing that the pathology was there all along. And if not focus on celebrity, it would focus on something else, but it would still be there.

Studies have found significant relation of this worship with anxiety, depression and social dysfunction.⁶ Being a fan does not cause one to be dysfunctional, but it certainly increases one's risk.

Studies have shown increasing habits of smoking, alcohol, poor eating routine in individuals because of witnessing their favorite stars following this habit. Idolizing someone for relaxation purpose or even as a positive inspiration is good for one's mental health, but problem starts arising when one becomes fixated and obsessed to such an extent that it takes over one's life.

Majority of research done in this area focuses on consequences of Celebrity worship. To understand-"why this obsession?" further research is needed on the causal factors. It would be interesting to see if lack of social support and self-esteem which is linked with feelings of loneliness

will affect levels of celebrity worshipping.

Results found in U.K where much of the research on this area has been done may not be generalized on this part of the continent, considering our culture and society. In a study done by Mccutcheon,⁷ they suggested use of shorter version of celebrity attitude scale across different cultures. This research is an attempt to study perceived social support and self-esteem as predictors of celebrity worship in Indian participants. This will help to fill some dearth of information and gain insight of this phenomenon in the Indian context.

The objectives of the study are to find out levels of celebrity worship, Perceived Social Support and Self-esteem among the ages 15-25 years. Also correlation between celebrity worship, self-esteem and perceived social support will be measured. Further the variance of Self-esteem and Perceived Social Support among Intense-personal and Borderline- Pathological Celebrity Worshipers will be measured.

With the above mentioned objectives for the study, following hypotheses were postulated as under:

- H1) There will be a positive correlation among Perceived Social support and Self-esteem,
- H2) There will be a negative correlation of Perceived Social support and Self-esteem, with celebrity worship.
- H3) There will be a significant variance by Self-esteem in Intense-personal and Borderline- Pathological Celebrity Worshipers.
- H4) There will be a significant variance by Perceived Social support in Intense-personal and Borderline- Pathological Celebrity Worshipers

Method

Participants

Data was collected from 120 individuals, out of which responses of 109 were used. The age of the respondents ranged from adolescents 15-25 years (8% male and 42% female). In terms of celebrity type, actors were most frequently chosen (34.6%), followed by musicians (9.3%), TV/radio presenter (5.6%) and authors (1.4%). Further data was sorted out on the basis of low and intermediate and extreme levels of Celebrity worshipping as per the scoring.

Participants were drawn from those who are willing to be respondents from various internet forums and school and college campuses of Delhi. Purposive Sampling method was employed to select the participants.

Design

The present research design is correlational in nature. It will study the age groups-(15-25 years), and find relationship among participants' level of Self Esteem and Perceived Social Support, and to see how these constructs predict the development of Celebrity Worship.

Measures

- 1) **The Celebrity Attitude Scale^{4,8,13} (CAS):** It is originally a 34 item scale. A shorter version of 22 items was used in this study. McCutcheon et al. suggested that celebrity worship comprised one dimension in which lower scores on the scale involved individualistic behavior such as watching, listening to, reading and learning about celebrities whilst the higher levels of worship are characterized by empathy, over-identification, and obsession with the celebrity. It's a Likert-type scale with "strongly agree" equal to 5 and "strongly disagree" equal to 1. It has been factor analyzed into three subscales: entertainment-social (10 items), intense-personal (9 items), and borderline-pathological (3 items). Reliability for this sample is 0.90 (cronbach's alpha).
- 3) **The Multidimensional Scale of Perceived Social Support¹⁴** It is a 12-item scale which measures perceived social support from family and friends. It does not refer to deployment. The reliability for the current sample for the 12 items is 0.91 (cronbach's alpha)
- 4) **Rosenberg Self-Esteem Scale:** It's a 10-item scale that measures global self-worth by measuring both positive and negative feelings about the self. The scale is believed to be unidimensional. The reliability for the current sample for the 10 items is 0.81 (cronbach's alpha)

Procedure

Questionnaires consisted of an introduction and two main sections. The first section informed respondents that the research is "researching

celebrities, your attitudes towards them and attitude about life in general". Respondents were invited to answer honestly, and were assured that all answers would remain anonymous. The questionnaire stated that there is no right or wrong answers. An e-mail address was provided to allow participants to obtain further information if they so desired.

Section 1 asked each respondent's age, gender and nationality. No pre-set choices were provided. The next question asked about participants' favourite celebrity. For the purposes of the research, the term "celebrity" was defined as a famous living person, or one who died during the respondent's lifetime. Participants were asked to circle one or more of the following choices, relating to the celebrity's field of expertise: Acting, Author, Artist, Medicine,

Modelling, Music, News, Politics, Religion, Royalty, Radio/TV presenter, Science, Sports, Other.

Section 2 consisted of the:

- Celebrity Attitude Scale (CAS) (McCutcheon et al., 2002),¹³
- The Multidimensional Scale of Perceived Social Support. (Zimet GD, Dahlem NW, Zimet SG. & Farley GK. (1988)¹⁴
- Rosenberg Self-Esteem Scale (Rosenberg, 1965)

Results

Intercorrelation between the variables was calculated using Pearson correlation coefficient. From the table below, we can see that the three dimensions of celebrity worship (i.e) Entertainment

Table-1. Pearson product moment correlation coefficients for the three domains, celebrity worship, perceived social support and self- esteem

	1	2	3	4	5	6
1 Entertainment social			1			
2 Intense-personal	.64**	1				
3 Borderline pathological	.52**	.53**	1			
4 Celebrity worship	.87**	.91**	.69**	1		
5 Perceived social support	-.29**	-.31**	-.37**	-.36**	1	
6 Self Esteem	.04	.09	-.11	.05	.14	1

**Correlation is significant at 0.01 level (2-tailed)

Table-2. Summary of Multiple Regression for the criterion variable of Entertainment Social Level of Celebrity Worship

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.344 ^a	.118	.066	6.54090

a. Predictors: (Constant), Percievedsocialsupport, selfesteem.

Table-3. Summary of Multiple Regression for the criterion variable of Intense-personal Level of Celebrity Worship

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.381 ^a	.146	.095	7.91724

Model	Unstandardized Coefficients		Standardized Coefficients		t	Sig.
	B	Std. Error	Beta			
1 (Constant)	35.058	5.193			6.751	.000
Percievedsocialsupport	-.132	.043	-.301		3.073	.003
selfesteem	.143	.202	.071		.707	.481

Social, Intense-personal, and Borderline-pathological was found to be negatively correlated with Perceived Social Support.

Multiple regression analysis was used to test if Perceived Social Support, Self Esteem, significantly predicted participants' Celebrity Worship at

Table-4. Summary of Multiple Regression for the criterion variable of Borderline Pathological Level of Celebrity Worship

Model		Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	24.568	6.286		3.908	.000
	Perceived social support	-.193	.052	-.356	3.693	.000
	Self-esteem	.356	.245	.143	1.457	.148

a. Dependent Variable: Interpersonal.

Model	R	R Square	Adjusted R Square	Std. Error of the Estimate
1	.423 ^a	.179	.130	2.60429

found that Perceived social support nearly predicted celebrity worship at Borderline Pathological and is negatively correlated. ($\beta = -.38$, $p < .001$)

Model		Unstandardized Coefficients		Standardized Coefficients		Sig.
		B	Std. Error	Beta	t	
1	(Constant)	9.293	2.068		4.494	.000
	Perceived social support	-.070	.017	-.383	4.057	.000
	Self-esteem	-.083	.081	-.099	1.028	.306

a. Dependent Variable: borderlinepathological

Entertainment Social Levels. The results of the regression indicated only one predictor, i.e., Perceived social support, explained .06.6% of the variance ($R^2 = .11$, $F(6,102) = 2.27$). It was found that Perceived social support nearly predicted celebrity worship at entertainment social level and is negatively correlated. ($\beta = -.30$, $p < .001$).

a. Predictors: (Constant), Perceived social support, self-esteem, Multiple regression analysis was used to test if Perceived Social Support, Self Esteem, significantly predicted participants' Celebrity Worship at intense personal level. The results of the regression indicated only one predictor, i.e., Perceived social support, explained 09.5% of the variance ($R^2 = .14$, $F(6,102) = 2.89$, $p < .05$). It was found that Perceived social support significantly predicted celebrity worship at intensepersonal level and is negatively correlated. ($\hat{\alpha} = -.35$, $p < .001$)

Multiple regression analysis was used to test if Perceived Social Support and Self Esteem, significantly predicted participants' Celebrity Worship at Borderline Pathological Levels. The results of the regression indicated only one predictor, i.e., Perceived social support, explained 13.0% of the variance ($R^2 = .17$, $F(6,102) = 3.70$, $p < .01$). It was

Discussion

The study attempts to do a study on relationship among participants' level of Self Esteem, Perceived Social Support and Attachment and also to see how much these constructs predict the development of Celebrity Worship. With the stated objectives, the study was carried out employing a sample of 109 participants of age group-15-25 years, including both male and female respondents. The participants were drawn from various internet forums and school and college campuses of Delhi. Only Indian participants were included in the study. The results of the study can be discussed as under.

Hypothesis-1 was that there will be a positive correlation among Perceived Social support and Self-esteem. It was attempted to find out to what extent participant's Self Esteem and Perceived Social Support correlated with each other. Pearson correlation coefficient was computed.

The current study failed to find any correlation between Self Esteem and Perceived Social Support. This study contradicts the findings of Karatas, et al¹⁵ who found a causal relation-ship between self-esteem, perceived social support in adolescents. Most of social support resources are families,

friends and teachers for adolescents and researchers found positive and significant relationship between adolescents' social support in high positive self-esteem.^{16,17}

The contradictory findings can be attributed to the fact that the participants has held other sources like educational achievement, excellence in extra-curricular activities etc. as the foundation of self-esteem and not particularly relationship with friends and parents, while completing the questionnaires.

Hypothesis -2 was that there will be a negative correlation of Perceived Social support and Self-esteem with celebrity worship. From the correlational analysis, it can be seen that Celebrity Worship- at all three levels, i.e.-Entertainment social, Intense personal and Borderline pathological is found to have negative correlation with Perceived Social Support at .01 level. As individuals perceived support from family and friends increase, the need to form parasocial relationships is reduced. The real relationships emerge as more fulfilling.

Similarly, when Celebrity Worship is compared with Self Esteem of the participants, the results indicated no significant relationship among them. This is indicating that the present sample of participants do not derive their sense of esteem by forming attachments with celebrities. Their foundation of Esteem can be speculated to be linked to Educational achievement or excellence in related fields.

Hypothesis-3 was that there will be a significant variance by Self-esteem in Intense-personal and Borderline-pathological Celebrity Worshipers. Regression analysis showed that participant's Self Esteem failed to predict celebrity worship at intense-personal level and borderline pathological levels. Researches done in this area has mainly focused on how celebrity worship influences Self- esteem and not how level of self-esteem in an individual influences the development of celebrity worship.. Maltby, and Gillett¹⁸ suggested that intense personal celebrity worship and borderline pathological celebrity worship do have positive and negative effects regarding adolescent self-esteem. Intense personal celebrity worship, the emulating of a single celebrity or multiple celebrities with desirable characteristics or features, renders an increase in self-esteem and stability in the reconstruction of the self-concept. Borderline pathological celebrity

worship, the attempt to emulate an individual celebrity as a whole, renders a decrease in self-esteem due to the inability of an adolescent to become acceptably similar to his or her worshiped celebrity.

For adolescents, the celebrities serve as idealized self- images for them and possess the qualities that they would like to develop or refine in themselves.¹ The entertainment celebrities may inspire efforts at self- transformation that profoundly affect adolescents' sense of identity and feelings of self-worth.

The results concerning the proposed relationships between different types of celebrity worship and self-esteem is worth analyzing. The failure to predict celebrity worship with the level of self-esteem might be explicable by taking into consideration factors such as -Who is their real role model? It may happen that individuals have not chosen celebrities or famous persons to define their identity; rather they might have considered real life heroes or persons as someone to look up to. Lower levels of self -esteem does not decidedly make individuals turn to form parasocial attachments, but they might consider trying out different fields to excel.

Hypothesis-4 was that there will be a significant variance by Perceived Social Support in the Intense-personal and Borderline-pathological Celebrity Worshipers. Regression Analysis showed that Perceived social support significantly predicted celebrity worship at intense-personal level ($\beta = -.35, p < .001$) and at Borderline Pathological($\beta = -.38, p < .001$).

People who lack social support or are shy and lonely, might be especially attracted to one-sided relationships with celebrities because these relationships are undemanding. It provides a sense of attachment which the individual is looking for. Parasocial relationships have the capacity to make feel emotions which one experiences in real relationships. Through directly observing the media personality in a variety of situations and with the accumulation of the shared experiences, the viewer's come to feel that they actually know the media personalities like they know their friends. A fake bond of intimacy is formed between media personalities. It is not necessary for people to be comfortable with celebrities, and people are not

required to communicate with the celebrities they encounter regularly on radio, television, and in magazines. Also relationships with celebrities do not force shy people to experience the discomfort that typifies their interactions with “ordinary” people. In their study on parasocial interaction with soap opera characters, Perse and Rubin¹⁹ indicated that parasocial relationships also had the benefit of reducing uncertainty about social relationships. Individuals with parasocial relationships often express appreciation towards their favourite personalities for helping them to get through rough times.

Some of the limitations of this study are elucidated. This study is correlational in nature. One cannot draw causal inferences from the results. There could be alternative explanations for the findings. The present results are based on a sample of relatively small size-it remains a task for future researcher to replicate these findings.

Generalization of results is another limitation of this study. Purposive sampling was employed in the current research. More research is needed to determine if the results could be generalized to different age groups.

Rather than individuals engaging in Celebrity Worship because they have low perceived Social Support, it could be due to some other extraneous variable that difference exists. Due to cost and time constraints, large portion data was collected via online participants, and it may have encouraged only a certain population to fill up the questionnaires. Quantitative research alone found to be insufficient to explain why people form parasocial relationships or engage in celebrity worshipping.

Study on Celebrity worship is important. As media is reaching new heights of ways of interacting with its consumers, obsession with celebrities is only going to increase. This is necessary for initiating preventive measures by parents and caregivers to curb the development of Celebrity Worshipping to intermediate and extreme levels. It was seen that low Perceived social Support significantly predicted the occurrences of worshipping celebrities. Celebrity worship is a phenomenon which is seen in different cultures and it serves different social-emotional functions pertaining to that culture and not restricted to the western individualistic cultures Future research can try to find if results found in western

countries replicate the findings on Indian population. Research focuses on link between pathology and celebrity worship-ignored its positive effects.

Longitudinal studies on same individuals would help find out the different factors contributing to development of celebrity worship and its temporal stability. Utilization of qualitative as well as quantitative methods will give a better insight into the reasons for celebrity worship.

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Original Article

A Study of Personality Profile and Depression in individuals who join a Gym

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Abstract

Introduction: Going to a gym and exercising are quite common recreational and fitness activities among people of all age groups. The purpose can be to counter the obesity or for body building. Of late, there is a growing interest in understanding psychological functioning of obese subjects and the influence of psychological factors on treatment outcome, especially in the backdrop of a sharp rise in their prevalence around the world. Earlier findings on those who are into body building also suggest a possible link between social physique anxiety and bodybuilding dependence. The personality profiles of these two groups of individuals could provide useful insights into their psychological functioning.

Objectives: The present study aims to study the personality profile of individuals who join a gym for losing weight or for body building and also to study depression in these individuals. **Method:** 50 individuals who had joined a gym for losing weight or for body building, and had been attending the gym regularly for at least three months were included in the study. The study sample was assessed with a self-structured Socio-demographic Performa, The 16-PF questionnaire, Form B or C, whichever appropriate, Amritsar Depressive inventory and P.G.I. N-2 Questionnaire. The data was analyzed with the help of appropriate statistical methods. **Results:** From the results we were able to conclude that majority of gym going individuals disliked social foundation and they were unable to tolerate frustrations and got provoked with trivial stimuli. Obese individuals have to face stigmatization and discrimination in many domains of their lives, and their psychological well-being is usually compromised. 10.7 percent of males and 18.2 percent of females had severe depression. As regards the personality profile of body builders, they were found to be significantly more obsessional, perfectionist, anhedonic, and pathologically narcissistic than the general population. In measures of body image, the bodybuilders consistently displayed greater dissatisfaction than the control men.

Key words – Personality, Obese, Body builder

Introduction

The people who are obese and those who are into bodybuilding are singularly distinctive groups from the psychiatric viewpoint. The personality profiles of these two groups of individuals could provide useful insights into their psychological functioning. Do these groups have greater psychiatric morbidity as compared to the general population? The answer seems to be in the

affirmative in studies carried out thus far.

Obesity is a complex disease since a great number of factors play a role in its pathogenesis which include behaviors, environment, culture, socioeconomic status, genetic and biological features. All these aspects play a role and may have an effect in determining people to be overweight and obese.¹ Obese individuals face stigmatization and discrimination in many domains of their lives, and

their psychological well-being is usually compromised.² On the other hand, it has been proposed that specific aspects of psychological functioning may increase the risk of developing obesity.³

Of late, there is a growing interest in understanding psychological functioning of obese subjects and the influence of psychological factors on treatment outcome, especially in the backdrop of a sharp rise in their prevalence around the world.⁴

In this framework, the most common psychological constructs studied are: self-motivation, self-efficacy, locus of control, health related quality of life, self-esteem, self-control, concern about body image, outcome expectations, and personality traits. These features have been explored in the literature through a wide variety of psychometric instruments.⁴

The individuals who join the gym for body building are typically described as having a tendency for social isolation, and having less group dependence. Earlier findings on exercise dependence and self esteem suggest a possible link between social physique anxiety and bodybuilding dependence. Social physique anxiety^{5,6} refers to the degree to which people become anxious when others observe or evaluate their physiques. It is possible that, as bodybuilders become more muscular, they may overcome inferiority feelings, becoming dependent on feeling good about their physiques.⁷

The present study aims to evaluate the personality traits of individuals who join the gym for body building in India and compare it with the findings of the previous similar studies.

Aims and objectives

1. To study the personality profile of individuals who join a gym for losing weight or for body building.
2. To study depression in the individuals who join a gym for losing weight or for body building.

Material and Methods

Fifty individuals who had joined a gym for losing weight or for body building, and had been attending the gym regularly for at least three months were included in the study. A duration of 3 months was chosen to make sure that the person is motivated

enough to lose weight or build his body and is going regularly to the gym. An informed consent was taken before the subjects were included in the study.

Inclusion Criteria

1. Individuals who have been going to gym for losing weight or body building for 3 months
2. Not suffering from any chronic mental and physical illness

Exclusion Criteria

1. Those not consenting for evaluation
2. Individuals on any medication were excluded

The study sample was administered the following tools:

1. A self-structured Socio-demographic Performa
2. 16-PF questionnaire, Form B or C, whichever appropriate⁸ – is a self-report personality test that provides a measure of normal personality and used for diagnosis, prognosis and therapy planning for psychiatric patients. The test instructions are simple and straightforward, the test is un-timed and measures 16 personality factors.
3. Amritsar Depressive inventory⁹ – is a 30 item questionnaire developed by Dr. Gurmeet Singh et al. It is used to assess the severity of depressive symptoms. The questions commonly describe signs and symptoms of depression. The questions are suitable for both illiterate and literate individuals
4. P.G.I. N-2 Questionnaire¹⁰ – is an easy-to-administer Hindi neuroticism measure applicable to both urban and rural population irrespective of educational status. Results show that the PGHQN-2 is a fairly consistent, stable, and reliable measure for use in both literate or illiterate groups. It is a simple 60 item scale which gives idea of neuroticism in the subject.

These scales are standardized and validated tools and do not have any copyrights, so can be used without permission.

The subjects were approached by the researcher and explained about the nature of the study. After assuring their willingness to participate

in the study, they were administered the tools. The data was analyzed with the help of appropriate statistical methods.

Results

The mean age of the study sample was 28.84 years with the standard deviation of 7.52 (Table-1). The sample comprised of 28 males and 22 females. 24 of the 28 males (85.7%) were aged 21 to 30 years. There were 54.5% females of the same age group. There was a significant proportion of females (46.5%) who were aged 31 years or above (Table - 2). In this study people in the age group of 21-30 years were more common. Majority of males (42.8%) and females (54.5%) were graduates (Table – 3).

Table – 1. Distribution with Respect to Age (N = 50)

Mean Age	28.84 years
Standard Deviation	7.52

Table – 2. Distribution with Respect to Gender (N = 50)

Age Range	Number of Males	Number of Females
21 to 30 years	24	12
31 years and above	04	10

Table – 3. Distribution with Respect to Educational Qualification (N = 50)

Educational Qualification	Number of Males (%) (N = 28)	Number of Females (%) (N = 22)
Matric	4 (14.2)	2 (9.1)
Secondary (Class XII)	6 (21.4)	5 (22.7)
Graduation	12 (42.8)	12 (54.)
Post-Graduates	6 (21.4)	3 (13.6)

Table – 4. Distribution to Occupation (N=50)

Occupation	Number of Males (%) (N = 28)	Number of Females (%) (N = 22)
Students	14 (50.0)	7 (31.9)
House Wives	0	9 (40.9)
Professionals	5 (17.9)	6 (27.3)
Shopkeepers	9 (32.1)	0

Most of the male subjects (50%) were students while most of the female subjects (40.9%) were housewives (Table – 4).

The 16 PF profile (Table – 5) reflects majority of gym going individuals irrespective of their age and sex, were impulsive, disliked social foundation and they were unable to tolerate frustrations and got provoked with trivial stimuli. They appeared to be expedient, took decisions on impulses rather than intelligence, had weaker super ego strength, and were more practical. They were regulated by external realities and were sentimental in their temperaments.

Table – 5. 16 PF Profile

Factors	Standard Score (Mean)	Personality Characteristics
A	5.06	Extroversion and Introversion Tendencies
B	3.98	Intelligence Utility
C	4.0	Emotional strengths and Reactivity
E	6.5	Submissive versus Assertive Traits
F	4.86	Surgency vs Desurgency Traits
G	3.79	Superego strengths
H	5.64	Shy versus spontaneous traits
I	5.71	Independent vs Dependent traits
L	6.79	Trusting vs Suspicious
M	4.07	Practical vs Imaginative
N	4.43	Sentimental vs Shrewed
O	5.29	Confidence vs worrying
Q1	5.21	Conservative vs experimenting traits
Q2	5.71	Group dependence vs self sufficiency
Q3	5.79	Undisciplined self confidence vs socially precise traits
Q4	5.79	Relaxed vs high ergic tension

Table – 6. Scores on Amritsar Depressive Inventory (N = 50)

Score	Number of Males (%) (N=28)	Number of Females (%) (N=22)
< 15	21 (75.0)	13 (59.1)
16-22	4 (14.3)	5 (22.7)
>22	3 (10.7)	4 (18.2)
Mean Score	9.55	10.87

Scores on the Amritsar Depressive Inventory (A.D.I.) indicate that 75 percent of the male subjects and 59.1 percent of the female subjects scored less than 15 which indicates insignificant level of depression (Table – 6).

10.7 percent of males and 18.2 percent of

Table – 7. Scores Attained on P.G.I. Health Questionnaire (N=50)

Score	Number of Males (%) (N=28)	Number of Females (%) (N=22)
< 14	7 (25)	4 (18.2)
14-25	9 (32.1)	6 (27.3)
26-37	9 (32.1)	9 (40.9)
>35	3 (10.7)	3 (13.6)
Mean “N” Score	26.65	28.87
Mean “L” Score	2.24	0.84

females had scores of greater than 22 indicative of severe depression. The preponderance of severe depression in females is in agreement with the earlier studies on the epidemiological aspects of depression.

As regards the P.G.I. N-2 Health questionnaire, 42.8 percent of the males and 54.5 percent of the females had scores greater than 25 which indicate a high level of neuroticism (Table – 7).

Discussion

The individuals who join a gym with the aim of losing weight or for bodybuilding present an interesting group to study from a psychiatric viewpoint. These patients are known to have greater psychiatric morbidity as compared to the general population. We aimed at unveiling the personality profile of these individuals as well as the nature and extent of psychiatric morbidity in them.

Personality traits in the field of obesity as well as body building have been widely assessed in the available literature using a wide variety of scales such as the Temperament and Character Inventory (TCI)¹¹ and Toronto Alexithymia Scale^{12,13}

Moving to psychological correlates of obesity, some studies aimed primarily at identifying domains of psychological dysfunction associated with obesity have been published.¹⁴⁻¹⁵ The association with obesity seems to be bidirectional: obese individuals face stigmatization and discrimination in many domains of their lives, and their psychological well-being is usually compromised.² On the other hand, it has been proposed that specific aspects of psychological functioning may increase the risk of developing obesity.³

Alexithymic personality traits, which can be defined as the difficulty in describing feelings to others and in sharing inner experiences, are a psychological feature frequently observed in obese

patients.¹⁷ The personality profile of individuals included in our study shows that the majority of gym going individuals, irrespective of their age and sex, were impulsive, disliked social foundation and they were unable to tolerate frustrations and got provoked with trivial stimuli. They appeared to be expedient, took decisions on impulses rather than intelligence, had weaker super ego strength, and were more practical. They were regulated by external realities and were sentimental in their temperaments. This profile is broadly similar to the findings of the earlier studies.

There is accumulating evidence that young men have become as concerned with their physical appearance as young women. However, different from women who want to achieve an ultra-slender body shape, most men want to increase their muscle mass and body size. As regards the personality profile of body builders, they were found to be significantly more obsessional, perfectionistic, anhedonic, and pathologically narcissistic than the general population. In measures of body image, the bodybuilders consistently displayed greater dissatisfaction than the control men.¹⁸

Other studies have shown that bodybuilders showed higher self-esteem scores (physical self, moral-ethical, personal and social self, they have a stronger identity, self-image, higher perceptions of suitability of behavior) than other elite athletes and non-athletes.¹⁹ These findings are again in broad agreement with those of our study.

A direct comparison of our findings with those of the aforementioned studies is not appropriate for two reasons. One, the scales used to assess the personality traits are different across these studies and, two, the obese and the body builders have been assessed separately in these studies. This is in contrast to our study wherein we have not distinguished between these subsets of individuals.

As regards the psychiatric morbidity in these individuals, we found that 10.7 percent of males and 18.2 percent of females had scores of greater than 22 indicative of severe depression. Studies conducted earlier also show similar results stating that 33% obese subjects were assessed to have a psychiatric disorder.²⁰ Depressive disorder (17.9%) was the most common diagnosis. 42.8 percent of the males and 54.5 percent of the females had scores greater than 25 which indicates a high level of neuroticism.

Previous studies have found that the bodybuilders displayed rates of psychiatric disorders higher than those in control men. Bodybuilders scored lower on depression, irritability, suppression, sincerity and emotional instability.²¹

Limitations

The results from our study must be interpreted in the light of the following limitations:

1. The relatively small sample size.
2. The sample was drawn from the gym located in the heart of the city, thereby implying that the sample consisted entirely of individuals coming from urban area.
3. The lack of differentiation between individuals who had joined the gym for losing weight and those who had done so for body building.

Conclusion

On the basis of above findings it is concluded that psychiatric problems are still considered a stigma in the society due to which majority of the people suffering from depression go for physical exercises in the curtain of body building or physical fitness to cope with their depression and their neurotic traits. They require a proper professional help to get rid of their neurotic traits and depression along with bodybuilding and fitness.

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Original Article

Academic achievement as a function of Executive Functioning among Children and Adolescents: A Comparative study

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Abstract

Introduction: Executive function (EF) refers to a set of cognitive processes such as the ability to initiate, sustain, inhibit and shift attention that are utilized in the management of goal-directed behaviours and in planning and completion of complex tasks. Although, there have always been systematic efforts to study the cognitive and executive functioning of children with specific neuro-developmental and psychiatric disorders, study of specific cognitive and executive functions among children and adolescents with consistently low academic achievement has been a rarely studied phenomenon. **Aim:** The present study aimed to assess the executive functioning of consistently low academic achievers in comparison with average to above average achievers among children and adolescents. **Sample:** The sample comprised of 120 school going children with 60 falling within the age range of 8-10 years (children group) and 60 within the age range of 14-16 years (adolescent group). Out of 60 children in each group, 30 were consistently low achievers while 30 were average to above average performers. **Tools:** Developmental Psychopathology Checklist (DPCL) was administered to rule out the psychopathology, if any. Standard Progressive Matrices (SPM) was used to assess abstract reasoning, Digit-Symbol Coding (from MISIC) was used to assess psychomotor coordination and speed, Trail Making Test (TMT-Sets A & B) for set shifting and cognitive flexibility, Digit Span (from MISIC) for short term and working memory, and Color-Stroop test for response inhibition. All the tests were administered to the selected sample from three different schools after obtaining the informed consent. **Analysis:** The results obtained on different tests of cognitive and executive functions for the samples of children with low and average to above average achievers at two different developmental stages—children sample (8-10 years) and adolescent sample (14-16 years) were compared using t-tests. Multiple linear regression analysis was applied to identify the predictor variables of academic achievement at both developmental stages. **Conclusion:** Children with low achievement showed significant deficits in their cognitive functioning as compared to average to above average achievers. The difference in the executive function deficits is more consistent and pronounced at adolescent level as compared to younger age group. **Implication:** The study has definite implications in planning cognitive retraining for younger age group children showing consistently low academic achievement that should largely concentrate on executive functions for improvement in their overall scholastic ability and achievement till they reach critical years of career development and occupational growth. **Key words:** Cognitive function, Executive functions, Academic achievement, Set-shifting and Response inhibition

Introduction

Cognitive deficits in children range from minimal functioning in mental retardation to mild impairment in specific mental operations found in various developmental disorders and among children with lower intellectual potential. Cognition is concerned with those human faculties that involve generating an awareness of one's surroundings, attention to tasks, memory, reasoning, problem solving, and executive functioning e.g., goal setting, planning, initiating, self-awareness, self-monitoring and evaluation that are central to adaptive potential of an individual.¹ These functions originate early in life and continue to develop through adolescence and adulthood before levelling off and starting to decline in old age.

The significance of cognitive function in educational performance and academic achievement has been an area of interest not only for the educationists but also for clinical psychologists as academic achievement directly extends its influence on better adaptability, emotional and psychological wellbeing, and eventually the occupational growth and achievement of an individual in future. Moreover, apart from special educators, psychologists are the ones who are being deployed the responsibility of managing and intervening with children showing low academic achievement.

Academic achievement is determined by a variety of factors including educational opportunity, socio-economic status (SES), social aptitudes, personality traits and cognitive skills.²⁻⁴ Studies have indicated gender, birth weight, nutritional status of children positively correlate with academic performance and cognitive function.⁵ In a study, the factors that were found to be independently associated with poor academic achievement had lower mean on Raven's SPM, low socioeconomic status, larger sibship size, male gender and a history of prematurity.⁶

Intrinsic academic motivation is yet another important construct that has been found to be consistently associated with academic performance and achievement among children.^{7,8} Infact, a number of studies have also indicated the association between physical fitness or physical activity with academic achievement and cognitive ability among children and adolescents.⁹⁻¹¹

Nonetheless, higher level achievement will depend to some extent on the basic skills that feed into more complex reading and mathematical abilities.¹² Tymms (1999) referred to these as "general developed abilities", which includes skills (at school entry) such as letter recognition, spelling, and phonemic awareness as precursors to reading, and number recognition, magnitude understanding, and counting as precursors to mathematics.¹³⁻¹⁵ Clearly, these predictor variables are a simplified form of the complex skill they are predicting and represent crystallized knowledge [or what Cattell referred to as crystallized intelligence (Gc)] built up on the basis of experiences in the home, nursery school, and other social settings.¹⁶ However, Gathercole et al. (2004) pointed out that such learning opportunities also interact with a basic cognitive capacity for learning, and it is essential to assess these fluid cognitive capacities, or skills that are *not* knowledge based and generally less determined by socioeconomic and other related factors directly associated with academic achievement. Such abilities can also be referred to as fluid intelligence (Gf) that are the *basic cognitive skills* of an individual and represent a biologically based ability to acquire skills and knowledge during the lifespan.¹⁷ As such, it is argued that such fluid cognitive capacities (or Gf) should predict learning in evolutionarily novel contexts such as school and the workplace.¹²

Thus, the impact of cognitive functioning of an individual on academic achievement can never be overlooked. The cognitive functioning is associated with the overall intellectual functioning of an individual. However, specific domains of cognitive abilities assert direct influence on various mental functions that may affect academic performance and scholastic ability in turn. Various cognitive functions such as attention, memory, visuo-spatial and perceptual ability and executive functioning such as working memory, set shifting and cognitive flexibility, planning and problem solving have all been explored in relation to the academic achievement.¹⁸⁻²²

The ability to focus on the task at hand and ignore distraction, also termed *selective attention*, appears to have reverberating effects on several domains important to academic foundations.¹⁸ Selective attention refers to the processes that allow

an individual to select and focus on particular input for further processing while simultaneously suppressing irrelevant or distracting information be it auditory or visual. Drawing on research from cognitive science and cognitive neuroscience, a role of selective attention in three domains important to academic foundations (language, literacy, and mathematics) has been suggested.¹⁸

Few researchers have also investigated the relationship of visual discrimination, spatial relations, memory and auditory-visual integration to school learning in children.²² The findings have indicated the relationship of visual-perceptual skills to academic ability, relationship of specific visual tests to academic achievement, differences in visual skills between achievers and under achievers and failure in school due to visual-perceptual deficits.

Literature has also shown that relative to age-matched controls, children with poor arithmetic had normal phonological working memory but were impaired on spatial working memory and some aspects of executive processing.²⁰ Compared to ability-matched controls, they were impaired only on one task designed to assess executive processes for holding and manipulating information in long-term memory. These deficits in executive and spatial aspects of working memory seem likely to be important factors in poor arithmetic attainment.²⁰

Thus, there is now substantial evidence that executive functioning plays an important role in learning during childhood.^{19-21,23-26} Infact, in the past 20 years, research on neurobehavioral functioning in ADHD has also shifted away from examining attention problems to the broader category of EF deficiencies²⁷ including measures of response inhibition, vigilance, spatial working memory, and planning.²⁸

Executive function (EF) refers to a set of cognitive processes utilized in the management of goal-directed behaviors and in the development and implementation of an approach to completing tasks that have not been habitually performed.²⁹ It is a multidimensional construct, separable from (but dependent on) core “ingredient” skills such as vocabulary, visuospatial skills, and intelligence.

Several studies have demonstrated a relationship between performance on working memory tasks and reading.³⁰⁻³⁴ comprehension³⁵ and arithmetic.³⁶ There has been evidence of domain-

specific links between working memory and learning with strongest associations between verbal working memory and standardized attainments in English and between visuo-spatial working memory and attainments in mathematics and science.³⁷ Inhibitory processes have been implicated in reading,³⁸ comprehension,³⁹ vocabulary learning,⁴⁰ and mathematics.⁴¹ Shifting abilities have been associated with both writing skills⁴² and arithmetic.^{19,21}

Cognitive studies of mathematical achievement and disorder also provide valuable insights into the deficits that might underlie difficulties in learning mathematics.¹² Recent research is placing more emphasis on the important role of the visual- spatial sketch pad in children's early arithmetical skills.⁴³⁻⁴⁴ Studies of children with specific mathematical difficulties have shown that they typically perform poorly on visuo-spatial span measures.^{20,45-46}

Many studies have used the working memory model of Baddeley and Hitch⁴⁷⁻⁴⁹ as a framework within which to study a range of cognitive skills, and recent work indicates that working memory is a core mechanism underlying individual differences in fluid intelligence (Gf).¹²

In a study, children between the ages of 7 and 14 years, who score poorly on working memory measures linked with executive skills typically perform below expected standards in national curriculum assessments of English, mathematics, and science in England.^{16,37,50-51}

More recent conceptualizations of the central executive^{47,52} support the idea of distinct executive functions, some of which are more strongly related to general fluid abilities (or Gf) than others. These distinct executive functions include: shifting, updating, and inhibition. Shifting involves moving backwards and forwards between multiple tasks, operations, or mental sets.⁵³ Updating requires monitoring and coding of incoming information and appropriately revising the items held in working memory by replacing no-longer-relevant information with new, more relevant information.⁵⁴ Inhibition in this context refers to the ability to deliberately inhibit dominant, automatic or prepotent responses.⁵⁵

In an individual differences study of adult participants, it was found that these three executive functions were separable.^{56,57} Friedman et al⁵⁸

reported that in healthy adults, updating (or what others would refer to as working memory) is most closely related to intelligence, whereas the links between inhibition and shifting to intelligence were much lower and significantly mediated by the variance shared with updating. However, where frontal lobe functioning is compromised (as we might expect early in development), executive function skills may not be so easily differentiated, resulting in higher and more general executive function-intelligence correlations.

In present study, an attempt has been made to assess the selected cognitive functions including executive functioning of consistently low academic achievers in comparison with average to above average achievers at two different developmental stages—developmental stage-I i.e. children at primary school level falling in the age range of 8-10 years and developmental stage-II i.e. children/adolescents at high school level falling in the age range of 14-16 years. Given the aim of the study, following objectives were laid down: (a) to study and compare the pattern of cognitive functioning on selected cognitive functions among low and high academic achievers at developmental stage-I i.e. primary school level (8-10 years of age), (b) to study and compare the pattern of cognitive functioning on selected cognitive functions among low and high academic achievers at developmental stage-II i.e. at high school or adolescent level (14-16 years of age), and (c) to identify the predictors of academic achievement at both the developmental stages distinctly.

There is some evidence for discrete executive functions in children although both the number and nature of these functions have differed widely across studies.^{56,59-60} There is also some evidence to suggest that there may be developmental differences in the organization of executive functions.⁶¹ Thus, if the deficits among low achievers are more pronounced at primary school level i.e. at younger ages, appropriate interventions can be planned and executed at these stages so that the children are able to perform better academically at senior educational levels.

Methodology

As the literature suggests the specific role of executive functioning in attaining better academic performance and achievement, the aim of the

present study was to explore the differences in specific cognitive functions among children with low academic achievement and those with average to above average achievement so as to decipher the deficits in specific cognitive abilities that might interfere with academic performance and achievement at different stages of development. With the given purpose of study, the children were assessed at two different developmental stages i.e. children at primary school level (8-10 years of age) and children at high school level (14-16 years of age).

The cognitive functions assessed involved abstract reasoning, psychomotor coordination and speed, visuo-perceptual and visual-integration ability, short term memory span, working memory, set shifting and response inhibition. Raven's Standard Progressive Matrices was used to assess *spatial* and *abstract reasoning*, Bender Visual-Motor Gestalt Test (BVMGT-II) was used to assess *visuo-perceptual and visual-integration* ability, Digit-symbol coding (from MISIC) was used to assess *psychomotor coordination and speed*, Digit Forward (from MISIC) was used to assess *short term memory span*, Digit Backward (from MISIC) was used to assess *working memory*, Trail Making Test-A (TMT-A) was used to assess *visual attention* and *scanning*, Trail Making Test-B (TMT-B) was used to assess *set shifting*, and lastly, the *response inhibition* was assessed using Stroop Color-word interference test.

Sample

The sample comprised of 120 school going children at two developmental stages selected using purposive sampling technique. Sixty children were at primary school level falling within the age range of 8-10 years and sixty children were adolescents at high school level falling within the age range of 14-16 years. Out of sixty children in each group, thirty were consistently low achievers while thirty were average to above average performers as suggested by the teachers on the basis of their previous academic performance and grades. The students included in the study sample belonged to three different schools—two Public and one Government school located in Delhi and NCR region. Forty children were taken from each school—twenty at 8-10 years of age and twenty at

14-16 years of age.

Before initiating the process, an informed consent was taken from the school authorities and the parents. It was imperative to include only those children who did not have any specific psychopathology or disorder that might interfere with their academic output and scholastic ability. Therefore, a Developmental Psychopathology Checklist (Kapur, 2001) was used to rule out the psychopathology, if any, among children. Only those subjects who did not show any specific psychological or developmental disorder were included in the study. Ethical issues were taken into consideration while doing the assessment and intervention for children.

Tools

(a) *Developmental Psychopathology Checklist (DPCL)* (Kapur, 2001): DPCL was administered to screen out children with specific developmental disorders and other clinical conditions that are believed to interfere with the cognitive functioning and scholastic ability of children. DPCL is validated against a well-known western tool Child Behaviour Checklist (CBCL) with established reliability and validity. Infact, it goes beyond CBCL by providing anchor points to syndromes relevant in the Indian context and possibly elsewhere too. It provides 12 different categories along which the scores are obtained with total scores and cut off scores for reaching a diagnosis or to rule out the disorder. The checklist includes autism, developmental disorder, psychoses, hysteria and learning disorder apart from disorders of emotion and conduct.

(b) *Standard Progressive Matrices (SPM)* (Raven, Court & Raven, 1983): SPM was used to assess the abstract reasoning ability of the subjects. This test is a measure of the person's capacity at the time of the test to apprehend meaningless figures presented for his observation, see the relations between them, conceive the nature of the figure completing each system of relations presented, and by so doing develop a systematic method of reasoning. The test consists of 60 problems divided into five sets of 12. In each set the items become progressively more difficult and cover the whole span of intellectual development beginning with making simple comparisons to reasoning with analogy. SPM was designed to be equally useful with persons of all ages, whatever

their education, nationality or physical condition. The majority of studies giving consistency data report correlations of at least 0.90 with a modal value of 0.91.

(c) *Bender Visual-Motor Gestalt test-second edition (BVMGT-II)* (Brannigan & Decker, 2003): Bender Gestalt-II measures visual-motor integration skills in children and adults from 4-85+ years of age. This revision of the test has been developed with the purpose of extending the measurement scale. For this, the test utilizes the original nine designs along with seven new designs that have been added to enhance its assessment and educational utility. Four of the designs are used exclusively with the lower age range (4-7 years, 11 months) and three others are used exclusively with the upper age groups (8-85+ years) along with the original nine designs. Additional features include a 5-point Global Scoring system and normative data drawn from a representative sample of 4000 individuals. The Global scoring system provides individual scores for each item and a total raw score with corresponding standard scores, T-scores and Percentile ranks. The Split-half reliability of the test has been found to be .91 with a standard average error of measurement (SEM) of 4.55. The test-retest reliability of the test has been found to be .85. Validity studies have revealed that BGT-II is significantly related to other measures of visual-motor integration and measurement systems.

(d) *Digit-Symbol Coding (from MISIC)* (Mallin, 1969): Mallin's Intelligence Scale for Indian Children (MISIC) is an Indian adaptation of WISC-R developed by A.J. Mallin for use with children from 6-15.11 years of age. This is a comprehensive test of intellectual functioning that provides specific scores for Verbal Intelligence, Performance Intelligence and a composite score for overall intellectual functioning (IQ). The reliability of the test is established with the test-retest method and yielded a Pearson's Product moment correlation coefficient of 0.91 for the full scale IQ results. This scale comprises twelve sub-tests divided into Verbal and Performance groups was used to assess the psychomotor coordination and speed. Among various sub-tests, *Digit-symbol coding test* is a part of MISIC performance tests. It involves coding symbols for a series of digits for which the sample codes are presented on the sheet. This test is a

measure of the psychomotor coordination and speed.

(e) *Digit Span(from MISIC) (Mallin, 1969)*: MISIC also provides a digit-span test that is a part of MISIC verbal subtests. Digit span involves Digit span forward and Digit span backwards. Digit span forward involves verbal recall of a series of numbers spoken aloud in *forward* sequence which gives a measure of short term memory and attention. Digit span *backwards* involves recalling a series of numbers spoken aloud in the backward sequence. Since it involves holding the series in mind and then reversing the order of numbers while recalling, it provides a measure of *working memory*.

(f) Trail Making Test (TMT-Sets A& B): TMT was administered to assess set shifting and cognitive flexibility. The Trail Making Test is a neuropsychological test of visual attention, cognitive flexibility and set shifting. It consists of two parts – Trail A and Trail B. Trail A is primarily a test of visual attention and psychomotor speed in which the subject is instructed to connect a set of 25 dots presenting numbers 1-25 in ascending sequence as fast as possible while still maintaining accuracy. Trail B involves connecting 25 dots involving both numbers and alphabets that have to be connected in progressive sequence alternating between numbers and alphabets. It can provide information about visual search speed, scanning, speed of processing, mental flexibility, and set shifting—all of which are executive functions. This test is also sensitive to detecting several cognitive impairments and neuropsychological disorders such as Alzheimer's disease and dementia.

(g) *Stroop Color and Word Test (Golden, 2002)*: *Stroop Color and Word test* was administered to assess *response inhibition* and *interference*. This test was developed from the observations by early experimental psychologists that the naming of colour hues is always slower than the reading of color names in the literate adults. Cattell found that words could be read and identified in one-fourth of a second, while it took twice as long to recognize and identify a simple color hue (Golden, 2003). Brown (1915) found that even with intensive practice, color naming was never as fast as word reading. Based on his extensive research, Golden has standardized *Stroop test by expanding and updating* the original normative data on 300 normal ranging from 15-90 years of age. His version of

the test consists of three pages— first presenting the *words* (names of three colors—red, blue and green presented in random order), second presenting colors (4 Xs i.e. XXXX printed in each of the three red, blue and green colors in random order) and the third presenting names of colors presented in different colors. All items on a sheet are presented in the form of 5x10 matrix. Forty five seconds are given to read each sheet. Total raw score for word, color, Color-word sheets are calculated. T-scores for Color-Word interference score give an estimate of response inhibition and cognitive inflexibility. The reliability of Stroop scores is highly consistent across different versions of the test. Golden reported reliabilities of .89, .84 and .73 (N=450) for the group version of the test, and reliabilities of .86, .82 and .73 (N=30) for individual version.

Procedure

Sixty school going children, both boys and girls at primary school level falling in the age range of 8-10 years, studying in IV and V standards, referred to as developmental stage I were included in the study and sixty children 14-16 years of age studying in IX and X standards, referred to as developmental stage II in the present study were selected for inclusion in the study from three different schools. After obtaining the informed consent from school authorities and parents, Developmental psychopathology checklist (DPCL) was administered on each child by interviewing the parents during Parents Teachers Meeting or telephonically so as to rule out the psychopathology, if any. Only those children were included in the sample who were found to have no specific psychopathology or developmental disorder as per DPCL. These selected students were then administered Raven's Standard Progressive matrices, Digit-symbol coding (from MISIC), Bender Visual-Motor Gestalt test- second edition (BVMGT-II), Digit span-Forward and Backward (from MISIC), Trail Making Test-sets A & B, and Stroop Color and Word test. The administration took about 90 to 120 minutes on each child depending upon the child's ability and speed to progress from one test to another.

Results

Given the objectives of the study, the results of analysis conducted are presented in the tables below.

Table 1 presents the *gender* distribution of the sample for the two developmental stages—children (8-10 years) and adolescents (14-16 years) under two conditions of academic achievement i.e. High achievement (average to above average academic performance) and Low achievement (below average academic performance). Chi-square test was applied to see if there is any significant difference in means across gender on various tests of cognitive functioning. None of the chi-square values were found significant indicating no statistically significant differences in means across gender on various tests of cognitive functioning.

Independent sample student's t-test was applied to explore if there is any statistically significant difference between the means of academically low

and high achievement groups on each of the eight cognitive abilities assessed using various tests of cognitive functioning. The results are presented in tables 2 & 3. Regression analysis was used to identify the predictors of good academic achievement among various predictor variables i.e. cognitive abilities assessed using various tests for the two sample groups at different developmental stages. The results for this are presented in tables 4 & 5. The SPSS version 16 was used to carry out the analysis.

It can be seen in the table above, except BVMGT-II, the t-value has been found to be significant for all the domains of cognitive functioning assessed i.e. there is statistically significant difference between the means of low achievement

Table-1. Table presenting gender-wise distribution of sampled population Children (8-10 years)

Academic Achievement	Male	Female	Total
High Achievement (Average to Above average)	14	16	30
Low Achievement (Below Average)	12	18	30
Total	26	34	60
Adolescents (14-16 years)			
Average to Above average	13	17	30
Below Average	8	22	30
Total	21	39	60

Table-2. Table presenting Mean, Standard Deviation (S.D.) and t-values for Children sample on various tests of cognitive functioning

S. No.	Cognitive Tests	Cognitive function/s assessed	High Achievement Group (N=30)	Low Achievement Group (N=30)	t-value
			Mean (S.D.)	Mean (S.D.)	
1.	SPM (Percentile score)	Abstract reasoning	82.43 (8.09)	46.40 (17.33)	10.32**
2.	BVMGT-II (T-score)	Visuo-spatial perception and visual integration	68.73 (5.77)	65.03 (12.07)	1.51
3.	Digit-symbol Coding (Total score)	Psychomotor coordination and speed	46.73 (5.88)	41.66 (8.34)	2.71**
4.	Digit Forward (Total score)	Short term memory span	6.63 (0.72)	6.03 (1.19)	2.36*
5.	Digit Backward (Total score)	Working memory	5.43 (0.89)	3.87 (0.94)	6.61**
6.	Trail A (Time in seconds)	Visual scanning and attention	31.50 (5.26)	65.00 (11.72)	-14.28**
7.	Trail B (Time in seconds)	Set shifting	87.93 (12.52)	(13.42)	-21.86**
8.	Stroop Interference (T-score)	Response Inhibition	55.16 (2.4)	51.00 (2.10)	7.07**

* $p < 0.05$, ** $p < 0.01$

Table 3: Table presenting Mean, Standard Deviation (S.D.) and t-values for Adolescent sample on various tests of cognitive functioning

S. No.	Cognitive Tests	Cognitive function/s assessed	High Achievement Group (N=30)	Low Achievement Group (N=30)	t-value
			Mean (S.D.)	Mean (S.D.)	
1.	SPM (Percentile score)	Abstract reasoning	76.83 (12.28)	56.70 (14.78)	5.73**
2.	BVMGT-II (T-score)	Visuo-spatial perception and visual integration	68.16 (5.99)	65.03 (7.42)	1.79
3.	Digit-symbol Coding (Total score)	Psychomotor coordination and speed	76.90 (8.95)	73.76 (6.02)	1.59
4.	Digit Forward (Total score)	Short term memory span	7.16 (0.95)	5.90 (0.99)	5.04**
5.	Digit Backward (Total score)	Working memory	5.80 (0.96)	4.33 (0.92)	6.03**
6.	Trail A (Time in seconds)	Visual scanning and attention	28.86 (4.60)	37.20 (6.65)	-5.64**
7.	Trail B (Time in seconds)	Set shifting	44.56 (7.62)	68.70 (6.51)	-13.18**
8.	Stroop Interference (T-score)	Response Inhibition	50.73 (2.43)	40.63 (1.84)	18.12**

* p < 0.05, **p < 0.01

Table-4. Predictor variables of Academic achievement identified using Multiple Linear Regression Analysis for children sample (N=60)

S. No.	Dependent Variable	Predictors	R ²	Adjusted R ²	Standard Error of estimate	Beta	F-value (df)	Level of Significance
1.	Academic Achievement	Trail B	.89	.89	.167	.268	477.93** (1, 58)	<.01
2.		SPM	.91	.91	.151	.321	298.73** (2, 57)	<.01
3.		BVMGT-II	.92	.91	.144	.347	223.51** (3, 56)	<.01
4.		Trail A	.93	.92	.138	.368	182.00** (4, 55)	<.01

* p < 0.05, **p < 0.01

Table-5. Predictor variables of Academic achievement identified using Multiple Linear Regression Analysis for Adolescent sample (N=60)

S. No.	Dependent Variable	Predictors	R ²	Adjusted R ²	Standard Error of estimate	Beta	F-value(df)	Level of significance
1.	Academic Achievement	Stroop Interference	.85	.847	.197	.356	327.68** (1, 58)	< 0.01
2.		Trail Making B	.88	.884	.172	.389	225.40** (2, 57)	< 0.01

* p < 0.05, **p < 0.01

and high achievement groups on various cognitive functions except that for *visuo-spatial perceptual ability* in children sample.

