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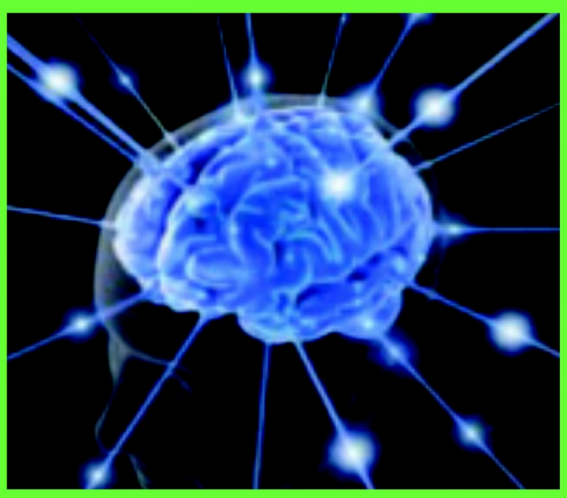

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Editorial

Burnout among medical professionals: A Challenge

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"What to do when working harder is not working"

Medicine is a challenging branch which is related to high amount of occupational stress and burnout among the providers. Burnout syndrome has long been recognized in the health care professionals due to the exacting nature of the branch. This is attributed to amount of stress faced which starts from when a person start preparing for medical school to the course of medical school and afterwards. The expectations from a physician and of a physician make it even more difficult to control the emotional exhaustion that sets in. By virtue of their work they experience a range of emotions varying from a need to rescue the patient to that of failure and powerlessness against illness and its associated losses, grief along with fear of becoming ill oneself or dying, or a desire to separate from and avoid patients to escape these feelings.[1]

Burnout syndrome has been described by Maslach and Jackson as a three dimensional construct namely emotional exhaustion (EE), depersonalization (DP) and reduced professional achievement (PA).[2] Emotional Exhaustion is characterized by tiredness, somatic symptoms, decreased emotional resources and a feeling that one has nothing left to give to others. Depersonalisation describes negative, cynical attitudes, and impersonal feelings towards clients which results in treating them as objects. Reduced Personal Accomplishments denote feelings of incompetence, inefficiency, and inadequacy. Maslach even went further by developing a scale as Maslach Burnout Inventory (MBI) to assess the burnout. The higher the Emotional Exhaustion and Depersonalization scores, and lower the Personal Accomplishment score, the more the doctor could be suffering from burnout.[3] Other scales present for the measuring burnout are the Burnout Measure by Pines and Aronson and the Copenhagen Burnout Inventory.

Multiple studies have shown that one third of physicians experience burnout at several points throughout their careers. Medical school has been implicated as the culprit to the initiation with continuation during residency and maturity in the daily life of practicing physicians.[4] Studies suggest that the prevalence of burnout among residents varies from 50% to 76%, depending on the specialty.[5] In a recent study from a premier Indian Institute the prevalence of burnout among medical professionals was found to be very high, with more than 90% reporting some degree of burnout, 44.3% of doctors at risk of developing burnout, 13.5% having severe risk of burnout, and 16.6% having very severe risk of burnout.[6] Reported in a study by Shanafelt, burnout is more often seen in trauma surgeons, urologists, otolaryngologists, emergency physicians/ surgeons, vascular and general surgeons.[7] Goldberg reported that those with long working hours of more than 60 h/week and increased on call duties per week (>2 nights/week) have higher incidence of burnout as compared to those on only regular duty.[8]

Burnout has far reaching implications on doctors, patients and the overall health care system. Doctors can experience irritability, low frustration tolerance, excessive fatigue, apathetic attitude and low self-esteem. They even are at increased risk of depression, anxiety, sleep disturbances, fatigue, alcohol and drug misuse, marital dysfunction, premature retirement and perhaps most seriously suicide. Burnout can even accentuate risk of making poor decisions; displaying hostile attitude toward patients; making more medical errors; and having difficult relationships with co-workers.[6]

This is even more compounded with the alarming reports of violence against doctors which raises the question in minds of professionals about the worthiness of this noble profession when compared to dangers to their life. Two coping skills—sense of achievement and emotional disengagement, are said to protect against compassion fatigue, while prolonged exposure to traumatic materials, traumatic recollections, and life disturbances lead to compassion fatigue. Most doctors aspire to demonstrate compassion but are likely to feel distressed if they have to work in a compassion-depleted state.[3]

Intervention strategies for burnout include timely

identification and consultation with those who are trained in combating burnout. Intense stress management programmes with booster session which can be both person (CBT, relaxation) and/or work (attitude change and communication, peer support, and changes in work organization) directed have also shown benefit with limited evidence.[9] Participation in a mindful communication programme may be associated with short-term and sustained improvements in burnout among doctors. Preventive strategies like improving the fit between individual and organization by promoting positive work environment and at individual level by building resilience and work engagement strategies will help in combating burnout effectively.