Table 3 indicates that except BVMGT-II and

Digit-symbol Coding, the t-value has been found to be significant for all the domains of cognitive functions assessed i.e. there is statistically significant difference between the means of low achievement

and high achievement groups with regard to various cognitive functions except that for *psychomotor coordination and speed* and *visuo-spatial and perceptual ability* among adolescent sample.

Multiple Linear Regression analysis was carried out using *stepwise* method to identify the predictors of academic achievement for children sample at developmental stage-I i.e. between 8-10 years. From Table—4, it is evident that the following four variables: *visual scanning and attention* as assessed using Trail Making A, *abstract reasoning* as assessed using SPM, *visuo-spatial perception and integration* measured using BVMGT-II and *set shifting* as measured using Trail Making B have been found to be the significant predictors of academic achievement and success at primary school level.

As it can be seen from the table above, at developmental stage II, i.e. between 14-16 years, the multiple linear regression analysis performed indicated two predictors of academic achievement i.e. *Set shifting* and *Response inhibition* as measured using Stroop interference and Trail Making B tests respectively. Both set shifting and response inhibition are executive functions indicating that executive functions have greater role in ensuring academic achievement at higher grades in school.

Discussion

The present study casts further light on the relationship between selected cognitive functions, in particular *executive functions* and learning or academic achievement in school going children at two developmental stages—developmental stage I i.e. children stage (8-10 years) and developmental stage II i.e. adolescent stage (14-16 years) with three principal findings. *First*, there are significant differences between low and high achievement groups among children on various cognitive functions assessed using different tests of cognitive and executive functioning except BVMGT-II (*t* value- 1.51, *p*- .135). Out of various cognitive functions assessed, functions assessed by digit backward (assesses working memory), Trail A (visual scanning) and Trail B (set shifting) and Stroop color-word interference test (response inhibition) are primarily the tests for *executive functioning*. SPM assesses spatial and abstract reasoning, BVMGT-II assesses visuo-spatial-

perceptual-integration ability and digit forward assesses attention and short term memory span which are other selected cognitive functions assessed in the present study.

The findings are in congruence with what the literature suggests. Various cognitive functions such as attention, memory, visuo-spatial and perceptual ability and executive functioning such as working memory, set shifting and cognitive flexibility, planning and problem solving have been explored in relation to the academic achievement indicating deficits in these functions result in low academic achievement among school going children.¹⁸⁻²²

Second, again there are significant differences between low and high achievement groups at developmental Stage-II i.e. among adolescent age group sample on various cognitive and executive functions except BVMGT-II and Digit symbol coding. The findings support the existing literature. This indicates that at developmental Stage-II i.e. at ages 14-16 years (adolescent stage), high academic achievers differ from low academic achievers on cognitive abilities of abstract reasoning, visual scanning, short term memory span, working memory, set-shifting and response inhibition.

There is now substantial evidence that executive functioning plays an important role in learning during developmental years.^{19-20,23-24,26}

Among executive functions, the impact of working memory on academic achievement has been well researched and documented. The deficits in executive and spatial aspects of working memory seem likely to be important factors in poor arithmetic attainment (McLean J.F., & Hitch G.J., 1999).²⁰ Between the ages of 7 and 14 years, children who score poorly on working memory measures linked with executive skills typically perform below expected standards in national curriculum assessments of English, mathematics, and science in England.^{16,37,50-51} In order to understand the nature of the contribution made by executive aspects of working memory to the acquisition of complex skills and knowledge during childhood is to identify the component processes involved in relevant working memory measures.

The literature suggest that the two “slave” systems of working memory, the phonological loop and the visual-spatial sketch pad are specialized for processing language based and visuo-spatial

information, respectively. Assessment of these slave systems is typically made using short-term memory tasks where small amounts of material are held and reproduced in a sequential fashion, with minimal resources needed from long-term memory to interpret the task and no additional competing cognitive demands (e.g., digit span, word recall, Corsi blocks, visual-patterns task). The central executive controls the allocation of resources between the phonological loop and the visual-spatial sketch pad, schedules multiple cognitive activities, and is able to revise the content of memory in light of new and relevant information.^{35,62}

The research on the subject has indicated the relationship of visual-perceptual skills to academic ability, relationship of specific visual tests to academic achievement, differences in visual skills between achievers and under achievers and failure in school due to visual-perceptual deficits.²² However, the present study has failed to demonstrate the impact of visuo-spatial-perceptual integration ability as assessed using BVMGT-II at both the developmental stages. Performance on BVMGT-II on the current sample did not show much consistency with regard to perceptual deficits among low achievers. Many children with low achievement did produce sufficiently integrated gestalt despite low SPM percentile scores and deficits in other cognitive functions.

Third finding indicate that the predictor variables of academic achievement at two stages of development are distinct. There is some evidence to suggest that there may be developmental differences in the organization of executive functions.⁶¹ Also, there is evidence for discrete executive functions in children although both the number and nature of these functions have differed widely across studies.^{56,59-60}

In present study, the multiple linear regression analysis indicated that among children i.e. at developmental stage-I (8-10 years), the predictors of academic achievement are cognitive functions assessed by Trail making A, SPM, BVMGT-II and Trail making B. This indicates that the academic achievement at primary school level stage can be best predicted by set attention & visual scanning, abstract reasoning, psychomotor coordination and set shifting of the child. While at adolescent stage i.e. developmental stage II (14-16 years), the

academic achievement is predicted by the cognitive functions assessed by Stroopcolor-word interference test and Trail B. The two key executive functions assessed by these tests—response inhibition²⁸ and set shifting^{19-20,42} have been found to be significantly related to academic success in various studies.

Inhibitory processes have been implicated in reading,^{38,63} comprehension,³⁹ vocabulary learning⁴⁰ and mathematics.⁶¹ Shifting abilities have been associated with both writing skills⁴² and arithmetic.¹⁹⁻²⁰

Further, the present study indicates that these higher order executive functions have high predictive value for academic achievement at higher level education i.e. at high school level and above than psychomotor coordination & speed and visuo-spatial perception and integration.

This extends previous evidence from studies that there are several diverse executive functions (EF)^{52,64} each one contributing to the mental operations in unique ways. EF includes the ability to inhibit inappropriate responses, resist distraction and interference, sustain behaviour for prolonged periods, simultaneously attend to multiple sources of information, grasp the gist of a complex situation, plan activities and sequence complex behaviors.⁶⁵

EF is central to performance and remediation of skill deficits, and includes “intentional” skills, such as the ability to initiate, sustain, inhibit, and shift attention.⁶⁶ Mediated at least in part by frontostriatal circuitry, EF has a protracted period of development in childhood.⁶⁷ As a result, executive dysfunction has been observed in a variety of childhood disorders, especially those involving anomalous frontostriatal development, including Attention-Deficit/Hyperactivity Disorder (ADHD), Autistic Spectrum Disorders, Obsessive Compulsive Disorder, and Tourette’s syndrome.⁶⁸

Motivation is yet another important psychological concepts in education. Intrinsic academic motivation has been found to be consistently associated with academic performance and achievement among children.⁸ Infact, the same has been observed in case of present study as the data suggest that many children identified as low achievers by their teachers based on their academic grades, in both the sample groups, had SPM scores falling in the average range and even showed at least average performance on various tests of

cognitive ability. The deficit in their academic achievement is definitely beyond the purview of deficits in cognitive functioning. Therefore, at least in such cases, apart from various factors other than cognitive and executive functioning may be contributing to their low academic achievement. This could be attributable to low intrinsic academic motivation as suggested by their teachers as well.

It has been shown that intrinsic academic motivation results in better educational outcomes, such as higher academic performances, better quality of learning, increased persistence and effort in studies and better psychological adjustment of learners, than does extrinsic motivation.⁶⁹⁻⁷⁰

Thus, the present study has implications for cognitive retraining and intervention for children showing deficits in specific cognitive and executive functions with low academic achievement. Since in most South-Asian countries, academic achievement greatly impacts the self- concept, emotional well-being and occupational growth and settlement of an individual, it is of prime concern to help children who are low performers with high intrinsic academic motivation to perform academically well and fail to do so due to certain deficits in cognitive abilities. These cognitive abilities are characterized by plasticity⁷¹⁻⁷³ and can, hence, improve with systematic intervention and retraining.

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Original Article

Clinical profile of patients attending community psychiatry clinic in rural area of Aligarh

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Abstract

Background: Mental illnesses accounts for over 15 percent of the total burden of disease as per WHO data on global burden of disease. Disability caused by major depression was ranked second to ischemic heart disease in magnitude of disease burden. While majority of the study conducted in India focussed to understand the psychiatry morbidity and mental health profile of patients of the urban setting there is a relative dearth of study from the rural India. Hence, this study was conducted to broaden our knowledge regarding prevalence of psychiatric disorders in the rural population, which constitutes 63.7% of the total population in India. **Objective:** The main objective of the study clinical profile of patients attending community psychiatry clinic in rural population of Aligarh. **Methodology:** A total of 98 new patients were purposely selected for the study in a period of two year (2013 to 2014). Consecutive new patients attending psychiatric clinic were selected daily for the study. **Results:** The sample consisted of 50 females and 48 males. The mean age of male patients were 35 while that of female was 36. There were almost double numbers of female patients with depression as compared to males. Also there were 5 times female patients with tension headache as compared to their male counterpart. On the other hand, there were twice male as compared to female (20% vs. 10%) with generalized anxiety disorder. Depression was also the most common diagnosis across all the age groups. **Recommendation:** Awareness about the general public should be raised about psychiatric disorder. Since faith healers are often the first person to whom the mentally ill person comes in contact, they could play a potentially constructive role. They should be trained about the signs and symptoms of mental illness and the benefits of early recognition and treatment.

Keywords: Psychiatric Morbidity, Pattern, Rural Population

Introduction

Mental illnesses accounts for over 15 percent of the total burden of disease as per WHO data on global burden of disease¹. Disability caused by major depression was ranked second to ischemic heart disease in magnitude of disease burden. National all-India prevalence rates for 'all mental disorders' is 70.5 (rural), 73 (urban) and 73 (rural +urban) per 1000². India's- urban morbidity is 3.5 % higher than the rural area. Surveys in developed as well as developing countries reported more than 25% of individuals with one or more mental or behavioural

disorders, during their life.³

While majority of the study conducted in India focussed to understand the psychiatry morbidity and mental health profile of patients of the urban setting there is a relative dearth of study from the rural India. It is therefore of utmost importance to understand the mental health problem of patients of rural India so that proper resources can be mobilised to treat them. Also the age of onset sexual maturation had been decreasing with both boys and girls maturing at an earlier age and increased psychiatric morbidity among school going children.^{4,5} Hence,

this study was conducted to broaden our knowledge regarding prevalence of psychiatric disorders in the rural population, which constitutes 63.7% of the total population in India.⁶

Objective

To study clinical profile of patients attending community psychiatry clinic in rural population of Aligarh.

Methodology

Sample: Consecutive new patients attending community psychiatry clinic, from January 1 2013 to December 30 2014 were considered for the study. Community psychiatry clinic operates on weekly basis (every Tuesday) at rural health training centre of Jawaharlal Nehru Medical College of Aligarh Muslim University and is located in the outskirts of Aligarh. Rural health training centre has 6 registered villages – Jawan, Sumera, Tejpur, Chota jawan, Ghariya, Bhojpur Jawan and Sikandarpur. And has 2364 registered families from the above 6 villages. Catering to a total population of 13,787 people. Psychiatry clinic in rural post provides an opportunity to study mental health related problem “in vivo” within the community also provides psychiatry services to patients in a readily assessable way.

Sample size: A total of 98 new patients were purposely selected for the study in a period of two years (2013 to 2014). Consecutive new patients attending psychiatric clinic were selected daily for the study. Patients with a previous history of psychiatric illness were excluded from the study. Also patients with any other co-morbid chronic medical condition viz clinic, uncontrolled diabetes mellitus or hypertension, stroke with neurological deficit or drug resistant epilepsy were excluded from the study. Patients with unreliable informant were also excluded.

Proforma: Information regarding patients was taken using pre-designed structured proforma.

Diagnosis: Subjects were diagnosed based on ICD-10 criteria. Diagnosis was made by a Post graduate junior resident and senior resident psychiatry together posted in community psychiatry. They were reassessed by consultant psychiatry who made the final diagnosis.

Statistical analysis: Continuous variables were expressed as mean $\pm$ standard deviation (Gaussian

distribution), range and qualitative data were expressed as percentage. All Statistical analysis was done using SPSS software.

Results

Age and sex distribution:

Demographic variables — the sample consisted of 50 females and 48 males. The mean age of male patients was 35 while that of female was 36. ($p > 0.05$). Table 1 shows the age distribution of male patients

Table-1. Age and sex distribution of patients

Age group	Male	Female
0-9	1(2%)	1 (2%)
10-19	10 (20%)	4 (8%)
20-29	14(27%)	12 (24%)
30-39	3 (6%)	14 (28%)
40-49	10 (21%)	7 (14%)
50-59	2 (4%)	5 (10%)
60-69	5 (10%)	5 (10%)
70-79	3 (6%)	2 (4%)
Total	48	50

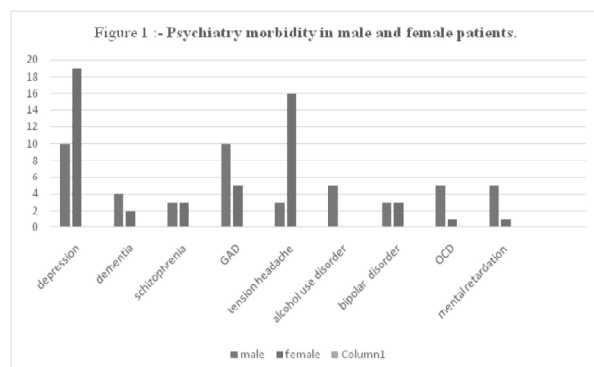
As shown in table 1 maximum number of male patients was in the 20-29 age groups while maximum numbers of female were in the 30–39 years age group.

Psychiatric morbidity in male and female patients

Table 2: Shows ICD-10 diagnosis of male and female patients. There were almost double numbers of female patients with depression as compared to males. Also there were 5 times female patients with tension headache as compared to their male counterpart. On the other hand, there were twice male as compared to female (20% vs. 10%) with generalized anxiety disorder.

Table-2. Psychiatry morbidity of male and female patients

ICD 10 Diagnosis	Male	Female
Depression	10 (21%)	19 (38%)
Dementia	4 (8%)	2 (4%)
Schizophrenia	3 (6%)	3 (6%)
GAD	10 (21%)	5 (10%)
Tension Headache	3 (6%)	16 (32%)
Alcohol Use Disorder	5 (10%)	0 (0)
Bipolar Disorder	3 (6%)	3 (3%)
OCD	5 (10%)	1 (2%)
Mental Retardation	5 (10%)	1 (2%)
Total	48	50



Morbidity across different age groups:

Table 3 shows the psychiatric morbidity across different age groups. As shown in table 3 there maximum numbers of patients were in the 20-39 age group. In them the most common diagnosis was depression while the second most common diagnosis (esp. among female) was tension headache. Also it was observed that depression was also the most common diagnosis across all the age groups.

Table-3. Psychiatric morbidity across different age groups

ICD 10 Diagnosis	0 to 19	20 to 39	40 to 59	60 to 79
Depression	5	20	8	5
Dementia	0	0	2	1
Schizophrenia	1	1	3	1
GAD	2	1	3	1
Tension Headache	3	13	2	7
Alcohol Use Disorder	0	1	1	0
Bipolar Disorder	1	5	1	0
OCD	1	1	2	0
Mental Retardation	3	1	2	0
Total	16	43	24	15

Discussion

Overall turnout of patients attending community psychiatry clinic were low. Two most probable reasons could be lack of awareness about the mental illness within the community and lack of availability of free medications.

The study throws some light on the psychiatry morbidity in rural India which is neglected by the health policy makers. As per our study most common psychiatric diagnosis was depression which was seen in 29 patients. This was followed by tension headache seen in 19 patients and generalised anxiety disorder seen in 15 patients. Earlier studies have pointed out prevalence of depression to be between 1.7 and 74 per 1000 in Indian population while that

of anxiety neurosis to be 16 per 1000.⁶⁻⁹ Similar study conducted by Nandi et al. reported depression to be the most common psychiatry morbidity among rural population.⁸

Suicide is a major public health problem. India ranks 43rd in descending order of rates of suicide with a rate of 10.6/100,000 reported in 2009 (WHO suicide rates)¹ The rates of suicide have greatly increased among youth, and youth are now the group at highest risk in one-third of the developed and developing countries. It is of paramount importance that people who are at high risk of suicide are identified from within the community so that early intervention is made. In our study approximately 30% of patients suffered from depression, this reflects a positive trend with increase in awareness, where patients from rural background are increasingly becoming aware about symptoms of depression.

Second most common diagnosis reported was tension headache seen in 19% of patients. The

lifetime prevalence of tension type headache is quite high (78%), but the majority had episodic infrequent TTH (1 day a month or less) without specific need for medical attention.^{10,11} About 24% to 37% had TTH several times a month. Also majority of patients in our sample with the diagnosis of tension type headache were female.

The numbers of patients with schizophrenia were just 6%. This could be due to lack of awareness in rural area where psychotic episode are given supernatural explanation. This underscores the importance of spreading awareness about these disorders.

Recommendations

Awareness about the general public should be

raised about psychiatric disorder. In this mass media and street plays can play important roles. We have just 0.4 psychiatrists and 0.02 psychologists per 100,000 people, and 0.25 mental health beds per 10,000 populations. If access to mental healthcare is to be improved, mental healthcare must be provided at the community and primary level. Rehabilitation should be given emphasis. Since faith healers are often the first person to whom the mentally ill person comes in contact, they could play a potentially constructive role. They should be trained about the signs and symptoms of mental illness and the benefits of early recognition and treatment. Proper incentives could be given to them on every referral the health budget should be properly utilized for mental health programme.

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Original Article

Effect of Positive Psychology Intervention Module on Happiness and Wellbeing of Students

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Abstract:

Background: Positive Psychology is a field of Psychology based on building strengths and positive virtues in an individual, in other words building the positive rather than treating the negatives. **Aims and Objectives:** To develop and conduct a positive psychology based module and check its affectivity in building wellbeing in students. **Material and Methods:** The study was conducted with 66 college students pursuing B. Tech. at Indraprastha Institute of Information Technology Delhi who were assessed before and after on Personal Well Being Index, Subjective Well Being Scale and Oxford Happiness questionnaire. **Results :** The t-test score revealed that the pre and post intervention scores attained by the intervention subjects on the toll was significant at 95% level of significance. **Conclusion:** This study demonstrated how the 1 semester of Positive Psychology Module increases well being and happiness levels in students with the specially designed module.

Keywords. Positive Psychology, Happiness, Wellbeing.

Introduction

Positive psychology is a recent branch of psychology whose purpose was summed up in 1998 by Martin Seligman and Mihaly Csikszentmihalyi.¹ Positive psychologists seek “to find and nurture genius and talent”, and “to make normal life more fulfilling”, not simply to treat mental illness.¹ The field is intended to complement, not to replace traditional psychology. It does not seek to deny the importance of studying how things go wrong, but rather to emphasize the importance of using the scientific method to determine how things go right. Researchers in the field analyze things like states of pleasure or flow, values, virtues, talents, as well the ways that they can be promoted by social systems and institutions. Psychological well-being (WB) as put-forth by (Diener et al^{2,3}) is termed as not only the absence of a mental disorder but also the presence of positive psychological resources. Ryan and Deci have stated that the positive psychological resources includes components of hedonic or subjective well-being like positive effect,

life satisfaction, happiness and components of eudaimonic wellbeing meaning self-acceptance, positive relations, autonomy, purpose in life etc.⁴ In the current study aimed at developing a module of Positive Psychology, consisting of Hope, Gratitude, Resilience, Positive Belief Systems, Positive Hypnosis, Positive Cognitive Restructuring, Happiness models and Mindfulness, and developing these virtues in students through experiential exercises during the semester.

Objective, Materials and Methods

Objective

The objective of the study was to check the efficacy of a newly designed Positive Psychology Module (Positive Psychology Wellbeing Enhancement Model) increase the happiness and wellbeing levels of students.

Sample

The study was conducted on a sample of 132 students pursuing B.Tech at Indraprastha Institute of Information Technology, Delhi. The students were

both males and females with age range from 19 to 27 years.

Measures and Procedures

The students were tested on Three scales namely:

- Personal Well Being Index-Adult (Cummins & Lau, 2005)⁵
- Oxford Happiness Questionnaire (Hills & Argyle, 2002)⁶
- Subjective Units of Change (Wolpe, 1973)⁷

Methodology and Research Design

A new Positive Psychology Module (Positive Psychology Wellbeing Enhancement Model) was designed which consisted of developing the virtues of Positive Psychology through intensive experiential exercises throughout the semester. The Positive Virtues that were first taught and then were made to systematically experience through exercises were Resilience, Positive Belief development, Inculcation of Happiness Models, Positive Hypnosis, Mindfulness, Gratitude and Positive Cognitive Reasoning. The students were asked to maintain a diary and perform unique exercises on regular basis systematically of each virtue of Positive Psychology for 2 weeks each. The objective of the module was to develop these above mentioned virtues in the students through systematic experiential intervention exercises in order to improve the happiness and wellbeing levels. The students acted as their own control, as their own scores on the above mentioned questionnaires were compared before and after the Positive Psychology module intervention. Also a random control group sample of 66 students was taken which did not undergo the intervention against whom the scores on the above mentioned questionnaires were compared.

The methodology used was an A-B-A design, in which the above mentioned scales was administered on 66 students and their happiness and wellbeing levels were assessed, also the same scales were administered on 66 students not taking the Positive Psychology Course and their happiness and wellbeing levels were assessed as well, after the Positive Psychology course was completed the same questionnaires were assessed on the same sample of 66 students who took the course and the control group of 66 students who did not take the course

and the results were assessed.

Results

The average score on the Personal Wellbeing Index as shown in the above graph before the

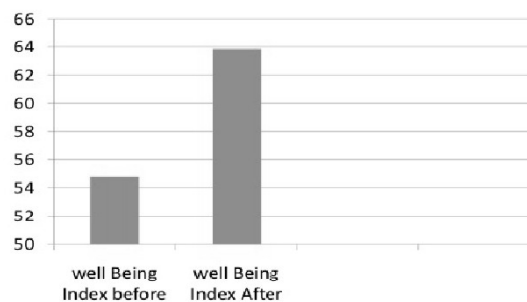


Fig. 1.

- Well Being Index (Before): 54.79245283
- Well Being Index (After): 63.83333333

Positive Psychology Intervention was 54.79 whereas the average score on the Wellbeing index after the Positive Psychology Module was seen to come up to 63.83, which is much higher than the initial one showing that the wellbeing levels of the students had increased considerably taking the Positive Psychology Intervention (Fig. 1).

Similarly, the average score on the Subjective Wellbeing Rating as shown in the above graph before

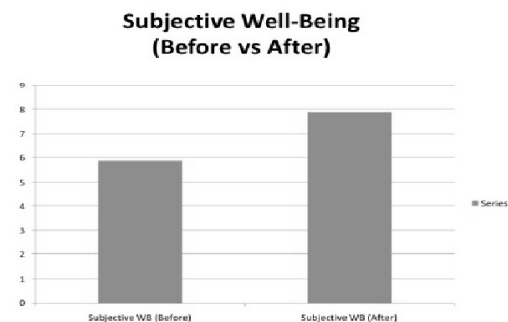


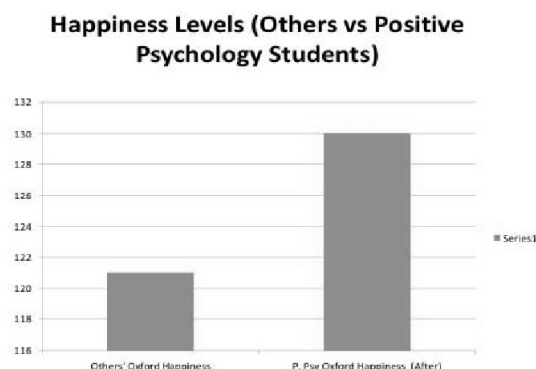
Fig. 2.

- Subjective Well Being (Before): 5.858974359
- Subjective Well Being (After): 7.86025641

the Positive Psychology Intervention was 5.85 whereas the average score on the Subjective Wellbeing Rating after the Positive Psychology Module was seen to come upto 7.86, which is much higher than the initial one showing that the subjective wellbeing levels of the students had increased considerably taking the Positive Psychology Intervention (Fig. 2).

Also showing results on Oxford Happiness

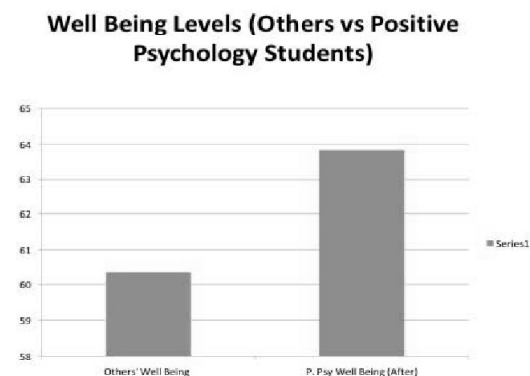
Questionnaire, the average results of students who



- Other's Happiness: **121**
- P. Psy Happiness (After): **130**

took the Positive Psychology Intervention was 130, compared to others who did not take the Positive Psychology Intervention, which was 121, showing that students who underwent the intervention were happier than the students who did not.

Also when compared the Personal Well Being Index with others, students who underwent the



- Other's Well Being: **60.36**
- P. Psy Happiness (After): **63.83333333**

Intervention scored 63.83 as compared to others who scored 60.36. Showing the Personal wellbeing levels of students who took the intervention was better than students who did not undergo the interventions (Fig. 4).

t-tests

The t test analysis also shows significant difference at 0.05 level, in respect to the improvement on happiness and wellbeing scores on all the three instruments when the subjects were compared with

themselves pre and post intervention and also with others who did not undergo the intervention, respectively as depicted in the tables below.

Table-1. t-test on Well Being Index (Before vs After)

Alpha Level	t-value	P-value
0.05	3.04	= 0.003

The result is significant at $p < 0.05$

Table-2. t-test on happiness levels

Alpha Level	t-value	P-value
0.05	5.49	< 0.00001

The result is significant at $p < 0.05$

Table-3. t- test on subjective well being levels

Alpha Level	t-value	P-value
0.05	5.49	< 0.00001

The result is significant at $p < 0.05$

Table-4. t-test on Oxford Happiness (Others vs P. Psy Students)

Alpha Level	t-value	P-value
0.05	1.96	= 0.053

The result is significant at $p < 0.05$

Table-5. t-test on Oxford Happiness (Others vs P. Psy Students)

Alpha Level	t-value	P-value
0.05	1.00	= 0.32

The result is significant at $p < 0.05$

The tables show that the Positive Psychology Module consisting of Hope, Gratitude, Resilience, Positive Belief Systems, Positive Hypnosis, Positive Cognitive Restructuring, Happiness models and Mindfulness; was an effective intervention in improving the subjective wellbeing and happiness levels of students compared to themselves and the students in the control group.

Discussion

Positive Psychology is a field that focuses on the strengths of an individual rather than his

weakness. This unique field of psychology is determined to build up positive strengths in an individual, rather than just eliminate disease.

Positive Psychology believes that every human is bestowed with unlimited potential, it just that one has to recognize and nourish the potential in order to grow towards wellbeing. This uniquely designed Positive Psychology module (Positive Psychology Wellbeing Enhancement Model), takes into account the Positive Virtues of Psychology and hypothesizes if developed would in an individual would lead to automatic well being and happiness.

The modules consisting of systematic stage wise experiential interventions to develop hope, gratitude, resilience, positive belief systems, positive hypnosis, positive cognitive restructuring, happiness models and mindfulness in an individual took a period of 4 months for the individuals to develop better levels of wellbeing and happiness compared to both themselves (before the intervention) and also the control group which did not undergo the intervention.

The mentioned Positive Psychology Module is based on the fact that absence of illness is not health. One has to build the positive virtues over and above in order to reach our full potentials. This module concentrates on developing what works, rather than spending the entire life rectifying what's not working.

Conclusion and Headway

This study gives us some important conclusions. Firstly, The scores on all the three happiness and wellbeing scales improved after the Positive Psychology course interventions. Secondly, the scores of the students in the Positive Psychology intervention course on happiness and wellbeing levels were better than the control group which consisted of students who did not take the Positive Psychology Intervention Course. Lastly, Positive Psychology Intervention course is a wonderful

module, which actually improves positive life skills in individual thereby improving their happiness and wellbeing levels.

Headway for the research would be following up on the happiness and wellbeing levels of the students after 6 months, also testing the same on other students in different settings as well. Another suggestion for future research could be correlated with performance.

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Original Article

Efficacy, safety and tolerability of milnacipran in outpatients with major depressive disorder

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Abstract

Background: Milnacipran is a novel dual action antidepressant with established efficacy in major depressive disorder (MDD) in developed countries but with limited evidence of use in an Indian population. **Aim:** The purpose of this study was to assess the efficacy and safety of milnacipran for major depressive disorder (MDD). **Method:** This was a prospective, non comparative open label study of milnacipran in the treatment of individuals with major depressive disorder in an outpatient clinical setting. 50 subjects between 18 and 65 years of age were enrolled who fulfilled the DSM-IV TR criteria for MDD. Patients' detailed demographic and clinical evaluation was conducted and they were administered Hamilton rating scale for Depression (HAM-D), Montgomery Asberg Depression rating scale (MADRS) and safety assessments scales (UKU side effect rating scale) at baseline and regular interval of one week throughout the study. The laboratory tests (complete haemogram, electrocardiogram (ECG), lipid profile, liver and renal function tests) were conducted at baseline and after one week interval till six weeks of treatment. The patients were treated with milnacipran in a flexible dose for six weeks. The dose of milnacipran was titrated initially 50mg/day and increased or decreased as per clinical condition of the patient. **Results:** Mean (sd) dose of milnacipran administered to the patients was 96.6 (30.6) mg/day. We observed a statistically significant reduction in mean HAM-D total score and mean MADRS total score in patients with treatment over a period of six weeks. The response rate with treatment, as observed in reduction in HAM-D total score was 62.2% and remission rate was 33.3%. The corresponding figures observed in MADRS total score with treatment was responders (64.4%) and remitters (35.6%). Milnacipran was well tolerated and safe. The treatment emergent adverse effects were mild in intensity. **Conclusion:** This study showed that treatment with milnacipran for MDD was effective and well tolerated in an Indian population. The clinical efficacy and safety of milnacipran found in this study is in line with previously reported data on milnacipran in controlled clinical trials.

Key words: Major Depressive Disorder, Milnacipran, Treatment, Serotonin norepinephrine reuptake inhibitors

Introduction

Major depression is the number one cause of disability worldwide.¹ Most people with major depression do not obtain treatment.² Those patients who do obtain treatment, approximately one-third

do not improve.³ Depression affects both the individual and the nation. Although the underlying mechanism of depression is not established, it is thought that a deficiency of monoamines (such as serotonin and norepinephrine) has a role.⁴ Major

depression was called 'endogenous depression' earlier. This clearly indicates the role of biological factors in the etiology of the disorder. There is a dysregulation in the noradrenergic, serotonergic and at times in the dopaminergic neurotransmitter system, which primarily produce the disturbances in the mood.

Basic neuroscience research has joined forces with clinical research to identify and develop new molecules that may ultimately prove as an ideal antidepressant molecule. Our armament of antidepressant drugs continue to grow. Newer drugs might provide better strategies for treating depression more quickly and more effectively. Within the past decade and a half, the treatment of depression has improved through the advent of the serotonin norepinephrine reuptake inhibitors (milnacipran) and the atypical antidepressants. The recent research efforts are directed towards the discovery and development of a new class of compounds, the serotonin and norepinephrine reuptake inhibitors (SNRIs) which have no direct receptor interaction but possess an equilibrated action on both the noradrenergic and serotonergic system. Milnacipran is an antidepressant with an original chemical structure characterized by a double substituted cyclopropane ring; (z)-1-diethylamino-carbonyl-2-amino ethylphenyl-cyclopropane hydrochloride.⁵ It acts by inhibiting noradrenaline (norepinephrine) and serotonin (5-hydroxy-tryptamine; 5 HT) reuptake at presynaptic sites, no post-synaptic receptor activity has been demonstrated.⁵ In addition, milnacipran also exhibits a third action on dopamine in the prefrontal cortex which is associated with pain and fatigue in depression. It also prevents inactivation of dopamine in dorsolateral prefrontal cortex resulting in increased dopamine neurotransmission which plays an important role in cognitive functions, including working memory, relieves fatigue and even pain.

Majority of the clinical trials have documented encouraging results with milnacipran in the treatment of major depressive disorders. The safety and tolerability of milnacipran has been compared to many antidepressant drugs (tricyclic antidepressants, SSRIs and SNRI class). Several studies in developed countries have evaluated the effectiveness of milnacipran in outpatients of major depression.⁶⁻¹⁵ Various clinical trials have showed

that milnacipran has efficacy equivalent to tricyclic antidepressants and tolerability similar to selective serotonin reuptake inhibitors (SSRIs).^{9,10,11} The side effect profile of milnacipran has been found to be superior to these agents in depression.¹⁴ In a preliminary open study, the response rate with milnacipran was 70% in moderate depression.⁶ Similar results were reported in many clinical trials.⁹⁻¹⁴ In another open label study, the authors suggested that milnacipran is an effective alternative for patients to SSRIs in the treatment of depression.⁸ In another long term trial, milnacipran was found to be effective in depressed patients.¹³

There is paucity of studies of efficacy, safety and tolerability of milnacipran in India. It is widely believed that there could be pharmacokinetic and pharmacodynamic differences in Indian group of population, which make it different from the Caucasian study subjects frequently included in the development of a new drug. Indian patients have low body weight and different dietary habits compared with their American and European counterparts. Hence, the present study was planned and carried out with the aims and objectives:

- a) To study the efficacy of milnacipran in patients with major depressive disorder.
- b) To study safety and tolerability of milnacipran in these patients.

Material and methods

Patients

The present study was conducted in consecutive patients visiting psychiatry outpatient department of G.G.S. Medical College and Hospital, Faridkot (Punjab). The study protocol was approved by institutional ethics committee. The patients were enrolled after obtaining their written informed consent. The following were the inclusion and exclusion criteria.

Inclusion criteria

- Patients of either sex between 18 – 65 years of age.
- Patients fulfilled the DSM-IV-TR criteria for major depressive disorder (MDD).¹⁶
- Informed written consent from the patient.

Exclusion criteria

- Current Axis-I disorder other than major

- depressive disorder.
- Comorbid psychiatric or medical disorder
- Lack of response of the current depressive episode to two or more adequate courses of antidepressants.
- Acute medical or surgical illness.
- Serious suicidal risk.
- History of substance abuse or dependence
- Pregnant and lactating women.
- Refusal to give informed consent.
- Hypersensitivity to Milnacipran.
- Any pharmacological treatment or ECT within one month prior to study

Study design

An open label, prospective, non comparative study of 6 week duration was carried out in outpatients with major depressive disorder. The primary measure of efficacy was the mean change in depression rating scale score from baseline to endpoint. The secondary efficacy measure was the percentage of patients showing clinical improvement which was defined as 50% reduction in the Hamilton Depression Rating Scale (HAM-D) and Montgomery-Asberg Depression Rating Scale (MADRS) score as compared to baseline score.

Assessments

Following tools were used in this study:

- 1) Sociodemographic data sheet:
This data sheet was used to record the detail demographics (age, sex, marital status, residence, occupation, education) of the study subjects.
- 2) Clinical data sheet
This data sheet was used to record the clinical characteristics of the patients.
- 3) Hamilton Depression Rating Scale (HAM-D)¹⁷

It monitors the severity of symptoms of depression. This scale is a standard measure of depression severity in clinical trials. HAM-D score of 7 or less may be considered normal, 8 to 13 mild; 14 to 18 moderate; 19 to 22 severe; and 23 and above very severe. Reliability is good to excellent, including internal consistency and interrater assessments. Validity appears good based on correlation with other depression symptom measures.

- 4) Montgomery-Asberg Depression Rating Scale (MADRS)¹⁸

It was designed to be particularly sensitive to treatment effects and includes 10 commonly occurring symptoms which show the largest changes with treatment, and the greatest correlation with overall change. It reveals significant differences in endpoint rating scores to baseline rating scores. The following mean scores correlated with global severity measures : very severe- 44; severe- 31; moderate- 25; mild- 15; and recover- 7.

- 5) UKU(Udvalg for kliniske Under søgelses) side effect rating scale¹⁹

This scale was used to record treatment emergent adverse effects.

Procedure

Patients were screened for inclusion into the study at the initial visit. The diagnostic interview included the following: psychiatric evaluation (DSM-IV-TR diagnosis of MDD), a general clinical evaluation (including medical history, physical examination, recording of vital signs), medication history during past 3 months. The detailed information of the patients (sociodemographic and clinical data, efficacy and safety assessments scale scores) were collected before administration of the study drug. The laboratory tests (complete haemogram, electrocardiogram (ECG), lipid profile, liver and renal function tests) were conducted at baseline and after one week and six weeks of treatment.

Initially all the eligible patients received oral milnacipran 50mg/day (in divided doses) and dose was increased or decreased as per need basis. A flexible dosage schedule was followed. The milnacipran was titrated against clinical symptoms in increment of 50 mg after one week (modal dose 50 mg BID). After the initial 1 week titration phase, milnacipran was continued to a maximum tolerated dose for 6 weeks. The maximum dose permissible was 200mg/day in two divided doses. Patient's scheduled study visits were at 1st week, 2nd, 3rd, 4th, 5th and 6th week respectively. Treatment compliance was assessed by direct questioning, supervision by caregivers at study visits and by counting pills of unused medication. Tab lorazepam (1-4 mg/day) was permitted in the study protocol

for sleep. The patients were evaluated on assessment scales at baseline and schedule visit in the follow up at interval of a week for 6 weeks. Treatment emergent adverse effects were observed and recorded as per study protocol.

Statistical analysis

The data was collected and analyzed. The definition of response was at a 50% reduction in HAM-D and MADRS total score at follow up assessment compared to baseline. The definition of remission was a total MADRS score < 7 and HAM-D total score < 7 at follow up assessment compared to baseline. The statistical methods used in this study were descriptive statistical techniques such as frequency distribution, mean and standard deviation. We used 'student t test' to compare the mean change rating scale scores from the baseline to endpoint. A p value < 0.05 was considered to be statistically significant.

Results

Patient Disposition:

Total 50 patients were enrolled in this study, 5 patients discontinued in this study after one week of the start of trial. 3 patient withdrew from the study due to adverse effects (dysuria) and 2 patients dropped out due to gastrointestinal disturbances. Total 45(90%) patients completed the drug trial.

Demographics and clinical characteristics

Mean (SD) age in years of the study sample was 38.82 (11.39) years. Table I shows the baseline demographics of the study subjects. Maximum number of patients belonged to age group 25-44 years. 56% of the subjects were female and 44% were male. Majority of the patients were from rural population (68%) and were sikh (66%). Higher proportion of the subject were married (88%) and 54% of the subjects were housewives. Maximum number of the subjects were illiterate (34%,) and 28% of the sample were educated up to primary level. Table 2 shows the clinical characteristic of the study sample. The mean duration of the current depressive episode was 10.26 months. 78% of the patients had no past history of any depressive episode, while in 22% of the patients, there was history of one or more depressive episodes. Family history of psychiatric disorder was present in 14%

of the study. Mean dose (SD) of milnacipran prescribed to the patients was 96.55(30.64). The dose range was 50-200 mg/day. Tablet lorazepam was used for the treatment of sleep in 54% of the patients.

Table-1. Baseline demographic data

S. No.	Variable	Milnacipran(n=50)
1	Age in years, mean (S.D)	38.82 (11.39)
2	Gender	
	Male	44%
	Female	56%
3	Marital Status	
	Married	88%
	Unmarried	12%
4	Residence	
	Rural	68%
	Urban	32%
5	Education	
	Illiterate	34%
	Primary	28%
	Matriculate	22%
	Above Metric	16%
6	Occupation	
	Housewives	54%
	Farmer	10%
	Businessman	8%
	Labourer	12%
7	Religion	
	Sikh	66%
	Hindu	34%

Table-2. Baseline clinical characteristics

S. No.	Variable	Milnacipran (n=50)
1	Past history of Psychiatric disorder	
	Present	22%
	Absent	78%
2	Family history of Psychiatric disorder	
	Present	14%
	Absent	86%
3	Mean duration of the current episode (months)	10.26 months
4	Mean dose of the milnacipran mean (S.D.) mg/day	96.55 (30.64)

Efficacy

Primary efficacy measures

We observed a statistically significant reduction ($p < 0.05$) in HAM-D total score and MADRS total score in patients with milnacipran over a period of six weeks. As shown in Table 3, mean (SD) HAM-

Table-3. Mean change from Baseline to End point in HAM-D total score (N=45)

Assessment period	Number of subjects	Mean score	S.D.	't' value	df	p value
Baseline	45	22.38	2.596	28.703	44	<0.05*
At 6 weeks	45	8.96	4.280			
Mean change in total score	45	13.42	3.137			

S.D.=Standard Deviation

* p < 0.05= Significant

Table-4. Mean change from Baseline to End point in MADRS total score (N=45)

Assessment period	Number of subjects	Mean score	S.D.	't' value	df	p value
Baseline	45	33.47	4.495	22.178	44	<0.05*
At 6 Week	45	11.78	8.154			
Mean change in total score	45	21.69	6.560			

S.D.=Standard Deviation

*p < 0.05= Significant

Table-5A. 'Response Rate' in Hamilton Depression Rating Scale (HAM-D) total score

Reduction in score $\geq$ 50%	N*	Percentage
No	17	37.8
Yes	28	62.2
Total	45	100.0

N*=Number of patients

Table-5B. 'Remission Rate' in 'HAM-D-total score

HAMD Score $\leq$ 7	N*	Percentage
No	30	66.70
Yes	15	33.30
Total	45	100.0

N*=Number of patients

Table-6A. 'Response Rate' in Montgomery-Asberg Depression Rating Scale (MADRS) total score

Change in score $\geq$ 50%	N*	Percentage
No	16	35.6
Yes	29	64.4
Total	45	100.0

N*=Number of patients

D total score at baseline was 22.38 (2.59) which was reduced with the treatment to 8.96 (4.28) at endpoint (6 weeks). The mean (SD) change in scores

Table-6B. 'Remission Rate' in 'MADRS total score

MDRS $\leq$ 7	N*	Percentage
No	29	64.40
Yes	16	35.60
Total	45	100.0

N*=Number of patients

Table-7. Treatment emergent adverse effects

Adverse effect	Milnacipran	
	No. of Patients	Percentage
Tension/inner unrest	1	2
Asthenia/lassitude /increase fatigability	2	4
Reduced salivation	3	6
Reduced duration of sleep	2	4
Nausea/Vomiting	5	10
Micturition disturbances	6	12
Constipation	2	4
Palpitation/Tachycardia	3	6
Headache	5	10

from baseline to endpoint in HAM-D total score was 13.42 (3.13), which was a statistically significant difference (t = 28.703, df = 44, p < 0.05).

Table 4 shows the corresponding reduction in MADRS total score in the patients with treatment. The mean (SD) change i.e. from baseline to endpoint observed in MADRS total score was 21.69 (6.56), which was a statistically significant difference (t = 22.17, df = 44, p < 0.05).

Secondary efficacy measures

As shown in Table 5 A and 5 B. The response rate with milnacipran, as observed in reduction in HAM-D total score (e"50% reduction from baseline) was 62.2% and remission rate was 33.3%. The corresponding figures observed in MADRS total score with treatment was responders(64.4%) and remitters(35.6%). (Table 6A, 6B)

Safety and tolerability

Milnacipran was well tolerated and adverse effects observed were mild to moderate in intensity. Majority of the patients enrolled in the study completed the trial (n = 45,90%). There was no clinical meaningful changes seen in vital signs, physical findings or laboratory values during the study. 5 patients discontinued the treatment due to treatment emergent adverse effects. As shown in Table 7, the most common side effect reported by the patient was micturition disturbance (12%), nausea (12%), headache (10%) , palpitations (6%) and reduced salivation.

Discussion

The findings of the present study indicates that milnacipran (modal dose 50 mg BID) is an effective, safe and tolerated treatment for outpatients with major depressive disorder. Efficacy of milnacipran was demonstrated across the primary and secondary efficacy measures in this study. Significant reduction in depression rating scale total score were observed in the rating scales (HAM-D and MADRS) used in this study. Thus milnacipran is capable of reducing depressive symptomatology. These results of the present study are in accordance to previous studies conducted by various researchers.⁶⁻⁸

Patients tended to remain stable or showed improvement on milnacipran treatment throughout the study period. Milnacipran appeared to be generally well tolerated. In the present study, at 6 week the proportion of responders with treatment observed in HAM-D was 62.2% and of remitters 33.3%. Similar findings for response rate and remissions was observed on the MADRS (64.4% and 35.6%). Kasper et al,²⁰ Olie et al,²¹ Papakostas et al¹³, Sechter et al,¹² and Montgomery et al⁹ reported the response rate with treatment in the range of 58-64%. In the present study the number

of HAM-D and MADRS responders and remitters with treatment increased steadily during the study.

In the current study, treatment with milnacipran resulted in improvement in depression symptoms severity. The mean dose of milnacipran administered to the patients was 96.6 mg which is in accordance to the dosage schedule used in some previous clinical trials of milnacipran in depressed patients.^{6,7,13} Kasper et al,²⁰ Lopez-Ibar et al,¹⁵ Montgomery et al,⁹ used optimal dose of milnacipran 50mg twice a day. Recently, Olie et al,²¹ in 2010 evaluated the efficacy of milnacipran at flexible doses (100mg, 150 or 200mg/day) for a in outpatients presenting with moderate to severe episode of major depressive disorder. In this trial, the rate of MADRS response at 8 week was 64% which was increased to 70% at 24 weeks. The difference of the present study from study conducted by Olie et al²¹ is in the duration of the trial. The findings of response rate and remission rate figure in our study are in concordance with that reported by Olie et al.²¹

As treatment of major depression is needed for a long time, so nature and severity of treatment emergent adverse effects play an important role in the treatment adherence. In 11 the present study, 5 patients who initially participated in the study dropped out after 1 week. 3 patients developed micturition disturbances and 2 patients had gastrointestinal disturbances. The prominent adverse effects observed in our study were micturition disturbances, nausea, headache, dryness of mouth, palpitations, constipation, increased fatigability and decreased duration of sleep. The micturition disturbances (hesitancy, frequency, inability to evacuate the bladder) started in some patients but persisted in 3 patients, who finally dropped out from this trial. Other adverse effects were mild in intensity and disappeared with the continuation of treatment. Lopez-Ibar et al¹⁵ reported similar adverse effects. The incidence of dysuria was reported infrequently by the previous researchers during the treatment of milnacipran in MDD. We observed a higher incidence rate of dysuria (12%) in outpatients with milnacipran. Dysuria was of a concern in our study. It seems necessary to monitor this adverse effect closely in future investigations. Peuch et al,²³ Tignol et al,²⁴ Rouillon et al²⁵ reported vertigo (incidence rate 5.0-6.6%) in milnacipran responders. In our study, no patient reported vertigo or dizziness.

Rouillon et al²⁵ observed that 9.2% of the patient had abdominal pain with the milnacipran, no case of such adverse effect was observed by us. Higher proportion of outpatients in our study(54%) needed lorazepam for sleep. Similar adverse effect was observed by Rouillon et al²⁵ and Tignol et al.²⁴ No patient in the present study reported any emergence of suicidal thoughts after treatment with milnacipran. Montgomery et al²² in contrast, reported emergence of suicidal thoughts with milnacipran. This clinical problem needs further exploration in future clinical trials. Overall, in the present study milnacipran was found to be safe and well tolerated. There were no clinical changes seen in vital signs or laboratory values in the patient during the treatment with milnacipran.

The strength of the present study was use of standardized criteria for establishing diagnoses and regular assessments of the patient with standardized efficacy and safety tools. This is the first such study as per our knowledge from an Indian population. Dosage of the medications administered to the patients was according to the documented literature. The limitations of the study were lack of control, small sample and short duration of the trial. The findings from this study should be interpreted with these considerations. Despite the limitations, our study suggests that milnacipran could provide an additional SNRI pharmacological intervention for addressing the treatment needs of the major depressive disorder population.

Conclusion

The present study examined the safety and efficacy of milnacipran for the treatment of individuals with major depressive disorder. In this study, a significant improvement in symptoms of MDD with milnacipran was observed from the start of the study till endpoint of six weeks. Milnacipran was safe and well tolerated by the patients. The response rate with milnacipran, as observed in reduction in HAM-D total score was 62.2% and remission rate was 33.3%. This type of study, which is first in an Indian population, should be seriously considered in the overall evaluation of the effectiveness of milnacipran for major depressive disorder. A long term study of milnacipran in major depressive disorder is suggested from an Indian population.

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Original Article

Suicide Prevention: Efficacy of capacity building training program among post graduate students

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Abstract

Background: The increasing suicidal cases among general population highlights the need for enhancing capacity of students in order to work as gatekeepers. In the present study an attempt was made to assess the efficacy of capacity building training program among post graduate students on suicide prevention at pre and post level. **Methods:** The study followed classical experimental design- before and after without control design and all the students in the department were included in the study. Knowledge About Suicide Scale (KASS) was used for the evaluation of the training program among 51 students. The obtained data was analysed using descriptive and inferential statistics. Student 't' test has been used to see the difference between pre and post training program. **Results:** The mean, median, mode age of the respondents in the study was found to be 22.55 (± 1.33), 23, 22 years respectively. At the pre assessment, majority of the respondents had poor knowledge on identification of warning signs of suicide, risk factors for suicide, attitude about suicide and overall knowledge about suicide. After the training program, there is a significant difference in all the three domains ($p=0.000$). In the overall scale, there is a significant difference between baseline mean score (130.25 ± 17.18) and post training score (66.94 ± 8.51 , $t=25.014$, $df=50$, $p=.001$). **Conclusion:** Enhancing the knowledge and strengthening training among Post Graduate trainees in the area of suicide prevention would play a pivotal role in early identification and prevention in the area of suicide. The study's limitations are noted.

Key words: suicide prevention, capacity building, risk factors, early identification

Introduction

Every year, almost one million people die by suicide around the world. Suicide remains a significant social and public health problem. In 1998, suicide constituted 1.8% of the total disease burden; this is estimated to rise to 2.4% by 2020.¹ Young people are increasingly vulnerable to suicidal behaviours. Worldwide, suicide is one of the three leading causes of death among those in the most economically productive age group (15-44 years), and the second leading cause of death in the 15-19

years age group.² Suicidal behaviours can be conceptualized as a complex process that can range from suicidal ideation, which can be communicated through verbal or non-verbal means, to planning of suicide, attempting suicide, and in the worst case, suicide. Suicidal behaviours are influenced by interacting biological, genetic, psychological, social, environmental and situational factors.³ Risk factors for suicide include mental and physical illness, alcohol or drug abuse, chronic illness, acute emotional distress, violence, a sudden and major change in an

individual's life, such as loss of employment, separation from a partner, or other adverse events, or, in many cases, a combination of these factors. While mental health problems play a role which varies across different contexts, other factors, such as cultural and socio-economic status, are also particularly influential. The impact of suicide on the survivors, such as spouses, parents, children, family, friends, co-workers, and peers who are left behind, is significant, both immediately and in the long-term.⁴ A study states that although suicide continues to remain a serious problem in high income countries, it is the low and middle income countries bear the larger part of the global suicide burden. It is also these countries that are relatively less equipped to prevent suicide. Unable to keep pace with the rising demand for mental health care, they are especially hindered by inadequate infrastructure and scarce economic and human resources. Budgetary allocations for health in general are very minimal thus hindering any effective intervention to take place. As a result, there are few sustained efforts and activities that focus on suicide prevention on a scale necessary to reduce the number of lives lost to suicide.⁵

The most commonly employed program for enhancing the identification and referral of people at-risk is gatekeeper training. Although training programs vary in length and focus, the core aspect of training is enhancing participants' knowledge, attitude, and skills in identifying individuals at risk and referring them to appropriate services.⁶ Thereby, it can be highlighted that training is an integral part of a public health approach to suicide prevention, as the likelihood of identification and access to mental health services increases.⁷

While the need for training programs seems apparent and gatekeeper training programs have been employed for decades, it is only in recent years that systematic evaluations of gatekeeper training programs have been conducted.⁸ The findings obtained in these evaluations have demonstrated positive outcomes and provided support for incorporating gatekeeper training into broad-based suicide prevention efforts. For example, gatekeeper training has been demonstrated to result in enhanced knowledge about suicide warning signs, enhanced knowledge regarding how to intervene with someone thinking about suicide, and enhanced self-efficacy

for responding to individuals in crisis among non-clinical department of Suicide Prevention Gatekeeper Training.⁹

Recent research has additionally demonstrated the effectiveness of gatekeeper training among college and university staff. For example, Cross and her colleagues demonstrated⁶ enhanced knowledge and self-efficacy among a sample of university employees from a variety of positions following participation in brief standardized community gatekeeper suicide prevention training. Similarly, Tompkins and Witt in 2009¹⁰ demonstrated training programs increases in residence life staff members' self-appraisals of preparation, knowledge, self-efficacy, and intention to perform in a gatekeeper role following participation in Question, Persuade, Refer (QPR) training.

Social work trainees comprise of a major workforce that graduate out of universities every year. The nature of their work and training takes them to communities, schools, college's hospitals, rural settlements and much more. They are constantly interacting with the people and identifying the problems that they encounter in their day to day life. Enhancing the knowledge and strengthening training in social work trainees in the area of suicide prevention would play a pivotal role in early identification and prevention in the area of suicide.

Highlighting the glaring need that suicide poses, this study seeks to empirically evaluate the efficacy of a suicide training program among 51 social work trainees in the area of knowledge, awareness, skills and interventional strategies in suicide prevention. The two day gatekeeper training incorporates active and experiential based learning exercises, such as role plays, lecture methods, videos to enhance students listening and communication skills, as well as knowledge and awareness regarding suicide warning signs, referral sources, and guidance for directly asking about suicidal thoughts.

Methods

The aim of this research is to study the efficacy of capacity building training program among post graduate students on suicide prevention at pre and post level. The hypothesis of the present study is that the training program would increase the knowledge on suicide prevention among post graduate students. Written informed consent of the

participants was obtained to participate in the study.

Participants and Design

The study adopted classical experimental design—before and after without control design (that is, hypothesis-testing research design). The specified department had invited the trainer for conducting suicide prevention workshop for students. The training program was conducted for 51 participants in two batches for about two days (each group had 25 participants).

Measures

To measure the participant's knowledge, Knowledge About Suicide Scale (KASS) which was developed by Jaseena and Vranda(2015)¹¹ was used. The KASS is a 45-item, 5-point Likert scale. The participants are asked to indicate the extent to which they agree with each item (1=strongly agree to 5= strongly disagree). The scale has three domains i.e., Knowledge of Identification of Warning Signs of Suicide (KIWSS, 12 items), Knowledge of Risk Factors for Suicide (KRFS, 11 items), Attitude about Suicide (AS, 22 items) and overall scale score also calculated. Thus the possible minimum score is 45 (high knowledge) to maximum score is 225 (poor knowledge). The internal consistency Cronbach's alpha for overall scale is 0.799 indicating high degree of reliability of the scale. In the present study, Cronbach's Alpha Reliability test shows that it had 0.772 for KIWSS domain, 0.603 for KRFS domain, 0.687 for AS domain and 0.772 for overall scale. Participants filled the KASS questionnaire before and after the training program. The collected data was analysed using descriptive and student 't' test to see the difference between pre and post training program.

Interventions

In response to growing concerns raised over increased suicide rates, a two day intervention for capacity building in suicide prevention was planned for social work trainees. The goal was to ensure that social work trainees recognize suicidal behaviour, explore the myths and misconceptions about suicide, make risk assessment, strengthen counselling skills, respond to the level of risk, determine the services needed and ensure proper

referral. The developed intervention package was face validated by five experts / judges in the mental health field. The experts reviewed the intervention package thoroughly and gave their comments on suitability of the sessions, methodology and applicability to the group. Based on the suggestions, appropriate modifications were made.

The interventionist was trained in psycho-social intervention (a qualified Psychiatric Social Worker, from the National Institute of Mental Health and Neuro-sciences, and an experienced professional in the field of mental health). The package had broad contents comprising of conceptual understanding of each skills and practical techniques to use in their personal lives. The methodology used in the training program was participatory, dynamic teaching and learning process. The package included techniques like games, brain storming sessions, group discussions, role plays, simulation groups, short lectures, paper and pencil activities, dramas, practice exercises, etc. Since researcher used group work method, it was easy for all the group members to understand and use it in their day-to-day activities. (The training methodology used and the detailed intervention package is available with the author).

Results

To check whether the sample distribution is from normal distribution histogram with normal curve was drawn for age of the respondents. The descriptive statistics shows that the sample is drawn from the normal distribution. The mean, median, mode age of the respondents in the study was found to be 22.55 (± 1.33), 23 and 22 years respectively. The gender distribution of the respondents shows that 54.9% males and 45.1% are females.

Table 1 describes the participant's knowledge about suicide before and after the training program. To test the difference between pre and post training program paired samples 't' test had been done. The results show that in three domains there is a significant difference between pre and post training mean scores ($p=0.000$). In the overall scale, there is a significant difference between baseline mean score (130.25 ± 17.18) and post training score (66.94 ± 8.51) ($t=25.014$, $df=50$, $p=.001$). Hence, it is concluded that training program brings desirable change in the knowledge level of the respondents.

Table-1. Students' knowledge about suicide (T-KASS)

Domain	Levels of assessment	Mean	Std. Deviation	t	df	Sig. level (2-tailed)
Knowledge of Identification of Warning Signs of Suicide (KIWSS)	Pre-test	33.65	7.28	8.64	50	0.000***
	Post test	23.76	5.18			
Knowledge of Risk Factors for Suicide	Pre-test	28.41	6.37	12.00	50	0.000***
	Post test	15.57	3.72			
Attitude about Suicide	Pre-test	68.20	10.63	25.84	50	0.000***
	Post test	27.61	6.12			
Overall knowledge about suicide	Pre-test	130.25	17.18	25.01	50	0.000***
	Post test	66.94	8.51			

***Significant at 0.001 level

Discussion and Conclusion

Suicide is a public health issue in India which needs to be addressed at various levels. The current study aimed towards evaluating the efficacy of capacity building training program among post graduate students on suicide prevention. The outcome of the study shows significant improvement in identification of Warning Signs of Suicide, Risk Factors for Suicide, Attitude about Suicide and Overall knowledge about suicide after post gatekeeper training intervention. These kinds of training programs are necessary to enhance the knowledge among college students. The limited manpower in health and mental health field stresses the need to reach larger population with various programs. The present study adds to literature that in India these kinds of training programs need to be undertaken in a larger way. Health and mental health professionals need to involve actively in training programs, so that, trained people work as gatekeepers and through them we could reach larger population. Various studies corroborate with the present study. A school-based prevention program combined a psycho-educational program with a brief screening for depression and other risk factors for suicidal behaviour. The program was focused on peer intervention. The results of the study showed that higher levels of knowledge and more adaptive attitudes were both significantly associated with a lower probability of self-reported suicide attempts and suggested that a substantial portion of the effect of the program on suicide attempts may be explained by the subjects improved understanding of and attitudes to depression and suicide.¹² In a pilot study Cross et.al⁹ reported that one hour community gatekeeper training in-service for 76

nonclinical employees in a university hospital workplace setting showed positive changes in participants' knowledge about suicide and attitudes (self-efficacy) about intervening with suicidal individuals in the pre and post analysis. A subset of participants engaged in role play practice of gatekeeper skills following training and rated the experience positively. Fifty-five observations were rated using an observational measure developed for this study and approximately half of these demonstrated satisfactory skills post training. Participants in this workplace gatekeeper training reported sharing new knowledge and skills with family, friends, and co-workers. A systematic literature review by Isaac et al.⁸ reports that the need for training programs seems apparent and gatekeeper training programs have been employed for decades, it is only in recent years that systematic evaluations of gatekeeper training programs have been conducted. Further the paper argues that gatekeeper training works as a preventive intervention for suicide.

The module developed as part of the research may be replicated with larger population and with diverse group such as Para-professionals and other health care professionals in order to find the utility of the program. The current research has certain methodological limitations as it was done with smaller sample size the generalization of findings could not to be made.

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Original Article

Relationship of Assertive Behavior and Stress among Nurses

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Abstract

Introduction: Nurses with high assertive behavior are likely to deliver therapeutic patient care as they can stand up for their rights and refuse unreasonable requests but nurses show submissive behaviour which result in high stress, burden and low self esteem. Present study aimed to examine the relationship of assertive behaviour and stress among nurses.

Methods: In a co-relational, cross sectional survey, 220 eligible nurses working in selected hospitals of Punjab were identified conveniently and assessed using Socio demographic Data Sheet, Rathus Assertiveness Schedule (RAS) and Perceived Stress Scale (PSS). Data were analyzed using descriptive statistics, Independent t-test, ANOVA and Pearson's correlation. **Results:** Assertive behavior has large negative correlation with stress at 0.01 level of significance ($r = -0.720^{**}$). Older nurses who are on regular job, studied from Govt. nursing institutions and working in Govt. hospitals were more assertive. Nurses those are older, regular, joined nursing by their wish, studied from Govt. nursing colleges and working in Govt. hospital had low stress as compared to others. **Conclusion:** Study concluded that non-assertive behaviour of nurses results in high stress. Nurses should behave assertively as it directly affects the stress and burden. Policy makers can plan and organize assertiveness training or other intervention for non assertive nurses so that they can be trained for assertive behaviour and communication.

Key Words: Assertive behaviour, Stress, Nurse

Introduction

Nursing is a major component of the health care delivery system and nurses make up the largest employment group within the system. Nurses are providing care and comfort to those suffering from illness and injury. Nurses communicate with each other, with patients and with members of the health team both verbally and nonverbally and transmit their thoughts, feelings and messages.¹

Assertiveness is a one style of communication which reflects nurse's expression of their genuine feelings, standing up for their legitimate rights, and refusing unreasonable requests. Assertive nurses resist undue social influences, disregard arbitrary authority figures, and refuse to conform to arbitrary

group standards.² Assertive nurses value what they think and feel personally empowered, have higher self esteem and self respect.³ They recognize their own strengths and limitations. In addition, being assertive means taking responsibility for his life and his choices. It also means not blaming other people or circumstances for what happens to him.⁴ Assertiveness is true assertiveness if it is in the form of trait in personality.

Assertive behavior develops respect towards self and others, promotes self-disclosure, self control, increase confidence⁵ and positive appreciation of self-worth. It is the most effective way of solving interpersonal problems and conflicts. Assertive nurses become happier, less manipulative, feel better

about themselves and reach their goals more easily. Nurses who display assertive behaviour are more likely to maintain rigorous patient care practices while also assisting patients in expressing their own needs. Assertive nurses are also better skilled at communicating effectively with other members of the health care team than unassertive nurses.⁶

Factors which promote assertive behavior among nurses at work include age,⁷ sex,⁷ high education,⁸ seniority in job,⁹ knowledge,⁹ confidence,⁹ experience⁷⁻⁸ and wearing of uniform.⁹ Senior staff nurses are more assertive than junior staff nurses.⁹ Older age nurses are less assertive than young age. Diploma holder nurses are less assertive than graduate nurses.¹⁰

Although studies have found assertive behaviour in nurses to be an invaluable component of successful professional practice,⁸ nurses have traditionally been taught to be acquiescent and to be the submissive helpers of doctors. Nursing has been described as an oppressed discipline that remains the underdog in the medicine profession.¹¹ Chan (2002) suggested that the culture of nursing has encouraged passivity rather than assertiveness. As a result of this, there is a high probability that professional nurses may not conduct themselves with sufficient assertiveness both in the work place and in advancing their careers.¹²

Professional nurses frequently did not express their opinions or provide constructive criticism and suggestions in nursing practice.¹³ Timmins and McCabe (2005)¹⁴ reported that the nurses behave in a passive, nice way and was 'less adept at disagreeing with others' opinions and providing constructive criticism'.^{7,9}

Lack of assertiveness result in feelings of helplessness and powerlessness. Nurses frequently suffer emotional trauma because they have poor communication skills and are unable to express their feelings about their needs and worries. Nurses who are unable to discuss important issues with others develop self-destructive beliefs which are emotionally damaging for them. They may also develop maladaptive behaviors in order to cope with these emotions.¹⁵ Non-assertive behavior among nurses results in high stress,¹⁶⁻¹⁷ low self esteem,¹⁸ frustration, anxiety and mental fatigue. Nurses have burden of other people's work due to inability in saying "no".

Shipton (2002) found that emotions generated by stress in clinical experience have been reported to lead to nervousness, depression, anxiety, fear, disappointment, hopelessness and inferiority.¹⁹ Assertive behaviour of nurses can help to control stress and anger and improve coping skills. Being assertive can also help to boost self-esteem and earn others' respect.²⁰

Assertive behavior does not mean to be impertinent or use silly or indecent language. Every nurse needs to be assertive as she has to make her patients fight for life. During their training period especially in clinical posting, they need to undergo thorough clerkship, not just to obtain their degree. The existence of the above problems raised the awareness of the researcher that most of the professional nurses in an academic hospital setting were lacking assertive behavior and only a few were situationally assertive.

In view of paucity of evidence over the subject in India, the present study is aimed to assess the relationship of assertive behavior with stress among nurses in selected hospitals of Punjab. Study will also measure the association of **assertive behaviour and stress level** with selected socio-demographic and professional characteristics of nurses. Moreover, the findings of this study will have significance in the field of assertiveness training. The findings will help the future nurse practitioner and researcher to develop effective guidelines concerning the scheduling and formatting of assertiveness training from the results of the study. Also, specific recommendations for further research in assertiveness training will be drawn from the results of this study.

Material and Methods

A descriptive cross sectional survey was done to assess the relationship of assertive behavior and stress with each other and with other demographic variables among nurses. The present study was conducted in the November-December 2013 at fourteen conveniently selected hospitals located in four districts of Punjab. The hospitals were selected on the basis of expected availability of nurses, giving permission to conduct the study and convenience in terms of distance. The population under study are the nurses working in the selected hospitals of Punjab. Sample consisted of staff nurses of various

hospitals were selected by the researcher for the study. The group included only those staff nurses who were present at the time of data collection, registered with nursing council, working full time in Govt or private hospital and willing to participate. A sample of convenience was taken to recruit 220 staff nurses for the study. The tools used for the study were Socio demographic Data Sheet, Rathus Assertiveness Schedule and Perceived Stress Scale.²²

Socio-demographic Data Sheet

Socio-demographic data sheet is used for recording of socio-demographic details of the nurses and developed by researchers. Administration time is approximately 2-5 minutes. This tool had two parts. **Part A:** It has total eight items related to socio-demographic information of the nurses which are age, gender, marital status, religion, area of residence, type of family, presently staying with and monthly self income (Rs.). **Part B:** It has total eight items related to professional characteristics of the nurses which includes qualification, joined nursing as professional carrier, type of nursing college/school from where took basic nursing training, years of experience in nursing, designation/position, nature of job, type of hospital and area of work (ward). Appropriate content validity of the tool was established by twelve experts from psychiatry, psychology and nursing and appropriate modifications were made. The reliability was established through test retest method ($r = 1$).

Rathus Assertiveness Schedule (Rathus, 1973)²¹

Rathus Assertiveness Schedule was used in this study to assess the assertiveness skills and subject's impression of one's own assertiveness and frankness. It is a standardized, short structured, self administered six point rating scale. Administration time is approximately 10 minutes. It contains 30 items out of which 17 are described as negative/ passive and 13 of them as positive. Six points along with their scoring range from very uncharacteristic of me (-3) to (+3) very characteristic of me. Scores range between -90 to +90. Higher scores indicate that subjects perceived themselves as being high assertive in their relationships with other people. The scale has relatively high internal consistency and stability. The split-half reliability was 0.77 and the

test-retest reliability 8 weeks later was 0.86 (Rathus 1973).²¹ The reliability was established for the present study through test retest method ($r = 0.91$)

Perceived Stress Scale (Cohen et al, 1983)²²

Perceived stress of the nurses was measured using the perceived stress scale (PSS-10). PSS is a standardized 10 -item likert scale which assesses the degree to which situations in one's life is appraised as stressful during the past month. There are six negative and four positive questions for which the subjects were required to choose from a scale of 5 alternatives 'never', 'almost never', 'sometimes', 'fairly often', 'very often' relating to their feeling of being stressed on a 0-4 scale. Item nos. 1, 2, 3, 6, 9 and 10 are negative and item nos. 4, 5, 7 and 8 are positive in nature. The negative element is intended to assess lack of control and negative affective reactions, while the positive element measures the degree of ability to cope with existing stressors. Items are easy to understand and the response alternatives are simple to grasp. Administration time is approximately 3-5 minutes. Scores are obtained by reversing the scores on the four positive items, e.g., 0=4, 1=3, 2=2, etc. and then summing across all 10 items. Scores range from 00 to 40 and greater scores indicated higher perceived stress. It has acceptably high validation and reliability scores. Co-efficient alpha reliability for PSS found between 0.8-0.84. The reliability was established for the present study through test retest method ($r = 0.81$)

The tools were translated into Punjabi language under the guidance of language experts and amendments were made according to suggestions. Back translation in English was done to ensure the content and meaning. Trial out of the tool was done to ensure the reliability and understanding of the tool. Pilot study was conducted and the study was found to be feasible.

Ethical considerations

Prior to administration of tools, a participant information sheet explaining the purpose of the study was read out and handed over to the subject. All the questions and queries were discussed and sorted out before actual data collection. An informed written consent form was signed by each subject before data collection. All the subjects were ensured

that confidentiality and anonymity was maintained throughout the study. Permission was obtained from Institutional Ethical Committee to carry out the study. Written permission was also obtained from various Civil Surgeons, Medical Supdt. or Director of the respective hospitals before data collection.

Statistical Methods

The data was analyzed by Statistical Package for Social Sciences (SPSS) version 21. The nurse $p < 0.05$ was established as a criterion of statistical significance for all the statistical procedures performed. Appropriate descriptive and inferential statistics were employed to analyze data as per objectives of the study. Frequency and percentage distribution of sample characteristics was computed. Mean (SD) of assertive behavior and stress of the nurses was calculated. Correlation between assertive behavior and stress was determined by Carl Pearson's method. ANOVA and t-test were used to determine the relationship of selected socio-demographic characteristics with assertive behavior and stress score.

Results

Socio-demographic characteristics

As shown in table 1, the mean age of the subjects was 32.42 (SD $\pm$ 7.59) years and little over half (54.5%) was in the 21-30 years age group category. Maximum of the subjects were female (95%), married (64.1%) and belong to Sikh religion (66.8%). Two third of the subjects (67.7%) were residing in rural area where as same number of subjects belong to nuclear family. Majority (71.4%) of the subjects were presently staying with their family members. Mean monthly income of the subjects was Rs. 26345.45 (SD $\pm$ 10236.64).

Professional characteristics

As shown in table 2, half of the subjects were qualified up to GNM. Half of the subjects (53.2%) joined nursing voluntarily. A little over half studied basic nursing from Govt. institutions. Mean years of experience in nursing profession was 8.58 (7.54) years. Maximum of the subjects (85.5%) had staff nurse designation and three fifth of them (61.14%) were working on regular basis. Majority of the subjects (84.1%) were working in Govt hospital. Half of the subjects (50%) were working in general ward.

Table-1. Distribution of Subjects as per Socio-demographic Characteristics (N=220)

Socio-demographic characteristics		f(%)
Age in Years	Mean (SD)	32.42 (7.59)
Age in Category	21-30 yrs	120 (54.5)
	>30-40 yrs	61(27.7)
	>40-50yrs	36 (16.4)
	>50 yrs	3(1.4)
Gender	Male	11 (5)
	Female	209 (95)
Marital Status	Married	141 (64.1)
	Unmarried/Single	67 (30.4)
	Divorced/widow/Sep	12 (5.5)
Religion	Hindu	57 (25.9)
	Christian	16 (7.3)
	Sikh	147 (66.8)
Area of residence	Rural	71 (32.3)
	Urban	149 (67.7)
Type of family	Nuclear family	149 (67.7)
	Joint family	71 (32.3)
Presently you are staying	With family/member(s)	157 (71.4)
	With friends	42 (19.1)
	Alone	21 (9.5)
Monthly self income (Rs)	Mean (SD)	26345.45 (10236.64)

Table 2: Distribution of Subjects as per Professional Characteristics (N=220)

Professional characteristics		f(%)
Qualification	GNM	122 (55.5)
	GNM with 1 yr diploma	5 (2.3)
	B.Sc.Nursing/PB BSc	86 (39.1)
	PG or above (in nursing)	7 (3.2)
	Joined nursing as	Voluntarily 117 (53.2)
professional carrier	By force of parents/friends	103 (46.8)
Type of nursing school/college from where trained	Govt.	119 (54.1)
	Private	101 (45.9)
Experience in nursing (yrs)	Mean (SD)	8.58 (7.54)
Designation	Staff nurse	188 (85.5)
	PHN	10 (4.5)
	Nursing sister/Ward Incharge	22 (10)
	Regular	135 (61.4)
Nature of job	Contractual	85 (38.6)
	Govt	185 (84.1)
Type of hospital	Private	35 (15.9)
	General ward	110 (50)
Area of work (ward)	Intensive ward	80 (36.4)
	OPD	30 (13.6)

Table-3. Mean (SD) score of assertive behavior and stress and their correlation (N=200)

Variable	Range	Mean (SD)	df	r	p value
Assertive behaviour	-36 to 14	-10.76 (8.69)	199	-0.720**	.01
Stress	16-38	30.92 (4.65)			

** correlation is significant at the 0.01 level(2 tailed), 0.7-0.9 indicates very large correlation.

Table 3 states that the mean (SD) of assertive behavior is -10.76 (8.69) and it range from -36 to 14. Similarly, mean (SD) of stress is 30.92 (4.65) and it range from 16 to 38. The correlation between assertive behavior and stress was calculated with Pearson's product moment correlation and it was found that assertive behavior has large negative correlation with stress at 0.01 level of significance ($r = -0.72^{**}$), indicating that as the assertive behavior increased, stress level goes decreased. (Figure 1)

As shown in table 4, subjects who were in age group of >50 yrs were more assertive as compared to subjects who were younger ($p < .001$). Gender, marital status, religion, residence, type of family and present staying with has no relationship with assertive behavior.

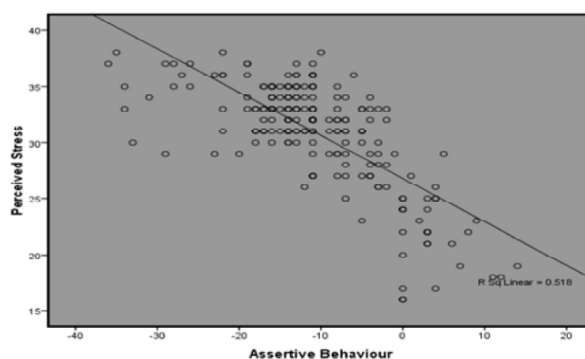
**Figure 1: Correlation between Assertive behavior and Stress**

Table 5 shows that nurses who studied nursing from Govt. nursing schools/colleges were more assertive than private schools/colleges ($p < .001$). Subjects working on regular basis were more

Table 4: Relationship of selected socio-demographic characteristics with assertive behaviour score (N=220)

Socio-demographic characteristics		N	Mean	SD	t/F	df	p value
Age in Years	21-30 yrs	120	-12.72	7.65	15.8	3	.000**
	>30-40 yrs	61	-11.95	8.20			
	>40-50yrs	36	-2.81	8.20			
	>50 yrs	3	-3.67	10.21			
Gender	Male	11	-12.36	3.6	-6.28	218	.531
	Female	209	-10.67	8.8			
Marital Status	Married	141	-10.11	8.97	1.835	2	.162
	Unmarried/Single	67	-12.42	8.05			
	Divorced/widow/Sep	12	-9.17	8.05			
Religion	Hindu	57	-11.49	8.77	1.337	2	.265
	Christian	16	-7.50	7.55			
	Sikh	147	-10.83	8.74			
Area of residence	Rural	71	-11.01	7.6	-.30	218	.765
	Urban	149	-10.64	9.18			
Type of family	Nuclear family	149	-10.06	9.22	1.73	218	.084
	Joint family	71	-12.23	7.29			
Present stay with	With family/family member(s)	157	-9.95	9.16	3.029	2	.050
	With friends	42	-13.62	7.50			
	Alone	21	-11.10	5.86			

** significant at 0.01 level

Table 5: Relationship of selected professional characteristics with assertive behaviour score (N=220)

Professional characteristics		N	Mean	SD	t/F	Df	p value
Qualification	GNM	122	-11.72	9.22	1.788	3	.15
	GNM with additional one year diploma	5	-6.2	7.12			
	B. Sc. Nursing (including Post basic)	86	-9.47	7.87			
	Post graduation or above (in nursing)	7	-13.14	7.86			
Joined nursing as carrier	Voluntarily	117	-11.45	7.94	-1.26	218	.207
	By force of parents/ friends	103	-9.97	9.44			
College of basic nursing education	Govt.	119	-8.54	8.68	4.27	218	.001**
	Private	101	-13.38	7.98			
Designation	Staff nurse	188	-11.22	8.22	1.965	2	.143
	PHN	10	-7.00	13.22			
	Nursing sister / Ward Incharge	22	-8.50	9.81			
Nature of job	Regular	135	-7.97	7.5	6.54	218	.001**
	Contractual	85	-15.19	8.64			
Type of hospital	Govt	185	-9.15	7.82	6.989	218	.001**
	Private	35	-19.29	8.16			
Area of work (ward)	General ward	110	-11.02	8.62	2.011	2	.136
	Intensive ward	80	-11.49	8.58			
	OPD	30	-7.87	8.94			

** significant at 0.01 level

Table 6: Relationship of selected socio-demographic characteristics with stress score (N=220)

Socio-demographic characteristics		N	Mean	SD	t/F	df	p value
Age in Years	21-30 yrs	120	31.79	3.93			
	>30-40 yrs	61	31.54	3.72			
	>40-50yrs	36	27.28	6.28	11.221	3	.000**
	>50 yrs	3	27.00	5.00			
Gender	Male	11	32.55	2.21	1.192	218	.235
	Female	209	30.83	4.73			
Marital Status	Married	141	30.77	4.86			
	Unmarried/Single	67	31.33	4.17	.422	2	.656
	Divorced/widow/Sep	12	30.33	4.87			
Religion	Hindu	57	31.54	4.35			
	Christian	16	30.25	4.36	.778	2	.461
	Sikh	147	30.75	4.80			
Area of residence	Rural	71	31.49	3.79	1.267	218	.206
	Urban	149	30.64	4.99			
Type of family	Nuclear family	149	30.58	5.12	-1.581	218	.115
	Joint family	71	31.63	3.38			
Presently you are staying	With family/family member(s)	157	30.52	4.73	2.089	2	.126
	With friends	42	32.07	4.54			
	Alone	21	31.57	3.97			

** significant at 0.01 level

assertive than contractual nurses ($p < .001$). Nurses working in Govt. hospitals were more assertive than private hospitals ($p < .001$).

Qualification, joined nursing as professional carrier, designation/position and present area of work (ward) has no relationship with assertive behavior.

As shown in table 6, nurse who were in older age group had less scores on stress as compared to nurses who were younger ($p < .001$).

As shown in table 7, nurses who joined nursing as carrier by force of parents had more score on perceived stress as compared to those who joined nursing voluntarily ($p < .035$). Nurses who took training of nursing from Govt. nursing schools/colleges had less score on stress as compared to private schools/colleges ($p < .001$). Nurses working on contractual basis had more stress as compared to regular ($p < .001$). Nurses working in Govt. hospitals had low stress score as compared to private hospital ($p < .002$).

relationship with assertiveness. Lee Jong-Sun et al (2013)²³ investigated the impact of perceived stress and self-esteem on work-related stress and depression and found that work-related stress was positively associated with depression. Perceived stress was inversely related to self-esteem and positively associated with work-related stress and depression, respectively. Self-esteem was negatively associated with work-related stress and depression. Pawar Manisha N(2014)²⁴ reported that majority (42%) of the nurses had severe stress at workplace and highly significant association was found between the level of stress and the demographic variables.

Madu S N, Mamomane J (2003)²⁵ examined the levels of stress among nurses and reported higher levels of work-related stress. Study concluded the need of stress management program to reduce work-related sources of stress. Van Servellen G, Topf M, Leake B (1994)²⁶ found that work-related stress and emotional exhaustion were associated with

Table-7. Relationship of selected professional characteristics with stress score (N=220)

Professional characteristics		N	Mean	SD	t/F	df	p value
Qualification	GNM	122	31.16	4.57	1.205	3	.309
	GNM with additional one year diploma	5	31.60	2.79			
	B.Sc. Nursing (including Post basic)	86	30.34	4.82			
	Post graduation or above (in nursing)	7	33.29	4.57			
Joined nursing as carrier	Voluntarily	117	31.54	4.48	2.126	218	.035*
	By force of parents/ friends	103	30.21	4.75			
College of basic nursing education	Govt.	119	29.97	4.91	-3.342	218	.001**
	Private	101	32.03	4.07			
Designation	Staff nurse	188	31.14	4.51	2.196	2	.114
	PHN	10	28.2	5.83			
	Nursing sister / Ward Incharge	22	30.23	5.05			
Nature of job	Regular	135	30.04	4.96	-3.608	218	.000**
	Contractual	85	32.31	3.73			
Type of hospital	Govt	185	30.51	4.86	3.065	218	.002**
	Private	35	33.09	2.33			
Area of work (ward)	General ward	110	30.89	4.78	.485	2	.616
	Intensive ward	80	31.21	4.48			
	OPD	30	30.23	4.70			

** significant at 0.01 level

Discussion

The present study is an attempt to understand the relationship of assertive behavior with stress among nurses. Result revealed that there is large negative significant relationship between assertive behaviour and stress and non-assertive nurses are highly stressed. This is in consistent with previous research which reports that stress has negative

greater health problems in the form of anxiety, depression, and somatic complaints among hospital nurses. Lee and Crockett (1994)²⁷ reported that assertiveness training is effective in treating self perceived levels of stress and sub assertive behaviour among nurses in Taiwan. Tavakoli Shedeher et al (2009)²⁸ conducted a study to check the effectiveness of assertiveness training and

expressive writing on acculturative stress in international students. The results indicated that group assertiveness training improves emotional adjustment of international students, but expressive writing has mixed effects and needs further development and study.

The possible reason for negative relationship between assertive behavior and stress may be that assertive persons are likely to experience a higher level of psychological well being and a lower level of emotional deficit. Assertive persons are able to maintain positive mental states due to their capability to efficiently manage their situations and ability to say 'no' to undesired work.⁷ When a person accepts his/ her faults and simultaneously recognizes his/ her strengths and positive qualities, the person will experience strong self worth and low stress.

Present study revealed that older nurses who are on regular job, studied from Govt. nursing institutions and working in Govt. hospitals were more assertive where as gender, marital status, religion, residence, type of family and present staying with has no relationship with assertive behavior. On the contrary, Kilkus⁸ reported younger nurses as the most assertive.

Nurse who were in older age group had less stress as compared to nurses who were younger ($p < .001$). Nurses who joined nursing as carrier by force of parents had more stress as compared to those who joined nursing voluntarily ($p < .035$). Nurses who took training of nursing from Govt. nursing schools/colleges had less stress as compared to private schools/colleges ($p < .001$). Nurses working on contractual basis had more stress as compared to regular basis ($p < .001$). Nurses working in Govt. hospitals had low stress as compared to private hospital ($p < .002$). These findings are consistent with the other available literature. However, most of the studies with nurses and with other population have reported positive correlations between level of education with assertiveness levels.^{8-9,29}

Implications and Recommendations

Nurses should use assertive behaviour and communication which may result in low stress. Assertiveness and its training program can be included in graduate nursing program and in nursing curriculum, so that sufficient emphasis can be given

to the understanding of assertiveness. Findings of the study will act as a catalyst to carry out more extensive research in a larger sample and in other settings and such research work enforce evidence based practice.

Study recommends that assertiveness training and other such techniques may be given to the non assertive nurses to build their self concept and to reduce their stress and improve coping. A longitudinal study may be conducted on large sample to assess the effects of assertive training on assertive behaviour and stress.

Conclusion

The findings of the present investigation suggest that assertive behaviour and stress has a significant and strong negative correlation. Nurses should be regularly assessed for their assertive behaviour as it affects the stress, burden and coping. Assertiveness training may be included in curriculum to inculcate assertive behaviour in nurses.

Further research needs to be done to investigate the socio-cultural circumstances that may hinder or enhance individuals assertive behaviour.

Limitations

Data were collected from selected hospitals of four districts of Punjab. The data in the present study may be subject to selection bias as the nurses were conveniently selected. In order to make findings generalizable, a large geographical area based study based on random sampling technique is recommended to assess assertive behaviour and stress. Finally, researcher acknowledge the limitation of cross sectional design with respect to temporal relationship and imputation of causality of study findings.

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Original Article

CBT as a treatment modality for Affective symptoms: Experiences from Kashmir-an ongoing conflict zone

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Abstract

Summary: Needless to mention, the people of Kashmir have been witnessing a plethora of traumatic experiences due to the ongoing socio-political chaos for more than two decades now, resulting in mounting psychiatric morbidity. Though psychiatrists have been offering their services to the bruised minds struggling for mental equilibrium as pharmacotherapeutic intervention was assumed to be the only treatment modality for the psychiatric symptoms till the recent past. **Objective:** Considering Psychotherapy a much needed intervention, alone or in addition to Pharmacotherapy, this paper attempts to examine the effectiveness of Cognitive Behavioral Therapy (CBT) as a treatment modality for Depression (with or without co-morbidity) among the people of Kashmir. **Method:** A Sample of 20 clinically diagnosed patients from the Government Psychiatric Diseases Hospital, Srinagar was recruited for the study. Majority (55%) of the patients were diagnosed with Major depressive disorder (MDD) followed by (25%) patients diagnosed with co-morbid Generalised Anxiety Disorder (GAD) and a percentage of (20%) had a diagnosis of co-morbid Obsessive Compulsive Disorder (OCD). With major depression as their primary diagnosis, the baseline scores of the patients were assessed with the help of Beck Depression Inventory (BDI-II). Patients continuing SSRI treatment were then administered to 16 CBT sessions each. **Results:** A significant difference in the BDI scores was observed at the post treatment level where CBT was found to be more effective on females as compared to their male counterparts. Moreover, patients belonging to urban areas were seen more responsive towards CBT compared to those from rural areas. However, no significant difference in the effectiveness of CBT was found with respect to the age (20-30/40-50) of the subjects. **Conclusion:** The findings of the study and other field observations infer that augmenting CBT to pharmacotherapy may provide an additional benefit to the patients suffering from depression and other co-morbid symptoms, signifying that CBT as an intervention needs to be introduced/practiced especially in the conflict zones like Kashmir.

Key terms: Conflict, Traumatic experiences, Affective symptoms, CBT.

Introduction

Much has been talked upon the rampant increase in the psychological symptoms and syndromes in the populations, confronting wars/conflict situations. It has been estimated by WHO

that, in conflict situations throughout the world, 10% of the people who experience traumatic events will have serious mental health problems and another 10% will develop behavior that will hinder their ability to function effectively.¹ Arguing upon the individual

and societal costs of violent conflict situations, Kessler maintains, “the evidences lead us to believe that the impact will be staggering, that the toll in terms of emotional pain and suffering will be as large as the effect on productive capacity and the process of healing will have to be measured in terms of generations, rather than years”. Therefore it becomes necessary to evolve means and methods of integrating various interventions during efforts at societal repair.

The prolonged political unrest in Kashmir (Indian Administered) has not only disrupted the entire social tissue of the region but it has snatched the mental peace of every single individual. Besides the absolute social disorder, the on-again off-again fashion of strikes and curfews has developed a feeling of “psychological kidnap” among the masses leading to severe psychological exhaustion. A thorough look upon the figures reveal that there is a significant increase in the number of people being diagnosed with acute stress reaction, depressive disorders, anxiety disorders, and post traumatic stress disorder.^{2,3} The prevalence of post traumatic stress disorder has been found to be alarmingly high (15.9%) as compared to other places.⁴ The number of patients seeking psychiatric help which was only 1700 in 1980’s had gone upto 100,000 in 2007.⁵ A more recent study reported the prevalence rate of depression to be (55.72%) with depression more prevalent (66.67%) in the 15 to 25 years age group, and (65.33%) in the 26 to 35 years age group. Depression has been seen much higher in rural areas (84.73%) as compared to urban areas (15.26%). In rural areas the prevalence of depression among females has been found higher (93.10 %) as compared to males (6.8%).⁶

Owing to deaths and disappearances of male members, many women have no choice but to head their families and bear the responsibility. The most precarious position of “half widows” or women, unsure of the fate of their husbands, is particularly poignant. They neither can inherit property or claim widow benefits nor they can remarry as according to Islamic law they must wait for at least seven years.⁷ This sense of insecurity has given rise to several psycho-physiological pathologies. The constant stress experienced by the women folk has adversely affected their reproductive health as well,

resulting in frequent miscarriages, polycystic ovarian disease (PCOS), premature ovarian failure (POF- commonly called menopause) which is alarmingly high (20-50%) when compared to India’s national POF rate of 1-5 percent.⁸

Substance misuse which was once nonexistent in the valley has also taken a high speed. Studies comparing the prevalence of substance misuse pre and post conflict reveal that the use of alcohol has increased by 30%. Use of opioids has increased from 9% to 73%, people using multiple substances has increased from 15% to 41%. 15% of people attribute their drug use to the prevailing trauma and turmoil.⁹ The use of sedatives and drugs has gone up, “People cope with the trauma and negative emotional states by using anything, many substances to induce a temporary state of sleep and rest” writes Murali Krishnan quoting Mushtaq Margoob, the leading psychiatrist of the valley.¹⁰

Symptoms of anxiety and depression are common in all ages including children. The most common traumatic event experienced by children was witnessing the killing of a close relative (49%), followed by witnessing the arrest and torture of a close relative (15%).¹¹ Parental loss, frequent displacement and exposure to violence have led to an increase in paediatric psychopathology. Behavioural changes amongst children have been reported to include isolation, aggression, drug abuse, lack of respect for elders, loss of morality/values and hopelessness and other somatic symptoms. Children who lost their parents are often reared in orphanages. PTSD and depression are common diagnoses in children living in orphanages.¹²

Though psychiatrists have been offering their services to the bruised minds struggling for mental equilibrium, however the increasing number of patients puts a considerable pressure on the psychiatrists and allows them to prescribe the medicines to the patients at a very high speed. Thus, the alarming increase in the psychiatric morbidity calls for an urgent need to amplify other approaches/ modalities of treatment as well. Hence keeping in view the aim of the study mentioned above, the following hypotheses were formulated:

- there would be a significant effect of CBT in reducing the level of depression (with or without co-morbidity) of the patients and;

- there would be a significant difference in the effectiveness of CBT on age, gender and marital status of the subjects.

Developed by Beck, CBT rests on the assumption that any of us may develop mental health difficulties if the meanings we give to specific events are sufficiently upsetting. For example, following the death of a partner, someone may feel continual and extreme sadness because of a deeply held belief that they have lost their only source of happiness in life.¹³ From a cognitive behavioral perspective, the linkage of thoughts and emotions with behavior serves to keep individuals with mental health difficulties stuck in a 'vicious circle', within which what they do both follows from, and serves to confirm, what they believe.¹⁴ The Cognitive behavioral interventions for depression have been subject to intensive scientific testing for over thirty years. In randomized clinical control trials, they have been found to be as effective as antidepressant medication and other forms of therapy¹⁵ and result in the reduction of recurring episodes.¹⁶ The approach helps the individuals understand contingent factors behind their depression, provide relatively quick relief from the distressing experiences associated with it and enable them to develop a proactive approach to manage their problems in the future.

Methodology

Participants, Diagnosis and Socio-Demographic Profile.

The data for the present study was collected from the Government Psychiatric Diseases Hospital Srinagar, catering psychiatric services to the people of Kashmir, Ladakh and some adjoining areas of Jammu province. A total of 20 depressed patients (with or without co-morbidity) were recruited for the study. The patients were diagnosed by skilled clinicians (psychiatrists) with major depression as their principal diagnosis. Majority (55%) of the patients were diagnosed with Major depressive disorder (MDD) followed by (25%) patients diagnosed with co-morbid Generalised Anxiety Disorder (GAD) and a small percentage of (20%) had a diagnosis of co-morbid Obsessive Compulsive Disorder (OCD). The patients were further assessed on the basis of their Socio-demographic characteristics (Table 1).

Table-1: Socio-Demographic Profile of the Patients

Total	N=20
Age	
20-30	11
40-50	09
Gender	
Male	10
Female	10
Marital Status	
Married	11
Unmarried	09

Study design

The study was based on a pre and post test design. Initially the patients underwent a psychiatric and medical evaluation by senior psychiatrists. Upon receipt of referrals and after building proper rapport with the patients, their baseline scores were recorded with the help of Beck Depression Inventory (BDI-II).

Beck Depression Inventory

The BDI-II is a 21-item self report inventory developed by Beck and colleagues.¹⁷ The inventory is an assessment tool to measure the severity of depression in psychiatrically diagnosed adults and adolescent patients aged 13 years onwards. It has been developed as an indicator of the presence and degree of depressive symptoms consistent with the DSM-IV, not as an instrument for specifying a clinical diagnosis. The test-retest reliability for the outpatients has been found as 0.92.

Intervention

The intervention program was started while keeping into consideration the most common values and cultural beliefs that underpin a Kashmiri world view. The ethical values ingrained in the people of Kashmir were taken care of not only at the time of providing therapy sessions but while administering Beck Depression Inventory to the patients. Hence, item no. 21 of BDI-II (Loss of Interest in Sex) was totally skipped in case of unmarried subjects. The guidelines given by the American Psychological Association also suggests that while providing the psychological services to clients of ethnic, linguistic and cultural minority population, the cultural context of the client and the cultural beliefs should be taken

into consideration when providing intervention.¹⁸

Patients continuing SSRI treatment were administered to 16 (weekly) CBT sessions each, on a one to one basis. Medication adherence was assessed at each visit by verbal report, pill counts and by confirmation from immediate relations. The sessions were delivered in assistance with the lone clinical psychologist catering services to the patients for the last 15 years. The content of sessions was designed to include most common elements of cognitive behavioural therapy, as well as many disorder specific treatment elements. Both cognitive and behavioural components were used in accordance with the nature of the disorder (Major depression with or without co-morbidity).

The sessions started with the psycho-educational procedures which are regarded as the primary element in CBT, involving efforts to teach the patients to challenge their automatic thoughts, identify cognitive errors and implement more rational thinking style. The therapist encouraged the patients to start raising questions about the accuracy and validity of his or her own thinking via Socratic questioning. The therapist used Imagery techniques and role-playing when direct questioning method failed to reveal important underlying cognitions. In imagery, the patient was asked to visualize the distressed situation. Role-playing exercises were executed to uncover automatic thoughts and to try out a revised pattern of thinking. The patients were then asked about the evidence that either supports or refutes their automatic thoughts (i.e., pros and cons). Cognitive errors such as overgeneralization, catastrophic thinking, maximizing or minimizing, personalization, and all-or-none thinking are frequently revealed in these situations. The patients were further encouraged to record/recall their thoughts. Thought recording is one of the most useful procedures for identifying and changing automatic thoughts. The purpose of this exercise was to encourage patients to begin to use self-monitoring to increase awareness of their thought patterns. After automatic thoughts have been elicited and modified through procedures described before, the patients were swiftly helped by the therapist in a series of rehearsal exercises to try out alternative cognitions in a variety of situations.

In addition to the cognitive techniques, the therapist used some behavioural techniques. Such

techniques are based on the premise that depressed people spend excessive amount of time alone or have tangible reductions of pleasurable activity and that depression is an “extinction state” resulting from the loss of reinforcers.¹⁹

Activity Scheduling and Graded Task approach were also used, wherein the patients were taught to monitor themselves. They were instructed to record and remember their activities to avoid the distortions that occur because of mood symptoms and faulty memory. After identifying the deficits in activities that might elicit pleasure or feelings of competence, next assignments were made to engage the patients in discrete pleasurable activities. The graded task approach is based on the premise that in a depressed state, many normal activities are indeed too demanding for depressed patients to complete. Thus, the patients were guided to break down the task into units or components. An important component of CBT for anxiety disorders which the therapist used involved teaching the patient breathing exercises that were used to counteract hyperventilation and/or reduce tension. These exercises help to distract the patient from autonomic cues. Moreover, exposure and ritual prevention techniques were used to speed-up extinction of conditioned fear or anxiety responses. In response prevention treatment of obsessive-compulsive disorder, the individual agrees not to perform the compulsion despite strong urges to do so.

Automatic negative thoughts and repetitive, intrusive ruminations are sometimes too intense to address with purely cognitive interventions. The technique of thought stopping was used to capitalize on the individual's ability to use a selectively narrowed attentional focus to suppress the intrusive cognitions. Moreover distraction techniques such as counting backward, praying, or imagining a calming scene were applied to direct attention away from the internal stimuli. Distraction techniques thus help the individual exert some control over the symptoms, permitting greater exposure to sense of self-efficacy with a growing magnitude.