"Compassion is not a relationship between the healer and wounded. Only when we know our own darkness well can we be present with the darkness of others. Compassion becomes real when we recognize our shared humanity."

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Review Article

Pornography Addiction: Its Impact and Psychotherapeutic Treatment

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Introduction

Internet enabled technology spread precipitously worldwide and convenient to people communicate socially, academically and professionally. Ubiquitous access to pornography, adult realignment in the path of virtual world of sexual explicit material or pornography is expeditious.

People viewing Pornography

The Internet can be understood as a medium that provides greater access to a plethora of affordable sexual material (e.g., pornography) and the exchange of sexual content (e.g., enhancement of sexual arousal through cybersex) in an anonymous setting.[1,2]

Pornography Viewing: A Problem

As online pornography is available anonymously at low cost and in enormous quantities around the clock – a fact which, according to the theory of Triple-A Engine, intensifies its use – the problem of compulsive or addictive usage patterns (compulsive Internet porn use; cyber porn addiction) has been widely discussed as a risk.[3-5] Researches have explored the relationship of gender and pornography viewing.Most of the researches indicate that men consume more internet pornography material then women. Contexts and purpose of viewing pornography is also different among men and women.

Gender and Pornography

Cybersex is more prevalent among men then women reported in the past studies.[6-8]

Compared with women, men use pornography more often, more intensely, and for different reasons.[9,10] Previous studies have documented that women tend to view pornography with their partners, whereas men's viewing is more often solitary.[10-12] Men are viewing pornography more to seek out and experience sexual arousal and use sexual explicit material for solitary sexual activity as masturbation.

The majority of the male and female population between 18 and 49 years of age has used pornographic magazines (men (m): 96%, women (w): 73%), video films (m: 96%, w: 76%), or Internet content (m: 63%, w: 14%) at least once previously[13]; around 50% of them had last used pornography within the previous 12 months.

Psychological Correlates

Psychological affliction has been observed in the compulsive users of internet pornography. Manifestation of problems could be repertoire of psychosomatic and sexual dissatisfaction.

Schwartz and Southern[14] suggested compulsive preoccupation or addiction with online sex can facilitate or exacerbate acute psychological afflictions.

Those who compulsively use Internet pornography often suffer from feelings of shame, breakdown of self-esteem, lower productivity at home and at work, pain, self-loathing, failed promises and attempts to stop acting out, progressive isolation, and sexual problems.[15-18]

Problematic Use of Pornography

Compulsive involvement of the internet pornography increase the deterioration in their quality of life in respect of personal, social, financial, vocational and sexual. Twohig et al[19] reported problematic Internet pornography use may be defined as any use of Internet pornography that creates interpersonal, vocational, or personal difficulties.

Viewing Hours

Laconi et al[20] found cybersex addict spend an average of 25 hours per week. Non pathological users usually spend 1 hr or less per week in online sexual activities.[16]

Negative Impact

Internet pornography can be a public health hazard that is hidden because not many researchers or public health practitioners are identifying it as an area of importance.[21-24]

The research shows significant challenges to multiple aspects of life and substantial risks for individuals who compulsively use Internet pornography. Areas of challenge include, but are not limited to, a negative impact in the job, family life, sexual practices within and without a coupled relationship, emotional, physical and psychological health, and legal problems. [24-28]

Excessive use of Internet pornography is associated with vocational problems,[29,30] family dysfunction, [24] interpersonal isolation[31], and psychological distress.[32,33]

Mental Health Problems

A plenty of studies focused on the post effect of pornography viewing, manifestation of overt and covert characteristics as aggression, changes of attitude and believes and impact on sexual development following exposure of pornography. Only few studies have revealed the mental status of users following excessive consumption of pornography. Use of Visual Sexual Stimulus (pornography) might be elevated due to mental health problems that are not explicitly sexual, such as depression.[34]