In addition to the above mentioned techniques used to enhance cognitive and behavioural skills of the patients in an attempt to prevent future psychopathologies and associated disabilities, special emphasis was given to the spiritual beliefs and practices which are regarded as a core constituent

of coping as majority of the people of Kashmir consider spirituality as a primary coping strategy. Since Kashmiri community is a Sufist community, people often visit shrines and get themselves relieved when in misery. Spirituality has been found as a strong tool to reinforce resilience and most often used coping method for dealing with the problems and emotions related to traumatic situations among the people of Kashmir.²⁰ Propst and colleagues, in their study have also found that incorporating religion into therapy when working with a group of Christian people with depression resulted in greater improvement than when religion was not incorporated into the therapy.²¹

Statistical analysis

Once the patients were done with the therapy sessions, their post test scores were again recorded by the same tool i.e. BDI-II. The obtained data was then analyzed by using SPSS(V-16). Since SPSS does not provide eta-squared values for t-tests, the effect size statistics was calculated manually to see the magnitude of the intervention's effect by applying the below mentioned formula.

$$\text{Eta squared} = \frac{t^2}{t^2 + N - 1}$$

To interpret the eta squared values the guidelines given by Cohen²² were followed.

Results and Discussion

The findings of this study are of a considerable concern and are likely to have a substantial policy impact regarding accessibility of psychological interventions for people residing in war/conflict zones.

The central finding (Table-2) of the study reveals that CBT has shown a significant effect in reducing level of Depression of the patients. The pre-test (27.15) and post-test (17.00) mean scores differ significantly at 0.01 level. The eta squared statistics shows that CBT has remained 69% effective in reducing the level of depression among

the subjects. Besides the decline in the BDI scores after the intervention, the patients and their relatives themselves reported to have gained certain benefits following CBT. This confirmed the hypothesis which states that CBT would have a significant effect in reducing the level of Depression (with or without comorbidity) of the patients. This finding adds one more evidence to a plethora of studies which have been conducted so far on the effectiveness of CBT for Depression across different settings.²³⁻³² Although, co-morbid anxiety has been seen strongly associated with the development of chronicity in depression and treatment resistance, yet, psychotherapy might have an especially important role in managing patients with these co-morbidities.^{33,34} Attesting the preceding argument, the present study also found CBT to be equally effective on the patients diagnosed with co-morbid symptoms. This finding is directly supported by Rector, Cassin and Richter³⁵ who also concluded that, "CBT holds promise as an efficacious treatment for people with co-morbid OCD and MDD". CBT for GAD is associated with improvements in both anxiety and depressive symptoms and a large number of patients treated with CBT for GAD are found to be experienced long-term maintenance of their gains.

The difference which CBT makes predominantly may be due to its impact on cognitive symptoms of depression as this treatment is based on the idea that psychological problems arise as a result of the way in which we interpret or evaluate situations, thoughts, and feelings, as well as our behaviors which appears to be more akin in the case of Kashmiri people who had been living in inconsistent situations and so prone to emotional changes accompanied with variations in their thoughts and feelings. As such the techniques of CBT ranging from cognitive restructuring, psycho-education and social skills training proved helpful to check the cognitive errors such as over generalization, catastrophic thinking, either maximizing or

Table 2: Pre-test and Post-test Mean and SD scores of Depression of the overall sample

Overall Sample (N=20)	Condition	Mean	SD	t	Eta-squared
Depression (with/without comorbidity)	Pre	27.15	9.95	6.63**	0.69
	Post	17.00	12.24		

**p < 0.01

minimizing, personalization, and all-or-none thinking which was seen more prevalent in our sample.

So far as the patient's socio-demographic characteristics (i.e. age, gender and marital status) are concerned, no significant difference was seen in the effectiveness of CBT on the age of the subjects. On comparing the post-test mean scores (table-2) of the two age groups (i.e; 20-30/40-50), a marginal difference can be seen in these scores meaning that CBT has remained equally effective on the patients of both age groups. A percept of table-2 further indicates that CBT has shown a significant effect on both male and female patients. However, on comparing the effectiveness of CBT on gender, the post test mean scores clearly reveal that CBT has shown more effect on female patients than on male patients. This difference may be due to the reason that males showed a high psychological

fared well on both married and unmarried subjects. However, when the between group comparisons were made, it was found that CBT has remained more effective on unmarried subject than on married ones, Although it was assumed that CBT may show more effect on married subjects than on unmarried subjects as unmarried people lack social support whilst the married get a good deal of support from their families in crisis situations. The reason behind the contrasting results obtained in the present study may be due to the fact that married people have more responsibilities towards their families than unmarried ones and being the residents of a conflict zone, it is really hard for a married couple to make the ends meet and to give care to the children. The level of despair and lack of future prospects potentially endangered the long term well being of the people of Kashmir⁴⁰. Hence, our hypothesis is

Table 3: Comparing the pre-test and post-test scores of Depression on age, gender and marital status of the subjects

Depression (N=20)	Pre-treatment Mean/SD	Post-treatment Mean/SD	t-value
Age			
20-30 (11)	30.64/3.71	22.56/6.78	4.84**
40-50 (9)	31.69/4.54	24.68/7.67	8.91**
Gender			
Male (10)	31.26/6.72	24.50/9.70	8.07**
Female (10)	29.87/6.91	18.33/9.96	10.20**
Marital status			
Married (11)	31.12/4.07	26.25/4.32	16.42**
Unmarried (9)	30.19/8.57	20.34/12.01	9.51**

** $p < 0.01$

distress associated with substantially increased likelihood of socio-economic dysfunction, which has also been reported in both Western^{36,37} and Asian contexts.³⁸ It has been seen that socioeconomic dysfunction has broad implications as it reduces the capacity for males to generate income according to their traditional roles. These findings are supported by the findings of Felmingham and Bryant³⁹ who examined potential differential responses in men and women to CBT for PTSD, suggesting that men with PTSD have a reduced maintenance of treatment gains following exposure therapy compared with women. Finally, the difference in the effectiveness of CBT on marital status of the subjects was also assessed in the present study. In this connection, the results (Table-3) obtained indicate that CBT has

partially accepted which states that there would be a significant difference in the effectiveness of CBT on age, gender and marital status of the subjects.

Conclusion

In the present study, it was found that providing CBT to patients already receiving an adequate SSRI dose led to a reduction in Depression and other co-morbid symptoms in almost all patients. Hence, CBT as an intervention may be clinically relevant, beneficial and a viable approach in enhancing the overall mental health of the people struggling with conflict situations. Although combination treatment may not be necessary for all patients, however, sequencing these treatments may help patients for whom SSRI treatment alone is insufficient. Although

psychiatrists are rendering their services to the restless beings, however, the alarming increase in the psychiatric morbidity calls for an urgent need to other approaches of treatment like psychotherapy. The idea of Psychotherapy is almost an alien concept to the people of Kashmir, it is therefore, the responsibility of the policy makers to provide a platform to the psychotherapists and psychologists, so that they can render their services to the wounded minds where pills and amulets find it difficult to make a difference. The continuous death and destruction has left the masses in a state of helplessness which can best be addressed by listening to them empathically, help them out in handling a situation while giving them a hope to resume their lives. Survey conducted by MSF, a multi-national NGO also reported that people deal with stress by isolating themselves (22.3%) or becoming aggressive (16%). While majority (89.4%) of the people believe that talking confidentially to someone they trust is helpful when confronted with tension.⁴⁰

Thus, it becomes necessary to make efforts to provide the masses with the benefits of CBT which has been proved by the results of this study. The intervention programme (CBT) as well as this study require replication in other ongoing/post conflict contexts. Future studies need to be conducted to see whether the differences in the effectiveness of CBT with reference to gender and marital status are related to the actual context or due to some other reasons.

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Original Article

Phobic Positional Vertigo: Proposed entity for dizziness following exposure to earthquake aftershocks

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Abstract

Background: Earthquakes are known to cause various psychiatric manifestations such as vertigo and dizziness. Large number of cases of dizziness with no clinical, vestibular or radiological evidence of organic aetiology, reported following aftershocks of an earthquake with epicentre in Nepal on 25 Apr 15. Brant et al in 1991 proposed the term Phobic Postural Vertigo (PPV) to a particular form of psychological dizziness characterized by episodes of situational triggered dizziness caused by perceptual stimuli, with normal clinical tests for balance. **Objective:** To study the incidence and features of PPV cases following exposure to aftershocks in the aftermath of the earthquake on 25 Apr 15. **Method:** Retrospective review of all patients of dizziness who reported to the ENT OPD from the date of earthquake to one month thereafter were reviewed and analyzed. **Results:** Out of the 146 cases that reported with vertiginous symptoms following upto one month after the earthquake, 80 cases presented with features of PPV. Chief complaints were sudden spells of dizziness with or without unsteadiness. Vegetative symptoms were present in 15% cases. 5% had features of anxiety. 23.75 % showed avoidance behaviour. Mean number of attacks over one month was 21.20. 75% patients had resolution of symptoms after being explained the psychological mechanism of their symptoms, 21.25% needed medication for control of symptoms while 3.75% had persistence of symptoms beyond one month inspite of therapy. **Conclusion:** Familiarity of therapist with PPV in such scenarios will result in early diagnosis and management and avoidance of time consuming evaluation. This study preludes to more evaluation of cases of dizziness following exposure to earthquake aftershocks.

Key words: Phobic, Vertigo, Dizziness, Earthquake

Introduction

Earthquakes are amongst the most devastating natural disasters causing prolonged physical or psychological consequences to the affected. Psychiatric morbidity in form of post – traumatic stress, sleep disorders, depression or neurological complaints like dizziness are known to happen in the affected population.^{1,2} However such associations in people affected by aftershocks have

rarely been reported.

Dizziness can be classified into four entities- presyncope, unsteadiness, true vertigo and psychogenic dizziness.³ Presyncope is the sensation of impending loss of consciousness as a result of cerebral hypoperfusion. Unsteadiness is caused by neuro-musculo-skeletal problems or a cerebellar disorder. Vertigo, an illusion of rotational motion, is due to asymmetry in vestibular nucleus activity.

Psychogenic dizziness may be vaguely described as light headedness or a heavy head with or without unsteadiness, independent of change of posture or position.

Vertigo and Psychological disorders have a complex association as both can cause a sensation of dizziness. Vertigo has been defined as 'the sensation of motion when no motion is occurring relative of earth's gravity'.⁴ Disturbances of the peripheral vestibular organs, the otolith organs or the semicircular canals and central pathways involving the vestibular nuclei and cortical connections or cerebellum can cause equilibrium dysfunction. Psychiatric disorders such as anxiety and depression are known causes of vertigo. It is hence imperative to differentiate between an organic lesion and a psychogenic cause.

Brandt et al in 1991 proposed a syndrome called Phobic Positional Vertigo with almost mono symptomatic complaints of dizziness and unsteadiness.¹ It is characterized by situational triggered dizziness caused by perceptual stimuli. It is a diagnosis of exclusion and consists of symptoms without signs. Laboratory and imaging studies are also normal in these cases. PPV is a frequently diagnosed disorder in specialized dizziness clinics and one should be familiar with this entity.

We present features of patients who presented with PPV in our OPD following aftershocks that shook parts of the country in the aftermath of the earthquake which struck Nepal on 25 Apr 15. Early diagnosis of this condition prevents extensive time consuming and costly investigations. A good therapeutic response is generated in most patients just by explaining the psychological features of the illness.

Patients and Methods

All patients who reported to the ENT OPD with complaints of dizziness and unsteadiness following the earthquake on 25 Apr 15, were evaluated and assessed over a period of one month thereafter. Only those patients, who fitted in the diagnosis of PPV based on the criteria of the syndrome as proposed by Brandt et al, were included in the study. These criteria are as under:

1. Postural dizziness and subjective postural and gait unsteadiness without this being visible to an observer with normal clinical

balance tests.

2. The attacks occur in situations known to be external triggers of other phobic syndromes (e.g., large crowds, bridges, empty rooms).
3. Dizziness may be fluctuating or continuous unsteadiness with episodes lasting seconds to minutes, or momentary perceptions of illusory body perturbations. There is a tendency to develop rapid conditioning, generalization and avoidance behaviour.
4. Patients may also report vegetative disturbances. Attacks of vertigo may occur with or without anxiety.
5. Frequently there is a preceding vestibular illness e.g. resolved vestibular neuritis or benign paroxysmal positioning vertigo (BPPV) or psychosocial stress situations.
6. Patients often exhibit obsessive-compulsive and perfectionistic personality traits, labile effect or mild depression and during the course of the disease, reactive-depressive symptoms.

A detailed history of the presenting complaints, past medical and treatment history were taken. All patients underwent a detailed neuro-vestibular assessment including Dix Hallpike test, tests of spontaneous and gaze nystagmus, Romberg's test, gait tests, head impulse test and cerebellar tests amongst others. Caloric test, biochemical blood tests, BERA, ECG and Imaging studies (CT or MRI) were done when thought appropriate and essential to arrive at a diagnosis.

The diagnosis of PPV was arrived at as a result of exclusion of organic neuro-vestibular disorders. Cases detected to have clinical or radiological evidence of organic disease affecting the neuro-vestibular systems were excluded. Also excluded were cases of otological disorders such as otitis media and patients using drugs which are known to cause dizziness. Psychiatric evaluation was done by psychiatrist for comorbid psychopathology in these patients.

Statistical Analysis was done with Proportion tests (Z) where applicable. The values with $P < 0.05$ were considered significant.

Results

Out of the 146 cases of dizziness who reported

after the earthquake, 80 had features of PPV (55%). Amongst the PPV cases 18 patients (22%) were male and 62 patients (78%) were female. The mean age was 54.6 years with a range between 17-76 years. Most of the patients (63%) were above 60 years.

Number of spells of vertigo varied from less than 10 episodes in 10 cases to more than 20 episodes in 4 cases (Mean 21.20). Duration of symptoms varied from less than five days in 30% cases to more than 30 days in 2.5% cases. Most cases had duration of illness between 5-15 days. The longer duration of illness was observed in those aged above 40 years and in those with previous history of vestibular illness such as benign positional vertigo.

Vegetative symptoms in form of sweating, palpitations or breathlessness or hyperventilation were present in 15% cases. 5% cases had anxiety features. Clinical and observational data of patients is summarized in Table 1.

Table-1. Clinical and observational findings in cases of PPV

No.	Clinical and Observational findings	Number (n=80)	Percent
1.	Associated psychiatric illness		
	– Anxiety	04	5%
	– depression	03	3.75%
	– Panic	05	6.25%
	– Obsessive compulsive	10	12.50%
2.	Previous organic vestibular illness		
	– Age < 40 years	04	5%
	– Age > 40 years	18	22.5%
3.	Previous psycho-social stress (previous illness, death in family)	15	18.75%
4.	Vegetative symptoms (vomiting, sweating, palpitations)	12	15%
5.	Avoidance behavior (not going out, holding onto things while walking)	19	23.75%
6.	Duration of symptoms		
	– Less than 5 days	24	30%
	– 5-15 days	41	51.25%
	– 15-30 days	13	16.25%
	– More than 30 days	02	2.50%
7.	Number of attacks of PPV		
	– Less than 10	10	6.25%
	– 11-20	37	46.25%
	– More than 20	44	55%
8.	Treatment		
	– Reassurance	60	75%
	– Reassurance and drug therapy	17	21.25%
	– Persistence of symptoms	03	3.75%

86% patients thought they were suffering from a new illness. All patients aged over 60 years thought

they had a dangerous disorder. All the patients however had normal clinical, vestibular and neuroimaging results.

All the patients were advised on the benign nature of the illness and explained in detail the psychological mechanism of their symptoms. All were offered psychological counselling and deemed intervention. 75% of the subjects were assured by the explanation and had complete remission. Total 20 cases needed drug therapy in the form of anti anxiolytics and anti depressants such as serotonin selective reuptake inhibitors (SSRIs). Of these, 11 cases (13.75 %) needed drug therapy on first visit itself. 6 cases (7.5%) needed drug treatment on subsequent visits but all reverted to being asymptomatic with therapy. 3 cases (3.75%) had persistence of symptoms beyond one month even on drug therapy.

Discussion

Aftershocks following major earthquakes affect areas much larger than the epicentre of the earthquake. Most studies on earthquake disaster are focused on the survivors, in the areas of mass destruction and damage. Rarely are studies focused on areas where only aftershocks are felt. This article is unique not only as it focuses on an area which experienced minor aftershocks but also because of the symptomatology.

Earthquakes are known to be associated with increased prevalence of psychiatric morbidities including dizziness.⁵ However it is unclear why major earthquake causes dizziness. One possible explanation for the large outbreaks of dizziness after major earthquakes is that psychological stressors rather than organic disorders caused equilibrium disturbances. Autonomic stress on balance functions are also thought to provoke dizziness in patients exposed to earthquakes.⁶

PPV is a term labelled under psychogenic dizziness and thought to be a somato sensory dependence syndrome. It is a diagnosis of exclusion and the criteria for diagnosis is symptoms of dizziness without corresponding physical signs⁷. Brandt et al in the posturography analysis of PPV patients found increased sway activity in high frequency with no impairment in objective postural stability impairment. Sensory effects of normal postural adjustments are therefore interpreted as arising from

external body movements or that of the surroundings.¹ Holmberg in 2003 suggested PPV patients are more sensitive to proprioceptive disturbances than normal individuals.⁸

There was a sudden increase number of cases of dizziness reporting to our OPD after the earthquake. A study after the Tohoku earthquake on March 11 in 2011 indicated that repetitive exposure to aftershocks can evoke equilibrium dysfunction months after a major earthquake.⁶ In our study only cases which fitted in the Brandt criteria of PPV were included. The classical symptom was dizziness without any signs or evidence of organic illness. Individuals who reported with inner ear or central pathologies as a cause of dizziness or unsteadiness were excluded from the study. Hence first organic disorder such as central vestibular disorders, perilymph fistulas, must be excluded clinically and or radiologically before labelling a diagnosis of PPV. Depending on the symptoms, our patients underwent further audio vestibulometry and radiological (CT or MRI) investigations. Posturography in our study was not restored to due to unavailability of the test. Females are known to be more prone to psychological disorders following earthquakes.⁹ Our study also showed significant higher incidence in female patients (n=62/80), presenting with PPV.

PPV is also associated with certain psychiatric entities such as obsessive-compulsive disorder, mild depression and narcissistic / histrionic traits amongst other.^{10,11} PPV must also be differentiated from other non organic causes of dizziness. In PPV the main symptom is dizziness. Panic attacks are characterized by multitude of symptoms¹². Hypochondriacs are pre occupied with persistent apprehensions of an illness. PPV differs from Chronic Subjective Dizziness (CSD) as it is triggered rather than constant. CSD is also persistent and last more than three months and is generally exacerbated by the use of vision.¹³

Treatment of the condition is tailored according to the individual needs of the case. Our experience of 75% improvement just by explanation of the disease process correlates well with other studies on the subject.^{8,14} Psychotherapy, yoga and meditation have also proved successful. Pharmacotherapy is required in other cases which do not respond. In our study 25 % of the cases needed drug therapy in

the form of antianxiolytics and anti depressants such as serotonin selective reuptake inhibitors (SSRIs).

Aim of presentation is to highlight the entity of PPV in earthquake aftershocks, separate from the cases where in repetitive exposure to earthquake causes dysfunction in the inner ear. In PPV, the patients do not elicit clinical signs but suffer from dizziness with or without unsteadiness. They can be managed without being subjected through plethora of time consuming, expensive tests. Simple explanation helps to rectify the illness in most cases. This report aims to encourage more studies to elucidate the effect of earthquakes on our vestibular system with development of newer empirical approaches to disaster care after such events.

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Original Article

Quality of life and burden of care of the key relatives of the adolescents with Psychosis and Epilepsy

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Abstract:

Objectives: The aim of the study is to compare the quality of life and burden of care of the key relatives of adolescents with epilepsy and psychosis. **Methodology:** This study was done at the “Centre for Child and Adolescence Psychiatry Department” and “Epilepsy Clinic” of the Central Institute of Psychiatry, a Government of India owned tertiary mental health and allied sciences institute. One key relative of 60 adolescents with epilepsy and psychosis (30 each) was selected purposively. Data collections were done by using socio-demographic data sheet, WHO QOL-BREF, Family Burden Interview Schedule, and General Health Questionnaire-12. The Hindi (the Lingua Franca of the State of Jharkhand, India) version of WHOQOL-BREF-26 was used in the present study. **Results:** The key relatives of the adolescents with psychosis have been found to have significantly higher burden of care than the key relatives of the adolescents with epilepsy. At the same time key relatives of the adolescents with epilepsy had been found to have higher QOL than the key relatives of adolescents with psychosis. Age of onset of illness in epilepsy group has been found to have significant implications on caregivers’ burden and quality of life. In case of psychosis ‘age of the key relatives’ was found to be important on burden of care and quality of life. **Conclusion:** Results suggested that key relatives of the adolescents with psychosis do perceive higher burden of care and lower quality of life as compared to those of the key relatives of adolescents with epilepsy.

Keywords: Quality of life, Burden, Psychosis, Epilepsy.

Introduction

Epilepsy and psychosis are two neuro-psychiatric conditions that do not distinguish the geographic, social, gender, religious, ethnic or racial boundaries; both these disorders affect people of all ages and societies. Both these disorders have devastating effects on the socio-occupational functions of the affected people.¹⁻³ Despite significant progress in medical science common people still have many misconceptions and negative attitudes towards these disorders. Certain things are in common between the families of adolescents with

epilepsy and functional psychosis, i.e., in either condition caregivers develop a sense of burden, stigma and loss because of the fear of stigma and social isolation. Psychosis affected adolescents have marked incapacity in all areas of life functioning because of illness and many of them develop chronicity in illness. In epilepsy, stigma can cause serious negative societal as well as personal consequences in the patients and their caregivers and their quality of life can be diminished markedly.⁴

Providing care to a child with chronic illness is an enduring stressor for parents. Parents have very

significant emotional distress, specifically at times of diagnosis and exacerbation of illness.⁵ Assuming the role of a caregiver of individuals with chronic psychiatric disorder is taxing due to its association with high degree of physical, emotional and financial hardship. Caregivers of these people often have to experience a maelstrom of emotions because day in and day out they witness the sufferings of their ill relative.⁶ Platt⁷ defined burden of care in the context of chronic mental illness as: “the presence of problems, difficulties or adverse events which affect the life (lives) of the psychiatric patient’s significant other(s)”. Caregivers of people with chronic mental disorder perceive burden not only because of emotional, psychological, physical and economic impact of illness but also the factors like shame, embarrassment, feelings of guilt and self-blame.^{8,9} Parents of children with severe mental disorders are more likely than other parents to cut work hours, to quit work, and to spend more time arranging their child’s care, the time involved in caring for chronically ill children leading to lost opportunities.¹⁰⁻¹²

Epilepsy often causes serious impediments not only to affected people but also those who care for them. As per the estimation of World Health organization nearly 50 million people worldwide have epilepsy, making it one of the most common neurological diseases globally. The World Health Organization also stated that approximately 80% of the people with epilepsy come from low and middle-income countries.¹³ The overall prevalence rate of epilepsy in India was enumerated to be 5.59 per 1,000 populations.¹⁴ Earlier Sridharan and Murthy¹⁵ estimated the prevalence rates per 1,000 populations (95% Confidence Interval) as: overall, 5.59 (4.15-7.03); men, 6.05 (3.79-8.31); women, 5.18 (3.04-7.32); urban, 6.34 (3.43-9.25); rural, 4.94 (3.12-6.76). These authors enumerated that urban people had a higher prevalence of epilepsy compared with rural people; although the difference was not statistically significant. Prevalence of epilepsy is higher in younger age group. Bannerjee et al¹⁶ estimated the incidence rate of epilepsy in India as 27.3/100,000 per year.

In childhood epilepsy caregivers have to encounter problems like emotional disturbances, marked negative changes in daily family activities, restriction in social and recreational activities, economic hardships and problem in delivering extra

efforts to provide care to the patients.¹⁷⁻¹⁹ Some children with epilepsy do have additional problems like neurological impairment, developmental delays, intellectual deficits, memory and attention related problems, motor impairments, and many of them have obvious side-effects of pharmacotherapy.¹⁹⁻²³ The diagnosis of childhood epilepsy fetches a trail of negative consequences for the entire family in the forms of not having a perfect child or having a different child. Diagnosis of epilepsy in this sense causes massive destabilization of the family and every aspect of family life and function is deeply affected by it. Parents of those children start to experience negative emotions like anger, guilt and sadness. Furthermore, parents often anticipate stigmatization of their child by the society. Usually stigma is not restricted to the affected children but also causes fear and apprehension to entire family unit. In the long run families of those children and adolescents do experience the stigma and animosity from the society.^{24,25} Patients with epilepsy have to face challenges in their day to day life in the forms of: ‘chances of loss or change of employment’, ‘increased financial burden for treatment’, ‘diminished social interactions’, ‘negative impact on self-image’ and most notably treatment and medication side effects.⁴ Epilepsy during adolescence can cause very significant negative impact on the psychological and biological maturational processes.²⁶ Epilepsy not only causes disturbances to affected adolescents rather it has very significant adverse effects on their caregivers’ physical and psychological health.^{17,27}

In case of psychotic disorder like schizophrenia higher levels of family burden and psychological distress in caregivers are found to be associated with factors like impaired socio-occupational functioning of the patients, higher load of psychopathology and financial difficulties owing to increased treatment costs.²⁸⁻³⁰

Present study aims to examine the differences in the experience of burden and quality of life between key relatives of the adolescent patients having psychosis and epilepsy. Epilepsy imposes enormous physical, psychological, social and economic burdens on patients and their families. Patients with epilepsy do face intimidation because of unfriendly attitude of the society. Despite significant progress in the treatment epilepsy still

invokes misconceptions, fear and stigma in people. People tend to express antagonistic behaviour and attitude to the patients out of fear and stigma. On the other hand severe mental disorder likes schizophrenia and bipolar disorders are already misconstrued by the large section of the common people because of its myriad symptoms, chances of frequent relapses and varied outcome. This study looks into the matters related to quality of life and burden of care of the key relatives of the adolescent patients with epilepsy and psychosis. In India the number of such kind of comparative study is very low so it will help the mental health clinicians to have more knowledge regarding this issue.

Methods

Design

This study was a cross-sectional one and aiming to examine the difference in the level of quality of life and burden of care between the key relatives' of the adolescents with psychosis and epilepsy. This study was done at the "Centre for Child and Adolescence Psychiatry Department" and "Epilepsy Clinic" of the Central Institute of Psychiatry, a Government of India owned tertiary mental health and allied sciences institute. Purposive sampling was used for selecting the respondents (one key caregiver of two groups of adolescent patients; e.g. epilepsy and psychosis respectively). The diagnoses of these two groups were made by the consultant psychiatrists of the institute as per the ICD-10-DCR³¹ and International League Against Epilepsy (ILAE) criteria³². Both the male and female adolescents who were within the age range of 13-17 years with these two diagnoses were selected in the study. But the patients with co-morbidities like mental retardation, learning disorder, conduct disorder and ADHD were excluded in the study. The criteria for key relatives were kept as: a) the person should be the first degree relative of the adolescent; b) s/he must stay with the adolescent in the same household for permanent basis; c) s/he has active involvement in the treatment and aftercare related tasks of the patients for ≥ 2 years for continuous basis. Only one such caregiver was selected from the pool of close relatives of these adolescents. The minimum age of the key relatives taken in the study was 18 years and in both the groups key relatives were matched as per age, sex,

education and family income. To rule out the psychiatric ailments in those caregivers the General Health Questionnaire-12,³³ was applied and whosoever scored less than 3 was requested to take part in the study. Key relatives who had been found to have major debilitating physical illnesses, substance addiction and who did not give the informed consent for participating in the study were excluded. In this study joint family was defined as: "It is a family system where individuals from many generations live under the same roof and there is collectiveness in financial and other responsibilities in the family and joint ness in taking responsibilities of the children".

Participants

The samples consisted of 60 key caregivers (30 each for epilepsy and psychosis groups) of the adolescent patients with psychosis and epilepsy who were being diagnosed by the consultant psychiatrists as per the ICD-10-DCR³¹ and International League Against Epilepsy criteria.³² In the psychosis group adolescents with the diagnosis of either schizophrenia or Affective Disorders (with psychotic symptoms) were selected.

Procedure

At the onset the study team had thoroughly explained the selected respondents (i.e. key caregivers of these adolescent patients) about the objectives of the study and written informed consent was taken from each one of them. Only those caregivers were included who gave their written informed consents. After that they were screened by the General Health Questionnaire-12³³ for psychiatric disorders and persons who scored <3 were selected. Data collections were done by using socio-demographic data sheet, the WHOQOL-BREF³⁴ and Family Burden Interview Schedule.³⁵

Measures

The measure used in the present study includes Socio-demographic data sheet, WHO QOL-BREF³⁴, Family Burden Interview Schedule³⁵ General Health Questionnaire-12.³³ The Hindi (the Lingua Franca of the State of Jharkhand, India) version of WHOQOL-BREF-26 was used in the present study. It consists of 26 items. It assesses the quality of life of people under four domains, e.g.

physical, psychological, social and environmental. Its psychometric properties have been found to be comparable to that of full version WHOQOL -100.³⁶

The Family Burden Interview Schedule³⁵ was used in this study to measure the burden of care giving. This semi-structured interview schedule has 24 items rated on a 3- point scale and grouped into five areas, namely, financial burden, disruption of family routine, of family leisure, and of family interactions, effect on physical health of relatives and on mental health of relatives. A standard question to assess 'subjective' burden is also included. The scale had been used by several researchers in past to measure the caregivers' burden in case of chronic physical and psychiatric illnesses.³⁷⁻⁴⁴ Psychometric properties of this schedule have been found to be satisfactory. The GHQ-12³³ was used in the present study to screen out caregivers with psychological problems. This scale was developed by Goldberg and Williams in 1978. It has 12-items and it is widely used for screening of psychological problems in people.

Statistical Analyses

Descriptive statistics (mean and standard deviation) were used to describe sample characteristics. Inferential statistics like the Chi-square and t-test and were used to compare the level of burden of care and QOL of the key relatives of the two groups' of adolescent patients. Correlation-coefficient was used to see the relationship between various socio-demographic variables and areas of burden of care and QOL. Analysis was done by Statistical Package for Social Sciences (Windows version 16).⁴⁵

Results

In the present study most of the respondents (i.e. caregivers) of the epilepsy group were from the joint family background (n=24). In the psychosis group equal representation from joint and nuclear families was seen. Significant difference was seen between these two groups in this variable, e.g., type of family. In either group majority of the patients were found to be boys and hailing from rural areas. Most of the respondents were Hindu by religious affiliation. Most of the patients in either group did not have the family history of mental and/or neurological illnesses. In either group parents were

found to be the major key relatives. Significant difference was noted between these two groups in terms of the marital status of the key relatives. In psychosis group 4 key relatives of the patients were reported to be either unmarried or widowed or divorced (Table-1.1). The mean ages of the adolescents and their key relatives were found to be 15.15 ± 1.45 year and 41.01 ± 7.91 year respectively. Very significant difference was seen between these two groups with regards to age of onset of the illness. In present study psychosis was seen to occur much later than epilepsy (psychosis = 13.46 ± 1.61 ; epilepsy = 11.76 ± 1.95) (Table-1.2). Also significant difference was noticed in duration of the illness too. Epilepsy patients had statistically significant longer duration of illness than the psychotic patients (Table-1.2).

Significant difference in four areas of Family Burden Interview Schedule³⁵ i.e., 'disruption of routine family activities', 'disruption of family leisure', 'disruption of family interaction' and 'effects on mental health of others' were seen between the key relatives psychosis and epilepsy affected adolescents (Table-2). The key relatives of the psychosis affected adolescents have significantly higher burden in all those areas of Family Burden Interview Schedule³⁵.

At the same time key relatives of the adolescents with epilepsy had been found to have higher QOL than the key relatives of adolescents with psychosis. Significant differences were observed in three domains of WHOQOL-BREF³⁴ [i.e. psychological health, subjective quality of life-1 (i.e., How the respondent rates his/her quality of life?) and social relationship] (Table-2).

In the psychosis group significant negative correlations had been found between the domain of impact on family interaction of Family Burden Interview Schedule³⁵ and age of the key relatives (Table-3). Age of the key relatives has also been found to have significant influence on the 'psychological health' domain of WHOQOL-BREF³⁴; age of the caregiver has significant negative correlation with this particular domain of the quality of life measuring instrument. Very significant positive correlations were observed between the 'age of the key relatives' and physical health and subjective quality of life-1 (WHOQOL-BREF areas) respectively. The educational

background of the key relatives has been observed to have significant negative correlation with financial burden and subjective burden of Family Burden Interview Schedule³⁵. Very significant negative correlation also noted between family income and financial burden and family income and subjective burden (Table-3).

In the epilepsy group significant negative correlation between age of onset of illness and two areas of Family Burden Interview Schedule³⁵ e.g. financial burden and subjective burden were noted. Age of onset of illness has been observed to have significant negative correlation with the social relationship domain of WHOQOL-BREF.³⁴ Significant positive correlations were observed between 'age of the key relatives' and financial burden. Age of the key relatives also has positive correlation with the environmental area of the WHOQOL-BREF.³⁴ Significant positive correlation was observed between education of key relatives and implication on routine family activities (Table-4).

Discussion

The study was carried out on total 60 subjects [30 key relatives of the adolescents with psychosis and 30 key relatives of the adolescents with epilepsy]. Both the groups of key relatives were matched on various socio- demographic factors (age, sex, education and income of family). The purpose of the study was to assess the quality of life and burden of care of the key relatives of the adolescent patients with psychosis and epilepsy. In psychosis group only two disorders were included, i.e. schizophrenia and bipolar affective disorders with psychotic symptoms [BPAD 'mania' or 'depression' with psychotic symptoms]. In this study age of onset of the illness was significantly higher to the patients with psychosis in comparison to epilepsy patients. Results also reveals that duration of illness is significantly longer in patients with epilepsy group in comparison to patients with psychosis. Finding of the present study regarding the age of onset of these two clinical conditions has also been consistent with previous epidemiological observations. Prevalence of epilepsy gets increase either in adolescence or early adulthood.⁴⁶⁻⁴⁹ Higher age of onset in case of adolescents with psychosis can be explained as: in India mental illness is still viewed as a matter of

shame and worry for common people and people usually don't prefer the tertiary mental health institute (i.e. Central Institute of Psychiatry) for seeking treatment and it becomes more prominent if the patient happens to be an adolescent boy or girl; a large chunk of people usually prefer locally available resources and traditional means as the medium of treatments of mentally ill children and adolescents; parents also very often cannot able to recognize the mental health problems of their children and think that those problems will be resolved spontaneously. So few people who could not find help from locally available means come to tertiary mental hospital like Central Institute of Psychiatry, Ranchi. Another explanation can be core psychosis like schizophrenia and schizophrenia spectrum disorder is rare in the age group of present study (i.e. 13-17 years) and only about 4% of total cases of schizophrenia occur in children <15, and only 0.1-1% occur in children under the age of 10. But the rate of onset of schizophrenia increases very significantly during adolescence and it reaches at the peak during the 15 to 30 year of age^{50,51}. The National Comorbidity Survey (NCS)⁵² enumerated the prevalence of DSM-III-R major depression among adolescents in the age range 15–18 years as 14%. In a study Kessler and Walters⁵³ had estimated the lifetime prevalence of bipolar I disorder among adolescents 0.5% approximately. In another study the lifetime prevalence of broadly defined bipolar disorder (which includes bipolar I, bipolar II, and cyclothymia) was estimated by Lewinsohn, Klein and Seeley⁵⁴ as 1% approximately. This way the difference in the onset of these two disorders was consistent with the findings of previously done observations.

Coming to the burden of the caregivers, key caregivers of the adolescents with psychosis have significantly higher level of burden of care than the key relatives of the adolescents with epilepsy. Burdens appear to be significantly high to the key relatives of the adolescents with psychosis in the areas like disruption of routine family activities, disruption of family leisure, disruption in family's routine activities and effects on mental health of others. Knock et al⁵⁵ found that in case of early onset schizophrenia spectrum disorder the commonest areas of caregivers' difficulties were 'emotional burdens', 'everyday practical demands'

and 'sacrifices required for providing care to ailing adolescents'. Bipolar disorder has also been found to have association with the occurrences of caregiver burden. Factors like severity and chronicity of symptoms are linked with the escalation of the burden of caregiving in affective disorder.⁵⁶ In a comparative study of the caregivers of BPAD and schizophrenia patients Nehra et al⁵⁷ found that high levels of patient-dysfunction and caregiver-burden, low awareness of illness and low perceived control over patient's behaviour were characteristic of both BPAD and schizophrenia. Both these disorders were found to be equally burdensome to caregivers. Many previously done studies on the burden of care of the key relatives of patients with psychosis came up with the conclusive statement that presence of the psychopathologies and gross abnormal behaviour of the affected persons cause burden to the caregivers.⁵⁸⁻⁶³ In present study both the adolescent patients of schizophrenia and affective disorders (with psychosis) were taken and many of them have had significant psychopathology till the time of data collection. Another factor which might have played significant role in creating difference between these two groups in the burden of care could be the stigma and perception of social isolation in the caregivers of the adolescents with psychosis; in epilepsy people have some knowledge that it is a form of neurological disorder and it is different from psychiatric disorder like psychosis. Finding of the present study regarding caregivers' burden has been found to be consistent with previously done studies and observations on the patients with psychosis.^{37,55, 64-70} Though comparison studies done on the caregivers of the patients of psychosis and epilepsy could not be found, still it can be said that in case of patients having single diagnosis of epilepsy have better socio-occupational functioning abilities and adjustment and probably because of this caregivers do not perceive higher burden. Another reason might be the significant improvement in the pharmacotherapy of epilepsy; owing to introduction of many modern molecules people with epilepsy now enjoy better chances of remaining seizure free for longer time. Gautam and Nijhawan³⁷ observed higher level of caregiver burden on the caregiver of the patients with schizophrenia than the caregivers of the patients with chronic lung disease. Gautam and Nijhawan³⁷ commented that caregivers of the schizophrenia

patients perceive higher burden because of disturbing behavior of the patients. Present study had also been conducted on the caregivers of individuals with chronic physical and psychiatric illness, i.e. psychosis and epilepsy patients. So it can be assumed that caregivers of the adolescents with psychosis might also have problems with their illness specific problematic behaviours. In present study significant negative correlation between the educational level of the caregivers of the adolescents with psychosis and financial burden was seen (Table-3). It can be said that higher educational qualification of the caregivers reduces financial burden. Persons with higher educational qualification have relatively better chances of getting lucrative job opportunities than less educated persons. Although in past few researchers had tried to see the relationship between the formal education of caregivers of mentally ill people and burden but none of them could find any statistically significant relationship between these two variables⁷¹⁻⁷⁴. In this sense this particular finding of the present study is unique in nature; but from the present Indian socio-economic perspective this is not an unusual one, here educationally qualified persons have higher opportunities in jobs and entrepreneurships. So educationally qualified caregivers have higher income and because of this they have lesser financial burden.

In epilepsy group, clinical variable like 'age of onset' has been found to have significant negative correlations with 'financial burden', 'subjective burden' and 'social relationship'.³⁴ Karakis et al²³ commented that because of earlier onset and paroxysmal course it evokes unique strain in the form of unpredictability to the both patients and their caregivers and at the same time it is associated with high grade of stigmatization. Higher caregivers' burden in epilepsy was associated with the factors like 'younger age of the patient', 'increased seizure frequency', 'longer duration of illness', 'severity of illness', 'social stigma associated with seizure', 'academic underachievement of children' and 'age of onset of the patients'.^{19,75-79} Present study also showed that age of onset has inverse relationship with two areas of caregiver burden measuring instrument (viz. financial burden and subjective burden) and one area of quality of life measuring instrument.³⁴ In relation to quality of life of the caregivers present study showed that caregivers of

the adolescents with psychosis have scored significantly lesser in 'psychological health', 'social relationship' and 'subjective quality of life-1' of WHOQOL-BREF than the caregivers of the adolescents with epilepsy. It suggests that caregivers of psychotic adolescents have poorer quality of life than caregivers of adolescents with epilepsy (Table-2). Better quality of life of the caregivers of the adolescents with epilepsy can be explained that epilepsy is a neurological disorder so it might have appeared as less stigmatizing than psychotic disorders (i.e. schizophrenia and affective disorders) in caregivers; another explanation can be epilepsy patients had been selected from the institute run 'epilepsy clinic' where patients take treatment from the out-patient department and majority of them are doing well on medication, whereas, majority of the psychotic patients were taken from the in-patient department and they had been on the acute phase of treatment.

Implications of the Study

In chronic illness professionalized support and interventions are also required for the caregivers. Because welfare of these patients is deeply associated with the subjective well-being and quality of life of their immediate caregivers. Caregivers who have been found to have unmet needs or a high burden level may not be able to function effectively and provide support to their patients. Consequently the patients may have to face more ordeals in the forms of unmet needs and inadequate remediation in various areas of their life, treatment and rehabilitation if their caregivers have a high degree of burden. A patient's level of activity may be at stake if his caregiver's psychological needs increase. Since a caregiver is the most important element in providing care to the patient at home, if the burden on a caregiver becomes too much, the patient care at home may be hampered significantly.

Conclusion

Psychosis and epilepsy have longer impact not only on the individuals but also families and communities. There are higher level of burden of care and poorer quality of life in the keys relatives of the patients with adolescent psychosis as compared to keys relatives of the patients with adolescent epilepsy. However finding of the study

indicates that robust and comprehensive psychosocial intervention are required to reduce the burden of care of keys relatives of the both groups as well to improve the quality of the life of the families with epileptic and psychotic adolescents.

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Original Article

Cognitive Behavioral Interventions in the Management of Borderline Personality Disorder with the History of Sexual Abuse: Case Studies

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Abstract

Introduction: Borderline personality disorders are characterized by longstanding patterns of impairment that manifest across multiple domains of functioning, including disturbances in cognition (e.g., perceptual abnormalities, disruptions in the experience of self), emotion (e.g., excessive reactivity or intensity), interpersonal behavior (e.g., social isolation, high-conflict relationships), and difficulties with impulse control (e.g., repeated engagement in high risk or criminal activity). CBT incorporates a wide range of techniques to modify these factors, including cognitive restructuring, behavior modification, exposure, psycho-education, and skills training. In addition, it emphasizes the importance of a supportive, collaborative and well-defined therapeutic relationship, which enhances the client's willingness to make changes and serves as a potent source of contingency. The study presents four cases of borderline personality disorder with the history of sexual abuse and their treatment. **Methods:** All the four cases have different problems and treated successfully primarily with Cognitive Behavior Therapy along with other supporting methods such as insight exercise, cognitive restructuring, skills training and desensitization. **Results:** Findings revealed that during the process of cognitive intervention program, subjects with borderline personality disorder with the history of sexual abuse showed improvement in management of emotions, interpersonal skills, and impulse control and were involved in various social skills. **Conclusion:** Several aspects of CBT's conceptual framework and its technical flexibility make it appropriate to address the pervasive and diffuse impairment commonly observed among clients with borderline personality disorder.

Key words: Cognitive behavior therapy, Borderline personality disorder, Sexual abuse

Introduction

The relationship between childhood sexual abuse and borderline personality disorder is a prominent issue in the etiological research on borderline personality disorder. Several retrospective self-reports of clients of childhood sexual abuse and low social support were both positively correlated with their current borderline personality features.¹ Several studies have found that women with borderline personality disorder are more likely than controls to report a history of childhood sexual abuse.²

Researchers have generally assumed that childhood sexual abuse causes borderline personality disorder, but there are other possible interpretations of the association.³ Herman et al,⁴ found that in a sample of clients carefully diagnosed with borderline personality disorder, 81% gave a history of major childhood trauma including significant physical abuse (71%), sexual abuse (68%), and witnessing serious domestic violence (62%).

Impulsivity, diminished non-affective constraint, negative affectivity, and emotional dysregulation,

suicidal tendency are core characteristics of borderline personality disorder.⁵⁻⁷ This chronic and debilitating syndrome is associated with high rate of medical and psychiatric utilization of services.^{8,9} Psychopharmacology notwithstanding, psychotherapy represents the recommended primary technique for treating borderline personality disorder.¹⁰ A necessary and first step in illuminating effective treatments for borderline personality disorder is to show that a given treatment is associated with significant improvement in the disorder- improvement in relevant dimensions of pathology beyond self damaging behaviors.

Empirical evidence has shown that cognitive behavior therapy along with dialectical behavior therapy, schema-focused therapy and skill-based intervention has proved to bring positive outcome in managing the clients with borderline personality disorder. From a cognitive behavioral perspective, clients with borderline personality disorder are maintained by a combination of maladaptive beliefs about self and others, contextual/environmental factors that reinforce problematic behavior and/or undermine effective behavior, and skill deficits that preclude adaptive responding.^{11,12} CBT incorporates a wide range of techniques to modify these factors, including cognitive restructuring, behavior modification, exposure, psycho-education, and skills training.¹¹⁻¹⁴

In the present study the initial sessions of CBT were used for assessment and development of a cognitive case formulation. Later sessions were devoted to cognitive restructuring (e.g., identifying and evaluating negative automatic thoughts and cognitive errors, and modifying dysfunctional schemas and core beliefs) and implementing behavioral change (e.g., decreasing self-defeating behaviors and practicing adaptive responding to problems). CBT was associated with more rapid improvements in hopelessness and trait-level impulsivity, higher ratings of the therapeutic relationship and better treatment retention, which may suggest continued gains following treatment termination. CBT sessions included DBT, schema-focused therapy, and skill- based intervention.

Several aspects of CBT's conceptual framework and its technical flexibility make it appropriate to address the pervasive and diffuse impairment commonly observed among clients with borderline

personality disorder.^{11,12}

Dialectical behavior therapy (DBT) is an extensively studied and widely adopted treatment for clients with BPD and parasuicidal behavior (e.g., suicide attempts and non-suicidal self-injury).¹²⁻¹⁵ Individual treatment uses functional analysis, exposure, contingency management and cognitive restructuring to decrease problematic behaviors and enhance quality of life. The DBT-targeted skills include mindfulness, interpersonal effectiveness, emotion regulation and distress tolerance.^{12,15} In several research studies, there is consistent evidence that DBT reduces suicidal, parasuicidal behavior, decreases the medical risk associated with these behaviors, and produces fewer emergency visits. It also reduces affective symptoms of BPD (e.g., depression, anxiety, anger), and that it enhances global adjustment.¹⁶⁻¹⁸

Schema- Focused Therapy (SFT) retains a cognitive theoretical framework and modifies early maladaptive schemas. SFT employs a broad range of techniques, including behavioral, psychodynamic, experiential and interpersonal strategies.¹⁹ As a result, the treatment is more flexible, elaborative and emotion-focused than traditional cognitive approaches.²⁰ SFT reduces BPD symptoms and enhance overall functioning, whether it is delivered as a long-term individual psychotherapy or as a shorter-term adjunctive group treatment.^{12,16,21}

Skills- Based Interventions: Skills training is based on the assumption that individuals with BPD lack the skills necessary to behave effectively in the situations they encounter. Skills training interventions aim to remediate these deficits by providing direct instruction, modeling, and opportunities for rehearsal and coaching.¹⁵ With skills in hand, clients are better able to avert crises or manage them without resorting to self-damaging behavior, which allows individual therapy to progress. In the initial session clients' family members, friends, significant others and health care providers receive psychoeducation about BPD and are taught how to respond to the client in a manner that reinforces the new behavioral skills. The next component of treatment involves psychoeducation for the clients, who are taught to identify the thoughts and emotions that contribute to problematic behavior. Later session consists of emotion management skills training, including strategies such as distancing, communi-

cating and challenging thoughts. The final component consists of behavioral management skills such as goal-setting, sleep hygiene, and avoiding self-damaging behavior.

Method

Participants: Four clients between ages 20-25 years who met DSM-IV TR criteria for borderline personality disorder were included in the study. Individuals with co-morbid psychotic disorders, bipolar I disorder, delusional disorder, delirium, dementia as well as other cognitive disorders were excluded. Those who had past history of sexual abuse were included in the study. Clients selected for the study were recruited from a private psychiatric centre, placed in west Delhi.

Assessment and procedures

After taking informed consent from the client as well as their caregivers, suitable clients were assessed in face-to-face evaluations by trained evaluators prior to their assignment to treatment. Each participant received a diagnosis of borderline personality disorder based on DSM-IV criteria as assessed by the Minnesota Multiphasic Personality Inventory (MMPI, Butcher et. al., 1989). Later they were assigned to TAT and Rorschach Inkblot Test and other required psychological tools.

After initial assessment, clients were assigned to treatment therapy for 25- 30 sessions of CBT which was spread over one and a half to two years. Treatment therapy was done by CBT including dialectical behavior therapy (DBT), schema- focused therapy (SFT), and skill- based intervention.

Case Discussion

Case No. 1

Kritika, a 24 year old unmarried woman presented the complaints of inability in completing tasks, poor self confidence, delaying things ,frequent mood fluctuations ,stubbornness, poor concentration and attention, gets distracted easily, lack of decision making, self harm and gives suicidal threats to her family members. Her past history is suggestive of repeated negative thoughts followed by specific set of rituals in specific manners, lack of self care, forced family members to do things according to her wishes, nervousness, fear of physical illness and death, disturbed sleep, suicidal thoughts, crying

spells, and lack of self- confidence.

Precipitating factors: Problem of Kritika came to be noticed when she was studying in 12th class and one of her friends in school committed suicide by jumping from school building. She stopped going school and became fearful .She started displaying above mentioned symptoms. She hardly appeared in 12th class exams. When her problem was not managed at home, she was taken to a psychiatrist and started treatment. She got improvement but she was not regular with treatment. Her problem increased significantly along with the treatment, and then her family thought of second opinion and brought her at psychiatry clinic.

Childhood history: Kritika is the younger child of nuclear family. She has one elder sister. She was a below average student since early school years. As reported by parents she was a difficult child since beginning. She had no friends during school years. She reported about being sexually abused by her neighbors' driver at the age of 13 years till she reached 17 years of age. She was threatened by the driver and was asked not to tell about it to anyone. She told her parents about the abuse when one of her friend committed suicide by jumping off from school building, and she was emotionally very unstable.

Family history and dynamics: Kritika's father is into business and his mother is a house wife. Her family is multi-problematic one. Interpersonal relationship between her parents is very conflicting. They start arguing on minor matters. Mother shows severe expressed emotion towards client.

Assessment: Mennosotta Multiphasic Personality Inventory (MMPI),²² Thematic Apperception Test (TAT), Rorschach Ink Blot Test was applied on the client. Test revealed sense of loss, aggressiveness, lack of trust in others, strong sexual feelings, feeling of inferiority, disturbed mother and child relationship and regression in the client.