Those with more frequent use of Visual Sexual Stimulus (VSS) reported more depressive symptoms, poorer quality of life, lower health status and more days that were diminished due to mental and physical health.VSS also is related to the severity of psychological symptoms. [35]

Treatment of Pornography Addiction

Pornography consumers seeking treatment

Gola, Lewczuk, and Skorko[36] found that negative symptoms (e.g., preoccupation, affect and relationship disturbances because of sexual behaviors, impaired control) associated with problematic use of pornography were more robustly associated with treatment-seeking than quantity of pornography consumption. Further, study suggested that 14.3% (*n*=186) reported a current interest in seeking treatment for use of pornography and it is positively associated with their hypersexual behaviour.

Clinical Utility of Pornography Use

Clinicians reported different views to conceptualize the consumption of pornography. Most of the clinicians believed that consumption of pornography has negative consequences and clinically could not be used. However, some clinicians recommended use of pornography to facilitate assessment and treatment of sexual disorders, enhance client-partner communication, reduce anxiety, shame and client misconceptions pertaining to healthy sexuality.[37,38]

Most consumers consider that their use of pornography has never been a problem and report positive sexual effects, including sexual entertainment, a richer sexual repertoire, stronger desire and arousal, and increased sexual knowledge.[39-43]

Psychotherapeutic treatment

In the last ten to fifteen years, mental health professionals (MHP) have dealt the cases who consume excessive pornography. They have approached to the MHP as self identifies cases (as pornography addiction), manifested their problems of anxiety, depression, anger outburst, self-harm behaviour, suicidal tendency and obsessive compulsive disorder etc.

In the recent years, mental health professional across disciplines has focused attention in the clinical research on pornography addiction, reportedly significant number of clients seeking treatment of sexually addictive behaviour pertaining to pornography addiction.[44] They have received pharmacological, non-pharmacological and combined treatment for sexually addictive behaviour. A different therapeutic approach has been used in non-pharmacological and combined treatment including cognitive behavior therapy, mindfulness, 12-step programs, and couples therapy.[45-49]

Effectiveness of Cognitive BehaviourTherapy

Short et al [50] reported CBT was the most frequently recommended treatment by the MHPs

for IP use, 58.8% endorsement for problem IP use. The second most highly recommended treatment for IP use was eclectic, with 16.9 % endorsement for IP use. The 12-step program followed these two treatments among the top three interventions that received the highest recommendations by MHPs, with 8.8 % endorsement for IP use.

Dhuffar & Griffiths[51] revealed in the CONSORT analysis of 9 studies among 57 rigorous screening (3 for pharmacological treatment and 6 for non-pharmacological treatment) that non-pharmacological behvioural treatment as CBT was more effective for reduction of negative consequences owning to compulsive sex behaviour including a component of excessive use of pornography.

Cognitive Group Behaviour Therapy

Orzack et al[52] reported the study of 35 men involved in problematic cybersex including pornography addiction participated in a 16 group sessions of Cognitive Behaviour Therapy (including Psychoeducation and Motivational Techniques) resulting the reduction of depressive symptoms and increase the quality of life in different domains. However, there was no change in cybersex related behaviour.

Orzack and Ross[53] illustrated complexities of treating of 38 male with compulsive Internet sex in inpatient and outpatient settings. Single group Psychotherapy with a number of therapeutic modalities (CBT, psychodynamic, experiential, EMDR, and peer support) were applied for Inpatient over a period of 28–42 days and CBT & MET were implemented for outpatient. Reportedly there was reduction in frequency of online sexual behaviors in Inpatient and significant reduction in anxiety and depression in Outpatient.

Effectiveness of Cognitive Group Behaviour Therapy

Crosby[54] examine the effectiveness of Acceptance and Commitment Therapy for compulsive pornography in a randomized group design. 28 male were imparted Individual acceptance and commitment in a 12 weekly (2-h sessions). Significant changes were reported by the participants in time spent viewing online pornography from pre and post in comparison to control group.

Sadiza et al[55] evaluated the effectiveness of group CBT in a single group of 10 males with the problem of Compulsive Sex Behaviour. Results of Group Cognitive Behaviour Therapy (12 sessions with 1 hr. 30 mnts., 2 weekly sessions) suggested significant reduction in compulsive sexual behaviors (including time spent online), anxiety, depression. Improvement was reported in the different domains of life as physical health financial, relationship and work/ academic. Major component on behavior therapy focused on online time management and ability to abstain.

Individual Therapy

Twohig and Crosby[56] reported Individual sessions of Acceptance and Commitment Therapy (ACT) with 6 Male involved in problematic Internet pornography participated in an 8 individual therapy sessions (of 1.5 h each). They (5 of the 6 participants) had notable reductions in their viewing hours of pornography, related obsessions and compulsions and 4 of the 5 maintained reductions at 3-month follow-up and increased the quality of life.

Online Therapy

Hardy et al.[57] demonstrated a study of 138 participants (97% men) with problematic use of online pornography and compulsive masturbation participated in an online recovery program which was based on a Cognitive Behavioral Therapy including online 10 Psycheducation modules, Exercises, and Homework focused. Self-reported results of participants revealed, reduction in their use of pornography, frequency of masturbation, obsessive sexual thoughts, negative affect and tendency to deny problematic behaviors. Reportedly, they hadmore constructive reactions to temptation, had more positive affect, had more perceptions of self-control and had more abilities to be in a relationship.

Pharmacological Treatment

Bhatia et al[58] reported a **c**ase report of male with cybersex addiction and seminal retention, He was on 20-mg fluoxetine and counseling (length unknown) got immediate improvement in cybersex behaviors and there were no symptoms of compulsive masturbation and cybersex resurfaced after 6-month FU.

In the line of psychological treatment, Cognitive Behaviour Therapy is the first choice of the trained therapist for the treatment of pornography addiction. However, there are few studies applying Cognitive Behaviour Therapy modal in the group and individual format. But there is no evidence of a single study applying group format in the treatment modal of Cognitive Behaviour Therapy exclusively for the pornography addiction in Asian scenario.

Conclusion

Overall studies presented in this paper highlighted the issues of excessive use of pornography viewing which leads to pornography addiction. Most of the studies revealed one side of the coin as negative impact of excessive use of pornography, not as another aspect of clinical utility of pornography viewing.

Negative impact of pornography viewing is more prevalent, provided comes in the category of problematic use or compulsive use even after knowing its negative consequences. There is plethora of researches indicating impairment in different domains of life owning to problematic use of pornography. Mental health professionals are rendering their services to users who are seeking treatment or reported their mental status as anxiety, depression, suicidal ideation, anger outburst and sexual obsessions and compulsion and other paraphilic behaviour.

A paucity of trained professionals and experts, focused in the treatment of pornography addiction is prevalent, mainly in Asian scenario. Pharmacological treatment has not shown effective results in comparison to non-pharmacological or psychological treatment with emphasis on cognitive, emotional, acceptance and commitment aspects of therapeutic modalities. In the empirical research, group CBT is equally effective as individual CBT. Further more evidence based research is needed to focus on different settings and modalities of psychotherapeutic treatment.

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Review Article

Yoga in schizophrenia – a clinical overview

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Introduction

'Yoga' is an ancient practice that originated in India around 3000 BCE. Arising from the Sanskrit word 'yug' which means 'to yoke, or unite'; yoga is a set of principles guiding conduct, for promoting health and well-being through integration of mind, body and breath. Itstrives to achieve balance of the physical, emotional, mental and spiritual dimensions of a being.[1]Yogic practices evolved to unite the individual consciousness with the Universal divine consciousness through a state of super-consciousness known as 'Samadhi'.[2]Archaeological evidence dates presence of yoga to as early as 3000 BCE, and finds mentions of yoga in most ancient Hindu texts including the Vedas, the Upanishads, the Mahabharata and the Bhagwath Gita. Despite its popular image, yoga is not just a set of breathing and physical exercises, but a way of life with spiritual core allowing the practitioner to attain knowledge of true self and unite with the higher being i.e. attaining liberation (moksha).