Treatment: Client was treated with antipsychotics in O.P.D. for two weeks. Following that, she was put on psychotherapy along with medical management. She was treated with 26 C.B.T sessions in O.P.D. which was spread over one and a half years of time. Day care programmes were also included. Therapeutic package consisted of cognitive therapy, relaxation therapy, dialectical behavior therapy, schema-focused therapy, social

skill training, and insight exercises. Psycho-education of family and family interaction was done.

Result: Cognitive restructuring and relaxation helped her to rebuild her self esteem and to have better self- image. Her anger and suicidal tendency too were reduced. She could interact with family members more affectionately. Her academic performance was improved remarkably. Social skill training and psycho-education helped in reducing the level of expressed emotion towards client.

Case No. 2

Smita, a paramedical student of 24 years, eldest in the family came to the clinic manifesting verbal and physical violence. She did bite others. Her mood was euphoric and she had loosening of association, flight of ideas, but without delusions and hallucinations. In the past six months, she had two suicide attempts by overdosing and cutting her vein. Client was referred from general physician for psychiatric treatment. She was treated with antipsychotics in I.P.D. for 10 days. Later she was referred for psychotherapeutic sessions.

Personal history: Smita was the eldest child in the family. When she was one and a half years old, her mother was again pregnant. Smita was sent to her paternal aunt for look after. She stayed there for 3 years and later she was sent to her maternal aunt's house. She stayed there for almost 9 years. She came to her parent's house when she was 13 years old. She was sexually abused by her maternal uncle's friend, who used to visit their house very frequently, several times when she was 9 years old. She was 13 years old her father also started abusing her continuously. If she did not give consent, he would threaten her to kill her. So she started biting her father in order to escape from being raped.

She had homosexual relation with one of her classmates and she used to abuse her physically and verbally. Smita enjoyed insulting others especially with whom she had close relationship. Her relationship with a boy was healthy but she was in dilemma when he made marriage proposal.

Family History: Father, fifty years old, a businessman was alcoholic and has extramarital relationship. He took no responsibility in the family matters. Mother, forty years old, working as receptionist, was passive and emotionally cold in her nature. There was severe marital discord in the

couple's relationship.

Assessment: Smita was assessed on 16 PF, MMPI, Rorschach Inkblot Test and Thematic Apperception Test. Test findings revealed that she tend to be skeptical and aloof. She is emotionally less stable, who easily gets fatigued by feelings and is low in frustration tolerance. Her responses on Rorschach test are suggestive of impulsivity. High number of movement, undifferentiated and no color responses indicates sensitivity to others and attempted control over the emotional stimuli is unsuccessful. Tests also revealed Smita's anger, strong suicidal tendency, and lack of trust in others. Father- daughter incest was clear in TAT themes. Excess fear, repressed anger and feeling of helplessness were manifested clearly in these tests.

Treatment: Smita's mother consulted a physician and was referred to a psychiatrist. For four weeks she was on antipsychotic drugs. After getting some relief she was referred for psychotherapeutic sessions. Smita continued pharmacotherapy for another ten months. Along with she was given twenty nine sessions of C.B.T. spread over two year. Treatment package consists of Insight exercise, cognitive therapy, dialectical therapy, schema-focused therapy, relaxation exercises, skill-based interventions, systematic desensitization, autogenic training.

Result: Client could bring out and deal with her very strong latent anger towards her father and maternal uncle's friend through C.B.T., D.B.T., and social skill training. Desensitization helped her to overcome phobic reactions. She was able to show progress at academic level and was able to successfully pass in her annual exams. Her decision making ability also strengthened. Through relaxation exercises she was able get relieved from past fears, guilt memories and feelings and she was able to successfully able to regulate her sleep.

Case No. 3

Namrata, 25 year old married woman presented the complaints of tendencies to self harm, poor self esteem, avoidance of taking responsibility, sadness, reactive patterns, disturbed sleep, uncontrolled aggression without any reason, suicidal thoughts and attempt 4-5 times, doubting tendencies, decreased appetite, crying spells, and experiencing repeated intrusive thoughts. She lacks adequate attention and

concentration and self- confidence. She remains anxious most of the time. As reported by her husband she was dealing with above mentioned problems since after their marriage (got marriage in 2010).

Precipitating Factors: She got married to her love interest after the courtship of two years, but she always used to suspect and fight with her husband on the issues of mistrust. She used to blame her husband that he is more inclined towards his parents and pays less attention to her.

Family and Personal History: Her pre-morbid is suggestive of her guilt proneness and anxiety patterns. She had history of sexual abuse at the age of 7 years in school by sweeper since then she had feeling of insecurity. She developed mistrust towards males. She had impaired relationships with her father and brother as well. Her inter personal relationship with her parents was inadequate. She was an average student during school years and had fewer friends. She was not able to maintain friendship for longer duration. After marriage she was hesitant in making physical relationship with husband, that's why her husband had grudges against her and they had frequent fights.

Treatment: client was treated with antipsychotics in I.P.D. in a psychiatry nursing home for ten days, followed to that she was admitted for day care in the clinic for three weeks. Later she came through O.P.D. for treatment at regular follow-ups. Treatment schedule included cognitive therapy, cognitive restructuring, and dialectical behavior therapy, maintaining thought diary, relaxation exercises, insight therapy and social skill therapy. The main concern was to build up a better self image, to reconcile with the past traumatic events, to reduce the aggressiveness and to enable her to form healthy interpersonal relationships. She continued the drug treatment too.

Results: She could reconcile with the past traumatic events and the persons involved up to an extent. Her self-image too improved and started trusting others and respecting others. Still manipulating tendency was there. Her sexual feelings were under control.

Case No. 4

Mrs. Srija, 23 years old, married woman came to psychiatry centre with complaints uncontrolled

aggression without any reason, abusive and became violent, disturbed sleep, throwing and breaking things, avoiding people around, suicidal thoughts, thinks that people around are against her, doubting tendencies, decreased appetite, crying spells, and repeated thoughts in mind. She lacks adequate attention, concentration and self- confidence. It was reported that she remains anxious most of the time.

Precipitating factors: As reported by her husband, she was dealing with above mentioned problems since after their marriage (got marriage in 2005). She could not adjust herself in that environment. She took treatment twice but left very soon. Her compliance towards medicines was poor, due to which she relapsed several times. She was later referred to psychiatry clinic.

Childhood history: She has history of child abuse by her mother's relative at the age of 5 years but she could not tell it to anyone and started showing irritable and aggressive behavior. Though she was very good in studies, she stopped making friends and trust anyone else her mother. She lost her father at 9 years of age in an accident and her mother had to join job in husband's place, and therefore, she could not give adequate time her due to job and household responsibilities. She got married to her love interest at the age of 18 but she had frequent fights due to over expectation, she used to hit and bite her husband and attempted suicide several times. After completing graduation she went for several jobs but she left her jobs due to suspiciousness and lack of trust over intentions of other people around, she also had impaired relationship with in-laws.

Treatment: She was taken to the physician initially and was referred to a psychiatrist. For one and a half month she was on antidepressant and anti-anxiety drugs. She got partial relief from the medicines. Due to poor compliance she relapsed very frequently. When her symptoms exaggerated, she was advised hospitalization.

Srija continued the pharmacotherapy for ten months, for three weeks through I.P.D. later she started coming through day care and O.P.D. She was given twenty nine sessions of CBT spread in two years of time. Treatment package consisted of Insight therapy for improving compliance for treatment, cognitive therapy, dialectical therapy, maintaining thought diary, schema-focused therapy, relaxation exercises, skill-based interventions,

systematic desensitization, autogenic training.

Result: Client could bring out and deal with her very strong latent anger towards her mother's relative mainly through emotional expression, cognitive therapy and dialectical behavior therapy. Her depression too was under control. Desensitization helped her to overcome phobic reactions. Brain wave therapy and relaxation exercises relieved her from past fearful, guilt memories and feelings. Through daily autogenic training client was able to relax and could regulate her sleep.

Cognitive restructuring and relaxation helped her to rebuild her self-esteem and to have a better self-image. Her anger and suicidal tendency too were reduced. She could interact with the family members more affectionately.

Conclusion

Individuals who have experienced childhood abuse are subject to diagnoses of personality disorders, borderline personality disorder in particular. Even though all abusive victims do not have psychological disorders, but they suffer a sudden rupture in the flow of their existence after which they find it hard to be the same. Certainly some of them are affected by the pathological symptoms and we can notice some commonality in it. Overt and covert aggression, lack of trust in relationships, suicidal tendency is among them.

If the many traumatized young lives have to be saved from this fast spreading, social phenomena sexual abuse taboo and unnecessary secrecy should be discouraged. Timely unveiling secret and adequate interventions using effective strategies will release the victim from the painful consequences. Even if some scars can be left out for the survivor can be more meaningful and worth living as integrated persons provided, proved and effective results of psycho-integral medicines reaches them. A different diagnosis that includes both the symptomatology and etiology would greatly benefit victims of the abuse for which they are not to be blamed.

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Psychomicrobiology

Encephalitis lethargica and its association with Viral Infections

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Introduction

Since the late 16th century, there have been reports from various European countries describing epidemic outbreaks of disease that seems at least to have been similar to EL. The name Encephalitis Lethargica (EL) itself was given by the neurologist Constantin Von Economo in 1916 at an early stage of the epidemic that occurred during and after the First World War. Difficulty of diagnosis and the lack of statistical records in many countries mean that estimates of the number of cases have varied greatly.¹

For many years Encephalitis Lethargica was regarded as a phenomenon of the past. In recent years there has been a recurrence of interest in the disease, concerning etiology and links with post-encephalitic parkinsonism.² Oliver Sacks described the 'awakenings' of past cases, but recent papers have described contemporary cases and defined the disease in modern terms.³

Modern reports suggest that perhaps half a million to a million or more people were affected, of whom about one-third died. Patients who survived EL often developed a form of Parkinsonism called Post-Encephalitic Parkinson's Disease, which results in serious neurological disability.

Etiopathogenesis

No consensus on etiology has emerged so far. Several opinions argued that it stemmed from the 1919 influenza epidemic as either an acute viral, or a post viral syndrome.

Although the last epidemic of EL occurred nearly a century ago, the cause was never scientifically established, and remains a matter of controversy today. A study conducted in 2004 suggested

that the disease is due to an immune reaction causing damage to the basal ganglia.² In another study, many of the people with encephalitis lethargica had experienced recent pharyngitis and the authors found some evidence linking the reaction to prior streptococcal throat. They hypothesised that encephalitis lethargica, Sydenham's chorea and PANDAS (pediatric autoimmune neuropsychiatric disorders associated with streptococcal infections) are mediated by variations of the post-streptococcal immune response⁴

There is also some evidence of an autoimmune origin with antibodies (IgG) from patients with encephalitis lethargica binding to neurons in the basal ganglia² and mid-brain. Western immunoblotting showed that 95% of encephalitis lethargica patients had autoantibodies reactive against human basal ganglia antigens. By contrast, antibodies reactive against the basal ganglia were found in only 2-4% of child and adult controls.

Some researchers believe that the disease could be a sequel to the influenza infection,⁵ while others consider this less likely.⁴ A study performed in the year 2009, at St. Jude Children's Research Hospital, USA, discovered that an H5N1 Bird Flu (strain A/VN/1203/1204) infection in mice causes severe loss of tyrosine-hydroxylase positive dopaminergic neurons 60 days after infection by provoking a destructive autoimmune response, thus suggesting the infection by certain strains of flu might increase the risk of Parkinson's disease in humans.⁶ Jang et al acknowledge research that shows the virus that caused the 1918 flu pandemic (a type A influenza subtype H1N1) unlike H5N1 Bird Flu did not infect the brain, they proposed that a distal infection might have provoked an autoimmune mediated destruction

of dopaminergic neurons, while leaving no direct evidence of brain infection.^{6,7}

Neuropsychiatric Manifestations Associated with Viral Infections

Nipah Virus Encephalitis

A study⁸ performed in 2004 followed nine patients with Nipah virus encephalitis over the course of 24 months. Eight of the nine developed psychiatric features assigned to the encephalitis. Three patients developed major depressive disorder immediately after recovering from the encephalitis, and two developed depression approximately 1 year after the outbreak. Two patients developed personality changes, and two suffered chronic fatigue syndrome. Neuropsychological testing was accomplished in eight of the nine patients.

Deficits in attention, verbal, and/or visual memory were substantial in seven of the eight patients tested. Verbal memory was more impaired than visual memory in these patients.

Comparison between psychiatric and cognitive impairment and total number of brain lesions showed no discernible trends.

Infection with West Nile Virus

West Nile virus (WNV) was identified for the first time in the Western Hemisphere in New York City in 1999; since then, a dramatic westward and southward spread of WNV activity has occurred in the United States.^{9,10} In 2002, WNV was identified in the Houston, Texas, metropolitan area, resulting in 105 human cases.¹¹

Long-term clinical sequelae after infection are still being defined. A year after the outbreak of WNV in New York City, 38% of patients subjectively reported depression.¹² Another 1-year follow-up in Colorado noted that 23% of patients reported anxiety and depression.¹³ In this study a total of 65 patients were interviewed; 38 (58%) cases had encephalitis when initially evaluated, 19 (29%) had meningitis, and 8 (12%) had fever. The mean age of patients was 55 years (range 12–86 years). Most patients were white, non-Hispanic (80%), followed by black (11%) and white, Hispanic (9%). A study by Murray et al¹⁴ found that after West Nile virus infection, 31% of patients reported new-onset depression and 75% of these had Center for Epidemiologic Studies Depression (CES-D) scores indicative of mild-to-

severe depression.

One year after infection with WNV, 26 patients reported experiencing depression. Of these, 6 reported a history of depression before infection. Of the 20 patients considered to have new-onset depression, 13 (65%) had a clinical diagnosis of WNV encephalitis, and 10 (50%) were male. The mean CES-D scores for those who reported no depression was 5.5 (range 0–19) compared with a mean score of 22 (range 0–44) for those who reported depression. There was no statistical difference in CES-D scores between those who had encephalitis and those who had meningitis or fever ($p = 0.19$) or between those with West Nile neuroinvasive disease (encephalitis or meningitis) compared with those with fever ($p = 0.55$). On the basis of CES-D scores for those self-reporting depression since their illness with WNV, 5 (25%) patients were classified by CES-D as not depressed, 6 (30%) were classified as having mild-to-moderate depression, and 9 (45%) were classified as having major depression. Of the 39 patients who self-reported that they had not had depression since their WNV illness, 4 had a CES-D score of ≥ 15 . No statistically significant associations were found between loss of physical functioning (Barthel index scores < 100 ; $p = 0.39$), sex ($p = 0.89$), or age ($p = 0.47$) and depression (CES-D scores of ≥ 15). Seven (35%) patients reported taking antidepressants for their symptoms; 4 of these patients reported at least some improvement. CES-D scores of 6 of these 7 patients were > 15 ; 4 showed evidence of major depression. Two patients reported seeing a counsellor for depression, including 1 who was also taking antidepressants. Both patients reported that the counselling was helpful; however, based on their CES-D scores, both were classified as having major depression at the time of the interview in this study.

Personality changes were reported subjectively among 29 (45%) of the 65 patients; 18 (62%) of these were in patients who had encephalitis, and 16 (55%) of these patients were male. When asked to describe their personality change, 19 patients (66%) reported an increase in anger (being short-tempered and irritable); 8 patients (28%) reported being less social; 3 patients (10%) reported increased sensitivity; and 1 patient (3%) reported feelings of hopelessness. Depression and personality changes after WNV infection have been briefly observed in

various other studies¹²⁻¹⁴ also. The long-term clinical sequelae of WNV Neuroinvasive Disease need to be further defined.

Autism associated with enterovirus encephalitis

Millions of children are infected by enteroviruses each year, usually exhibiting only mild symptoms. Nevertheless, these viruses are also associated with severe and life-threatening infections, such as meningitis and encephalitis. A case study conducted in Sweden¹⁵ described a 32-month-old patient with enteroviral encephalitis confirmed by polymerase chain reaction in cerebrospinal fluid, with unfavorable clinical course with marked developmental regression, autistic features, persistent stereotypes and aphasia. She experienced slow clinical improvement, with mild residual neurologic and developmental deficits at follow-up. Viral central nervous system infections in early childhood have been associated with autism spectrum disorders but the underlying mechanisms are still poorly understood. This case report observed a case of developmental regression with autistic features and loss of language improving on follow-up.

Other uncommon viruses

Depression after encephalitis, regardless of etiology, is not uncommon. Depression and personality changes in humans have been previously reported as a neuropsychiatric consequence of Lyme disease, tick-borne encephalitis virus, and Saint Louis encephalitis virus infections.^{8,16-18} After the encephalitis lethargica pandemic from 1917 to 1926, depression, mania and obsessive-compulsive disorder were observed in post-encephalitis patients. These observations led to the understanding of the role of the basal ganglia in mood, personality and obsessional syndromes. In a mouse model experiment, infection of the brain with Venezuelan equine encephalitis virus resulted in a serotonin presynaptic deficit and postsynaptic hyper reactivity of the serotonin system.²⁰

Inflammation of the brain can result in an alteration in the neurotransmitter serotonin, which may lead to the development of mood disorders.²¹ Capuron et al identified a significant proportion of patients in whom depression developed after cytokine therapy for cancer. The neurotoxic

inflammation induced by cytokines resulted in decreased levels of tryptophan, the amino acid precursor for serotonin. This decrease was positively correlated with the development and severity of depressive symptoms in patients.²¹

Clinical Presentations

Encephalitis lethargica is characterised by high fever, sore throat, lethargy, double vision, delayed physical and mental response, sleep inversion and catatonia.^{2,4,23} In severe cases, patients may enter a coma-like state (akinetic mutism). Patients may also experience abnormal eye movements (“oculogyric crises”), parkinsonism, upper body weakness, muscular pains, tremors, neck rigidity, and behavioral changes including psychosis. Klazomania (a vocal tic) is sometimes present. Post encephalitic parkinsonism may develop after a bout of encephalitis, more commonly in the post-encephalitic phase and often after a latent period of several years.²⁴

The term “sleeping sickness”, where people seem to fall asleep or freeze whilst eating or working was first used to describe two cases in Vienna. However, it can present a wide and sometimes baffling range of symptoms, often with unusual and bizarre behaviour. There are indications that the majority of cases were referred to psychiatrists before being admitted to hospital if the symptoms progressed. It is often mistaken for epilepsy, hysteria, intoxication or a reaction to drugs. After a period of general unease, the victim presents with double vision (diplopia), deep somnolence and sometimes mild fever.

But the “sleep” that give the disorder its popular name is rather unusual – while the body presents all features of slumber. The patient remains aware of the surroundings. Around a third of encephalitis lethargica sufferers died during this acute phase, usually of respiratory failure. Autopsies confirmed what the symptoms had implied – patients suffered from an inflammation confined to a small region at the base of the brain.

And the recovery of those who survived was an illusion, as encephalitis lethargica proved to be a multi-stage disorder.²⁰ The second phase was marked by a general loss of concentration and interest in life, giving a vague sensation that the patient was not the person they had once been. But

this period, which resembled chronic fatigue syndrome, was the calm before the storm.

Unbeknownst to the victim, localized neuro-degeneration proceeded apace through the first phase, and after an interval – lasting between a few days and 30 years – post-encephalitic parkinsonism (PEP) emerged.

Unmistakable and irreversible, PEP consigned the young sufferers (mostly between 15 and 35 years of age) to decades of disability. For those who had not yet passed adolescence, the second period was marked by pathologic changes of character that approached the psychopathic stage. Younger children, between 5 and 10 years old, might merely irritate with their clinginess; their impaired concentration; their incessant restlessness and need for noise; and their lack of consideration for others – not unlike current attention deficit disorders. But as they grow in strength, their incorrigible impulsiveness escalates in violence and they pose a danger to themselves and others.

Errant behaviours include cruelty to anyone who crosses them, destructiveness, lying, and self-mutilation including, in one example, removal of eyes. When they reach adolescence, these patients manifest inappropriate and excessive sexuality, including sexual assault without regard for age or gender.

Bizarrely, these children were driven by impulsiveness, not self-interest. Thefts, for example, were not undertaken for personal benefit and stolen goods were often immediately forgotten or given away. Patients often expressed genuine remorse for their actions, explaining they recognized their wrong doing but had been compelled to act as they did.

Some children improved after adolescence, but in many the only brake on their bad behavior was the parkinsonism that developed as they entered adulthood. Those not confined to hospital with parkinsonism often proceeded to a life of habitual criminality – mostly theft in men, prostitution in women, but also ranging up to rape and murder.

This phenomenon encouraged many countries to re-examine laws regarding legal responsibility in those whose actions were curtailed neither by encouragement nor prison, but who nonetheless maintained a sense of what was socially appropriate.

Post-encephalitic parkinsonism was the neurologic side of the third, interminable phase of

the disease. This phase enabled the discovery of the essential lesion of the substantia nigra in parkinsonism.

The psychiatric facets of this phase were no less significant. A peculiar lack of internal drive separating the patient from their world was typical.

Despite normal intelligence, these patients could not summon the will power to execute their wishes. More insightful sufferers described how neither their perceptions nor their own thoughts were associated with the required emotional content that permitted exercise of their will. Patients could appreciate that a pianist played with great technical skill, for instance, but no longer sensed the beauty of the music.

One study described an increased sense of empathy – recognition of others' feelings – but reduced sympathy – the emotional response to this recognition.

This inability to interact with the world, combined with their inexpressive, immobile parkinsonian face and their muscular rigidity, lent them the aspect of a puppet or statue. All this while the sufferers' minds remained active.

The only consolation was that this same apathy often meant the sufferers were not overly depressed by their illness or by the prospect of a life in an institution (remembering that these young patients might live for another half century or more).

Catatonia

Catatonic states occur in both the acute and post-encephalitic states of encephalitis lethargica,²² and may develop quite independently of any psychotic symptoms. The amyostaticakinetic form of encephalitis lethargica was the third most common form in the 1918 epidemic and was known as "epidemic stupor".²³ In this disorder catatonic signs and obsessive symptoms may often co-exist. Recently, several reports have appeared in literature of appearance of catatonic signs in HIV encephalopathy or AIDS dementia. Catatonic symptomatology can occur in presence of encephalitis both viral and bacterial. Among the viral encephalitis, chicken pox,²⁵ encephalitis lethargica, atypical viral hemorrhagic tick-borne encephalitis,²⁶ and rabies have been associated with catatonia, while the bacterial meningo-encephalitis have included *Borrelia burgdorferi* encephalitis and acute

Chagas' encephalitis. The other infections include hydatid disease, post-immunization encephalopathy, subacute sclerosing panencephalitis and neurosyphilis and GPI, progressive multifocal leukoencephalopathy, and encephalomyelitis disseminate. In developing countries, malaria (tuberculosis), and typhoid are important, though under-recognized, causes of *organic catatonia*. The association of epilepsy with catatonia has been pointed out repeatedly described ictal catatonia as a manifestation of de novo absence status epilepticus, following benzodiazepine withdrawal in a 78 year old patient. In addition to the fixed and glassy-eyed stare, the patient exhibited waxy flexibility, which responded to re-administration of benzodiazepines. Various studies have also described catatonic signs in association with absence status (Petit mal status). They reported 3 cases of ictal catatonia, a non-convulsive status epilepticus, which responded dramatically to IV phenytoin.²⁷ The authors stressed on the importance of EEG in detection of seizure activity in patients with acute catatonic syndrome. Organic catatonia has also been described in patients with complex partial epilepsy post-ictal state, "spike-wave" stupor, and psychomotor status. Miscellaneous neurological disorders include Cerebrovascular lesions, like cortical venous thrombosis subarachnoid haemorrhage, subdural hematoma, and bacillar aneurysms, AVM of posterior cerebral vessels and ACA aneurysms, may also present with catatonia. Degenerative lesions (e.g. cerebro-macular degeneration, hereditary cerebellar ataxia, and central pontine myelinolysis) and (neoplasms) (e.g. pinealoma, and craniopharyngioma), and paraneoplastic encephalopathy may also be associated with catatonic signs. Other disorders which can cause catatonia, include cerebral lupus erythematosus (and noncerebral lupus erythematosus), hydrocephalus, narcolepsy) tuberous sclerosis. Wilson's disease (Tay-Sach's disease) and Prader-Willi syndrome) metabolic, systemic and endocrine disorders. A study performed in 1976 conducted metabolic studies in periodic catatonia (a rare disorder described by Kraepelin). The disorder is characterized by episodes of cataleptic states alternating with mental excitement. He showed that during the cataleptic state there was nitrogen retention, which he attributed to the accumulation of a toxic substance.

Clinical Implications

The profound psychiatric changes in both children and adults suffering encephalitis lethargica challenged assumptions that the cerebral cortex was the seat of all the higher human functions, including the sense of self. Despite severe psychiatric changes, it was the brainstem that was damaged in these patients, not the cortex.

The so-called "lizard brain" that humans inherited from their pre-mammalian forebears bore the brunt of the disease, not the higher brain centres assumed to be the seat of functions once attributed to the human soul.

An even greater challenge was posed by the minority of patients who developed conditions that were difficult to distinguish from catatonic or paranoid schizophrenia.

Proposed diagnostic criteria for EL which has been widely accepted includes an acute or subacute encephalitic illness where all other known causes of Encephalitis have been excluded. More recently it has been suggested that the diagnosis of LE may be considered if the patient's condition cannot be attributed to any other known neurological condition and that they show the following signs: influenza-like signs; hypersomnolence, wake ability, ophthalmoplegia (paralysis of the muscles that control the movement of the eye), and psychiatric changes including catatonia.

Prognosis

Case reports are often brief and incomplete and record keeping at the time of the pandemic was patchy and inconsistent. However some patterns have begun to emerge. Although reports vary it seems that historically there was prevalence among males. Most cases are at the younger end of the age spectrum (up to 30/40 years old). There was little confirmed data around race and ethnicity although some reports suggested mortality was lower among black people.

Outcome is variable. Some people may make a full recovery; some patients die, and for others a Parkinsonian-type state may persist. von Economo wrote "to look at these patients, one would suppose them to be in a state of profound secondary dementia. Emotions are scarcely noticeable in the face but they are mentally intact".

Treatment

There is little evidence so far of a consistent effective treatment for the initial stages, though, some patients given steroids have seen improvement. Other patients have been less fortunate, and the disease then becomes progressive, with evidence of brain damage similar to Parkinson's disease. Treatment is then symptomatic. Levodopa (L-DOPA) and other anti-parkinson drugs often produce dramatic responses. However, in most of the patients who were given L-DOPA in the 1960s, the amelioration of the disease was short lived.²⁸

During the initial stages bodily functions need to be maintained i.e. patient stabilisation which is very difficult to achieve and, often involves intensive care therapy. As the condition settles it is a matter of maintaining and hopefully improving function by good physiotherapy, speech therapy and nutrition, as well as providing emotional support.

The course of encephalitis lethargica varies depending upon complications or accompanying disorders. The prescription drug zolpidem, commonly used as a sleeping pill, has been reported to be successful at treating encephalitis lethargica.²⁸

Conclusion

Thus we conclude that encephalitis lethargica is akaleidoscopic combination of neurologic and psychiatric phenomena providing insights into brain function that had previously been the subject of speculation. Equally significant is the fact that it is not possible to topographically or functionally disentangle the psychic and neurologic aspects of the brain. The central nervous system functions, not as a series of parallel modules, but as an integrated centre. The viral etiologies need to be explored further to understand the etiopathogenesis so that the root cause may be treated or prevented before it gives rise to this complicated disease.

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Psychophysiotherapy

Body Awareness Therapy: An Approach to Treat Various Disorders

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A physiotherapeutic approach for adjustment of pathological tension in the body is the body awareness therapy (BAT).¹ Basic Body Awareness Therapy (B-BAT) is a well-known approach used by physiotherapists in mental health and community-based physiotherapy.² Body awareness therapy represents a body-oriented physiotherapeutic approach focusing on both the physical and Psychological aspects of body dysfunctions¹ like particular kind of mindful, non-judgmental awareness and a sense of self, grounded in physical sensations in the present moment.^{3,4} Body awareness therapy comprises various breathing and postural techniques.⁵ The aim of B-BAT is to establish increased awareness of the body and consciousness in movements.² It also aims to normalize posture, balance and muscular tension or stiffness which is experienced and visible in the movement pattern.⁴ It progress towards less effort and a better function in being, doing and relating. The therapy program includes movements from everyday life, lying, sitting, standing and walking. It also includes relational exercises.² BBAT enhance awareness of body and self through basic movement principles such as functional balance, free breathing, mental awareness, and embodied presence.³ Free breathing, balance and awareness in all exercises are central.² Body awareness involves an attentional focus on and awareness of internal body sensations.⁶ Body awareness, is the subjective, phenomenological aspect of proprioception and interoception that enters conscious awareness, and is modifiable by mental processes including attention, attitudes, appraisal, interpretation, beliefs, memories, conditioning, and affect.⁷

In BBAT, a physiotherapist uses movements, breathing, massage and awareness to try to restore balance, freedom and the unity of body and mind. The first step in treatment is to make a patient regain contact with both the motor and sensory dimensions of his/her own body i.e. to make a patient accept and in contact with his/her own body. The second step is to become aware of and integrate the breathing and the movements. The physiotherapist guides the patient to move in ways that are more optimal for postural control, balance, free breathing and co-ordination.⁴ BBAT has proven to be effective in improving body functions, psychiatric symptoms and self efficacy.¹ In psychiatric physiotherapy it has shown positive effects on pain, quality of movement, self-efficacy and sleep pattern.⁴ It also reduced symptoms and negative self-image, increased self-love and body image as well as improved health-related quality of life.¹

Generalized BBAT Program⁸

The BBAT basic technique consists of structured exercise directed partly towards body management as a whole and partly towards particular elements given below:

Time needed for BBAT

In BBAT two time perspectives are considered, a short-term and a long-term perspective. The short-term perspective is often related to symptoms which have not reached the personality structure. Up to ten sessions are given. The long-term perspective is related to a change of the body image, the muscular tension, movement patterns or self-esteem. This takes a long time. One hour twice a week is usually the minimum time for BBAT⁸.

S.No.	Elements of BBAT	Examples
1.	Relation to the ground- Safe contact with the floor is a necessary condition for efficient movements and co-ordinations for gait and body postures	Exercises related to gravity, e.g. heel-raising and knee-bending
2.	The centre-line of the body- arranging the parts of the body along the centre line of the body because deviation may lead to increased muscular tension and disturbed balance.	Standing and other exercises which improve posture integrated with breathing
3.	The movement centre- abdominal obliques as the most important muscles which act as movement center which connect upper body system (chest, arms and head) and lower body system (feet, legs and pelvis).	Train the patients to initiate movements from the movement centre
4.	Breathing : Psychic trauma or disease often creates lasting disturbances in the breathing.	Patient is told to integrate his breathing with movements
5.	The boundaries of the body: individual's experience of his limits with his surroundings	
6.	Muscular tension and relaxation	Ability to relax the muscles and efficiently co-ordinated movements are taught.

Multidisciplinary use of BBAT

Body Awareness Therapy is mainly used for treatment of diseases where disturbances in body awareness are an important part of the pathological picture, e.g.: It can be used in psychotic states with disturbed body consciousness, body image and psychomotor behavior. It can also be used in neurotic states with body image disorders and psychosomatic disorders.⁸ BBAT is given in many conditions like chronic low back pain, pelvic pain, fibromyalgia, irritable bowel syndrome, stroke, musculoskeletal pain, disordered eating and obesity, sexual abuse trauma, coronary artery disease, congestive heart failure, chronic renal failure, falls in the elderly, schizophrenia, anxiety and depression.^{3,7}

Fibromyalgia is characterized by chronic widespread pain, increased tenderness to palpation and symptoms such as disturbed sleep, stiffness, fatigue and psychological distress⁶. Mannerkorpi and Arndorw⁵ evaluated the effects of body awareness therapy combined with qigong for patients with fibromyalgia. The Body Awareness Rating Scale (BARS) and the Fibromyalgia Impact Questionnaire (FIQ) were chosen as primary outcome measures. BBAT combined with qigong resulted in improved movement harmony, but no improvements were found for the symptoms or muscle function⁵. Whereas Gustafsson et al⁹ observed that 1 year of follow up the patients increased their awareness of how to use their bodies with less muscle tension and a more functional pattern of movement. They

found that patients were able to decrease the negative consequences of chronic pain e.g.; increased muscle tension.⁹

Musculoskeletal pain disorders are substantial health problems in many countries and consume a large proportion of the health services. Mattsson¹⁰ and Roxendahl¹¹ stated that the aim of body awareness therapies is to integrate the body in the total experience of the self. According to the therapy, the body is seen as a functionally integrated entity, where different parts are dependent on one another. The development of stress-related disorders can be described as a process over years with symptoms of fatigue and musculoskeletal tensions and pain that develops into psychosomatic and more severe musculoskeletal pain diagnoses for example persistent pain, chronic fatigue syndrome and emotional exhaustion. Today psychological factors are important for the understanding and treatment of persistent pain disorders¹²⁻¹⁴. A holistic perspective on the problem is needed for successful return to work, including autogenic factors, psychological factors, regular physical activity and bodily treatments.^{15,16} To work with body awareness through body experiences has been shown to be a good way to preserve health and can lead to freedom from muscular stiffness, easier breathing and increased mental awareness.^{17,18} BBAT can reduce pain and increase health-related quality of life and imbalance in the body as well as psychosomatic symptoms.¹⁰

Anorexia nervosa is a potentially life threatening eating disorder characterized by self-starvation and excessive weight loss. It has been estimated 0.5% to 3.7% of all women and 1% of female adolescent suffer from anorexia. Researchers believe that it is due to complex integration of genetic, behavioral, psychological and social factors. Sometimes feeling of inadequacy, depression, anxiety and loneliness may contribute to an eating disorder. Vitousek et al found that adopting a motivational stance is helpful in treating individuals with eating disorders and also in encouraging to adhere to prescribed exercise program². They observed that BBAT helped in:

- Restoring the affected individual to a healthy body weight.
- Identifying and treating psychological issues associated with the eating disorders.
- Reducing or eliminating the behaviors and thoughts that foster the development of disordered eating.
- Preventing relapse.

Irritable bowel syndrome (IBS) is one of the most common of all gastrointestinal disorders. Symptoms include altered bowel habits, abdominal pain and discomfort. Associated symptoms, like headache and dysuria are often evident in IBS patients. These patients have often other disorders such as fibromyalgia, panic disorder, anxiety states and depressions¹. IBS has been classified as a functional/psychosomatic disorder associated with altered body image and tension. EM Eriksson et al reported that 12 week of treatment with BAT gives symptomatic relief of both gastrointestinal and psychological symptoms, mostly to the constipated patients¹. 24 week treatment with body awareness therapy gave relief of not only gastrointestinal symptoms, but also of psychological symptoms, as well as improved body awareness and tension in IBS patients. They also observed decreased pain in other parts of the body in addition to the decreased abdominal pain. The patients had relief of both somatic and depressive symptoms in parallel. Body awareness therapy reduced higher score of body tension, gastrointestinal and psychological symptoms and biochemical stress markers in patients suffering from IBS. They also concluded that an improvement also presented during the 6-month follow-up.¹

Post trauma stress disorder (PTSD) is an

anxiety disorder characterized by intrusive re-experiencing of trauma, avoidance, numbing, and hyper arousal. Often chronically overwhelmed, individuals with PTSD suffer from the ability to effectively identify and control their emotions, sensations, or physical states, which can lead to difficulty in self-care and ability to care for others.¹⁹ BBAT approaches to trauma treatment focus on accessing and accepting sensory and emotional awareness in the body, an important foundation for self-awareness and self-regulation in the treatment of PTSD.²⁰⁻²³ BBAT is helpful in the treatment of physical pain in individuals with a history of trauma.^{23,24} The participants found that the intervention provided new skills for pain reduction and self-care, facilitation of emotional awareness, trust, and control, and—for many—insight into the role of body-mind awareness and connection in healing and trauma recovery.

Depression is one of the leading causes of functional disability worldwide. It is a global threat to public health that is steadily increasing in its negative impact³. Danielsson et al studied the experiences of BBAT in 15 persons diagnosed with major depression. In psychiatric out-patients, a period of BBAT improved sleep, self-efficacy, and physical coping resources. They observed improved sense of presence and mastering one's body³.

Substance use disorder (SUD) involves self-administration of any substance that alters mood, perception or brain function²⁵. BBAT combines manual and mind-body approaches, involving interoceptive, and mindfulness training. Interoception involves accessing and processing sensory input from inside the body, which is important for the development of mindful body awareness, and fundamental for developing an embodied sense of self²⁶. The mindfulness skills of present-moment awareness, observation, and acceptance that are taught in BBAT are also important for reducing stress response patterns such as avoidance and negative affect that are important for relapse prevention in SUD treatment^{27,28}. Cynthia et al concluded that BBAT appears to be a highly acceptable intervention that can be feasibly implemented into standard SUD treatment. Participants described reduced stress and gaining greater emotional awareness and self-regulatory coping skills¹⁹.

Conclusion

The meaning of living in ones' body was to become more aware of the body and to experience oneself from the inside as a means to know one's needs. The experience of the body, the balance and stability of the physical self were basic experiences that were connected to the conception of well-being and control. To understand one's emotions and needs through the awareness of the body were seen as the base for self-confidence, trust in oneself and the ability to take care of oneself and his physical and mental needs. It also included recognition of the embodied self and bodily contact. Improved body awareness seemed to lead to being more satisfied and at peace with oneself, participating more actively in life. Problems with body awareness seemed to lead to a feeling of not being alive, missing something important in life. Working with the body in physiotherapy practice should include an awareness of that; the awareness of the body is inseparable from one's identity and has a direct connection to the experience, of the embodied identity¹⁷. The meaning of body awareness was constructed by the informants as becoming more in contact with the body in order to strengthen the identity. To experience oneself, through being aware of the body from the inside was a means to be oneself in a deeper way¹⁷. It is important not to forget psychological factors and body awareness in multimodal rehabilitation. A health promotion perspective is useful, focusing psychological health promoting factors in the patients' life and work situation as well as body awareness promoting factors in the rehabilitation situation.

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Commentary

Is Escitalopram a different SSRI

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Introduction

Major depressive disorder affects approximately 2–5% of the population worldwide, with a lifetime prevalence of around 15%. It is a debilitating and serious mental illness as it significantly interferes with the ability of the affected person to function normally. It is characterized by symptoms like persistent sad or “empty” mood and feelings of hopelessness and worthlessness, changes in sleep and appetite, loss of interest in normally pleasurable activities; difficulty in concentrating, remembering, making decisions and thoughts of death or suicide.^{1,2} Various antidepressants available include tricyclics (TCAs), monoamine oxidase inhibitors (MAOIs), selective serotonin reuptake inhibitors (SSRIs), serotonin-noradrenaline reuptake inhibitors (SNRIs, such as venlafaxine, duloxetine and milnacipran), and other newer agents (mirtazapine, reboxetine, bupropion). SSRIs are generally better tolerated than TCAs and have similar efficacy.³⁻⁵

Mechanism of action of SSRIs

SSRIs bind to the serotonin reuptake transporter (5-HTT) and prevent the reuptake and subsequent storage or degradation of serotonin, thereby increasing the levels of serotonin in the synaptic cleft. This in turn may cause adaptive changes in both serotonergic and noradrenergic neurotransmission and downstream neural adaptation, helping to alleviate the symptoms of depression. The serotonin transporter gene-linked polymorphic region (5-HTTLPR) modulates transcriptional activity of 5-HTT. 5-HTTLPR is a 44 base pair insertion-deletion polymorphism. It can exist as a long (L) variant of a 16 repeat sequence or a short (S) variant of 14 repeats. The L allele is associated with higher levels of transcription in vitro compared to the S

allele. So the same dose of SSRI may inhibit a higher proportion of 5-HTT in individuals carrying the S allele, causing a rapid accumulation of synaptic serotonin and increasing the risk of adverse effects, potentially leading to discontinuation.^{6,7}

Serotonin transporter

Serotonin transporter (SERT) has 2 types of binding sites: primary and allosteric. Escitalopram and SSRIs inhibit the function of the SERT by binding to its orthosteric binding site (also referred to as the “primary site”), where the substrate 5-HT binds. Inhibition of the SERT results in increased 5-HT levels in the synapses in the brain and thereby an enhanced serotonergic neurotransmission which is thought to be the basis for the antidepressant effects of these drugs.⁸ Paroxetine has the highest affinity at the SERT, whereas escitalopram has the highest degree of selectivity. To achieve a 250% increase in extracellular levels of 5-HT, SERT occupancy needs to be 70, 83, and 95% for escitalopram, paroxetine, and sertraline, respectively.⁹ Serotonin reuptake is inhibited when escitalopram is bound to the primary site. It has a 1000-fold lower affinity for the SERT allosteric site than the SERT primary site. When R-citalopram is bound to allosteric site, the time for which escitalopram is bound to primary site decreases and thereby reducing efficacy. On contrary if escitalopram is bound to allosteric site, time on primary site increases and thereby increases inhibition of serotonin transporter and increasing efficacy. Therefore escitalopram is more efficacious than citalopram.^{10, 11} The allosteric function of paroxetine is much weaker. Other antidepressants (fluoxetine and sertraline) do not have allosteric activities.^{8,12} Thus, escitalopram is the only SERT-related antidepressant that has demonstrated both

allosteric and chiral advantages, making it unique compared to other antidepressants, with more prolonged 5-HT reuptake inhibition mediated through two interacting sites on SERT. On the basis of its unique pharmacological characteristics, it is also called as allosteric serotonin reuptake inhibitor (ASRI).¹³

Similarities with other SSRIs

Various SSRIs have shown to positively influence various aspects of neurogenesis. Fluoxetine, citalopram and escitalopram have been shown to upregulate Neural progenitor cell proliferation rate and immature neuron survival rate.¹⁴⁻¹⁷ Researchers have documented that sertraline and escitalopram increased BDNF level in depressed patients while Venlafaxine did not change the level of BDNF.² Use of SSRIs may be associated with a reduced risk of suicide in adults with depression though it may increase suicidality among adolescents.¹⁸ Patients on escitalopram appear to have an equivalent suicide rate to those receiving citalopram, which is significantly lower than those receiving TCAs or MAOIs.¹⁹

Advantages over other SSRIs

Escitalopram is a US FDA approved drug for treatment of adolescent depression and various RCTs have proven its efficacy.^{20, 21} Baldwin and colleagues found significantly fewer withdrawal symptoms with escitalopram compared to paroxetine.²² Escitalopram has rapid onset of antidepressant action.²³ It was associated with a significantly higher response rate than citalopram (50–95% vs 44–86%) in three of the six trials that compared these two agents and also it was associated with a significantly ($p < 0.05$) greater response rate than fluoxetine for 'depressed mood' and 'work and interest'.²³⁻²⁹ It is also cost effective compared to other SSRIs.^{30,31} It is metabolised by many enzymes: CYP2C19, 2D6 and 3A4; mainly CYP2C19, so inhibition of any one enzyme does not significantly raise its concentration and also it is a weak inhibitor of CYP2D6 so not much drug interactions are noted with escitalopram.¹³ But SSRIs like fluoxetine, fluvoxamine and paroxetine cause moderate-to-strong inhibition of several CYP enzymes and thereby carry a greater potential for these types of drug interactions. For example,

fluoxetine and paroxetine strongly inhibit CYP2D6, which is responsible for about 50% of drug metabolism in the liver.^{32,33} Escitalopram was associated with a significantly ($p < 0.05$) lower incidence of sexual dysfunction, dry mouth, and adverse event related withdrawals than paroxetine. Also incidence of diarrhoea was less compared to sertraline.³⁴ It has a much lower binding affinity than other SSRIs for other receptors like alpha- and beta-adrenergic, dopamine (D1-5), histamine (H1-3), muscarinic (M1-5), and benzodiazepine receptors. So the risk of adverse events linked with antagonism of these receptors like anticholinergic, sedative and cardiovascular effects, observed with other psychotropic drugs is likely much lower.¹⁹ Patients switching to escitalopram from other SSRIs due to these side effects experience lower incidences of these side effects with escitalopram.³⁵ It is only 55% bound to human plasma proteins thereby further reducing its potential for producing drug-drug interactions.³⁶ Withdrawal rates due to adverse events were significantly less with escitalopram compared to paroxetine. (6.6% vs 11.7%).³⁷ Discontinuation symptoms like feeling tense, nausea and confusion are higher with paroxetine compared to escitalopram.³⁴ Analysis have shown greater efficacy with escitalopram compared to other antidepressants in cases of severe depression.^{37,38} As compared to other SSRIs such as fluoxetine, paroxetine, fluvoxamine, or sertraline, escitalopram is extremely selective for serotonergic transport proteins relative to noradrenergic or dopaminergic binding sites.³⁹ Recent data suggest that the excitatory effect of escitalopram on dopaminergic and NMDA receptor-mediated neurotransmission may have bearing on its cognitive-enhancing effect and superior efficacy compared to other SSRIs in major depression.⁴⁰ Extrapyramidal side effects (EPS) like tremor, akathisia, dystonia, dyskinesia and tardive dyskinesia have been discussed in association with SSRI treatment. Literature suggests relatively low occurrence rates for escitalopram (7%) and sertraline (10%) in comparison with other antidepressants.⁹ Hyperprolactinemia were reported after SSRI treatment, and the occurrence was the highest for sertraline followed by paroxetine and other antidepressants.⁴¹

Conclusions

Thus there are pertinent differences between Escitalopram and other SSRIs. Escitalopram is one the most used SSRIs clinically in practice today. Its better efficacy and tolerability may be attributed to certain facets of the mechanism of action.

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View Point

Strengthening Mental Health Services for Children and Adolescents in Delhi

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Delhi is among the five most populous cities in the world with a population of approximately 17.8 million (World population review, 2014).¹ Forty percent of the population is less than eighteen years of age. The prevalence rates of youth at risk for mental disorder are found to be 20.5-28.5% in senior secondary school children in Delhi that puts a huge demand for mental health services for children and adolescents in the city. There is scarcity of studies on access to children and adolescents mental health services in Delhi.² As per World Health Organization (WHO) report mental health services in entire India for all age groups are limited both in numbers of facilities and trained professionals with a rate of just 0.3 psychiatrists per 100,000 people (Mental health atlas, 2011).³ Ninety percent of children with a mental health disorder are unable to receive any specialist service.⁴ There have been encouraging multidirectional move in Delhi in the past few years to develop different mental health service models for children and adolescents but still there is a long way ahead to meet the huge demand. It is important to review currently available mental health services to children and adolescents in the metropolitan city of Delhi and discuss how to expand the services to meet this huge demand. One can broadly assign currently available service models to four different service sectors that have direct contact with children and adolescents —health, education, non-governmental and welfare. All of these sectors have potential for expansion and developing coordinated mental health service models to fill the huge gap between mental health disease burden and services available. The summary of different mental health

service models is presented in the table 1 below. Each service model could be viewed as operating at different levels of care—mental health promotion by targeting general population; identifying high risk population and prompt intervention; restoration of mental health when impaired; and minimization of suffering if mental health is chronic and not fully restorable. Each service model sector has its own sets of strengths like education sector could have a major role at health promotion level by educating parents, teachers and children about mental health and basic living skills like parenting, teacher training, social and coping skills. The awareness helps in decreasing stigma of mental health disorders, early identification and treatment. Providing skills to manage stressful situations aids in prevention of mental health disorders and indirectly decreases cost burden. Once mental health disorder develops then the health sector plays the primary role in the restoration of mental health and rehabilitation. Non-Governmental sector plays an important role in advocacy and broadening the workforce by training providers. Different policies could provide support to these service models. In health sector, The National Mental Health Program for India, 1982 emphasizes on promotion and prevention by addition of life skills training and counseling in schools and colleges along with media campaigning for stigma reduction and treatment awareness. It emphasizes on integration of primary care with referral centers, strengthening of existing tertiary care and assisting in developing man power in mental health.⁵ Child and adolescent mental health has received special attention for the first time in 11th five year plan. In

education sector, Central Board of Secondary Education (CBSE) school health policy emphasizes on counseling, psychological, and social services program to ensure access or referral for students' mental, emotional, and social health (CBSE school health policy, 2007).⁶ In welfare sectors, Integrated Child Development Services (ICDS)⁷ 1975 aims for proper psycholo-gical development of 0-6 years old through improv-ing nutritional and health status and enhancing the capability of the family to look after

the child's health.

All the available sectors— health, education, non-governmental and welfare should be targeted at different level of care to make it the most cost effective. The targeted interventions should include-

1. Universal mental health promotion by each sector specifically the education sector (considering the accessibility and mandatory primary education);
2. Training personnel in each sector in screening,

Table-1. Summary of mental health service models in the city of Delhi

Sector	Model	Target population	Type of provider	Level of Care Services	Policy support/ Strength	Possible Interventions
Health	Primary Health Care —Primary Care Physician (PCP) model	Individuals with physical health problems	PCP	Early identifica-tion and restora-tion—Screening; 1st level basic treatment for medical illnesses that can lead to mental health disorder (e.g., iodine deficiency, cretinism, and malnutrition)	National Mental Health Program/ Financial support in government owned places; less stigma, larger coverage and prevention in primary health care model	Public education (use of media); Training of providers in screening, interventions and referral; Develop-ing a tiered referral system and mandatory yearly health screening of children and adolescents
	Primary Health Care —Integrated Specialty Mental Health Care (outpatient or inpatient)	Individuals with mental health problems	On site specialist mental health provider Psychiatrist (mostly adult psychiatry trained); multi-disciplinary team	Assessment; Referral; Treatment Treatment, restoration and rehabili-tation—Full range of diagnostic and therapeutic mental health services		Training specialists; Developing a tiered referral system; Promoting consultation models; Improving quality
Education	School based on campus model	Entire school students, teachers, parents	School counselor; trained teacher/ peer	Promotion, early identi-fication and treatment – Psycho-education; Training (students, teachers, parents); Screening; Assessment; Treatment	Education Policy/ Financial in government owned places; Most accessibility	Public education; Adding mental health in training curriculum of teachers and students; Training teachers in screening mental health disorders; Developing effective referral and consultation
	School consultation model		Psychiatrist; Therapist			

Sector	Model	Target population	Type of provider	Level of Care Services	Policy support/ Strength	Possible Interventions
NGO	Telephone helpline; Outpatient specialist care; Provider training	Entire Community	Trained counselor; volunteer; specialist mental health provider	Promotion, early identification and restoration – Training of counselor; Supportive therapy; Assessment and Treatment; Advocacy	Volunteer work; Self-financing; Expansion of work-force	Extending government support in expansion of services
Welfare	ICDS	0-6 years old; mother/ family	Health worker	Promotion— Education; Nutrition supplementation; Monitoring development	ICDS-1975/ Government aid	Adding mental health component; Exploring Juvenile justice system

- interventions and referrals;
3. Strengthening secondary and tertiary levels of services for specialty mental health care;
 4. Collaboration between different sectors to develop cost and resource efficient tiered services;
 5. Expansion of existing policies, infrastructural and financial supports. This may include mandatory counselors in schools; training teachers as part of education curriculum; incorporating mental health education in school curriculum; promoting mandatory yearly health checkups for physical and mental health disorder screening, early diagnosis and treatment; expansion of ICDS to incorporate mental health component; support to non-governmental sector; and exploration of mental health needs in juvenile justice system that serves underprivileged and high risk population.