Yoga in its present form evolved from 'Patanjali's Yoga Sutra' written by sage Patanjali around 200 BCE which standardized yogic practices into eight steps. This standardized practice was called the '*ashtang* (eight limbed) *yoga'* or '*raj yoga'*. The following are the eight prongs of yoga given by Patanjali; they are considered to be interdependent like the limbs of a body or branches of a tree connecting to the trunk, rather than individual stages to be achieved.[3]

- The Yamas — Ethical controls or moral restraints
- The Niyamas — Ethical observances or values
- Asana — Postures
- Pranayama — Control of vital energy through breathing exercises
- Pratyahara — Sensory withdrawal
- Dharana — Concentration
- Dhayana — Meditation
- Samadhi — Enlightenment

Around 15th century Yogi Swatmarama gave the practice of '*Hatha Yoga*' in the '*Hathayoga-pradipika*' from which most present day yoga poses are derived.[4] Hatha yoga emphasizes on the practice of *asanas, mudras and pranayama* to achieve a healthy body and physical balance; which is considered as a prerequisite for attaining higher consciousness. Though prevalent in India since ancient times, yoga entered western countries in the 19th century. Swami Vivekananda is widely credited for spread of yoga to the west due to his wide lecturing, authoring of books on benefits of yoga and founding of the Vedanta society. Teachers of yoga migrating from India to western countries like USA developed their own style and eventually lead to the formation of various schools of yoga in the west. Over the years, multiple types of yoga have been developed, with each one varying in their emphasis on asanas, pranayama and meditation.[5]

Traditional Yoga Versus Yoga as therapy

Yoga is increasingly being applied as a complementary and alternative form of medicine for multiple ailments due to its effect on physiological and psychological functions.[7] The concept of yoga as therapy or medicine differs from traditional yoga. While traditional yoga aims at personal transcendence; yoga as medicine or therapy stresses on use of *asanas, pranayama* and *meditation* for their health benefits.In therapy, traditional yogic concepts

Following is a list of most prevalent types of yoga practices[1,6]

Name	Founder	Distinguishing feature
Ananda yoga	Swami Kriyananda	Poses called energization exercises, tensing and relaxing various muscle groups combined with deep relaxation.
Ashtangayoga	Pattabhi Jois	Highly athletic style, special ujjayi pranayama.
Bikram yoga (hot yoga)	Bikram Choudry	26 poses with 2 breath exercises, done at high temperature environment, rigorous.
Integral yoga	Swami Satchidananda	Easier, less rigorous, combines elements of karma yoga and reading yogic texts.
Iyengar yoga	B.K.S. Iyengar	Focuses on precision in asanas, use of props to allow easy practice of asanas.
Kripaluyoga (meditation in motion)	Swami Kripalu	Focuses on breath awareness and self-study during poses.
Kundaliniyoga (kundal = coil of energy)	Yogi Bhajan	Vigorous repetitive gestures and breathing, less focus on anatomical precision.
Restorative yoga		A therapeutic version of Iyengar yoga with liberal use of props to facilitate relaxing posture which promote healing.
Sivananda yoga	Swami Sivananda	13 poses with intermittent supine relaxation, gentle practice.
Sudarshankriya yoga	—	Extensive pranayama(breathing exercises)
Viniyogayoga	T.K.V. Desikachar	Gentle practice of poses combined with chanting and pranayama adapted to individual student's needs.

and techniques are combined with the available medical and psychological knowledge to achieve a holistic approach for various somatic and psychological ailments; the underlying premise being that human beings are an integrated body-mind system, which needs a dynamic balance for optimal functioning.[8]

Therapeutic usefulness of yoga has been demonstrated in a large variety of conditions, ranging from lifestyle disorders like diabetes, hypertension cardiovascular diseases and metabolic syndrome, degenerative disorders like Parkinsonism, osteo-arthritis and chronic lower back pain to psychiatric disorders like depression, PTSD & anxiety.[9-13] Yoga has not only shown to provide reduction in symptoms but also leads to improved quality of life, reduction in medications, reduction in stress, cognitive improvement and overall improved well-being.