Considering the challenge of huge demand for child mental health services, it is of utmost importance to develop organized, collaborative and tiered system of care in a cost efficient manner.

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Drug Review

Vilazodone: A Novel Antidepressant for Major Depressive Disorder

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Introduction

Major depressive disorder (MDD) is a serious, recurring illness contributing to one of the leading causes of morbidity as well as disability worldwide.¹ According to WHO, MDD is the leading cause of disease burden in high and middle income countries thereby posing a major public health problem.² Mainstay of treatment constitute of antidepressants, with Selective Serotonin Reuptake Inhibitors being the most commonly prescribed drug. Even with medication only 50% of the patients show response with initial pharmacotherapy.³ Reasons for poor response may range from inadequate efficacy to poor tolerability with the currently available antidepressants. This necessitates the development of newer antidepressants with better tolerability profiles and faster onset of action.

Vilazodone is a novel antidepressant approved by USFDA for MDD in January 2011.⁴ It combines serotonin reuptake inhibition with 5HT_{1A} partial agonism and is therefore called Serotonin Partial Agonist Reuptake Inhibitor (SPARI).^{5,6} Vilazodone is the first drug of its class from Serotonin Partial Agonist Reuptake Inhibitor (SPARI).

Mechanism of action

The chemical formula for vilazodoneHCl is 2-benzofurancarboxamide, 5-[4-[4-(5-cyano-1H-indol-3-yl) butyl]-1-piper-azinyl]-, hydrochloride (1:1) and the molecular formula is C₂₆H₂₇N₅O₂.⁷ The chemical structure for Vilazodone is as follows:

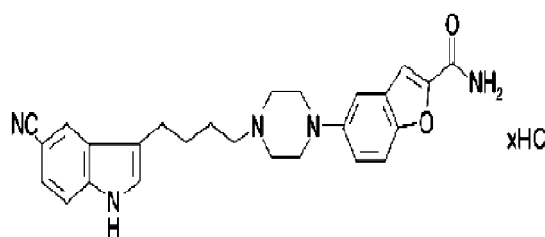


Figure 1: Chemical structure of Vilazodone

Similar to SSRIs, Vilazodone too selectively inhibits serotonin reuptake in the CNS by blocking the serotonin transporter (SERT), thereby increasing the concentration of serotonin in the postsynaptic space which attach to the postsynaptic receptors and increase serotonin signalling. In addition, it has partial 5HT_{1A} agonist property which causes early down-regulation of the 5HT_{1A} autoreceptors at the somato-dendritic region. This causes sustained release of serotonin by disinhibition or removal of the 5HT_{1A} mediated negative feedback.⁶ Animal studies in rats corroborate this property with faster desensitization of 5HT_{1A} receptors as compared to SSRIs, responsible for its faster onset of action. In addition, 5HT_{1A} agonism is proposed to cause more robust elevation of synaptic serotonin levels. Human neuroimaging studies reveal that vilazodone has 50% occupancy at SERT and 50% at 5HT_{1A} receptors, whereas SSRIs can block around 80% of SERTs and Buspirone block 10-20% of 5HT_{1A} receptors.⁶ Whether this property of Vilazodone is responsible for its faster onset of action or better

efficacy is yet to be established in head-to-head clinical studies with other antidepressants.

Pharmacokinetics and Pharmacodynamics

Vilazodone has dose proportional (5-80mg) pharmacokinetic property. It reaches peak concentration on absorption at around 4-5 hours and terminal half-life is around 25 hours. Steady state concentration is reached in 3 days. After daily dosing of vilazodone 40 mg, under fed conditions, the mean maximum plasma concentration (C_{max}) at steady state is 156 ng/mL. Bioavailability of vilazodone when taken with food is around 72%. When administered without food, drug concentration is reduced leading to lesser efficacy. It is almost 96-99% protein bound with a very large volume of distribution.⁹

The drug is extensively metabolized in the liver, primarily via the cytochrome P450 CYP3A4 isoenzyme. CYP2C19 and CYP2D6 are also minor metabolic pathways. About 1-2% of unchanged vilazodone is excreted in urine and faeces. No dose adjustment is required for age, gender, and mild to moderate renal or hepatic dysfunction.⁹

Vilazodone binds with high affinity to the SERT but not to the Norepinephrine or dopamine reuptake transporters. It also acts as a partial agonist at the 5HT_{1A} receptors.⁹

Clinical evidence for use in MDD

Vilazodone was approved following phase II clinical trials demonstrated its efficacy in MDD. Four different RCTs with similar design used vilazodone in doses 5-100mg in patients with MDD as per DSM IV criteria. Although there were no statistically significant changes in the primary outcome ie, Hamilton Depression Rating Scale, the secondary outcome of Montgomery-Åsberg Depression Rating Scale (MADRS) in two of the studies showed responses for the difference between vilazodone and placebo with doses of 20mg/day. Higher doses however did not show any additional benefit.⁹⁻¹¹

A lot of research thereafter on the effectiveness of vilazodone in MDD has been undertaken with promising results. Some important trials have been included in the following table (Table 1).

Table-1. Summary of clinical trials using vilazodone in MDD

Study	Design	Duration	Daily Dose	Number of participants	Results
Rickels et al ¹²	Phase III RCT	8 weeks	Vil 40 mg vs placebo	198 vs 199	Statistically significant reductions in MADRS, HAMD-17, CGI-I and CGI-S scores in vilazodone group
Khan et al ¹³	Phase III RCT	8 weeks	Vil 40 mg vs placebo	231 vs 232	Statistically significant reductions in MADRS, HAMD-17, HAMD-21, CGI-I and CGI-S scores in vilazodone group
Citrome ¹⁴	Pooled analysis of above studies	—	Vil 40 mg vs placebo	429 vs 431	NNT for response vs. placebo was 8 (95% CI 6–16) and for remission was 14 (95% CI 8–55)
Mathews et al ¹⁵	Phase IV RCT	10 weeks	Vil 20 mg, vil 40 mg, citalopram 40 mg and placebo	Approx 280 in each group	Significant reduction in MADRS scores in vilazodone 20 mg, 40 mg, citalopram group. No direct comparison between vilazodone and citalopram
Croft et al ¹⁶	Phase IV RCT	8 weeks	Vil 40 mg vs placebo	253 vs 252	Significant reduction in MADRS and CGI-S scores in vilazodone group
Robinson et al ¹⁷	Open label study	1 year	Vil 40 mg	599	MADRS scores reduced from 29.9 at baseline to 11.4 at week 8 and 7.1 at week 52

Dosage and Administration

Vilazodone is available as 10 mg, 20 mg and 40 mg tablets. Recommended daily dosage is 20-40 mg once a day with food for adequate absorption. However the daily dose needs to be titrated. Vilazodone needs to be started at 10 mg once daily with food for 7 days followed by increase to 20 mg once a day. The dose may be increased higher to 40 mg once daily if need be with a gap of 7 days in between dose escalation. Similarly when discontinuing the drug, dose needs to be gradually reduced with a gap of 7 days between dose reduction.⁹

In case of a missed dose the patient may take the dose as soon as he remembers. But if it is too close to the timing of the next dose then there is no need to take the missed dose. Two doses should not be taken at the same time.⁹

Adverse effects

Most common adverse effects noted in the clinical trials were diarrhea (28%), nausea (23%), insomnia (6%), and vomiting (5%).⁹ Less common adverse events were dizziness, dry mouth, fatigue, abnormal dreams, decreased libido, arthralgia, and palpitations.⁹ Adverse events leading to discontinuation were nausea and diarrhoea.¹⁶ Mean weight gain of 1.7 kg was reported in a year long study in patients with vilazodone monotherapy.¹⁶ No clinically important changes in physical examinations, electrocardiograms or clinical chemistries were observed.¹⁶

Although vilazodone has been promoted as an antidepressant with minimal sexual side effect, this claim has not yet been satisfactorily established in the clinical trials. There is a lack of studies comparing sexual side effects in vilazodone with those in other antidepressant classes like SSRIs, SNRIs. Also the clinical trials of vilazodone conducted so far did not screen out patients with pre-existing sexual dysfunction. Therefore any conclusion regarding drug induced sexual dysfunction could not be drawn from these studies.

Drug interactions^{7,9}

- **Strong CYP3A4 Inhibitors**-When co-administered with strong CYP3A4 inhibitors(eg. ketoconazole, voriconazole, clarithromycin) dosage of vilazodone should

not increase beyond 20 mg, since it can lead to higher levels of vilazodone by 50%. In case of mild to moderate CYP3A4 inhibitors the dose needs to be reduced only in patients experiencing intolerable side effects.

- **Strong CYP3A4 Inducers**- When co-administered with strong CYP3A4 inducers like carbamazepine, phenytoin etc, the dose of vilazodone needs to be increased to 80 mg over 1-2 weeks if the inducing drug is given for more than 14 days.
- **Monoamine Oxidase Inhibitors (MAOIs)**- if given with MAOIs or within a fortnight of initiation or discontinuation of MAOIs it can precipitate serotonin syndrome. Therefore any co-administration should be avoided.
- **Serotonergic drugs** e.g. SSRIs, SNRIs, buspirone, tramadol, triptans, tryptophan products-co-administration may increase the risk of serotonin syndrome
- **Antiplatelet drugs** (Aspirin, NSAIDs) and **anticoagulants** e.g. warfarin-increase the risk of bleeding by inhibiting the serotonin release from platelets. Therefore patients on vilazodone along with anticoagulants and/or antiplatelet drugs should be monitored for the risk of bleeding.
- **Digoxin**- concomitant administration of vilazodone may increase digoxin serum concentration and therefore close monitoring of digoxin levels is required.

Drug use in Special population^{9,11}

- **Pregnancy and lactation** - There is a lack of RCTs in pregnant women on vilazodone. Only some case reports mention the use of vilazodone in women who accidentally got pregnant while on vilazodone and then delivered without any harmful consequences on the neonate. However there is a risk of Persistent Pulmonary Hypertension of the Newborn (PPHN) similar to other SSRIs and therefore the neonates need to be screened. Vilazodone is excreted in breast milk in rats. The effect on lactation and nursing infants is not known. Vilazodone is currently placed in Pregnancy category

- C similar to most of the antidepressants.^{9,11}
- **Geriatric population** - There is no clinical data on the use of vilazodone in elderly patients with MDD. However no age related dose adjustments are required in the elderly. Patients need to be monitored for hyponatremia similar to other serotonergic antidepressants.
 - **Paediatric population** - Currently vilazodone is not recommended for use in children and adolescents in view of dearth of clinical data on its safety and effectiveness in them.
 - **Hepatic and Renal impairment**- No dose adjustments are required for vilazodone in mild to moderate hepatic or renal impairment.

Contraindication

Vilazodone should be avoided in patients on MAOIs or within a fortnight of discontinuation of the latter to avoid precipitation of serotonin syndrome.⁹

needed to prove its long term safety and effectiveness in preventing relapse. Head to head clinical trials to prove its proclaimed benefit of faster onset of action and lesser sexual side effects are needed. Lastly, efficacy of vilazodone in anxiety disorders particularly Generalised Anxiety Disorder (GAD) needs to be probed considering the established role of 5HT_{1A} receptor partial agonists like buspirone in GAD.

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Table-2. Patient monitoring guidelines for Vilazodone therapy⁹

Warning	Precautions
Suicidal thoughts and behaviour	Increased risk in adolescents and young adults with serotonergic antidepressants; close monitoring for emergence of suicidal thoughts is required
Serotonin syndrome	Concomitant administration with other serotonergic drugs increases risk; life threatening condition
Increased risk of bleeding	Concomitant use of NSAIDs and anticoagulants increase the risk of bleeding
Activation of mania/hypomania	Patients should be screened for bipolar disorder before initiation of vilazodone
Seizure	Patients with seizure disorder should be monitored closely for precipitation of seizure
Angle closure glaucoma	May precipitate an attack in patients with narrow angles not operatively corrected
Hyponatremia	Increased risk in elderly patients on diuretics or volume-depleted
Discontinuation syndrome	Abrupt withdrawal can lead to nausea, sweating, dysphoric mood, agitation, dizziness, headache and even seizure; gradual reduction over 2-3 weeks is recommended

Conclusion and future direction

Vilazodone is a novel antidepressant with dual mode of action- serotonin reuptake inhibition and 5HT_{1A} receptor antagonism. Keeping in mind the often poor response in patients with MDD, a new therapeutic option is always welcome. However vilazodone needs to prove its place in therapy and superiority to other antidepressants with respect to effectiveness and tolerability. Further studies are

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Drug Review

Suvorexant: A Dual Orexin Receptor Antagonist for the Management of Insomnia

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Introduction

A variety of treatment options are available for insomnia. The most commonly used pharmacological interventions are benzodiazepines (BZDs), non-BZD gamma-amino-butyric acid (GABA)-acting hypnotics, sedating antidepressants, melatonin agonists, and antihistamines. Diminished efficacy and frequently noticed side effects (residual daytime sleepiness, cognitive impairment, confusion, dizziness, impaired motor coordination, physical and psychological dependence) limit the use of these treatment options for many patients. So drug with different mechanism of action is of great clinical interest.

Suvorexant is a selective dual orexin receptor antagonist (DORA) for the treatment of insomnia. The drug (originally known as MK-4305) has completed phase III trials and was approved for use by the U.S. Food & Drug Administration on August 13, 2014 for the treatment of adult patients with primary insomnia.¹

Mechanism of action

The orexin (hypocretin) neuropeptide signaling system is a central promoter of wakefulness and are involved in regulating the sleep–wake cycle². The actions of orexin A (hypocretin-1) and orexin B (hypocretin-2) are mediated through two receptors, orexin 1 receptor (OX1R or HCRT1R) and orexin 2 receptor (OX2R or HCRT2R). Suvorexant exerts its therapeutic effect in insomnia through antagonism of orexin receptors. Blocking the binding of wake-promoting neuropeptides orexin A and orexin B to receptors orexin receptor type 1 and orexin receptor type 2 is thought to suppress wake drive in persons experiencing insomnia, thus helping them fall asleep faster and stay asleep

longer. Suvorexant's mechanism of action differs from that of most current sleep therapeutics.^{2,3} The latter drugs that are GABA-A receptor modulators plays a role in sleep, wakefulness, memory, and locomotor function leading to their untoward side effects. Suvorexant improves sleep onset and sleep maintenance. Unlike benzodiazepines, suvorexant does not have any addictive qualities as it does not increase dopaminergic tone. This unique alternative suvorexant has a favorable tolerability and limited side-effect profile.³

Pharmacokinetics

Time to reach maximum blood levels (T_{max}) of suvorexant is nearly 1 to 2 hours if fasted and 3 hours if fed. The half-life is approximately 12.2 hours on average (range 8–19 hours). Steady-state plasma concentrations occur in about three days with daily administration. For a dose of 10 mg, the mean absolute bioavailability is 82%. It is extensively (99%) bound to plasma proteins. It is metabolised predominantly by hepatic CYP3A4. Suvorexant is eliminated primarily via inactive metabolites in the feces; there is no renal elimination.⁴

Clinical results

The US FDA approval was primarily based on data from two 3-months, phase III, randomized, double-blind, placebo controlled, parallel-group, efficacy trials,^{5,6} a 12-month, long-term, safety trial (which also included a discontinuation phase)⁷ and a 4-week, phase IIB trial,⁸ all of which were conducted in patients with primary insomnia.

In both phase III trials^{5,6} suvorexant 15 mg or 20 mg was superior to placebo for sleep latency and sleep maintenance as assessed both objectively by polysomnography and subjectively by patient-

estimated sleep latency. In these trials, suvorexant was also evaluated at doses of 30 mg and 40 mg and were found to have similar efficacy to lower doses, but significantly more adverse reactions were reported at the higher doses.

In the 1-month crossover study,⁸ non-elderly adults (age 18-64 years, mean age 44 years) were treated with placebo (n = 249) and suvorexant at a dose of 10 mg (n = 62), 20 mg (n = 61), or up to 80 mg. Suvorexant 10 mg and 20 mg were superior to placebo for sleep latency and sleep maintenance, as assessed objectively by polysomnography.

The efficacy of suvorexant was also supported by data from another study⁷ in adult (including elderly) patients. Once-daily suvorexant 30 mg (elderly patients) or 40 mg (non-elderly adults) improved subjective total sleep time (sTST), and subjective time to sleep onset (sTSO) by a significantly greater extent than placebo at 1, 2, 3 and 4 weeks.

Discontinuation of suvorexant after 1 year was generally well tolerated, with no evidence of withdrawal or tolerance⁷; the return of symptoms was not indicative of rebound insomnia.^{5,6,9} No signs of physical dependence were reported with prolonged use of suvorexant.¹⁰

Indications

Suvorexant is used for the treatment of insomnia, characterized by difficulties with sleep onset and/or sleep maintenance. It can be used both for primary insomnia and as adjuvant in different psychiatric conditions with insomnia.

Dosage and administration

The drug is available in 5-, 10-, 15-, and 20-mg strengths. Recommended dose is 10 mg. The maximum recommended dose of suvorexant is 20 mg once daily. It should be taken within 30 minutes of going to bed, and with at least 7 hours remaining before planned time of awakening. Time to effect may be delayed if taken with or soon after a meal.¹¹

Adverse reaction

The most commonly reported adverse reaction was drowsiness. It can impair daytime wakefulness and driving skills and may increase the risk of falling asleep while driving. The risk is greater if suvorexant is taken with less than a full night of sleep remaining,

at higher than the recommended dose, or if co-administered with other central nervous system depressants or other drugs that increase blood levels of suvorexant.⁸ Cognitive and behavioral changes such as amnesia, anxiety, hallucinations have been reported. Alcohol and other central nervous system depressants may increase the risk of such behaviors. Discontinuation of suvorexant should be strongly considered for patients who report any complex sleep behaviour (e.g., preparing and eating food, making phone calls, or having sex). Worsening depression or suicidal thoughts have been reported. No clinically important rebound or withdrawal was observed following suvorexant discontinuation⁴. No signs of physical dependence were reported with prolonged use of suvorexant.¹⁰

Precautions

Suvorexant falls into category C.⁴ There are no well-controlled studies that have been done in pregnant women. Suvorexant should be used during pregnancy only if the possible benefit outweighs the possible risk to the unborn baby. It is unknown if suvorexant is secreted in breast milk, but it is advised to stop breastfeeding during suvorexant intake. It is contraindicated in patients with narcolepsy.⁴ Patients taking suvorexant should not engage in activities requiring full mental alertness (such as driving) for at least 8 hours after taking suvorexant.⁴ Suvorexant, as with other hypnotic agents, should be avoided in individuals with severe hepatic impairment.¹² Safety and effectiveness in paediatric patients have not been established.

Drug interaction

Suvorexant is not recommended for patients with severe hepatic impairment or those taking a strong cytochrome P450 (CYP) 3A inhibitor (clarithromycin, telithromycin, HIV protease inhibitors, ketoconazole). The recommended dose of suvorexant is 5 mg in patients receiving moderate CYP3A inhibitors (aprepitant, ciprofloxacin, diltiazem). CYP3A4 inducers (e.g., rifampin, carbamazepine, phenytoin) increase the activity of enzymes that break down Belsomra in the body. Therefore, they may decrease blood levels of Belsomra. A dose adjustment may be necessary for suvorexant to be effective. Digoxin levels should be monitored closely, as slight increases were seen

with coadministration of suvorexant.^{4,11}

Conclusion

Suvorexant's mechanism of action differs from that of the benzodiazepines and nonbenzodiazepines; it has no effect on GABA. Instead of promoting sleep, it inactivates wakefulness. Adverse effects commonly observed with benzodiazepines and nonbenzodiazepines are virtually eliminated. As a result, suvorexant can be used daily on a long-term basis with no risk of rebound insomnia or physical dependence. But further studies are required to compare the safety and efficacy of suvorexant with benzodiazepines and nonbenzodiazepines hypnotics.

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Drug Review

Brexpiprazole: a newer drug in the management of Schizophrenia and Depression

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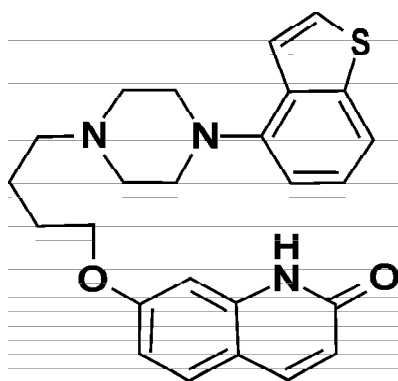
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Introduction

Brexpiprazole is an atypical antipsychotic drug approved by U.S. Food and Drug administration (FDA) in July 2015 for the treatment of Schizophrenia and in Major Depressive Disorder (MDD) as an adjunctive treatment with antidepressants. It is chemically and structurally similar to aripiprazole, but with lower intrinsic activity at D₂ receptor and stronger antagonism at the 5 HT_{2A} receptor.

The Chemical structure is as follows:



The chemical name of brexpiprazole is-7-{4-[4-(1-benzothiophen-4-yl) piperazin-1-yl]butoxy} quinolin-2(1H)-one

Pharmacodynamics

The action of Brexpiprazole is mediated through partial agonistic activity at serotonin 5 HT_{1A} receptor and dopamine D₂ receptor and antagonism at the serotonin 5HT_{2A} receptor.¹ It has lower intrinsic activity at D₂ receptor leading to lesser side effects such as akathisia, insomnia, restlessness, nausea as compared to aripiprazole. Side effects due to D₂ antagonism such as extrapyramidal symptoms, hyperprolactinemia, tardive dyskinesia are also lower than other full D₂ antagonists. Also,

Brexpiprazole has moderate affinity for histaminic H₁ receptor resulting in lower sedation levels. However exact mechanism of action in major depressive disorder is not known.²

Pharmacokinetics

After oral administration, maximum concentration of Brexpiprazole in plasma is reached in 4 hours; with absolute oral bioavailability around 95%. Oral bioavailability is not affected by food.¹ The apparent terminal half life is more than 72 hours which makes it suitable for once daily dosing and also makes the patient less likely to have discontinuation effects.³

Brexpiprazole is metabolized primarily through CYP3A4 and CYP2D6 enzymes in liver without any active metabolites. Drug absorption, metabolism and excretion is not significantly affected by age and gender but minor dose adjustments are needed for liver and renal impairment.⁴

Efficacy/clinical trial results

Three short term randomized control trials (RCT) were conducted to assess the efficacy of Brexpiprazole versus Placebo with a primary outcome of change in Positive and Negative Syndrome Scale (PANSS) scores from baseline to end of study.

Of the three studies that were conducted 2 studies corroborated efficacy of Brexpiprazole in Schizophrenia in dose range of 2-4 mg/day. (Table 1)

Three short term RCT's were conducted to assess the efficacy of Brexpiprazole as adjunct in treatment of MDD versus placebo with primary outcome of change in Montgomery-Asperg depression rating scale (MADRS) from baseline to end of study where all the three studies corroborated

Table 1. Completed Brexpiprazole randomized double controlled trials (RCTs) in Schizophrenia

Study	Phase	Length	Randomized	Brexpiprazole Dose	Placebo	Comments	
Mcquade et al ⁵	II	6 weeks	459	314	Fixed dose 0.25(42), 1(89), 2.5(90), 5(93) mg/day	95	Statistical data analysis failed to demonstrate improvement on brexpiprazole versus placebo
Correll et al ²	III	6 weeks	636	452	Fixed dose 0.25(90), 2(182), 4(180) mg/day	184	Statistically significant reduction in PANSS score on dosage of 2-4 mg/day.
Kane et al ⁶	III	6 weeks	674	490	Fixed dose 1(180), 2 (186), 4 (184)mg/day	184	Statistically significant reduction in PANSS score on dosage of 4 mg/day.

the efficacy of Brexpiprazole at dosage of 1.5- 3 mg/day as adjunct in MDD. (Table 2)

Indications

FDA has approved Brexpiprazole in July 2015 for treatment of Schizophrenia and as an adjunctive treatment with antidepressants in MDD.

Table-3. Adverse effects of Brexpiprazole¹

Schizophrenia	MDD
Akathasia (6%)	Akathasia (9%)
Weight gain (4%)	Headache (7%)
Dyspepsia (3%)	Weight gain (7%)
Diarrhea (3%)	Somnolence (5%)
Tremors (3%)	Tremors (4%)
Sedation (2%)	Anxiety and restlessness (3%)

Table 2. Completed Brexpiprazole randomized double controlled trials (RCTs) in MDD.

Study	Phase	Length	Randomized	Brexpiprazole	Dose	Placebo	Comments
Thase et al ⁷	II	6 weeks	429	303	Fixed dose of 0.15(62), 0.5(120), 1.5(121) mg/day	126	Brexpiprazole to be better than placebo when compared on the MADRS scale at doses of 1.5 mg/day.
Thase et al ⁸	III	6 weeks	379	188	Fixed dose of 2 (188) mg/day	191	Studies were positive for Brexpiprazole at dosage of 2 mg/day with change in MADRS versus placebo
Thase et al ⁹	III	6 weeks	677	466	Fixed dose of 1(226), 3(230) mg/day	221	Studies were positive for Brexpiprazole at dosage of 3 mg/day with change in MADRS versus placebo

Adverse effects

Based on clinical trials conducted on patients aged 18-65 years of age with diagnosis of Schizophrenia (n=352) and MDD (n=1054) following adverse reactions were noted (Table 3)

Other adverse reactions (>1%) that were seen were blurred vision, increased blood prolactin, myalgia, abnormal dreams, insomnia, increased salivation and flatulence.

Relative contraindications

There are no absolute contraindications except known hypersensitivity to drug but it should be used with caution in patients of dementia related psychosis, in children and adolescent with suicidal thoughts and elderly stroke patients.¹

Dosage and administration

Brexpiprazole is available in doses of 0.25 mg,

0.5 mg, 1 mg, 2 mg, 3 mg and 4 mg, which can be taken with or without food.

In schizophrenia, it is recommended to initiate Brexpiprazole with a starting dose of 1 mg once daily on days 1 to 4, and then titrate to 2 mg once daily on days 5 to 7, and then increasing to 4 mg from day 8, depending on clinical response and tolerability.¹

In major depressive disorder, it is recommended as an adjunctive treatment with antidepressants. It should be started at 0.5 mg-1 mg once daily and maximum of up to 2 mg per day depending upon clinical response and tolerability.¹

Dosage should not exceed 3 mg once daily for patients of schizophrenia and 2 mg once daily for patients of major depressive disorder in cases of comorbid moderate to severe hepatic impairment (Child Pugh score > 7) and moderate to severe renal impairment (creatinine clearance < 60 ml/min).¹

Drug interactions

CYP3A4 and CYP2D6 metabolism of brexpiprazole makes it susceptible to drug-drug interaction. Coadministration with CYP3A4 inhibitors (Itraconazole, Clarithromycin, Ketoconazole) and CYP2D6 inhibitors (Paroxetine, fluoxetine) requires half the usual dosage. While use with CYP3A4 inducers (Rifampicin, St. John's wort) require double the usual dosage over 1-2 weeks.¹

Table-5. Use in special population

S. No	Use in	Risk
1.	Pregnancy	In neonates-Extrapyramidal syndrome, or withdrawal syndrome-including agitation, hypertonia, hypotonia, tremor, somnolence, respiratory distress, and feeding disorders have been reported
2.	Lactation	Under consideration.
3.	Paediatric use	Increased incidence of suicidal ideation and attempts
4.	Geriatric use	Increased risk of death in elderly with dementia-related psychosis.

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Table-4. Warning and Precautions with Brexpiprazole

S. No	Warning	Precautions/Management
1.	Suicidal thoughts and behavior; especially in children, adolescents, and young adults.	Monitoring for clinical worsening of symptoms and emergence of suicidal thoughts; and counsel family members to observe for any change in behavior.
2.	Neuroleptic malignant syndrome	Immediate discontinuation of the medication and symptomatic management.
3.	Tardive dyskinesia	Lowest possible dose and shortest duration of treatment.
4.	Hypoglycemia	Regular monitoring of blood sugar levels.
5.	Leukopenia, Neutropenia and Agranulocytosis	Monitor patients with clinically significant neutropenia for fever or other signs of infection and treat the same properly. Discontinue in patients with severe neutropenia (Absolute neutrophil count <1000/mm ³).
6.	Orthostatic hypotension and syncope	Lower starting dosage and titrate slowly with continuous monitoring of vital signs.
7.	Seizures	
8.	Increased mortality in patients with dementia related psychosis	Use with caution.
9.	Stroke	
10.	Dyslipidemia	
11.	Dysphagia	Use with caution

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Drug Review

Flibanserin: The female viagra

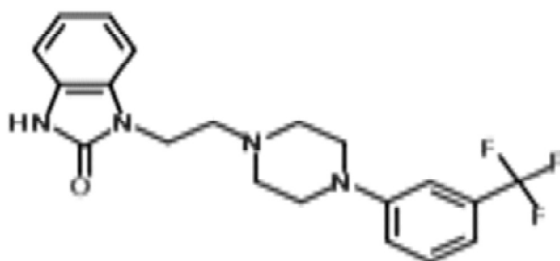
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Introduction

Flibanserin is a novel, non-hormonal drug which is approved on August 18, 2015 by FDA for the treatment of Hypoactive Sexual Desire Disorder (HSDD) in premenopausal women¹. HSDD is defined as the absence or deficiency of sexual interest and/or desire, leading to significant distress and interpersonal difficulties¹. HSDD is now known as Female Sexual Arousal Disorder (FSAD) according to DSM-5². Flibanserin is the first FDA approved drug to treat HSDD. Following is the chemical structure of flibanserin:



Pharmacokinetics

Following oral administration absolute bioavailability of flibanserin is 33%. Food increases the extent of absorption and slows the rate of absorption. Approximately 98% of flibanserin is bound to human serum proteins, mainly to albumin. Flibanserin is primarily metabolized by CYP3A4 and to a lesser extent by CYP2C19. Flibanserin is mainly metabolized to two inactive metabolites-6, 21-dihydroxy-Flibanserin-6, 21-disulfate and 6-hydroxy-Flibanserin-6-sulfate. Flibanserin has a mean terminal half-life of approximately 11 hours³.

Pharmacodynamics

In vitro and in microiontophoresis, flibanserin demonstrates high affinity for the following serotonin

receptors: agonist activity at 5-HT_{1A}, a very weak partial agonist activity at dopamine D₄ receptors and antagonist activity at 5-HT_{2A}. Flibanserin also has moderate antagonist activities at the 5-HT_{2B}, 5-HT_{2C}. Flibanserin preferentially activates 5-HT_{1A} receptors in the prefrontal cortex, demonstrating regional selectivity, and has been found to increase dopamine and norepinephrine levels and decrease serotonin levels in the rat prefrontal cortex, actions that were determined to be mediated by activation of the 5-HT_{1A} receptor. Flibanserin decreases neuronal firing rate in cells of the hippocampus, dorsal raphe and cortex. Flibanserin-induced reduction in firing rate in the cortex seems to be mediated through stimulation of postsynaptic 5-HT_{1A} receptors, whereas the reduction of the number of active cells seems to be mediated through dopamine D₄ receptor stimulation. Flibanserin quickly desensitizes somatic 5-HT autoreceptors in the dorsal raphe and enhances tonic activation of postsynaptic 5-HT_{1A} receptors in the CA3 region. Flibanserin preferentially reduces synthesis and extracellular levels of serotonin in the cortex, where it enhances extracellular levels of dopamine and norepinephrine⁴.

Flibanserin in Hypoactive sexual desire disorder : Clinical evidence

Hypoactive sexual desire disorder (HSDD) is the most commonly described form of female sexual dysfunction.⁵ HSDD affects nearly 1 in 10 women⁶. Until some time ago there was no approved pharmacological therapy to treat HSDD, and therefore, there was an unmet medical need for the development of efficacious treatment alternatives.

The U.S. Food and Drug Administration

rejected the application of Boehringer Ingelheim for approval of flibanserin in June 2010 citing the small effect and the risks of long-term use. In June 2013, Sprout Pharmaceuticals resubmitted flibanserin for FDA approval. Sprout launched a campaign called '**Even the Score**' to pressure the FDA to approve flibanserin. The campaign emphasized that several approved treatments for male sexual dysfunction exist, while no such treatment for women was available. On August 18, 2015 FDA approved flibanserin to treat HSDD in premenopausal women.⁷

Three pivotal phase 3 trials had been conducted to support the efficacy of flibanserin for the treatment of HSDD in about 2,400 premenopausal women with acquired, generalized HSDD. The three trials were prospective, randomized, double-blind, placebo-controlled and 24 weeks in duration. All three trials had two co-primary efficacy endpoints - First for satisfying sexual events (SSEs) and second for sexual desire. All three trials also had a crucial secondary endpoint which measured distress related to sexual desire. All three trials demonstrated a statistically significant improvement with flibanserin compared to placebo in the number of satisfying sexual events and in distress related to sexual desire. Out of three, two trials did not demonstrate a statistically significant improvement over placebo in the second coprimary end point for sexual desire, which was assessed using a daily electronic diary, but did show a statistically significant improvement over placebo for a secondary end point that used Female Sexual Function Index (FSFI) to assess sexual desire. The third trial used FSFI as the pre-specified co-primary endpoint for sexual desire and showed a statistically significant improvement over placebo, consistent with the FSFI findings in the two

earlier trials.^{1,8}

The findings were consistent across the three phase 3 trials, demonstrating a pharmacologic effect of flibanserin in the patients studied. The results are summarized below.^{1,8}

- From a median baseline of about 2-3 SSEs per month, flibanserin resulted in a median placebo-corrected increase of about 0.5-1.0 SSEs per month. (Table 1)
- From a mean baseline of about 1.8-1.9 on the FSFI desire score, flibanserin resulted in a placebo-corrected mean increase of 0.3-0.4 (the FSFI desire score range is 1.2-6.0). (Table 2)
- From a mean baseline of 3.2-3.4 on the distress score, flibanserin resulted in a placebo corrected mean improvement of 0.3-0.4 (on a scale of 0-4). (Table 3)

Besides above studies, there are also some other studies which support the claims of efficacy of flibanserin in HSAD. In the study by Goldfischer et al⁹, women (N = 738) were treated with open label, flexible dose flibanserin (50-100mg/day) for 24 weeks. At week 24, women who showed a predefined response were randomized to 24 weeks of double blind continued flibanserin therapy at optimized dosage (N = 163) or placebo (N = 170). At the end of open label period, mean SSE and desire score approximately doubled, and FSFI, FSDSR (Female Sexual Distress Scale-Revised) total, and Item 13 scores improved. At the end of the double blind period, flibanserin was found superior to placebo in change from randomization in SSE, desire score, FSFI desire domain and total scores, and FSDSR total and Item 13 scores (P < 0.05, for all).

The study by Katz et al¹⁰, was a randomized, placebo controlled trial in which premenopausal

Table-1. Changes in SSEs⁸ after treatment with Flibanserin

	Trial 1		Trial 2*		Trial 3	
	Flibanserin	Placebo	Flibanserin	Placebo	Flibanserin	Placebo
	100 mg		100 mg		100 mg	
N	275	285	358	365	500	521
Baseline	3.0	2.0	2.0	2.0	2.0	2.0
Week 24	4.0	2.8	3.0	2.8	4.0	3.0
Median Change	1.0	0.0	1.0	0.5	1.0	0.5
Treatment Difference		1.0		0.5		0.5
p value**	< 0.05		< 0.05		< 0.05	

* Excluding two sites. **Wilcoxon rank sum tests. #FAS: Full Analysis Set. Median changes, instead of mean changes, are reported because of non-normal distribution.

Table-2. Changes in Sexual Desire Score by FSFI-Desire Domain (FAS)⁸ after treatment with Flibanserin

	Trial 1 Flibanserin 100 mg		Trial 2* Flibanserin 100 mg		Trial 3 Flibanserin 100 mg	
		Placebo		Placebo		Placebo
N	275	285	358	365	500	521
Baseline	1.9	1.9	1.8	1.8	1.9	1.9
Week 24	2.8	2.4	2.7	2.4	2.9	2.6
LS Mean Change	0.9	0.5	0.9	0.6	1.0	0.7
Treatment Difference	0.3 (0.2, 0.4)		0.4 (0.2, 0.5)		0.3 (0.2, 0.5)	
p value**	< 0.05		< 0.05		< 0.05	

FSFI Desire score range: 1.2 to 6.0

* Excluding two sites. ** ANCOVA model: Change = Treatment + Baseline + Pooled Sites. #FAS: Full Analysis Population, FDA analysis

Table 3-Changes in Distress (using FSDS-R Q13), FAS⁸ after treatment with Flibanserin

	Trial 1 Flibanserin 100 mg		Trial 2* Flibanserin 100 mg		Trial 3 Flibanserin 100 mg	
		Placebo		Placebo		Placebo
N	275	285	358	365	500	521
Baseline	3.2	3.2	3.3	3.2	3.4	3.4
Week 24	2.8	2.4	2.7	2.4	2.9	2.6
LS Mean Change	-0.8	-0.5	-0.7	-0.5	-1.0	-0.7
Treatment Difference	-0.3 (-0.4, -0.1)		-0.4 (-0.5,-0.2)		-0.3 (-0.4,-0.1)	
p value**	< 0.05		< 0.05		< 0.05	

FSDS-R Q13 score range: 0 to 4

*Exclude two sites in study 75. ** ANCOVA model: Change = Treatment + Baseline + Pooled Sites.FDA analysis

women with HSAD were treated with flibanserin 100 mg once daily (n = 542) or placebo (n = 545) for 24 weeks. In the end when compared with placebo, flibanserin led to increases in mean (SD) SSE of 2.5 (4.6) vs. 1.5 (4.5), mean (SE), FSFI desire domain score of 1.0 (0.1) vs. 0.7 (0.1), and mean (SE) FSFI total score of 5.3 (0.3) vs. 3.5 (0.3) vs and decreases in mean (SE) FSDSR Item 13 score of 1.0 (0.1) vs. 0.7 (0.1) and mean (SE) FSDSR total score of 9.4 (0.6) vs. 6.1 (0.6) vs all; $P \leq 0.0001$.

In the study by Derogatis et al,¹¹ premenopausal women with HSDD were randomized to 24 weeks' treatment with placebo (N = 295), flibanserin 50 mg (N = 295), or flibanserin 100 mg (N = 290), once daily at bedtime. In the end, flibanserin 50 mg and 100 mg led to increases in SSE ($P < 0.05$ and $P < 0.01$ vs. placebo, respectively). FSFI desire domain and total scores increased with both flibanserin regimens ($P < 0.05$). FSDSR total and Item 13 scores decreased with flibanserin 100 mg ($P < 0.001$), indicating reduced sexual distress. More

women receiving flibanserin 50 mg and 100 mg considered their HSDD to have improved than women receiving placebo (39.6% and 50.0% vs. 30.3%, respectively) ($P < 0.05$).

Mechanism of action of Flibanserin in Hypoactive sexual desire disorder

Flibanserin acts by correcting an imbalance of the levels of the neurotransmitters affecting sexual desire. More specifically, flibanserin increase the levels of dopamine and norepinephrine, both responsible for sexual excitement, and decreases level of serotonin, responsible for sexual inhibition.⁵

Dosage and Administration

Available information from clinical trials conducted on patients with HSDD showed improvement with oral doses from 50 or 100 mg once daily at bedtime (qhs) or 25 or 50 mg twice daily (bid).^{9,12}

Adverse effects

The most common treatment related adverse

effects based on data from the clinical trials include Somnolence, sedation, fatigue, dizziness, nausea, and vomiting.^{8,13}

Drug interactions

Flibanserin dosage may require appropriate adjustments in following conditions :

- CYP3A4 Inhibitor drugs like fluconazole, ketoconazole, oral contraceptives and CYP2D6 inhibitor like paroxetine increases half life of flibanserin by reducing its metabolism.³
- CYP3A4 inducer like rifampin, etravirine decreases half life of flibanserin by increasing its metabolism.³
- Flibanserin can increase the half life of simvastatin because it is metabolized by CYP3A4.³

Contraindication

Co-administration of flibanserin with alcohol can cause hypotension and syncope in patients. However alcohol does not change the pharmacokinetics properties of flibanserin⁸.

Conclusion

Flibanserin is the first FDA approved pharmacological agent to treat HSDD. Initial short term studies assessing efficacy have shown promising results. However long term studies are required to provide more substantial evidence in support of efficacy and safety of flibanserin.

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Drug Review

3-Month paliperidone palmitate extended release

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Introduction

3-month paliperidonepalmitate (PP3M) has been approved for maintenance treatment of schizophrenia by FDA in May, 2015 under the brand name Invega Trinza.¹ It is racemic mixture of (+) - and (-)-paliperidonepalmitate, that belongs to benzoxazole class of drugs.²

Its chemical name is (9RS)-3-[2-[4-(6-Fluoro-1,2-benzisoxazol-3-yl) piperidin-1-yl]ethyl]-2-methyl-4-oxo-6,7,8,9-tetrahydro-4H-pyrido[1,2-a]pyrimidin-9-yl hexadecanoate.² Its chemical formula is as shown² in Figure 1.

Mechanism of action

The mechanism of action is not fully known. It may act primarily through antagonism of dopamine D2 and serotonin 5HT2A receptor. It also possesses antagonistic activity at alpha 1, alpha 2 and histaminergic H1 receptors. PP3M gets metabolized in the body to paliperidone, which is an active metabolite of risperidone.²

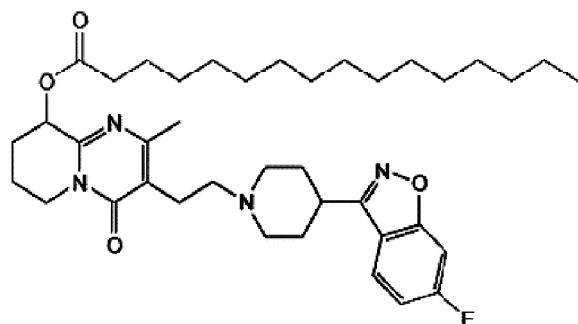


Figure 1: Chemical structure of Vilazodone

Pharmacokinetics

It has a low solubility in water; therefore it is released in the body for as long as 18 months.

Maximum plasma concentration is reached in 30-33 days. Median half-life when injected in deltoid is 84-95 days as compared to 118-139 days when injected in gluteal region. 74% of PP3M gets bound to plasma proteins. Its volume of distribution is 1960L. 59% of the drug gets excreted in urine without undergoing any change. This signifies that the drug does not get metabolized in the liver extensively. In vivo studies have also failed to show any significant contribution of CYP2D6 and CYP3A4 isozymes in its metabolism.²

Clinical results

PP3M was found to be effective and safe by a randomized, multicenter, double-blind, placebo-controlled phase III study. It consisted of a 17-week flexible-dose, open-label period with 1-month paliperidone palmitate. At the end of 17 week, patients were expected to be clinically stable after which a PP3M was given for 12-weeks. After 12-week open-label phase, patients were randomized to either PP3M or placebo. Time to relapse was significantly longer in PP3M group as compared to placebo. 23% in placebo group vs 7.4% in PP3M experienced relapse.⁴ The efficacy and safety of PP3M was also established by another open-label study.³

Indication

It has been approved for the maintenance/relapse prevention treatment of schizophrenia in patients who were on 1-month paliperidone palmitate extended-release intramuscular for at least four months.²

Adverse effects

Most common side effects associated with

Clinical trials that led to FDA approval of 3-month paliperidone palmitate

Study	N	Type; Phase	Design	Dose	Outcome Measures	Results
Ravenstijn P et al, 2015 ³	N = 308	Multicenter, randomized, open-label, parallel-group; phase-1	Study divided into 4 panels: A to D. All 4 panels had 2 single dose treatment periods; period 1 : 1 mg paliperidone immediate release followed by a washout period of 7-21 days followed by period 2: intramuscular PP3M	75-525 mg eq.	Pharmacokinetics, safety and tolerability	Peak plasma concentration achieved between 23-34 days; apparent half-life 2-4 hours; Safety and tolerability similar to 1-month paliperidone-palmitate (headache and nasopharyngitis most common adverse events
Berwaerts J et al, 2015 ⁴	N = 506	Randomized, multicenter, double-blind, placebo-controlled, relapse prevention study; phase III	3-week screening phase, followed by 17-week open-label (flexible dose) transitional phase followed by 12-week open-label maintenance phase and open-ended double blind phase	50, 75, 100 or 150 mg eq. during the transitional phase; 175, 263, 350, 525 mg eq. during the double-blind phase	Time to relapse, PANSS, MARDER factor scores, CGI-S, PSP	Significant increase in time to relapse ($P < 0.001$). Significant difference seen in PANSS subscales, MARDER factor scores and PSP from double-blind baseline to endpoint ($P < 0.001$)

PP3M are reaction at the injection site, weight gain, headache, upper respiratory tract infection and parkinsonism.²⁻⁴

Contraindication

Patients allergic to paliperidone, risperidone or to any ingredient in the formulation of PP3M.²

Dosage and administration

It is administered intramuscularly (deltoid or gluteal) at a dose which is 3.5 times higher than once a month dose of paliperidonepalmitate.²

Last dose of 1-month paliperidone palmitate	Starting dose of 3-month paliperidone palmitate ²
78 mg	273 mg
117 mg	410 mg
156 mg	546 mg
234 mg	819 mg

Drug Interactions

Paliperidone can cause orthostatic hypotension. Hence, its use with drugs that induce orthostatic hypotension should be avoided.²

It is advisable to not use paliperidone with strong inducers of CYP3A4 and P-glycoprotein such as carbamazepine, rifampin, St. John's Wort as these may enhance the metabolism of the drug. If the use of CYP3A4 or P-glycoprotein is required, then consider using paliperidone extended-release tablets.²

Since paliperidone antagonizes levodopa and dopamine agonists, the combination of paliperidone with levodopa or dopamine agonists should be avoided.²

Special Groups

Pregnancy:

Extrapyramidal symptoms such as tremors, muscle spam, twitching of eyes and other abnormal movements) or withdrawal reactions may be seen in neonates of pregnant woman, although it is not yet known if it can affect the fetus.²

Lactation:

It can pass through the breast milk. Hence, it is

not advisable to breastfeed simultaneous with the drug.²

Geriatric use:

Since the drug is excreted primarily in the kidney, it is important to check renal function in elderly and make appropriate dose adjustments. It is contraindicated for use in elderly with dementia-related psychosis due to high risk of cerebrovascular adverse reactions i.e. stroke, transient ischemic attack.²

Pediatric use:

The efficacy and safety of PP3M in children less than 18 years of age has not been estimated.²

Warning and Precautions²

- Cerebrovascular adverse events in elderly people with dementia-related psychosis
- Neuroleptic Malignant Syndrome
- QT prolongation
- Tardive Dyskinesia
- Metabolic changes such as hyperglycemia, weight gain, dyslipidemia
- Orthostatic hypotension and syncope
- Leukopenia, neutropenia, agranulocytosis
- Hyperprolactinemia

- Seizures
- Cautious use needed in conditions or circumstances where active cognitive and motor coordination is required such as driving

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Newer Development

Diagnosis of ADHD through Game Application

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Introduction

Attention Deficient Hyperactivity Disorder (ADHD) is one of the childhood psychiatric disorders of developmental origin that can persist into adulthood. Most of the common symptoms of the ADHD include difficulty in focusing or paying attention, in controlling behaviour and hyperactivity. According to the National Institute of Mental Health (NIHM), inattention, hyperactivity and impulsivity are the key behaviours of ADHD. It is normal for children to have such symptoms, but children with ADHD, these behaviours are more critical and severe. For diagnosis of the ADHD, these symptoms should be evident for 6 months and to a degree that is greater than other children of the same age.

As mentioned earlier, the essential feature of ADHD is a persistence of impulsivity and inattention that interferes with the regular work. Inattention refers to the lacking of the persistence, having difficulty in focusing or getting distracted easily. Hyperactivity means excessive motor activity when it is not appropriate or excessive tapping or talkativeness. Impulsivity refers to hasty actions that occur in the moment without forethought and that have high potential for harm to the individual. Impulsivity may reflect an inability to delay gratification.

A diagnosis of attention-deficit/hyperactivity disorder (ADHD) could be considered when attention difficulties or hyperactivity exceeds that typically seen in individuals of comparable mental age.¹

As ADHD is basically a disorder of inattention and hyperactivity, it was assumed that if a mobile application was prepared that could assess the amount of inattention it could prove to be useful as a diagnostic tool. If the range of attention could be found for both patients as well as normal population through an application it could be a wonderful tool. For this purpose a mobile application software was

developed in which the subject has to crush the bugs in a given time with continuous increase in frequency of appearing bugs. Through this the average number of bugs crushed by ADHD patients in a particular time span before crushing the wrong bug, norms could be established according to the age distribution by extensive field trials of the developed application. Also similar norms can be established for the normal population, after which this application can be used as a diagnostic tool. Also it can also be used as a therapeutic tool for diagnosed ADHD patients, as with continuous practice on the game the attention span and performance of the patient on the game would improve thereby increasing his attention levels, that too in a fun way.