Mechanism of action of Yoga

There are multiple plausible mechanisms for therapeutic effects of yoga. Yoga differs from simple stretching strengthening exercise in its mechanism of action. Studies examining yoga with exercises as a control group found benefits specifically in the yoga practice group not seen in the exercise group. Though the benefits from physical exercise component of yoga is undeniable, it also includes active attention on the muscle group used and focused breathing patterns which are unique to yoga. The benefits of yoga are purported to be of biological, psychological as well as social origin.[14] Evidence exists for most yogic practices causing increased alpha wave frequency and amplitude in brain which results in sense of calm, reduced anxiety and better control of emotional state; while improved beta wave frequency and amplitude caused bypranayama (breathing exercises) leads to improved focus, memory, alertness, and hitherto increased task performance.[15-17]

Long term yoga practice leads to neuroplastic changes in the brain in the form of increased gray matter volume, increased bilateral hippocampal volume and down regulation of amygdala and increased bilateral frontal lobe blood flow.[18-20] Chronically raised cortisol levels have been associated with stress, anxiety and depression, yoga reduces serum cortisol levels and attenuates hypothalamao-pituatary adrenal axis just after a single session.[21] It has shown to increase serum BDNF levels, implicating the antidepressant effect of yoga.[22-24] Active engagement of attention seen

during meditation leads to neuromodulation via BDNF signaling, which is a neurotrophin and promotes neuroplasticity in the dentate gyrus of hippocampus.[25,26]

Meditation and pranayama has also shown to affect the autonomic nervous system and increase vagal tone, leading to decreased sympathetic and increased parasympathetic stimulation.[27] Recently associations between yoga and modulation of inflammatory cytokines have been reported. An increase in the anti-inflammatory IL-10 levels, and decrease inpro-inflammatory IL-12 have been shown implicating its benefits in chronic inflammatory states like stress and propensity for mental illnesses like depression and anxiety.[24] Last but not the least it has also shown to increase levels of oxytocin in plasma, implication its efficacy for improving socio-occupational functioning in schizophrenia. Increased oxytocin levels are associated with pro-social behaviour.[28]

Yoga in schizophrenia

Schizophrenia; it is a psychiatric disorder characterized by heterogeneous symptomatology, complex and unclear etiology, limited response to psychopharmacological agents (especially with regard to negative and cognitive symptoms), chronic relapsing course with residual symptoms and progressive cognitive decline. All these factors make schizophrenia a chronic debilitating condition. The impacts of such a disorder are manifold, ranging from caregiver burden to poor quality of life. Presently available treatment modalities, though promising have not been able to address these shortcomings. Negative and cognitive symptom domains are usually the most challenging part of treatment, with little benefit from first or second generation antipsychotic medications. Moreover most psychopharmacological agents are associated with side effects leading to whole different set of problems. Stiffness, tremors, depressive symptoms and movement disorders due to first generation antipsychotics, increased number of medications to counter the primary side effect of antipsychotics; weight gain and metabolic syndrome due to second generation antipsychotics all add to the woes of an already overburdened caregiver and patient of schizophrenia. Hence the use of alternate and adjunctive modalities to tackle these problems seems to be imperative. Various psychosocial therapies are used to manage residual symptoms &improve health related quality of life in patients of schizophrenia.[29,30]

Evidence for use of Yoga in schizophrenia

As for most psychiatric illnesses, yoga shows promise for its use in schizophrenia too.Various studies have shown to improve different illness parameters in schizophrenia. One of the earliest studies conducted at the Swami Vivekananda Yoga Anusandhana Samsthana (SVYASA) demonstrated cognitive benefits of yoga in patients of schizophrenia under long term institutionalization.[31] Yoga has demonstrated to improve the psychopathology and quality of life in chronic patients who were under long term hospitalization, in comparison to control group who did not receive any added intervention. There was improvement in positive, negative symptom and general psychopathology subscales of PANSS. Though not formally measured, there was also observed behavioural improvement and decreased aggression in cases previously considered as treatment resistant along with better impulse control leading to decreased need for additional medications.[32] A similar study done in Indian settings on inpatients as well as outpatients maintained on antipsychotics used physical therapy as control group. There was significant improvement in the psychopathology and socio-occupational functioning in both groups; however the improvement was more in yoga therapy group. Interestingly the improvement in quality of life seen in yoga therapy group was not present in patients receiving only physical therapy as control arm of study. This supports the notion of yoga specific advantages over aerobic exercises.[33] These findings were replicated even after adding a third arm of waitlisting patients without any active intervention beyond antipsychotic medication. This proves that the improvements in psychopathology, negative symptoms and socio-occupational functioning were not merely due time lag and even non rigorous, once a day practice of yoga carried benefits over exercise or no adjunctive intervention.[34] Moreover when the crossover of waitlisted patients who did not receive any intervention in the primary study was done to the yoga therapy group, there was demonstrable improvement in psychopathology soon after adding yoga.[35]

Yoga and aerobic exercise have shown to decrease state anxiety and psychological stress in hospitalized patients suffering from schizophrenia, leading to increased subjective sense of well-being; an effect which was absent in the no exercise control arm.[36] Researchers have demonstrated improvement in the Facial Emotional Recognition Deficits (FERD) seen in patients of schizophrenia who underwent yoga therapy; in practice this is reflected through better interpretation of facial emotions of others. Increase in plasma oxytocin with the practice of yoga is purported to improve social cognition by enhancing processing of positive socio-emotional cues, thus improving interactions with others and promoting interpersonal trust. Clinically this is associated with improvement in socio-occupational functioning in patients of schizophrenia.[28, 37-40]Yoga shows promise in addressing the progressive cognitive deficits seen in schizophrenia. In a non-randomized control trial done in Indian settings, patients receiving yoga therapy showed improvement in certain domains of cognitive assessment using a computerized cognitive assessment battery compared to patients who did not receive yoga therapy.[41] Moreover when the study recruited patients of bipolar mood disorder, major depressive disorder and cardiac dysfunction for similar assessment, improvement in cognitive functions, albeit in different domains was seen even in these diagnostic groups.

Limitations of Yoga

The initial evidence at present shows promise for use of yoga based interventions as adjunctive even in severe psychiatric disorder like schizophrenia. However despite number of studies favoring the use of yoga as an intervention, recent Cochrane reviews find that the quality of evidence is still weak.[42,43] This may be due to multiple reasons. For one, there is a wide heterogeneity in the methodology of studies recruited; theinterventions are not standardized, with each study using different components and types of yoga as intervention. Also most studies have demonstrated the effect in short term; given that schizophrenia is a chronic relapsing illness, the need for studying therapeutic benefits of adjunctive interventions in long term is required. Though largely considered safe, the need for supervision while practicing yoga cannot be ignored. The essence of 'yoga based interventions' lies in optimal posturing with synchronization of breath and body awareness; if practiced without following these principles, it would offer little advantage over simple exercise. There are a few barriers to the addition of yoga as an adjunctive too; though it is an ancient practice its utilization for treatment of psychiatric illness is fairly recent. This leads to little faith among the doctors as well as patients for trying the treatment modality. Secondly the inherent nature of symptom domain which yoga purports to address may make it difficult to practice yoga. Decreased motivation to undertake any activity due to negative symptoms, being unable to follow instruction due to cognitive symptoms and no perceived need for practice due to poor insight all act as barriers to addition of yoga to treatment. Lastly the practice of yoga may not be perceived as a secular one, leading to reluctance of patients from different faith for its practice.[44] At the moment, yoga remains an economical, workable, adjuvant treatment modality for managing schizophrenia with need for more research and standardization of therapy.

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Review Article

Deconstructing the Aetiology and Prevention of Mental Illness: A Developmental Perspective

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Introduction

"Mental health is the capacity of each and all of us to feel, think, and act in ways that enhance our ability to enjoy life and deal with the challenges we face. It is a positive sense of emotional and spiritual well-being that respects the importance of culture, equity, social justice, interconnections and personal dignity.[1]Everyone benefits from positive mental health. The determinants of mental health go well beyond individual attitudes, beliefs and behaviours: the family, the community, the school and workplace environments all contribute to mental health.

Mental illnesses are medical conditions that can disrupt a person's thinking, feeling, mood, ability to relate to others and daily functioning. Just as diabetes is a disorder of the pancreas, mental illnesses are brain-based conditions that often result in a variety of symptoms that can affect daily life. Mental disorders comprise of a broad range of problems, with different symptoms. However, they are generally characterised by some combination of abnormal thoughts, emotions, behaviours and relationships with others. Mental illnesses are characterized by alterations in thinking, mood or behaviour—or some combination thereof—associated with significant distress and impaired functioning. The symptoms of mental illness vary from mild to severe, depending on the type of mental illness, the individual, the family and the socioeconomic environment. Mental illnesses take many forms, including mood disorders, schizophrenia, anxiety disorders, personality disorders, eating disorders and addictions such as substance dependence and gambling. They usually occur as an interaction between biological predisposition (heredity, temperament) and environment (e.g. stress, lack of support, lack of resources, trauma etc.). Many mental disorders affect people in their early adulthood; a time when persons are optimally productive.[2] These include depression, bipolar affective disorder, schizophrenia and other psychoses, dementia, intellectual disabilities and developmental disorders including autism.