Similarly, the second software which was developed, in which the virtual boxes on the screen keep piling on top of each other till the time the gaze of the subject is maintained on the camera sensor, as soon as the gaze is moved, the boxes fell down. For this software as well, age wise norms for the average number of boxes piled up before the attention gaze deviates and the boxes fall down. This can be established both for ADHD population and the normal population and can be used as a quick diagnostic tool. This software can be used as a therapy tool as well. With practice, the number of piled up boxes would increase and with it the concentration of subject would increase as well, that too again in a fun way.

Diagnostic criteria

According to the diagnostic manual's¹ ADHD criteria: The symptoms of inattention in subject are inattention, hyperactivity and impulsivity, having various sub criteria, having persisted for at least 6 months to a degree that is inconsistent with developmental level and that negatively impacts directly on social and academic/occupational activities.

Review of Literature

A study² of children with ADHD found brain anatomical hangs in brain.

Other environmental conditions like cigarette smoking and alcohol use during pregnancy or brain injuries, were also found as causes for ADHD in children.³

According to a research published in the Journal of the American Academy of Child and Adolescent Psychiatry by Stoner and Statterfield in 1995, “four variables are confirmed to be usable to measure and assess attention in the tangible game to be developed and was this computer game was proved to be useful in assessing and treating ADHD.”⁴

Similarly other studies^{5,6} on the software developed by Campbell in 2015 proved that Biofeedback games were successfully used to cure ADHD in children.

Further more research by Chuang, Lee and Lin, 2009,⁷ concluded that Nintendo Wii Fit and Wii Balance Board could be used to stimulate children who suffer from sensory integration dysfunction to rebuild the relationship between their behaviours and brain functioning and treat ADHD.

Methodology

After researching different platforms or programming tools, Psycho Py2 (python language) and visual studio (c# language) were considered. It was planned to develop two tools/games, one a desktop based game and the other android based.

The desktop based tool engaged user to concentrate on the particular set of blocks displayed on the screen which piled up as the time passed, if user got distracted, the set of piled up blocks fell down. The application developed involved eye (gaze) scan to determine focusing capabilities of an individual. This could be used as an indicator to test attention or restlessness of an individual or how often an individual got distracted. Two methods were shortlisted to develop this application – one on the android and other using c# web application. Both the applications used the inbuilt cameras (web cam/mobile phone camera).

On the other android based application, subject was required to hit bugs shown randomly on the screen to capture subject's attention (Figure 1). The frequency of bugs coming on the screen increased

with time. Number of successful hits gave a measure of user's attention level.

Application of the intervention

The game analyzed a number of different factors, including motor function, impulse control, and reaction time. Also the game provided comprehensive data to physician for diagnosis and intervention. Due to high visual effects, it was highly engaging.

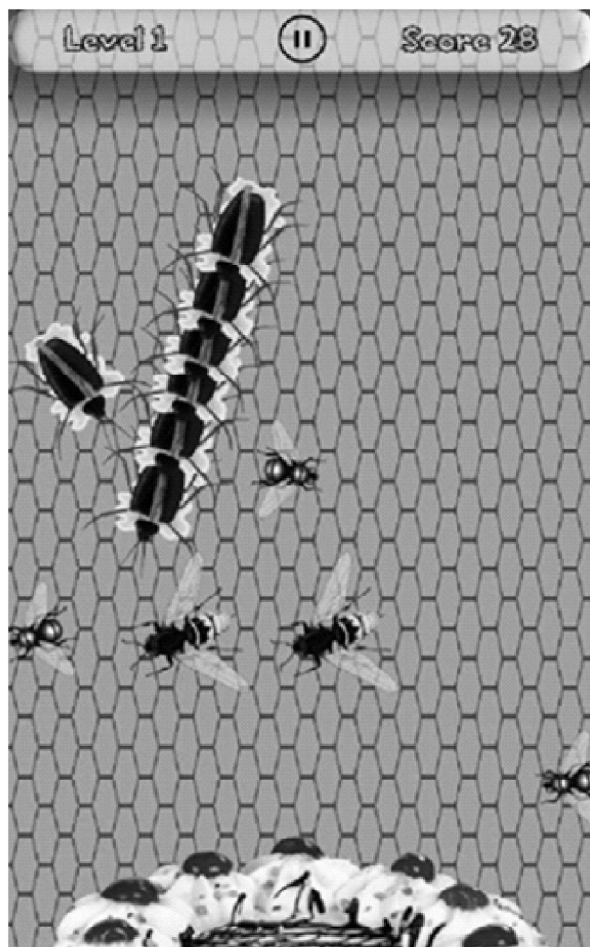


Figure 1: Android Bug hit application.

Working and Result of Application

The working methodology of the application is as follows: It detects the pupil (Figure 2), after detection it determines the focus point of gaze (Figure 3). The image shows the face of the researcher and game developer and has been added with consent. The resultant screen shows mushroom appearing on the screen after every 6 seconds (Figure 4).



Figure 2

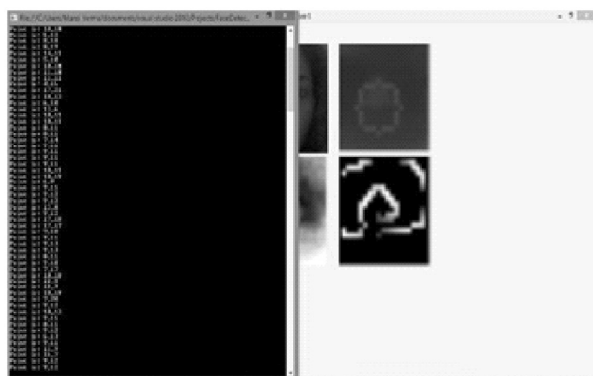


Figure 3



Figure 4

Applications and Future Scope

This is a new approach for diagnosis and therapy for ADHD, this novel therapy and mobile application has been developed by computer engineers at IIITD and can be implemented by psychologists in the future and standardized and used effectively for diagnosis and therapy of ADHD. The study could further be conducted on minimum of 1000 patients of ADHD and 1000 normal population, after which age wise standardized norms could be established for ADHD and its efficacy as an intervention tool could also be established in future.

Discussion and Conclusion

As seen in various studies, computer games can be an effective way to assess and treat ADHD. Computer games being interesting and fun has a higher compliance rate and could be more effective

in the longer run for children with ADHD. The 2 softwares developed could prove to be very effective tools for both diagnosis and treatment of ADHD once their norms have been developed, which is also the future headway and suggestions for this research.

This application would be standardized by field tests on patients in the next phase. Also they could be of therapeutic importance, as with repeated practice the patient's would perform better on the game, with better results in lesser amount of time, increase their attention and concentration levels with practice, thereby proving to be a good therapeutic tool as well.

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Newer Development

Concept and Neurobiology of Behaviour Addiction

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Introduction

Behavior addiction is a new entity which has drawn the attention of the researchers throughout the world. This entity is a broad term that encompasses excessive use of internet, cell phone, compulsive buying, pathological gambling, online gaming, online shopping, and sex addiction. India has entered 21st century, is evident by the use of computers and cell phones by the common man. Though the internet usage is a symbol of advanced technology, making networking, communication and tasks of daily living easy, the excessive /misuse often has deleterious consequences. Internet is an integral part of modern day living which has become a necessity in fast pace life. Ivan Goldberg (1995) used the term “*Internet Addiction Disorder*” for the list of symptoms which involved excessive, maladaptive, pattern of internet use that leads to social and occupational dysfunction. Kimberly Young proposed a scale which enabled the researchers in different parts of the world to study the pathological use of internet. Internet addiction includes Internet addiction disorder and Internet sex addiction.¹

Methodology

The literature search was carried out on Electronic database using Google Scholar, Medline, Pubmed, standard textbooks and the published papers were hand searched using key words “Internet addiction”, “neurobiology”.

Epidemiology

A vast majority of studies published on Internet addiction (IA) were carried out in South Korea and China who had developed their rating scales in their native language. A recent Korean study² carried out on nationally representative survey involved 57,857

middle, high school students. The study found out significant associations between addictive Internet use, school grade, parental education, alcohol use, tobacco use, and substance use. Another interesting finding was that female students in girls’ schools were more likely to use Internet addictively than those in co-educational schools.

Only a handful of Indian studies have been carried out in this area with small sample size, based on the Young criteria. A review article by Chakraborty et al³ reported prevalence rates that varies 0.3% to 38%. Yadav et al⁴ in a study conducted in XI and XII standard students of Ahmedabad (n=552) reported that 11.8% students had IA, that correlated with Depression, Anxiety, Stress using Young IA and Depression Anxiety Stress Symptoms (DASS) scales. In another study from Mumbai, Goel et al⁵ on 987 adolescents found 0.7% addicts using Young Criterion. In a study conducted in Bangalore on 211 medical students, 0.4% was found to be addicts.⁶

A telephonic survey of Indians by Swaminath⁷ found that between 6 to 12 percent of Internet users were addicted to the computer, neglecting their work, food and families. 5.9% had relationship problems, 8.7 percent hide their excessive non-essential Internet use from their friends, family and even employers. Survey reports single, well educated young men in their thirties who spend about thirty hours every week surfing the internet and are willing to substitute their social interactions.⁷

Criteria and Concepts

IA conceptually involves both the online and or offline computer usage (**non work related**) that follows the pattern of a compulsive-impulsive spectrum. IA encompasses at least the three

subtypes: Excessive gaming, Sexual preoccupations, E-mail/text messaging/texting.⁸

Clinical Criteria

The current DSM-5 has placed Gambling disorder⁹ with “Substance related and addictive disorder”. Gambling disorder DSM-5 /ICD-10 (312.31/F63.0) has the following criteria;

(a) Persistent, recurrent behaviour, clinically significant impairment, 4 or more of the following in 12 month period- Increasing amount of money in order to achieve the desired effect (tolerance), irritable or restless when attempts to cut down, unsuccessful efforts to control or stop, preoccupations, distressing, lying, jeopardized significant relationships, or career opportunities, relies on others to provide money.⁹

(b) Not explained by a manic episode.

DSM-5 has placed Internet Gaming disorder⁹ in conditions for further study. The following criteria have been proposed – Persistent, recurrent use of internet to engage in games, 5 or $\geq$ 12 month period: Preoccupation, withdrawal symptoms (e.g. irritability, anxiety, sadness), tolerance (increasing amount of timings), unable to control, loss of interest in previous hobbies, continued excessive use despite knowing psychosocial problems, escape negative mood, jeopardized significant relationships.

Conceptual models

van Rooij and Prause¹⁰ compared three models of IA by: Young,¹ Griffiths,¹¹ Tao et al.¹² Young criteria are most widely studied and makes use of Young Screening Questionnaire that has 20-item. Young has emphasized the usage of internet which is not related to job or academics. DSM-5 Pathological Gambling (PG) criteria mentions 12 month use, though not so in Young Criteria.

Griffith¹¹ “components model” has six distinct, common components (i.e., salience/preoccupation, negative mood, tolerance, withdrawal, interpersonal or intra-psychic conflicts, and relapse). Griffith’s criteria does not include craving and lying/hiding.

Tao et al¹² emphasized to r/o bipolar disorder, psychotic disorder, includes craving but not hiding/lying. A recent Indian study evaluated 600 participants, 18-40 years, using Young questionnaire and Tao et al. 2009 criteria found good level of concordance.¹³

There are preliminary reports of the use of latest generation of electronic games termed “Massively Multiplayer Online Role-Playing Games” (MMORPGs) which are very addictive and defined as “heroinware”.¹⁴ The free wifi (internet access) provided in college campuses are being misused by the students for playing these online games but the exact prevalence figures on a nation-wide data are currently not available from India.

Internet Process Addiction Test¹⁵ is a screening instrument which includes Online video game playing, online social networking, online sexual activity, web surfing. Further studies need to explore the presence of different characteristics associated with IA.

Neurobiology of Behavior Addiction

Traditionally, only chemical substances were considered to be addicting. The behaviors such as gambling etc stimulate the brain reward systems similar to substance abuse.

Brain Reward System

IA leads to dopamine release in nucleus accumbens, involves the other areas such as amygdala, hippocampus and frontal cortex. IA is often combined with other activities like surfing, pornography, chat rooms, social networking sites, video games, email and texting.^{16,17}

Neurotransmitters

Leeman and Potenza¹⁸ has summarized the role of neurotransmitters like dopamine, serotonin mainly in the patho-physiology of IA. However, the results from clinical trials were equivocal.

Dopaminergic and serotonergic dysfunction are reported for gambling, though there is evidence of involvement of opioids, glutamate and nor-epinephrine also in gambling.¹⁸ IA and video-game playing shows involvement of dopamine pathways. Serotonergic dysfunction has been reported for compulsive sexual behavior, kleptomania and compulsive shopping.

Neuroimaging studies

Neuro-imaging studies have shown the involvement of frontal cortices and striatum mainly in the patho-physiology of Pathological Gambling with more consistent findings being reported by cognitive

tasks rather than cue related studies.

Diffusion tensor imaging (DTI) study in adolescent IA reported reduced Fractional anisotropy values in prefrontal cortex and anterior cingulate cortex.¹⁹ Another previous DTI study from 18 adolescents suffering from IA compared to matched healthy controls reported reduced grey matter volumes in bilateral dorsolateral prefrontal cortex, the supplementary motor area, the orbito-frontal cortex, the cerebellum and the left rostral anterior cingulate cortex.²⁰ Resting state Functional Magnetic Resonance Imaging (fMRI) in 30 Internet gaming disorder patients showed lowered functional connectivity in executive control networks as compared to 36 healthy controls. Also, functional connectivity measures correlated negatively with tasks on stroop test.²¹

A study carried out on 22 IA, 22 alcohol dependent, 22 healthy participants using neuropsychological tests revealed executive dysfunction and impulsivity in both IA and alcohol dependence.²² A recent review by Hahn and Kim pointed out involvement of limbic areas and prefrontal cortex in both aggression and IA, and also similar neurotransmitters such as dopamine, nor-epinephrine, serotonin, opiate and nicotine were implicated in both the disorders.²³ A co-morbid smoking craving, cue related gaming urge was demonstrated to be higher in anterior cingulate and para-hippocampus gyrus as compared to controls.²⁴ A recent review by Zhu et al highlighted structural changes in frontal cortex using MRI and dysfunction in brain dopaminergic system using Nuclear Imaging studies.²⁵ A recent meta-analysis of 10 fMRI studies suggested prefrontal dysfunction in Internet Gaming Disorder.²⁶

Genetics

A genetic study was carried out in 132 Problematic Internet Users 132 matched healthy controls found statistically significant polymorphism on the CHRNA4 gene in cases.²⁷ Another study on 91 male adolescents reported statistically higher homozygous short allelic variant of the serotonin transporter gene (SS-5HTTLPR) as compared to healthy subjects. Also, the Cloninger Temperament Dimension on harm avoidance, Beck Depression inventory scores were higher in excessive internet users.²⁸ In a recent study of Pathological gambling (PG), compulsive

buying and Impulse control disorders were more frequent in 95 PG probands and their first degree relatives.²⁹ Severe obsessive compulsive symptoms were more associated with 4 or more DSM IV PG or DSM-5 PG diagnostic criteria, with a genetic correlation of 0.44 in 1675 male twin pairs.³⁰ In 175 weekly gamblers of European ancestry, the long form of Dopamine receptor D4 exon 3 variable number of tandem repeats (DRD4 VNTR) was significantly associated with lower discounting of delayed rewards.³¹ In a sample of 69 PG patients, (Dopamine) Taq1A A1+ (A1A2/A1A1) genotype was associated with poorer Trail Making Test (TMT) performance ($p < 0.05$), while (Dopamine) DAT1 9-repeat homozygotes displayed better Wisconsin Card Sorting Test (WCST) performance, both TMT, WCST (tests) indicating cognitive flexibility. The study provided evidence for the association of dopamine functioning with cognitive flexibility.³² High Risk offspring reported poorer overall performance on the Iowa Gambling Task (IGT), indicating a failure to improve decision making with previous experience. Poorer performance was reported in the 5-HTTLPR short-allele homozygote participants, thus highlighting that both familial risk of substance use disorder and serotonin transporter gene (5-HTTLPR) variation have an impact on the performance on the IGT.³³

Gender differences

A Korean study in 448 college students found male students to have statistically higher IA, with regard to smart phone use this order was reverse.³⁴ In a recent study on 825 adolescent twin pairs, higher genetic influence and poor effort control was reported in boys as compared to girls for problematic Internet use.³⁵ Perceived paternal internet use predicted pathological Internet use only in female adolescents in a study carried out in 4,559 college students.³⁶ Bobzean et al in a recent review proposed that sex differences in addiction could be mediated by the influence of oestrogen on the dopamine systems in addiction.³⁷

Summary

There is consensus for classifying broad entity of Behavior Addiction with other forms of Substance Use (SUD), as per the strong evidence provided by neurobiological studies. There are few studies

reported from India which have highlighted the prevalence of severe problems on Internet addiction using Young's Internet Addiction Scale in medical students (0.5%),³⁸ school going teenagers³⁹ (2.02%) in small sample size. Currently there are no nationally representative sample size studies published from India. Another problem is the use of uniform diagnostic criteria for this new entity of behaviour addiction. A recent naturalistic study over one year period found that comorbidity of Internet Addiction with obsessive compulsive disorder remains stable for 1 year and IA responds to treatment for obsessive compulsive disorder.⁴⁰ However, such kind of longitudinal follow up studies (for longer duration) with emphasis on neurobiology needs to be carried out in India too. The future studies need to include both genders. Gambling in any form is banned in India. However, media highlights anecdotal instances of Gambling in sports (cricket), online gambling from India. There might be cultural differences in the context of DSM-5 Pathological gambling which needs to be explored in Indian context, posing ethical issues for Indian researchers, clinicians and law makers.

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Case Report

Anosognosia in a 67 year old male with pituitary macro-adenoma

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Introduction

Anosognosia is generally and comprehensively defined as a disorder in which a patient, affected by a brain dysfunction, does not recognize the presence or appreciate the severity of deficits in sensory, perceptual, motor, affective or cognitive functioning.¹ The term anosognosia was coined by Babinski and can be observed in cases of hemiplegia, hemianopia and aphasia.² It has mostly been described in the context of left hemiplegia following right hemisphere stroke, although other brain lesions are also known to be associated with anosognosia. However, this is perhaps the first report of anosognosia developing in context of pituitary macroadenoma without any other brain lesion visible on imaging.

Case

Mr M, a 67 year old male presented with complaints of headache, generalized body aches to a tertiary care neuropsychiatry clinic. He reported with dull aching headache not associated with nausea, vomiting, straining, dizziness, photophobia, phonophobia, dimness of vision or recurrent colds for the past 8 month. There was no history of morning worsening of headache nor any nocturnal awakenings due to it. Patients past and family history was non contributory. There was no history of substance abuse, head injury or seizures. Detailed neurological examination revealed loss of peripheral vision in bilateral temporal regions with rest of the neurological examination within normal limit. Patient's fundus examination did not reveal any evidence of papilloedema. A 3-Tesla MRI brain revealed a non homogenous hyperintense lesion in the optic chiasma which after consultation with the Neuro-radiology Consultant was diagnosed as

possible Pituitary macroadenoma. Despite an evident tumour,, patient denied the existence of any pathology and insisted for a repeat MRI Brain. Following a repeat MRI Brain, patient continued to deny the existence of the tumour despite detailed interviews. Patient subsequently underwent lobar function tests that were within normal limits. The index patient refused to undergo any intervention for seemingly a large tumor associated with visual sequel.

Discussion

Much has been debated over differentiating denial from anosognosia. Indeed both are forms of unawareness with different sources and manifestations. Denial is presumably due to an underlying psychological process, while anosognosia is to be due to a neurological lesion. Our patient displayed complete lack of awareness of existence of brain tumor despite being provided with what would be seen as otherwise conclusive evidence of the same in form of MRI images. He did agree to the existence of a tumor on MRI films, but refused to admit that the films were his, despite being shown his name on image sequences and the date and time at which the sequences were obtained. Interestingly, he acknowledged some of the symptoms like weight loss, generalized body aches and headache, but at the same time he did not acknowledge loss of visual field and most importantly the underlying pathology. Such a presentation has been reported earlier also, where patients are unaware of some impairments/symptoms along with co-awareness for other symptoms.

The usual hypotheses for anosognosia in the context of brain lesions were reviewed for plausible

explanation in this case. (Table 1)

Hypothesis	Mechanism	Plausibility in this index case
Psychological denial	An unconscious psychological defense mechanism to ward off distress associated with catastrophic illness.	Acknowledging some of the symptoms cannot be fully explained on the basis of denial.
Lack of feedback	Described in context of hemiplegia, where unawareness of motor deficit has been attributed to lack of sensory feed back from affected limb.	Although this mechanism may explain not acknowledging visual field defects in absence of visual inputs from lost field, not acknowledging brain tumor despite being provided adequate evidence cannot be explained.
Geschwind's Disconnection Theory ³	The healthy part of brain does not get information about the functions served by the affected part.	There is a possibility that this midline lesion could have lead to disconnection between right and left side due to pressure.
Heilman's Feed-forward theory ⁴	Recognition of impairment occurs against an internal comparator	The utility of this hypothesis is limited to motor deficits and it cannot explain the index case.

Based on this review, the Geschwind's disconnection theory³ is best able to explain the anosognosia arising in this case. The lesion would

isolate the dominant (left) hemisphere from the non-dominant (right) hemisphere monitoring the integrity of the left side of the body. Without correct information from the right- hemisphere motor system, the left (verbal) hemisphere would not be aware of the impairment resulting in production of implausible explanations (i.e. confabulation). Since the exact brain pathology resulting in anosognosia continues to be an enigma, a conclusive causal pathology for it could not be identified in our index case.

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Case Report

Dissociative Trance and Possession as Inhalant withdrawal in an Adolescent

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Introduction

Inhalant use is among the most inimical and relatively unspoken forms of adolescent substance use. Use of Inhalant in adolescents is on an alarming rise in India¹ as they are easily available, cheap, there is no problem with concealment and the use is not illegal. Inhalants are central nervous system (CNS) depressants, and cause serious medical effects on almost every organ system. Their mechanism of action is to stimulate the gamma-aminobutyric acid (GABA) and the glycine alpha 1 receptors and also inhibit the N-methyl-D-aspartate (NMDA) receptor, leading to inhibition in the CNS.²

Dissociative experiences are common in chemically dependent patients. Up to forty-one percent patients of substance abuse score high on Dissociative Experiences scale, however there are few reports of such experiences with inhalant use. Tolerance and mild withdrawals are reported by about 10% of individuals who use inhalants.³ Because the withdrawal symptoms are mild, DSM-V manual neither recognizes a diagnosis of inhalant withdrawal nor counts withdrawal complaints as a diagnostic criterion for inhalant use disorders.

Herein we report on a case of inhalant use disorder, severe, who presented to us with dissociative trance and possession state as withdrawal symptom.

Case Report

Mr X, a 17 yr old college student from high middle socio-economic strata with no significant family and medical history presented to the psychiatric emergency of this tertiary neuropsychiatry care institute. The family members were very distressed and reported that he has episodes of personality change and transformation into

someone else. The client was tearful and very anxious. During the interview his facial expression and voice suddenly changed, he started laughing aloud saying that he will not spare Mr X and that it had entered him after he urinated in the street. After ten minutes the patient, in distress, told his mother for help of faith healers as he believed it to be an evil spirit which was controlling him and didn't want medical intervention.

At presentation his general physical condition was unremarkable and systemic examination including neurological examination was normal. Collateral history had use of solvents for last one year which had significantly increased in amount and frequency over the last four months. The substance use had started in the peer group while away from home and with no avenues for recreation ventured into regular use of diluter. Initially client reports enjoying the experience of blackout and time frozen but also of experiencing complex hallucinations of seeing magnolias and police coming to arrest him in the neighborhood once during intoxication state. He tried abstaining after these experiences became a regular affair but was not successful. Gradually over a period of couple of months he started having strong craving for diluter and needed to consume increased amounts to have the same numbing effect. His colleagues report on an event that while he had abstained for one day he had an experience of having an entity inside of him which was actually wanting him to use the inhalant and offered many justifications. He started sniffing the solvent every one to two hours in a day under the influence of the other entity. He would sit in front of the mirror in his room for long hours telling himself of the harm it would cause to him and repeatedly expressing disinterest in its use, when the other entity

would communicate with him with a changed frightening voice, horrid facial expression commanding him of abusing the inhalant. One day he told the matter to his parents and then onwards experienced auditory pseudo-hallucinations of the other entity that he will be harmed for having shared that with his parents. He also had few instances of fights with family members which he implicated to be under the entity's influence. He stopped attending classes and would be confined in his room using the substance, neglecting his self care also. Last use of solvent was a day prior to reporting to the emergency.

All relevant blood investigations and MRI brain (epilepsy protocol) including 32 channels EEG were done and were found to be normal. Early morning urine sample for Toxicology screen for other drugs was negative. On Adolescent dissociative experience scale (A-DES II) he scored 87 and was diagnosed as Inhalant use disorder, severe (304.60) according to DSM-5. Patient was admitted and administered intravenous 2 mg Lorazepam for arousal symptoms. Next day patient reported his experience with the inhalant and was discharged on request free of any active psychopathology. Currently he is abstinent from any substance use and attends group psychotherapy meetings on regular basis including motivation enhancement therapy for substance use disorder.

Discussion

The decision to exclude inhalant withdrawal symptoms from the DSM-IV and 5 diagnostic criteria set is based on expert opinion and does not take into account the currently available evidence. There are studies that imply clinically significant withdrawal symptoms as part of inhalant use disorders. The index case had classical dissociative trance and possession as withdrawal symptom complex and scored fairly high on A-DES. A literature search also had case reports ^{4, 5} documenting Inhalant withdrawal symptoms both psychological and physiological, which were clinically distressing.

Ridenour and colleagues ⁶ reported that inhalant withdrawal was the second most common inhalant dependence criterion among a sample of adolescent inhalant users. Comparative studies ⁷ of clinical presentations for various substances showed inhalants to produce withdrawal symptoms that

included restlessness, inattentiveness, anxiety, insomnia, and high levels of craving. In addition to studies of human subjects, prior research involving animals ⁸ have demonstrated symptoms of physical dependence on and withdrawal from inhalants.

Conclusion

The urge for further research on the dimensionality of unsettled inhalant use and crucial signs and symptoms of inhalant use disorders, including tolerance and withdrawal is paramount. Without this knowledge, inhalant users may be at risk of being misdiagnosed and face checked access to treatment, and current interventions for inhalant use disorders will not satisfactorily address the full range of clinical needs. The index report can aid in future research to better understand the clinical course of inhalant use disorders.

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Case Report

Late-Onset Obsessive-Compulsive Disorder without Evidence of Focal Cerebral Lesions

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Introduction

Obsessive compulsive disorder (OCD) usually arises during the childhood or young adulthood.^{1,2} Onset of OCD after the age of 50 years is usually rare and is often associated with organic etiology^{3,4}. Various organic disorders have been reported to be associated with onset of OCD at such late age including cerebrovascular disorders, encephalitis, and intracranial neoplasm.^{4,5} Frontal lobe and basal ganglia involvement is particularly associated with OCD in last age. First occurrence of OCD in the elderly age group in the absence of clear organic pathology is rare. We describe a series of three cases presenting with OCD for the first time in the elderly age group without an evidence of a clear neurological disorder.

Case reports

Case 1. Mrs S, 78 year old widow, a retired teacher, a known diabetic and hypertensive and maintaining well on oral medications with no past history of any psychiatric illness, first developed obsessive compulsive symptoms over the 6 months prior to contact at our centre. She started to wash and clean every item touched by the son after she had interpersonal conflict with her him over financial matters. But over a course of a month, she began having repetitive intrusive thoughts that things are dirty and there is a need to clean them. Initially such thoughts were directed towards things touched by son, but later on generalized to other objects and situations when no one would have touched the objects. She would spend almost 3 hours a day

engrossed in such repetitive thoughts and acts of cleaning or washing. Attempt to resist such thoughts and acts would lead to anxiety, and at times she would cry incessantly and have fleeting death wishes due to inability to control the thoughts. A diagnosis of OCD was considered. Her Yale Brown Obsessive Compulsive Scale (YBOCS) score at the initial assessment was 18. Her Hamilton Anxiety and Depression Rating Scale scores (HAM-A and HAM-D) were 6 and 5 respectively, while Mini Mental State Examination (MMSE) score was 28. There was no past or family history of psychiatric illness or any major medical illness. Considering late onset of OCD, patient was advised non-contrast CT head, MRI Brain and electroencephalogram, all of which were normal. Other blood investigations including complete blood count, blood sugars, renal and liver function tests were within normal limits. Patient responded to 20 mg/day of fluoxetine and her YBOCS score dropped to 8 after one month. Patient is in regular follow up for last six months and symptom remission is maintained.

Case 2. Mrs S, a 65 year old recently widowed woman developed obsessive compulsive symptoms at the age of 64 years. Although she was more inclined towards cleanliness from an early age, she started having repeated and intrusive thoughts of her hands being “*Napak*” (unclean), due to which she would wash her hands thoroughly after touching almost any object. She would wash her hands with soap almost 20 times a day for 5-10 minutes each. Although she tried to resist such thoughts considering them to be useless, she would almost always yield to the act of cleaning due to the associated anxiety.

She would also repeatedly clean utensils and wash clothes. Due to the distress associated with cleaning, she stopped doing all her household work which she would do previously. There was no past history of psychiatric illness or a medical disorder. Initial YBOCS score was 17 while HAM-A and HAM-D scores were 1 and 3 respectively. NCCT head reported to be unremarkable except age-related generalized cortical atrophy. Further MRI Brain was planned, considering late onset symptom, which came within normal limit. Other investigations including blood counts, renal and liver function tests, serum vitamin B12 and folic acid, blood sugar, thyroid function test and electro-encephalogram were within normal limit. Patient responded to sertraline 100 mg and YBOCS score dropped to 3 after 2 months. Patient followed up regularly since last eight months and further remission is maintained.

Case 3. Mr S, a 58 year old married male, presented with a history of obsessive compulsive symptoms starting at 56 years of age. His symptoms started after seeing a photo of a man suffering from cancer, and developed an obsessive fear of developing the disease. He could recognize that his fears were irrational and excessive there were no symptoms to suggest a cancerous disease, but would require recurrent assurances from family members to allay his anxiety. Subsequently, he also started having sexual and religious obsessive thoughts and images in his subjective space which were quite distressing. He would be compelled to chant 'om namo shivay' to save him from such images. He would spend about 4 to 5 hours in such repetitive thoughts and images and mental acts to neutralize them. Past and family histories were unremarkable. His YBOCS score at presentation was 16 while HAM-A and HAM-D MADRS scores were 5 and 3. Investigations including CT of the head, MRI Brain, EEG were normal. Other screening investigations came normal. He was started on capsule fluoxetine 20 mg and improvement in symptoms was noted on subsequent follow-up in last one year.

Discussion

In our knowledge, this is one of the few case series reporting onset of OCD in elderly age group without any evidence of neurological abnormalities. One of the cases reported here, a lady developing

OCD at age of 78 years is among the eldest patients developing OCD reported in the literature. Contrary to these, our patients sought treatment relatively early in their illness course. Remarkably, some precipitating factors and stressors could be identified in the three cases. Velayudhan and Katz⁶ reported a 77 year old woman who developed OCD after stressful life events but without any neurological abnormality. Stressful life events have been otherwise noted to precipitate OCD in susceptible individuals.⁶⁻⁸ All the cases in the present series showed good response to psychotropic medication, which is at a variance to earlier reported series⁴. This could be attributed to the lack of findings of organicity and relatively shorter duration of treatment. Previous reports suggest that in cases of OCD with delayed onset and absence of organicity may have fairly good response to treatment^{6,9}. Our cases further add to scarce literature available on old age onset OCD occurring in absence of any neurological illness. It can be surmised from these cases that late onset OCD need not necessarily have an organic etiology, though a search should be made to find an organic cause. Also, such cases may show a good response to usual pharmacological treatment of OCD.

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Case Report

Sexsomnia in Adolescence

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Introduction

Sexsomnia is a rare parasomnia characterized by sexual behaviour in sleep. It has been thought to be a variant of somnambulistic behaviour and is also called as somnambulistic sexual behaviour or sleepsex.¹ The etiology of this parasomnia is undetermined and is complex due to combined activation of motor behaviour, emotions and autonomic activation that occurs during sleep.² The uniqueness of this condition is the involvement of a partner in sexual behaviour though isolate sexual activity has also been reported. It can vary from explicit vocalizations with sexual content, violent masturbation, producing orgasmic sounds and complex sexual activity like vaginal or anal sexual intercourse and oral sexual activity.³ Sometimes it may be characterised by violence that accompanies sexual activity. It is still unclear amongst sleep medicine experts whether sexsomnia constitutes a new disorder or is just an addition to the vast list of parasomnias already known.⁴ A disorder like sexsomnia has far reaching physical, physiological, psychological and medico-legal consequences. It is at present under-recognized and under reported.⁵ We report here the case of an adolescent that presented to private psychiatric clinic with sexual behaviour in sleep.

Case report

A 17 year old adolescent boy was brought to the clinic with chief complaints of abnormal sexual behaviour during sleep since the past 20 days prior to his visit. The parents mentioned that he would have episodes of taking off his clothes during sleep and he would start masturbating with sexual vocalizations and orgasmic sounds. The parents observed this by chance when in the night they heard

some sounds from his room and paid a visit. They were shocked to see him in that state. They did not disturb him and when they questioned him the next morning he had no memory of the event. The parents thought that he was purposely denying the event and did not seek psychological help for the same. When the event repeated itself 5 times in 2 weeks and the boy once again denied memory of each event, they brought him to a psychiatrist for evaluation as suggested by their family physician. There was no incontinence during these episodes and the boy would not stop even when commanded to and would not recognize anyone during the event. He had no past history of psychiatric or neurological disorder but had history of febrile seizures at the age of 2 years. There were no daytime complaints of the behaviour and the sexual behaviour did not occur during daytime napping. No complaints such as sleep walking and other parasomnia were present. The boy's father however had a history of sleepwalking in childhood that resolved itself without any medical intervention. A video EEG evaluation was planned and the behaviour repeated itself during the video EEG recording. During the sexual behaviour no epileptic recordings were obtained and pure muscle artifacts were noted. No evidence of sharp waves or spike wave complexes was seen during the EEG. A magnetic resonance imaging study of the brain revealed no abnormality. Psychological testing using the Minnesota Multiphasic Personality Inventory (MMPI) and Rorschach inkblot test revealed no abnormality from a personality point of view. This was done to rule any cluster B personality disorders that may have been present. No histories suggestive of any psychiatric illnesses or dissociative disorders were elicited. No history suggestive of major medical or surgical illness was present. When

spoken to regarding the chain of events in sleep, the boy revealed no memory of the same and did mention feeling slightly depressed after hearing about the same. He did not however meet diagnostic criteria for any of the depressive disorders. There was certain sense of shame and guilt that he felt because of such indecent behaviour on his part and the fact that his parents had observed such behaviour. Polysomnography revealed no sleep related abnormalities. This was mentioned by the parents as it was done by them prior to seeing us and no report was available. The boy was started on Escitalopram 10 mg and Clonazepam 0.5mg (both at night) in view of his mood and a serotonergic influence on sexual activity. Clonazepam was started to provide a deeper and restful sleep. Within a few days of starting the same, the boy revealed feeling a deeper sleep and no sexual behaviour was observed by the parents. He is currently on the same medications since 2 months and symptom free.

Discussion

The case we have described differed from cases of sexsomnia reported in literature as no sexual behaviour with a partner was reported. Sexual behaviour in sleep has been reported in literature as early as 1955 and there have been 25-30 cases reported till date.⁶ No studies on the management guidelines for sexsomnia exist. Case reports have shown the effectiveness of selective serotonin reuptake inhibitors and antiepileptics.⁷ Benzodiazepines have also been used to provide deeper and restful sleep.⁸ Sleep hygiene and avoiding daytime naps have also been recommended.⁹ This is the first case of sexsomnia in Indian literature to the best of our

knowledge and there is a need that clinicians must be aware of these disorders and treatment related issues that concern the same.

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Case Report

Mindfulness-Based Cognitive Therapy in early adolescents who stutter

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Introduction

Stuttering is a developmental disorder with multiple etiological factors and occurs in approximately 1% of the general population¹ and in 5 % of primary school children.² It is more common in men than in women by a ratio of 4:1.² According to ICD-10³ stuttering is defined as speech that is characterized by frequent repetition or prolongation of sounds or syllables or words, or by frequent hesitation or pauses that disrupt the rhythmic flow of speech. Thus the core behaviors of stuttering are repetitions, prolongations and blocks.⁴ The evidence for a relationship between anxiety and stuttering is considerable. Several studies have shown that Adolescents who stutter (AWS) have reported high levels of trait, state, and social anxiety on standard measurement tests than those who do not.^{5,6} It is evident that anxiety cannot be neglected in the treatment of stuttering cases.

In psychological terms, mindfulness has been defined as “the awareness that emerges through paying attention on purpose, in the present moment, and nonjudgementally to the unfolding of experience moment by moment”.⁷ Mindfulness-based intervention includes Mindfulness-Based Cognitive Therapy (MBCT), which is a manualized group intervention program that integrates mindfulness techniques and elements of cognitive-behavioral therapy.⁸ MBCT has been shown to be effective in the reduction of attention problems, anxiety symptoms and behavioral problems in children.⁹ Hence, MBCT has been used in this study with the

aim to examine its effect in the reduction of anxiety, reduction of frequency and severity of stuttering, and increasing the level of mindfulness, quality of life, self-esteem, and communication attitudes. Two cases have been presented in this study.

Case One

Master M.F. is 11 years old male, IVth standard student, belonging to middle socioeconomic family and the eldest of two siblings. He has normal birth and developmental history. He came with the chief complaints of dysfluent speech, feeling anxious and inferior since childhood, which has increased in the last two years. Dysfluent speech significantly impacted his personal and social life. He used to play with his friends, but because of dysfluent speech, he has stopped playing and cut down his friendship. The onset was insidious and course of the disorder was progressive. No significant family and treatment history were reported by the parents. He was born of a non-consanguineous union and his parents are supportive of him.

Case Two

Master V.K. is a 13 years old male, VIIth standard student, hailing from Rajasthan, belonging to middle socioeconomic status. He is the eldest of three siblings. He is born of a non-consanguineous union and has a normal birth and developmental history. He presented with the chief complaints of dysfluent speech for last three to four years. He does not like to socialize and tries to avoid situations that require him to speak. He keeps covering his

face with the hand when dysfluency increases. This problem increases while talking to strangers. The course of the disorder was progressive. Because of the dysfluent speech one of his uncles brought him to Mysuru, Karnataka, for the treatment. No significant family and treatment history were reported by his uncle.

The pre-test and post-test design was employed on two early adolescent males with the diagnosis of stuttering (ICD-10 DCR, F98.5).³ They were not having any concurrent diagnosis of psychiatric and medical illness or previous exposure to the MBCT intervention. The purpose and procedure of the study were explained and informed consent was taken from them. A Socio-demographic and Clinical Data Sheet was used to obtain the relevant information on the demographic and clinical history. The pre and post intervention assessments were conducted using Social Anxiety Scale for Children and Adolescents (SASCA),¹⁰ Perceptions of Stuttering Inventory (PSI),¹¹ Stuttering Severity Instrument (SSI),¹² Modified Erickson Scale of Communication Attitudes (MESCA),¹³ Child and Adolescent Mindfulness Measure (CAMM),¹⁴ Rosenberg Self-Esteem Scale (RSES),¹⁵ and WHO Quality of Life-BREF (WHOQOL-BREF).¹⁶

The Therapeutic program consisted of group activities that were held over a period of twelve weeks. One session was held every week and each session lasted for 90 minutes. The therapeutic regimen included the orientation regarding the nature, causes and treatment of stuttering, self-monitoring of anxiety symptoms during communication, sitting mindfulness meditation,

awareness about their thoughts, feelings and body, awareness of the present moment and past, present, and future thinking; integrating mindfulness and acceptance into daily life,¹⁷ and cognitive/speech restructuring for modifying speech related dysfunctional beliefs. In order to encourage active participation of the participants, play activities were included in the beginning of the each session. Homework consisted of regular practice at home and maintenance of a diary for the same. Clinically significant changes (50% and above) based on pre and post intervention data were used to assess the effect of the therapeutic intervention.

Discussion

In case one, improvement was observed in the quality of life (79%), level of mindfulness (78%), self-esteem (72%) and communication attitudes (59%), whereas reduction was found in the anxiety symptoms (75%), perceptions of stuttering (54%), and severity of stuttering (48%) (table-1). In case two, improvement was observed in the quality of life (73%), level of mindfulness (70%), self-esteem (75%) and communication attitudes (52%), whereas reduction was found in the anxiety symptoms (68%), perceptions of stuttering (55%), and severity of stuttering (42%) (table-1).

The aim of the present study was to evaluate the efficacy of MBCT in the management of AWS. This case report emphasizes that the MBCT plays a key role in managing anxiety pertaining to stuttering, managing the severity level of stuttering, improving communication attitude, awareness about the thoughts, feelings and body, integrating

Table-1. Pre and post intervention assessment scores with improvement percentage (Imp %)

Measures	Case I			Case II		
	Pre-Ass	Post-Ass	Imp %	Pre-Ass	Post-Ass	Imp %
SASCA	33	08	75*	29	09	68*
PSI	35	16	54*	38	17	55*
SSI	25	13	48	33	19	42
MESCA	22	09	59*	21	10	52*
CAMM	14	25	78*	17	29	70*
RSES	11	19	72*	12	21	75*
WHOQOL-BREF	49	88	79*	45	78	73*

*Clinically Significant Changes (50% and above) based on pre and post intervention data were used to assess the efficacy of the therapeutic intervention; SASCA: Social Anxiety Scale for Children and Adolescents, PSI: Perceptions of Stuttering Inventory, SSI: Stuttering Severity Instrument, MESCA: Modified Erickson Scale of Communication Attitudes, CAMM: Child and Adolescent Mindfulness Measure, RSES: Rosenberg Self-Esteem Scale, WHOQOL-BREF: WHO Quality of Life-BREF.

mindfulness and acceptance into daily life, boosting self-esteem, and also improving quality of life. The finding of this study is in line with the study by Reddy et al¹⁸ where a partial reduction of stuttering, anxiety, dysfunctional cognitions and improvement in quality of life were shown after implementing 16-18 sessions of cognitive behavior therapy (CBT). The result of the study is also consistent with the finding of De Veer et al.¹⁹ They examined the psychological impact of the Mindfulness-Based Stress Reduction (MBSR) program on persons who stutter and showed that immediately after the eight-week MBSR program as well as four weeks later, participating persons who stutter suffered less from stress and anxiety about speech situations, had more confidence in their ability and a more positive attitude towards speech situations. However, they were not significantly more confident in their ability to retain fluency in speech situations than those in the waiting list. On the other hand, Menzies, et al. (2008)²⁰ studies found that CBT treatment was associated with significant and sustained improvements in psychological functioning but did not improve fluency.

In sum, this case study demonstrates the efficacy of the MBCT program within twelve 90 minutes session for bringing positive changes in measures of anxiety, speech dysfluency, communication attitude, mindfulness, self-esteem, and quality of life in AWS. AWS may indeed benefit from the MBCT program, because the less anxiety they experience, the more fluently they speak and would have more confidence in their ability; more positive communication attitude; more awareness towards speech situations and less chances to relapse. Thus, MBCT can be used for the long-term management of AWS. MBCT is cost-effective in terms of time; can be conducted in a group setting and applies to a wide range of patients. However, further empirical researches are needed with larger sample size, control group and follow up to test the efficacy of MBCT for the management of AWS.

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Case Report

Risperidone for Behavioral Problems in Juvenile Ceroid Neuronal Lipofuscinosis (JCNL)

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Introduction

The neuronal ceroid lipofuscinoses (NCL) are progressive neurodegenerative disorders having an onset usually in early childhood. Patients usually present with symptoms like visual problems and decline in vision, cognitive decline, epilepsy and motor impairments. There are three main types of neuronal ceroid lipofuscinoses that have been reported and seen clinically viz. infantile (INCL), late infantile (LINCL), and juvenile NCL (JNCL).¹ Severe psychiatric comorbidity has been reported in patients with JCNL like depressive features, anxiety, anger, aggression and behavioural problems.² A study in Finland, reported common psychiatric symptoms of social isolation, thought disturbances, attention problems, somatic complaints and aggressive behaviour in a series of 27 cases of JCNL.³ Others have reported psychotic symptoms like visual hallucinations, delusions, fears, restlessness, aggression and sleep disturbances as common psychiatric presentations in these patients.⁴⁻⁶ Risperidone has been approved by the US FDA for treatment of irritability in autistic children and is used as an off-label drug for the management of behavioural problems in children and adolescents with developmental disabilities likewise. In the UK it is licensed for use in the management of aggressive behaviour in children with conduct issues.⁷ We present a case of JCNL having behavioral disturbances and responding well to Risperidone.

Case Report

A 7 year old boy presented to our outpatient department with his father with chief complaints being that of behavioral disturbances. He was born of a full term normal delivery (home delivery) carried out by a midwife. There were no antenatal and postnatal complications reported. He had achieved milestones at an appropriate age till the age of 3 years. At age of 3 years he gradually developed loss of vision. Initially he was not able to see at night, but over a period of time he developed total blindness. There was no treatment sought for the same as doctors in his village told the parents that there was retinal damage and no treatment was available for the same. After 6 months, he showed easy irritability and became stubborn. If his demands were not fulfilled he would bang his head against anything and would violently try to destroy anything around him. He also showed abusive behavior and spitting behaviour. The family members noticed that he was very restless and constantly fidgeting. He did not give any history of suspiciousness or hearing voices inaudible to others. No depressive or obsessive compulsive features were elicited. His medical history documented febrile seizures at the age of 2 years and no seizures thereafter. He stopped schooling due to his blindness and behavioral problems. He was unable to maintain self care and had to be assisted in all activities of daily living. During the interview he sat on his father's lap but was constantly fidgeting, shouting his uncle's name and spitting. He was not cooperative when questioned during the interview and did not answer most questions. On the Vineland Social Maturity Scale

(VSMS) his social quotient was 45-50 indicative of moderate social impairment. He was referred to the ophthalmology department by us and the electroretinogram (ERG) advised was suggestive of bilateral marked diffuse reduction in photoreceptor function suggestive of photoreceptor dysfunction in entire peripheral retina. They mentioned that no treatment was available for the same. A magnetic resonance imaging study of the brain showed diffuse cerebral atrophy and mild cerebellar atrophy. He was also referred to the pediatric neurologist who suggested genetic testing which was suggestive of Juvenile Neuronal Ceroid Lipofuscinosis.

In view of his behavioral problems he was started on Risperidone 0.5mg twice a day for his behavioral problems and the dose was gradually increased to 1.5mg in divided doses. Trihexiphenidyl 2mg half at night was added to prevent any extrapyramidal reactions. Within 2 weeks of treatment, his parents reported a 90% improvement in his behavior with better sitting tolerance and reduced hyperactivity, no aggression, no anger, stopping of spitting and being much calmer and attentive. He is currently following up with us and doing well. He has also started going to a blind school in Mumbai as the parents have shifted here for his progress and treatment.

Discussion

Various treatment options for behavioural problems in children include conventional antipsychotics like haloperidol and in some cases tricyclic drugs like imipramine.⁴ In a recent study on 14 patients with JNCL, Citalopram and new atypical antipsychotics were tried and found beneficial. Of the 14 cases, 6 of them received Risperidone and 4 out of 6 showed a good response.⁸ A double-blind, placebo-controlled study of Risperidone for the treatment of disruptive behaviors in children with subaverage intelligence found that 76.9% patients in the Risperidone group improved compared to 33.4% in placebo group.⁹ A study in 79 children suffering from autistic spectrum disorders demonstrated global improvement in 87% patients receiving Risperidone.¹⁰ A trial also showed efficacy of Risperidone in reducing conduct and disruptive behaviors in children with subaverage intelligence.¹¹ It is important for treating doctors to

manage the behavioral problems in children having JNCL as treating these comorbid conditions can reduce the burden on family members improve quality of life manifold in these children.

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Case Report

Ketamine and Midazolam Dependence in a Middle Aged Female

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Introduction

Ketamine is a substance of increasing interest due to its unique analgesic, antidepressant and psychedelic properties. It is commonly used, safe, effective and well-known anaesthetic agent that has been available for close to four decades.¹ Although the drug is commonly known for its medical use as a general anaesthetic, its emergence as a drug of abuse has now been increasingly recognised. Ketamine abuse has been reported to be common among people with polydrug abuse and anaesthesia providers for its easy accessibility. It has low physical dependence compared to its high psychological dependence.²⁻⁴ Most recently it has become associated as a “club drug” used primarily by adolescents, young adults at “raves” and circuit parties.⁵ Ketamine is considered a dissociative anaesthetic which distorts the user’s perception of sight and sound and produces feelings of detachment from the environment and one’s self.⁶

Midazolam is a short duration benzodiazepine with potent sedative, amnestic and ventilatory depressant effects. It is often administered intravenously for sedation in hospital settings. Midazolam injection is strongly associated with the use of drugs in combination and was reportedly most commonly used in combination with both heroin and methamphetamine. This raises concern regarding the potential elevated risk for overdose as a result of polysubstance use.⁷ We describe the case of a patient who recently reported to our department, and whose use of ketamine and midazolam is notable for a number of reasons: (1) she reported heavy, daily use of ketamine for approximately eight years. (2) She reported daily use of midazolam for last three

years. (3) Lack of awareness about adverse implications of regular use of these drugs. Further, this case is unique in sense that no study has reported the abuse of ketamine and midazolam in combination in a female patient.

Case Report

A 42 years old married female, matriculate, housewife from rural area belonging to middle income group having two children reported to psychiatry OPD of Government Medical College, Patiala with history of administration of injection ketamine for last 8 years and injection midazolam for the last 3 years. Illness started when patient developed rectal abscess and operated by a private practitioner under general anaesthesia using ketamine. This was followed by repeated dressing of the wound every alternate day under ketamine. On injecting ketamine, patient experienced a great sense of pleasure and feeling of detachment from the environment and describes as “she was floating in air”. In addition, it also provided good analgesic effect. However, when ketamine was discontinued, she felt intense craving for it. Although patient did not experience any other significant physical withdrawal symptoms on discontinuation of ketamine, she restarted ketamine on her own in a daily dose of 2.5 ml intramuscularly (10ml/500mg vial) to experience the pleasurable and dissociative effect. In a short span of time, patient increased the dose to 2.5 ml three times in a day. Patient never had any difficulty in procuring ketamine as it was easily available from market. Her drug seeking behaviour was further reinforced and assisted by her husband, unaware of ketamine’s abuse potential.

With passage of time, her tolerance increased considerably and her daily dose of ketamine reached to 30 ml (3 vials daily) daily in divided doses at 3 hours interval. Three years ago, she was introduced to injection Midazolam by an unregistered medical practitioner in the village so as to cut down the dose and frequency of ketamine. She started injecting midazolam 10 mg daily intravenously in two divided doses but continued injecting ketamine concurrently. This pattern of drug abuse continued for several years and she never had any difficulty in procuring ketamine and midazolam which were easily available from market without prescription. With recent crackdown of police and law enforcement agencies on unauthorised sale of restricted drugs in Punjab, patient started facing difficulty in procuring the drugs. She tried to cut down the dose on her own after which she started experiencing withdrawal symptoms in form of pain abdomen, restlessness, sleep disturbance and had multiple episodes of generalised tonic clonic seizures. Finally, on realising the gravity of condition and deteriorating health of the patient coupled with strong restrictions on supply, patient agreed to seek treatment. On examination, patient was found to be having moderate depression and looked sad, anxious and apprehensive. There were multiple injection marks over her forearms. There was no evidence of psychotic features. Her initial treatment included detoxification with oxcarbazepine, diazepam and other symptomatic treatment. Her further treatment protocol is planned to introduce psychotherapy along with required pharmacotherapy and keep her under rehabilitation process, continuing to be on psychosocial approaches involving their family members and maintaining high levels of motivation.

Discussion

This case presents several unique clinical issues. Firstly, such pattern of abuse of ketamine and midazolam in a female patient having no professional knowledge of drugs has never been reported before. We have come across only one study in India documenting ketamine dependence in an anaesthetist where a qualified professional aware of pharmacokinetics property and doses of ketamine became dependent on this drug.⁸ Secondly, in current clinical scenario, patient was initially treated with these agents, who developed problems when they had

been discontinued, leading to self administration of these agents thus attributing to iatrogenic drug dependence. The case also highlights development of significant tolerance to ketamine without prominent withdrawal symptoms. Further, continuing such large amounts of these agents on her own supported by her family members with easy availability of anaesthetic agents over the counters opens up a whole new debate and a cause for concern. Midazolam injectors are more likely to report using drugs in combination. This study also has implications for preventing serious physical injuries because midazolam filtrate is highly acidic and damaging to veins and midazolam injectors are known to resort to groin injection when peripheral veins are no longer usable. Groin injection carries significant risk, including risk for deep vein thrombosis, pulmonary embolus, abscesses, and puncture of the femoral artery, vein, or nerve.⁹

The use of drugs like ketamine and midazolam in patients on long term basis are at a higher risk of developing dependence and have more chances of relapses due to craving induced by repeated exposure of drugs although biological vulnerability of individual, psychological and social factors have important role in abuse of such drugs. However, few case reports will not sufficient to draw conclusion and a systematic study is needed among health professionals to document and envisage plans to manage such cases.

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Case Report

Delusional parasitosis presenting as ‘Folie a deux’

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Introduction

Delusional parasitosis (DP) is a monosymptomatic hypochondriacal delusion characterised by an unshakable belief that a person is infested by insects. The first reported cases of delusional parasitosis dates back to as early as the 19th century by Thibierge.¹ He used the term “acarophobia” to describe this condition. Though the terminology suggests a fear of an infestation, the patients were convinced of harbouring a parasitic infestation in spite of evidence to the contrary. The currently accepted term of delusional parasitosis was given by Wilson and Miller in 1946.² It is also known as Ekbom syndrome after Swedish neurologist, Karl A. Ekbom, who provided a definitive description of this condition, characterized by the firm belief that small living beings infest the skin.³ DP can be primary without any underlying medical condition or secondary to brain tumors, dementia, diabetes, leprosy, vitamin deficiencies etc.⁴

Delusional parasitosis is associated in 5-15% of cases with a shared psychotic disorder.⁵ Shared psychotic disorder also known as ‘folie a deux’ was first reported by Baillarger in 1860. It is a rare clinical presentation, often seen in patients who share a deep emotional bond, where the psychopathology of the dominant patient triggers similar symptoms in a second patient.⁵ Most common psychotic dyads are seen in husband-wife, mother-child, siblings who share a close relationship.

Case report

Presenting the case of a 65-year old primary school educated widowed housewife, Mrs S, belonging to Delhi who was brought to the psychiatry outpatient department by family members

for consultation. She had started becoming reclusive and kept to her room since the last 2 years. She would rarely leave her room. Whenever family members entered her room they would find her scratching herself and picking at her skin. There were multiple excoriations on her extremities and her scalp as well. When enquired she would complain that there were bugs crawling on her body. Family members had taken her to dermatologists on multiple occasions who assured her that she had no skin infestation or any skin condition, but she would not be convinced. Gradually family members noticed that she would spend her nights awake picking at her skin, sometimes even with small knives and scissors. She even started collecting the scabs on her skin in a small box and would show them to her doctors to convince them of her affliction.

After being advised a psychiatric consultation from the dermatologist, Mrs S was brought by her family members to the psychiatry outpatient department of our institution. On presentation patient had multiple self-inflicted wounds on her limbs and scalp, some fresh wounds with bleeding, some with fresh scab and some pustular lesions. There were no other significant findings on general physical, systemic and central nervous system examination. Mental status examination revealed an elderly woman with adequate grooming, good hygiene with delusions of parasitosis and no insight. She was advised complete hemogram, liver and kidney function tests, random blood sugar and contrast enhanced CT scan of the brain which all came out to be normal. She was started on tablet risperidone 2mg/day which was gradually increased over the next two weeks to 4 mg/day in divided doses. Patient started showing improvement within a couple of

weeks with better sleep and less conviction in her delusions. No antipsychotic related adverse effects were reported. Within two months her delusions were resolved, her skin lesions were healed and she was back to her previous jovial self.

In one of her follow-up visits, she revealed about her friend Mrs A, 62 year old lady, her neighbour of more than 50 years with whom she shared a special bond. Mrs A visited her almost every day and both of them often visited nearby temples together. When Mrs S started developing the symptoms Mrs A frequently visited her. Within 6 months Mrs A too started complaining of insects crawling on her body and would be extremely distressed because of this. Mrs S asked her to visit her psychiatrist on multiple occasions and finally she relented. Mrs A too had delusions of parasitosis without any other significant physical abnormalities. She too was advised tab risperidone 2mg/day and asked to stay away from Mrs S till told otherwise. Mrs A was however lost to follow-up after her first visit. Mrs S informed that her friend too was gradually recovering just as her lesions were getting better.

Discussion

Both the patients were evaluated by multiple dermatologists and any possible dermatological conditions were ruled out. Both the patients were provisionally diagnosed as Delusional Parasitosis or Delusional disorder, somatic type along with a Shared Psychotic disorder as per DSM 5.⁶ Mrs S, the first patient is the inducer/primary case whose delusions triggered those in Mrs A/secondary case with whom she was very close and emotionally dependent. Both the patients appear to be suffering from a primary DP without any organic cause. Often patients suffer from associated dermatological conditions like infected wounds which were found in our patients too. The psychosocial morbidity of DP is high with risk of self-harming behaviour and even suicide, but this was not seen in our patients indicating a good prognosis.⁴ The “matchbox sign” where patient brings his skin peeling, scabs etc in a box as a proof of his infestation to show to the doctor was noted in our primary case.⁷

Antipsychotics are the treatment of choice in DP.⁸ Although previously pimozide was considered as the preferred antipsychotic, it has fallen out of practice due to poor patient tolerability. Atypical

antipsychotics are the current mainstay of treatment in view of less troubling drug related adverse events. risperidone has been successfully tried in many patients of DP with good response and also was found to be effective in our primary patient.⁹

DP can present as a Shared Psychotic disorder and has often been reported in literature as case reports and series. Predisposing factors in the secondary case include social isolation, dependant or paranoid personality traits, ongoing psychiatric disorder.¹⁰⁻¹¹ These factors could not be ruled out in our patient since she did not come for follow-up. The primary management of shared psychosis is separation of the dependant or secondary case from the primary or inducer case and management of the latter with antipsychotics. Abatement of psychotic symptoms in the primary patient leads to resolution of the symptoms in the second patient. Antipsychotics are rarely needed in the dependant patient. This phenomenon was evident in our psychotic dyad too.

The above dyad of patients further stresses on the need for liaison between the dermatologist and psychiatrist to facilitate early diagnosis and treatment. Such an endeavour on the part of the clinician will prevent patients from being lost to follow-up.

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Case Report

Rare case of alektorophobia treated successfully with graded exposure therapy

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Introduction

Phobia is a type of anxiety disorder characterized by circumscribed marked fear or anxiety to a specific object or situation which is out of proportion to the actual danger posed by the concerned object or situation with associated avoidance behaviour, causing significant distress or socio-occupational dysfunction lasting for a period of at least 6 months. Individuals with specific phobia typically experience either a full blown or partial panic attack upon exposure or even anticipation of the object or situation. Worldwide prevalence of specific phobia has been found to be around 5% in children and 16% in 13 to 17 year olds. It is more common in females, especially animal type.¹ In India prevalence of phobic disorders has been found to be approximately 4.2%.² Another Indian study to identify psycho-pathology of school going children in the age group of 10-15 years found specific phobia to be among the most prevalent disorders.³ No reliable data exists for prevalence of different types of specific phobia.

Phobia to birds, termed ornithophobia, comes under the category of specific phobia, animal type.⁴ Alektorophobia is the specific term for phobia to hen/chickens. The term has its origin from the Greek words 'alektor' meaning cock and 'phobos' meaning fear.⁵ We hereby report a 18 year female presenting with alektorophobia and successfully treated with graded exposure therapy. It has not been described in existing literature to the best of authors' knowledge.

Case History

An 18 year old female engineering student belonging to middle socio-economic status hailing

from a rural area of central India had presented to our psychiatry out-patient services with complaints of excessive fear of hens. At the age of 5 years, she had a terrifying encounter with a live hen. Subsequently she started developing intense fear and anxiety amounting to full panic attack whenever she saw hens. Her thought process on seeing hens was the fear of hen pecking or attacking her. Gradually her fear extended to even pictures or films showing hens. She started experiencing anticipatory anxiety and avoided all circumstances involving hens including chicken dishes in restaurants which is rarely reported and hence unique to our case. She recognized the irrationality of her fear but expressed inability to control her thoughts and subsequent fear and avoidance. Her interaction with family, friends and schoolmates was otherwise normal and no significant abnormality in other areas of life was noted. No history of other phobic/anxiety disorders or any other psychiatric disorder was elicited. She had no past significant medical or surgical history. Her family history was not contributory. Her periods were regular, moderate and painless. Premorbidly she had a slow to warm up temperament with behavioural inhibition. Her physical examination and routine blood parameters were within normal limits. Based on her clinical symptoms, a diagnosis of specific phobia, animal type (alektorophobia) was made as per DSM 5 diagnostic criteria.¹ Since patient preferred psychotherapy over pharmacotherapy, graded exposure therapy was initiated. A total of 8 therapist-assisted sessions were conducted (once per week, each lasting 60-90 minutes). Initial sessions consisted of basic psycho-education, relaxation training, grading of severity and developing a hierarchy for graded exposure. Patient

was exposed to various physical parts of hen through virtual audio-visual methods followed by real exposure. Least anxiety provoking stimuli were tackled first following the general principles of graded exposure. Complete remission was achieved after 5 sessions of graded exposure therapy and patient had remained symptom free for the next 3 months follow-up. Homework therapy assignments with relaxation exercises were asked to be continued. Written informed consent was taken from the patient and her relatives for this case report and is available for review with the authors.

Discussion

Early age of onset (before 10 years of age), female sex, temperamental risk factor of behavioural inhibition and first symptoms appearing following a traumatic event with hen, are all characteristic features generally associated with specific phobia.¹ Usually the triggering event is difficult to ascertain. In our case, the patient's initial experience of terror could have paired with the hen which then would have led to stimulus generalization thereby associating fear with even the parts of hen. Subsequent avoidance behaviour could have led to negative reinforcement and maintenance of her learned behaviour. Accordingly, non-pharmacological treatment is generally preferred for specific phobia. Effectiveness of graded exposure therapy for specific phobias is very well documented.⁶

Virtual reality exposure therapy is successfully being utilized for different forms of anxiety disorders.⁷ Although we didn't have the full provision for creating a virtual reality, we indeed used technology in the form of audio-visual aids through computer. Initial virtual, followed by real, exposure to anxiety provoking stimuli would have helped in un-pairing the stimulus response connection in our case through extinction learning. To counter her reinforcement cycle caused by avoidance, she was assisted in confronting stressful situations while using cognitive restructuring and relaxation methods.

Frequent observation through out-patient follow-up every fortnight along with insistence of continuation of homework assignments and relaxation exercises would have helped in maintaining the positive impact.

Summary

This case further supports the behavioural conditioning theory of development of specific phobias and demonstrates how phobias can develop in intriguing ways. Alektorophobia and its successful remission with graded exposure therapy have not been documented in extant literature to the best of authors' knowledge. We also recommend the increasing use of technological aids in behaviour therapy.

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Case Report

Odontophobia – a Challenge for Dentists

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Introduction

Odontophobia is the fear of dentistry and of receiving dental care. It is also called dental fear, dental anxiety, dental phobia, dentophobia, and dentist phobia¹. In DSM-5² (Code 300.29), it has been named as specific phobia characterized by marked and out of proportion fear within an environmental or situational context to the presence or anticipation of a specific object or situation; Exposure to the phobic stimulus provokes an immediate anxiety response, which may take the form of a situationally bound or situationally predisposed panic attack; The person recognizes that the fear is out of proportion; The phobic situation(s) is avoided or else is endured with intense anxiety or distress; The avoidance, anxious anticipation or distress in the feared situation(s) interferes significantly with the person's normal routine, occupational (or academic) functioning, or social activities or relationships, or there is marked distress about having the phobia; The symptoms for all ages must have a duration of at least 6 months; The anxiety, panic attack, or phobic avoidance associated with the specific object or situation is not better accounted for by another mental disorder.

It is estimated that 75% of US adults experience some degree of dental fear, from mild to severe.^{3,4} Approximately 5 to 10 percent of U.S. adults are considered to experience dental phobia; that is, they are so fearful of receiving dental treatment that they avoid dental care at all costs⁵. The prevalence of dental anxiety (fear or phobia) in children and adolescents is between 5.7% and

19%.^{1,6} Women tend to report more dental fear than men,⁷ and younger people tend to report being more dentally fearful than older individuals.⁸

The causes described are direct (a traumatic, difficult, and/or painful dental experience and impersonal, uncaring, uninterested or cold attitude of dentist)^{5,9} and indirect experiences (vicarious learning from others, previous traumatic experience in a non-dental context, a perception of lack of control and helplessness, negative portrayal of dentistry in mass media).

Phobia of dental care is sometimes diagnosed using a fear measurement instrument like Corah's Dental Anxiety Scale – revised (CDAS-R)¹⁰ or the Modified Dental Anxiety Scale (MDAS),¹¹ which consists of 5 questions each with a 5 category rating scale, ranging from 'not anxious' to 'extremely anxious'. It has an extra item to Corah's Dental Anxiety Scale about the respondent's anxiety to a local anaesthetic injection. We report a case of odontophobia, who was successfully managed with meditation, counselling and gradual exposure to situation.

Case Report

A 32-year old housewife of lower socio-economic status from an urban background was referred from Dental outpatient to Psychiatry outpatient services for fitness to undergo dental extraction. She complained of excessive fear of undergoing dental procedure. While waiting in Dental outpatient department she heard the patient crying with pain and had a blood soaked swab in

the mouth. Her husband noticed that she started having tremors, excessive sweating, dizziness, nausea, increased heart beat and complained of ghabrahat (anxiety) and going to die. The treating Dentist was called who counselled her and in about 5 minutes, her anxiety subsided. She refused to undergo any Dental examination and was then referred to Psychiatry outpatient services. On taking detailed history, it was noticed that she was having excessive fear of going to the hospital and undergoing any operative procedure. The symptoms suggestive of phobic disorder were present for last five years, when her brother died in a hospital due to head injury since and she has not taken any treatment. The panic attack had occurred for the first time. On being interviewed, she recognized the irrationality of her fear but expressed inability to control her thoughts and subsequent fear and avoidance. Her working in social situations was otherwise normal. No history of any other psychiatric disorder was elicited. Her family history was not contributory.

She had a premorbid introvert personality. Her physical examination was normal. Based on her clinical symptoms, a diagnosis of specific phobia (300.29) was made as per DSM 5 diagnostic criteria.²

Since patient preferred pharmacotherapy, paroxetine 12.5 mg at night and etizolam 0.5 mg twice daily was started. She was psychoeducated about the disorder and its complications. On following her up at two weeks, there was improvement in her symptoms and while coming to hospital she did not have any anxiety or fear. After 6 weeks, she was referred to Dental outpatient department and shown the procedure of dental examination and extraction in another patient, who did not have any anxiety or pain in the procedure. After a week she underwent dental extraction and was seen again in Psychiatry outpatient services. There were no signs suggestive of anxiety or phobia. She is still under follow-up after 3 months without any exacerbation of symptoms.

Discussion

In phobic disorder, pharmacotherapy and behavioural treatment (cognitive behavior therapy, graded exposure therapy, relaxation and psychoeducation) are useful. Behavioral strategies useful for dentists include positive reinforcement (e.g.

praising the patient), the use of non-threatening language, and tell-show-do techniques. The tell-show-do technique was originally developed for use in pediatric dentistry, but can also be used with nervous adult patients.¹² Pharmacological techniques to manage dental fear range from mild sedation (with oral or injectable sedation) to general anesthesia and are often used by dentists in conjunction with behavioral techniques.¹³ The findings suggest that certain individuals do appear to benefit from their involvement in dental anxiety online support groups.¹⁴ A detailed psychiatric history is essential and in case of any dilemma, the patient must be referred to a psychiatrist for seeking fitness to undergo the dental surgical procedure.

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Letter to Editor

Cerebellar stimulation: A hypothetical therapeutic model for substance use disorders

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Dear Editor,

Substance use disorders (SUDs) hold a special position in psychiatry because their neurobiological and behavioural bases may be considered as one of the best understood among all psychiatric disorders. Yet they can be frustrating to manage with a not-so-promising prognosis.¹ Recently brain stimulation techniques like deep brain stimulation (DBS) and repetitive transcranial magnetic stimulation (rTMS) are increasingly being considered as panacea for various neuropsychiatric disorders. Advances in neuro-biological understanding, neuro-imaging and targeted neuro-modulation techniques are allowing us to stimulate specific regions of interest in the brain with pin-point precision. Recently both methods have been tried for SUDs. DBS of nucleus accumbens (NA) and subthalamic nucleus have been found to have promising results.² Dorso-lateral pre-frontal cortex (DLPFC) is the other brain region targeted with rTMS for alcohol and other SUDs.³

However, the cerebellum has never been targeted by brain stimulation researchers for SUDs despite its role in non-motor functions involving emotion, affect and cognition having been recognized.⁴ It has been widely studied for its dysfunction associated with chronic alcohol abuse. Recently its role in the development of dependence has been elucidated. It has a role not only in the neurobiological underpinning of dependence but also in its behavioural conditioning.⁵ Surprisingly, early research conducted almost 3 decades ago on animal brains had shown that cerebellar stimulation may modulate the functions of brainstem reticular nuclei and regions in the limbic and autonomic system, including hypothalamus, ventral tegmental area,

periaqueductal gray, hippocampus, and amygdala.⁶ Furthermore, recently cerebellar vermal theta burst stimulation using rTMS has been found to be a safe and well tolerated option for modulating affect, emotion and cognition in refractory schizophrenia.⁷ Patients with refractory motor epilepsy have also benefited with supero-medial cerebellar cortical stimulation.⁸

Based on the above observations, we can hypothesize that cerebellar stimulation in alcohol/substance dependence syndromes could result in beneficial effects in three major domains:

- Limbic/paralimbic modulation leading to release of neuro-transmitters including dopamine may help in reducing craving and increasing salience of stimuli other than alcohol/substance
- Frontal lobe modulation could improve the negative affect associated with drug-withdrawal states thereby reducing relapses. Its effect on the emotional and cognitive aspects may help in reducing impulsivity, improving attention towards other rewarding stimuli and judgment
- Supero-medial cerebellar cortical stimulation could help in reducing the incidence of withdrawal seizures and delirium, thereby significantly reducing the morbidity and mortality during acute detoxification stages

Cerebellar stimulation, per se, using DBS and rTMS is not a new entity in the field of neuropsychiatry. Its effectiveness and safety profile has been demonstrated earlier. We recommend its usability in SUDs based on the above theoretical construct wherein it could potentially have a wide

range of effects- from acute detoxification to chronic relapse prevention. Patient profile, treatment aspects and risks with concurrent substance use require elucidation. Centres with adequate resources should seriously consider the option.

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2. Pierce RC, Vassoler FM. Deep brain stimulation for the treatment of addiction: basic and clinical studies and potential mechanisms of action. *Psychopharmacology* 2013 Oct; 229(3) : 487-91.
3. Bellamoli E, Manganotti P, Schwartz RP, et al. rTMS in the treatment of drug addiction: an update about human studies. *Behav Neurol* 2014; 2014 : 815215.
4. Siuda K, Chrobak AA, Starowicz-Filip A, et al. [Emotional disorders in patients with cerebellar damage—case studies]. *Psychiatr Pol* 2014 Mar-Apr; 48(2) : 289-97.
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6. Alalade E, Denny K, Potter G, Steffens D, Wang L. Altered cerebellar-cerebral functional connectivity in geriatric depression. *PLoS One* 2011; 6(5) : e20035.
7. Demirtas-Tatlidede A, Freitas C, Cromer JR, et al. Safety and proof of principle study of cerebellar vermal theta burst stimulation in refractory schizophrenia. *Schizophr Res* 2010 Dec; 124(1-3) : 91-100.
8. Velasco F, Carrillo-Ruiz JD, Brito F, Velasco M, Velasco AL, Marquez I, et al. Double-blind, randomized controlled pilot study of bilateral cerebellar stimulation for treatment of intractable motor seizures. *Epilepsia* 2005 Jul; 46(7) : 1071-81.

Interesting Articles

- Quetiapine immediate release v. placebo for schizophrenia: systematic review, meta-analysis and reappraisal. Paul Hutton P et al. BJP 2015 May, 360-370.
- Anxiety disorders and accelerated cellular ageing. Verhoeven JE et al. BJP 2015 May, 371-378.
- Religion and the risk of suicide: longitudinal study of over 1 million people. O'Reilly D, Rosato M. BJP 2015 June, 466-470.
- Depression and anxiety in expectant and new fathers: longitudinal findings in Australian men. Leach LS, et al. BJP 2015 June, 471-478.
- Response to clozapine in a clinically identifiable subtype of schizophrenia. Butcher NJ, et al. BJP June 2015, 484-491.
- Lithium in drinking water and suicide mortality: interplay with lithium prescriptions. Helbich M, et al. BJP July 2015, 64-71.
- Determining the effects of films with suicidal content: a laboratory experiment. Till B, et al. BJP July 2015, 72-78.
- Recent intimate partner violence among people with chronic mental illness: findings from a national cross-sectional survey. Khalifeh H, et al. BJP September 2015, 207-212.
- Physical exercise for late-life major depression. Murri MB, et al. BJP September 2015, 235-242.
- Narcissistic Personality Disorder: Diagnostic and Clinical Challenges Caligor E, et al. Am J Psychiatry 2015; 172(5) : 415–422.
- The Alternative DSM-5 Model for Personality Disorders: A Clinical Application. Skodol AE, et al. Am J Psychiatry 2015; 172(7) : 606–613.
- Overactive Performance Monitoring as an Endophenotype for Obsessive-Compulsive Disorder: Evidence From a Treatment Study. Riesel A, et al. Am J Psychiatry 2015; 172(7) : 665–673.
- A New Perspective on the Pathophysiology of Borderline Personality Disorder: A Model of the Role of Oxytocin. Herpertz SC, Bertsch K. Am J Psychiatry 2015; 172(9) : 840–851.
- Autoimmune Encephalitis in Postpartum Psychosis. Bergink V, et al. Am J Psychiatry 2015; 172(9) : 901–908.
- Choosing Medications for Treatment-Resistant Depression Based on Mechanism of Action. Michael E. Thase ME, Schwartz TL. J Clin Psychiatry (JCP) 2015; 6 : 720.
- Childhood Maltreatment and Risk of Suicide Attempt: A Nationally Representative Study. Hoertel N, et al. JCP 2015; 7 : 916.
- Electroconvulsive Therapy for Obsessive-Compulsive Disorder: A Systematic Review. Fontenelle LF, et al. JCP 2015; 7 : 949.
- Impact of Prenatal Exposure to Psychotropic Drugs on Neonatal Outcome in Infants of Mothers with Serious Psychiatric Illnesses. Sutter-Dallay A, et al. JCP 2015; 7 : 967.
- Regulatory and Scientific Issues in Studies to Evaluate Sexual Dysfunction in Antidepressant Drug Trials. Khin NA, et al. JCP 2015; 8 : 1060.
- Riluzole Augmentation in Treatment-Refractory Obsessive-Compulsive Disorder: A Pilot Randomized Placebo-Controlled Trial. Pittenger C, et al. JCP 2015; 8 : 1075.
- Recommendations for the Monitoring of Serum Concentrations of Antipsychotic Drugs in the Treatment of Schizophrenia. Lopez LV, Kane JM. JCP 2015; 9 : 1249.
- Antenatal prevalence of fear associated with childbirth and depressed mood in primigravid women. Jaju S, et al. IJP 2015; 57 : 158.
- Indian Psychiatric Society multicentric study on assessment of health-care needs of patients with severe mental illnesses as perceived by their family caregivers and health-care providers. Grover S, et al. IJP 2015; 57 : 181.
- Women Mental Health. IJP July 2015; 57(6) (Supplement) : 197-371.

Forthcoming Events

FOREIGN

1. Regional Congress of the World Federation for Mental Health, Dates: 01 Oct 2015 – 03 Oct 2015, Location: Singapore, Singapore, Weblink: <http://www.wfmhsingapore2015.com/>
2. IPA — 2015 IPA International Congress, Dates: 13 Oct 2015 – 16 Oct 2015, Location: Berlin, Germany, Topics: Psychogeriatrics, neuropsychiatric, dementia, optogenetics, mental health care, late life depression, sleep disorders, anxiety disorders, delirium, mental health professionals. Weblink: <http://www.ipa-events.org/> Contact: DafneForni; Email: dafne.forni@mci-group.com
3. International Congress of the International Neuropsychiatric Association, Dates: 14 Oct 2015 – 16 Oct 2015, Location: Jerusalem, Israel, Weblink: <http://www.ina2015.com/> Related subject(s) Neurology
4. ISBS — 10th One-day Zebrafish Behavioral Neuroscience and Neurophenotyping Workshop (ZB2N-2015). Start date: 16 Oct 2015, Location: Chicago, United States, Weblink: <http://www.scribd.com/doc/255956485>, Contact NA Nutsa; Phone: [+1 240 899 9571]; Email: isbs.congress@gmail.com
5. 11th Annual CADDRA ADHD Conference, Dates: 17 Oct 2015 – 18 Oct 2015, Location: Vancouver, Canada, Weblink: <http://conference.caddra.ca/> Contact: Carol Simpson; Phone: [416-637-8583]; Email: carol.simpson@caddra.ca Related subject(s): Psychology
6. 4th European Conference on Mental Health, Dates: 21 Oct 2015 – 23 Oct 2015, Location: Riga, Latvia, Weblink: <http://www.ecmh.eu>
7. Treating Tobacco Dependence in Behavioral Health Settings, Start date: 12 Nov 2015, Location: New Brunswick, New Jersey, United States. Weblink: http://ccoe.rbhs.rutgers.edu/catalog/courses/pdf/16MR04Tobacc2015_16o.pdf Contact: Jill M. Williams, MD; Phone: [732-235-4053]; Email: williajm@rwjms.rutgers.edu Related subject(s): Medicine (in general)
8. 4th East European Psychiatric Congress & 3rd Preventive Psychiatry International Congress. Dates: 12 Nov 2015 – 15 Nov 2015, Location: Athens, Greece, Weblink: <http://www.preventive-psychiatry2015.com>
9. Reward Deficiency Syndrome — Inaugural Reward Deficiency Syndrome Summit. Dates: 16 Nov 2015 – 18 Nov 2015, Location: San Francisco, United States, Weblink: <http://unitedscientificgroup.com/conferences/inaugural-reward-deficiency-syndrome-summit/> Contact: Conference Secretary; Phone: [408-426-4833]; Email: rds@uniscigroup.org
10. Training — Improving the Quality of Perinatal Mental Health Services. Start date: 01 Dec 2015, Location: London, United Kingdom, Organizer: Healthcare Conferences UK. Weblink: <http://www.healthcareconferencesuk.co.uk/perinatal-mental-health-services-conference>. Contact: Kerry Tarrant, Healthcare Conferences Uk, 8 Wilson Drive, Ottershaw, Surrey KT16 0NT; Phone: 0044/1932 429933; Email: kerry@hc-uk.org.uk, Related subject(s): Medicine (in general)
11. AACP Encore — Current Psychiatry/AACP 2015 Psychiatry Update Encore Presentation. Dates: 03 Dec 2015 – 05 Dec 2015, Location: Las Vegas, United States, Weblink: <https://www.cpaacp-cme.com/site/encore>. Contact: kathywenzler; Phone: [(973-206-8092)]; Email: k.wenzler@globalacademy.com
13. Continuing Education Cruise Conference — Psychotherapy, Psychiatry and Counseling in the Digital Age Eastern Caribbean Cruise December 2015. Dates: 06 Dec 2015 – 13 Dec 2015 [ID=654888]. Location: Fort Lauderdale, United States, Organizer Continuing Education Inc., Weblink: <http://www.continuingeducation.net/schedule.php>
14. Training — Delivering Excellence in Recovery Oriented Services in Mental Health, Dates: 15 Dec 2015 – 14 Dec 2015 [ID=743115], Location: London, United Kingdom, Organizer Healthcare Conferences UK. Contact: Kerry Tarrant, Healthcare Conferences Uk, 8 Wilson Drive, Ottershaw, Surrey KT16 0NT; Phone: 0044/1932 429933; Email: kerry@hc-uk.org.uk Related subject(s): Medicine (in general)
15. The Second International Conference on Loss, Bereavement and Human Resilience in Israel and the World: Facts, Insights and Implications? Dates: 11 Jan 2016 – 14 Jan 2016 [ID=718531] Location:

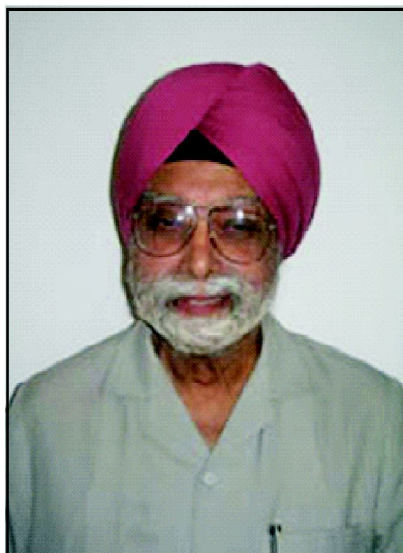
- Eilat, Israel. Weblink: http://www.ovdan-eilat2016.com/_Contact; International Center for the Study of Loss, Bereavement and Human Resilience at the University of Haifa; Email: ovdan.mercatz@gmail.com, Related subject(s): Psychology
16. CBRD-2016 — 3rd Caribbean Biomedical Research Days, Dates: 16 Jan 2016 – 18 Jan 2016 [ID=716925], Location: Rodney Bay, Saint Lucia. Conference Language: English Topics neuroscience, stress, behavior, pharmacology, psychiatry. Weblink: <http://stressandbehavior.com/Years/2016/Caribbean/Caribbean2016.html>, Contact: NANA Nutsa; Phone: [+1 240 899 9571]; Email: info@stressandbehavior.com Related subject(s): Biotechnology
 17. Suicide Prevention and Addiction. Start date: 23 Feb 2016, Location: Ypsilanti, United States, Weblink: <http://www.dawnfarm.org/programs/education-series> Related subject(s) Neurology; Psychology
 18. Treating Depression 2016. Start date: 24 Mar 2016, Location London, United Kingdom, Weblink: <http://www.mahealthcarevents.co.uk/depression> 2016, Contact: Lisa Freeman; Phone: [020 7501 6768]; Email: lisa.freeman@markallengroup.com
 19. 8th International Congress of Psychopharmacology & 4th International Symposium on Child and Adolescent Psychopharmacology, Dates: 20 Apr 2016 – 24 Apr 2016, Location: Antalya, Turkey, Weblink: <http://www.psychopharmacology2016.org/>
 20. 23rd ISCP — 23rd International Symposium about Current Issues and Controversies in Psychiatry (Barcelona & Internet), Dates: 28 Apr 2016 – 30 Apr 2016, Location: Barcelona, Spain. Weblink: <http://www.controversiasbarcelona.org/en/> Contact: Olivia Cuadrado; Phone: [+34 934 108 646]; Email: secretaria@controversiasbarcelona.org; Related subject(s): Psychology
 21. Psychiatry 2016 — 2nd International Conference on Psychiatry and Psychiatric disorders – 2016. Dates: 02 May 2016 – 04 May 2016, Location: Chicago, United States, Weblink: <http://psychiatry.global-summit.com/> Contact: Max William; Phone: [16506189889]; Email: psychiatry@annualcongress.com Related subject(s): Neurology
 22. ISBS — 23rd Annual International Stress and Behavior Neuroscience and Biopsychiatry Conference, Dates: 16 May 2016 – 19 May 2016. Location: St-Petersburg, Russia, Weblink: <http://www.stressandbehavior.com>, Contact: NANA Nutsa; Phone: [+1 240 899 9571]; Email: isbs.congress@gmail.com
 23. ISBS — 7th International Regional Stress and Behavior Neuroscience and Biopsychiatry Conference (North America), Dates: 22 Jun 2016 – 24 Jun 2016, Location: Miami Beach, United States, Weblink: <http://www.stressandbehavior.com/Years/2016/Miami/Miami2016.html>, Contact: NANA Nutsa; Phone: [+1 240 899 9571]; Email: isbs.congress@gmail.com
 24. 8th International Neuroscience and Biological Psychiatry Regional ISBS Conference Stress and Behavior: Yokohama-2016, Dates: 23 Jul 2016 – 24 Jul 2016, Location: Yokohama, Japan, Weblink: <http://www.scribd.com/doc/273245305>
 25. Stress and Behavior: Yokohama-2016 — 8th International Neuroscience and Biological Psychiatry Regional ISBS Conference “Stress and Behavior: Yokohama-2016, Dates: 23 Jul 2016 – 24 Jul 2016, Location: Yokohama, Russia, Weblink: <http://www.scribd.com/doc/273245305> Contact: NANA Nutsa; Phone: [+1 240 899 9571]; Email: isbs.congress@gmail.com
 26. International Association for Child & Adolescent Psychiatry and Allied Professions World Congress 2016, Dates: 18 Sep 2016 – 22 Sep 2016, Location: Calgary, Canada, Weblink: <http://www.iacapap2016.org/>
 27. ISBS — 9th International Regional Neuroscience and Biological Psychiatry Conference “Stress and Behavior” (China and South East Asia), Dates: 27 Oct 2016 – 29 Oct 2016, Location: Zhanjiang, China. Weblink: <http://www.scribd.com/doc/269869119>, Contact: NANA Nutsa; Phone: [+1 240 899 9571]; Email: isbs.congress@gmail.com
 28. ISBS — International Neuroscience and Biological Psychiatry ISBS Symposium “Translational Neuroscience of Stress” Dates: 10 Nov 2016 – 11 Nov 2016, Location: San Diego, United States, Weblink: <http://www.scribd.com/doc/274040475>, Contact: NANA Nutsa; Phone: [+1 240 899 9571]; Email: isbs.congress@gmail.com
 29. WPA 2016 — World Psychiatric Association International Congress, Dates: 18 Nov 2016 – 22 Nov

- 2016, Location: Cape Town, South Africa, Weblink: <http://www.wpacapetown2016.org.za> Contact: Charlene Jansen; Phone: [(27114635085)]; Email: charlene@soafrica.com
30. ISBS — 10th International Neuroscience and Biological Psychiatry ISBS Regional (S. America) Conference “Neuroscience of Stress” Dates: 01 Dec 2016 – 03 Dec 2016, Location: Rio de Janeiro, Brazil, Weblink: <http://www.scribd.com/doc/274041339> Contact: NANA Nutsa; Phone: [+ 1 240 899 9571]; Email: isbs.congress@gmail.com
31. 6th World Congress on ADHD — 6th World Congress on ADHD, Dates: 20 Apr 2017 – 23 Apr 2017. Location: Vancouver, Canada Weblink: <http://www.adhd-congress.org> Contact Christian Reim; Phone: [+49406708820]; Email: adhd@cpo-hanser.de

INDIAN

- 68th Annual National Conference of Indian Psychiatric Society (ANCIPS) 21st - 24th January 2016, People's World, Bhopal. (www.ancips2016.com)
- Annual National Conference Association of Industrial Psychiatry of India 28-29 Nov 2015) in Mumbai (www.ANCAIPI2015.com)
- Indian Association For Social Psychiatry 22nd National Conference 2015 (IASP 2015) at Agra November 6 -8, (www.iasp.org.in)
- Indian Association for Child and Adolescent Mental Health (IACAM) on 19–21 November 2015 at AFMC (Pune)
- WASP 2016 from Nov 30 to Dec 4 in New Delhi (www.wasp2016.com).

Remembrance



Dr. J.S. Neki (1925 – 2015)

Brief Biography

Noted metaphysical poet and a leading scholar of Sikh thought, Dr. Jaswant Singh Neki is a psychiatrist of international repute. He has held high academic and administrative positions including Consultant - WHO, Geneva and UNDP S-E Asia. Ex-Director of the Postgraduate Institute of Medical Education & Research (PGI), Chandigarh, he is a former Professor and & Head of the Department of Psychiatry, AIIMS, New Delhi.

Recipient of National Sahitya Akademy Award and Shiromani Sahitkar Award, Dr. Neki sits on the Advisory Boards of several National and International organisations. Author of several standard works, he is presently the Chairman of Guru Granth Sahib Reaearch Center and the Honorary General Secretary of Bhai Vir Singh Sahitya Sadan, New Delhi.

Dr Neki was born in village Murid, Distt. Jhelum (Pakistan), on 27th August, 1925. His father, S. Hari Gulab Singh and his mother, Smt. Sita Wanti were both God-fearing and loving individuals. During his very infancy, his parents shifted to Quetta (Baluchistan).

Medical Education and service

For his graduate course in medicine and surgery, he joined King Edward Medical College, Lahore. There too he received a merit scholarship granted by the Govt. of Baluchistan. In 1947 when the country was partitioned, he left Lahore and joined Medical College, Amritsar, where he completed his medical studies to graduate in 1949. He worked first as a House Physician, then as Asstt. Registrar, and then as a Demonstrator in Medical College, Amritsar, with a short stint, in between, as Demonstrator in Christian Medical College, Ludhiana. While teaching there, he passed his MA (Psychology) exam as a teacher candidate from Aligarh Muslim University, securing First Division and first position in the University. He passed his DPM exam from All-India Institute of Mental Health, Bangalore, and Mysore University, in 1958 with double distinction and setting up a new record. Thus he qualified as a psychiatrist.

Professional Career

As a psychiatrist, rising through the ranks, he became Prof. & Head of Psychiatry Department at the

All-India Institute of Medical Sciences, New Delhi and occupied that chair for about a decade (1968-1978). Then he was appointed Director of the Postgraduate Institute of Medical Education and Research, Chandigarh where he spent three years (1978-1981). From there, he was picked up by the World Health Organization, Geneva, as a consultant for a project in Africa where he served for over four years (1981-1985). He came back home in 1985, and since then has been engaged in private practice. In between, he had a short engagement with the United Nations Development Programme and United Nations Fund for Drug Abuse (South-East Asia). Currently, he is Chairman of the Board of Consultants constituted by the Delhi Gurdwara Management Committee for setting up of an Institute of Medical Sciences. In 1989, he received Kohli Memorial Award for being the Best Professional of the Year. He gave the concepts of Guru–Chela relationship (in Psychiatry) and Ascetic syndrome.

Literary Activities and Awards

He is a well-recognized metaphysical poet in Punjabi who has contributed ten volumes of original verse. His opus magnum is his autobiography in verse. He also writes powerful, inspiring prose as evidenced by his books *Achetan di Leela*, *Meri Sahitak Swaijeevani* and *Ardas*. He has won several prestigious awards in literature. These include: Sahitya Akademy Award, Asan Memorial Award, Shiromani Sahitkar Award (Languages Deptt.), Sarvotam Sahitkar Award (Punjabi Academy, Delhi), Bhai Vir Singh Award, KS Dhaliwal Award, Puran Singh Memorial Award. Guru Nanak Dev University conferred on him PhD honourous causa for his contribution to literature. He has been a member of the jury (Punjabi) for Sahitya Akademy Awards and member of the Advisory Committee (Punjabi) for Jnan Peeth Award. He is one of the past Chairman of Punjabi Academy, Chandigarh. Currently, he is the Honorary General Secretary of Bhai Vir Singh Sahitya Sadan, New Delhi.

Religious Activities and Books

Belonging to a devout religious family Dr Neki has always evinced keen interest in religion. Like his family, he also has unbigoted, liberal views. During his student life, he became President of the All-India Sikh Students Federation and organized training camps for the Sikh youth in the Sikh lore. He has produced two authentic books. One is *Ardas – Darshan, Roop te Abhias* which has been evaluated as an ‘all-time classic’. The second one, *Vishva Ardas*, is a collection of over 300 prayers from different religious groups, tribes and communities of different times and places, translated into Punjabi verse. This has been called “a landmark piece of work”. Commissioned by Guru Nanak Dev University, he wrote *The Spiritual Heritage of the Punjab* which traces the evolution of spiritual thought and practice from the pre-Aryan times up to Guru Gobind Singh. Lately, he has produced an exquisitely produced book *Pilgrimage to Hemkunt* that compares with high international standards. He authored more than 25 books in Punjabi literature.

For several years, he has been a member of the Dharam Prachar Committee of Shromani Gurdwara Prabandhak Committee, the elected body that administers Sikh shrines. He was honoured with ‘Order of the Khalsa’ Award on the 300th Anniversary of the Khalsa, celebrated in Anandpur Sahib on 13th April, 2000. He has represented his community at various international forums including The Parliament World Religions 1993, Unesco Conference on Religion and World Peace 1998, Unesco Center Catalunya Conference on Universal Ethics 1998, World Thanksgiving Conference 1999.

Guidelines

Instructions to Authors

Aims and Scope of the Journal

This journal is aimed to help in the academic development of its readers. To accomplish the objectives we publish following sections in the journal: Original articles, reviews, view points, short reports, case reports letters and newer developments.

Prior Publication

All the articles are published in this journal with the understanding that they have never been published or accepted in any journal previously or submitted to any other journal simultaneously. However, publication of abstracts in conference's abstract book will not be considered as prior publication if such abstracts are limited to 300 words. It includes all kind of printed material (whether scientific or not), symposia, panel discussion, paper/poster presentation, workshops etc. If author/s are submitting any other paper with overlapping content to any other journal, they must inform the editor with the explanation of the differences in the paper.

Submission of the manuscript

Manuscripts should **preferably be submitted online** at the journal's account: dps_journal@yahoo.co.in or manbhatia1@rediffmail.com. Receiving of the manuscript will be acknowledged within no more than ten working days, failing which authors are free to submit it elsewhere. However, it is advisable that they make sure that the mail has not returned and recipient mail-id is filled correctly. Authors who want to submit hard copy of manuscripts must send 2 copies along with CD to editorial office – Department of Psychiatry UCMS and GTB Hospital, Dilshad Garden, Delhi-110095 (India).

Authorship

All persons designated as authors must qualify authorship criteria. It implies that all the authors have participated sufficiently to take the public responsibility of the content. Authorship credit should be based on substantial contributions to (1) conception and design or analysis and interpretation of data, (2) drafting the article or revising it critically for important intellectual content, and on (3) final approval of the version to be published. Conditions 1, 2, and 3 must all be met. Participation solely in the acquisition of funding or the collection of data does not justify authorship. Other persons involved in the study may be acknowledged at the end of the manuscript.

It is the responsibility of the principal author or author who is submitting the manuscript to inform all the co-authors regarding submission and revision of manuscript. Editor or society is not responsible for any conflict of interest arising out of manuscript.

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the article. Copyright transfer form is provided and it should be signed by all authors. Signature of the co-authors will be responsibility of corresponding author.

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Type of articles and word limit

We publish review articles, original articles, case reports in the field of psychiatry and allied branches e.g., neuropsychiatry, adult psychiatry, child psychiatry, geriatric psychiatry, psychosomatics, addiction, forensic psychiatry, newer developments etc.

Review articles are invited from the experts of the fields only and authors wish to send the review article must take the written permission of the editor beforehand. Word limit for review article is 5000 words with maximum of 50 references.

Original articles must not exceed 3000 words with maximum 30 references and should contain original unpublished research.

Care reports should not exceed 1000 words and a maximum of 10 references.

Setting of Manuscripts

All the pages must be numbered starting from title page. The manuscript should be typed on A4 size paper with 1 inches margin and should be double-spaced. All abbreviations should be mentioned when they first appear in the text as well as on the abstract page below key words.

Title Page

Title page must contain type of article, title and running title not exceeding 40 characters on the top of it. In the byline authors name (last name, first name followed by initials of middle name) and highest academic qualifications must be mentioned. Department and institution to which the work should be attributed should be mentioned below authors name.

Following it, name, address, telephone number and e-mail address of the corresponding author must be mentioned.

Total number of words in the text (excluding abstract and references), total number of tables, figures should be mentioned thereafter.

Any acknowledgement (if any) must be cited at the bottom of this page.

It must be made sure that following pages does not have any information that may disclose the identity of the authors/institution to which the work is attributed.

Second page

It should contain title of the manuscript, abstract and at least three key words. Abstract should be structured in following sections: introduction; objectives, method, results and conclusions.

Start each of following section on a separate page.

Introduction: State the object of research with reference to previous work.

Methods: Describe methods in sufficient detail so that the work can be duplicated, or cite previous descriptions if they are readily available.

Results: Describe results clearly, concisely, and in logical order. We possibly give the range, standard deviation, or mean error, and significance of differences between numerical values.

Discussion: Interpret the result and relate them to previous work in the field.

Tables : All tables must be created using the table function in a word processor program and also must conform to a one - (3.25") or two-column (6.5") format. Prepare each table with a title above and any description below the table. Tables should be self-explanatory and should not duplicate textual material. They must be numbered and cited in consecutive order in the text, and must have a short title. Tables consisting of more than 10 columns are not acceptable. Previously published tables must have a signed permission from the publisher and complete reference data so that appropriate credit can be given. Tables must be given after references while sending the manuscript.

Figure : As far as possible, figures should be black and white. They should contain title and should be numbered. They should be mentioned in text according to their number.

References: Delhi Psychiatry Journal complies with the reference style given in "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (see Ann Intern Med 1997;

126 : 36-47 or online at <http://www.acponline.org>). References should be cited in Vancouver style in the manuscript. In the text they should be cited by superscript Arabic numerals and in references they should be cited in the order of their appearance in the text. First 3 authors should be cited (followed by et al. if more than 3 authors and their name should be in following sequence: Last name followed by initials of first and middle names. Each author's name should be separated by comma. It should be followed by title of manuscript, journal's name as cited in index medicus, year of publication, volume, issue and page number.

For clarification see following reference styles.

Sample citations

**According to our previous work,^{1,3-8,19}
The Patient's were studied as follows.^{3,4}**

Sample References

• Articles

1. Roest AM, Zuidersma M, de Jonge P. Myocardial infarction and generalised anxiety disorder : 10-year follow up. Br J Psychiatry 2012; 200 : 324-329.
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• Book

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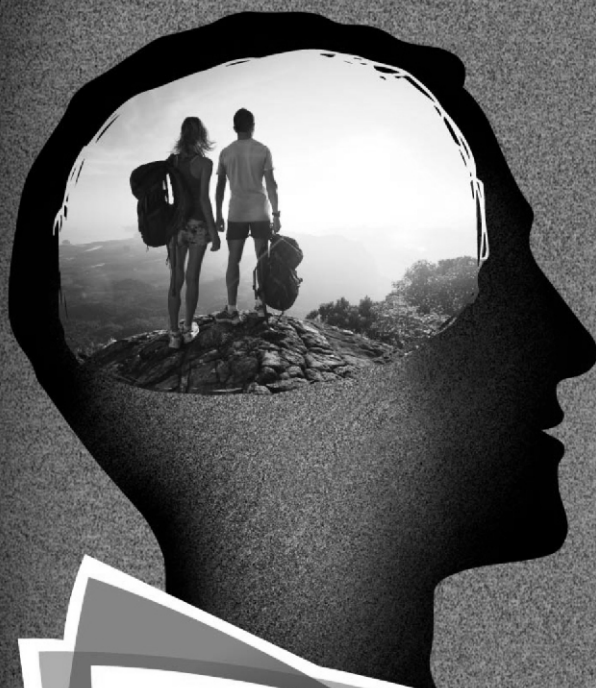
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