A diagnosis of mental disorder is generally based on a cluster of symptoms and duration. These diagnoses are based on standard classificatory systems like the International Classification of Diseases-ICD by the World Health Organization or the Diagnostic and Statistical Manual-DSM by the American Psychiatric Association.Characterized by abnormal thoughts, feelings, and behaviours, Psychological disorders are conceptualized to label behaviours, thoughts, and inner experiences that are atypical, distressful, dysfunctional and sometime seven dangerous, as signs of a disorder.

Aetiologyof Mental Illness: Diverse Approaches

Conventional notions of mental health and mental illness tend to describe their relationship on a single continuum. Mental illness is represented at one end of the continuum while mental health is at the other end. However, mental health is more than the absence of mental illness. Moreover, the terms mental health problems, mental illness and mental disorder are often used interchangeably. Whereas the phrase mental health problem can refer to any departure from a state of mental or psychological well-being, the terms illness and disorder suggest clinically recognized condition, and imply significant distress, dysfunction, or a substantial risk of harmful

or adverse outcome.[1]

For centuries, psychological disorders were viewed from a supernatural perspective and attributed to a force beyond scientific understanding. Those afflicted were thought to be practitioners of black magic or possessed by spirits.[3]However, it is seen that mental disorders arise from a complex interplay between individuals and the environments in which they live. This implies that mental illness can be attributed to genetic, as well as psychological, social and cultural factors. [4]The determinants of mental health and mental disorders include not only individual attributes such as the ability to manage one's thoughts, emotions, behaviours and interactions with others, but also social, cultural, economic, political and environmental factors such as national policies, social protection, standards of living, working conditions and community support. Stress, genetics, nutrition, perinatal infections and exposure to environmental hazards are also contributing factors to mental disorders.[5]In order to deconstruct multiple understandings related to mental health, it is indeed necessary to understand is various models and perspectives. Let us begin with an understanding of the biological model of mental illness:

Biological Model - The biological model to understanding mental illness views them as linked to biological phenomena, such as genetic factors, chemical imbalances, and brain abnormalities; and has gained considerable attention and acceptance in recent decades.[6] Evidence from many sources indicates that most psychological disorders have a genetic component. Findings such as these have led many of today's researchers to search for specific genes and genetic mutations that contribute to mental disorders. Also, sophisticated neural imaging technology in recent decades has revealed how abnormalities in brain structure and function might be directly involved in many disorders and advances in our understanding of neurotransmitters and hormones have yielded insights into their possible connections.[3]

Psychological Model - Psychological approaches to mental disorders offer alternative perspectives and can also be integrated with biological perspectives. Psychological model focuses on associative networks based in the neural substrate but developed through learning, and rely on theories of conditioning, perception, appraisal, and belief formation, on propositional and implicational encoding, on mental models of the world and internalized schemas of relationships, and so forth. It includes the impact of potentially life-shaping experiences, or circumstances, that affect mental health of an individual, for example, childhood sexual abuse, bullying, attachment relations with parents, assault, and all other major and minor interpersonal experiences. Although these circumstances are of disparate kinds, they and many other life events can contribute to mental disorder.Due to the breadth of these circumstances, it may be difficult to capture them all on one hypothetical dimension.[7]

Socio Cultural Model: Mental illness is a social construct and hence, different cultures have their own beliefs to find the aetiology of mental illness, as well as treatment and intervention processes.[7,8] Mental illness is closely rooted in one's culture, poverty, helplessness and backed by powerful socio-political and economic structures. Cultural theorists always place importance on the society in shaping every individual's perception and responses, which are possible through social interaction. These are formed in the cultural and socio-political context of the society.[9]Culture may impact mental health in a variety of ways, including predetermining the pattern of specific mental disorders; producing basic personality types, some of which are especially vulnerable to mental illness; producing mental disorders through certain child-rearing practices; perpetuating mental disorders by rewarding it in prestigious roles; producing mental illness through certain stressful roles; affecting mental disorders through the indoctrination of its members with particular kinds of sentiment; affecting the distribution of mental disorders through patterns of breeding; and affecting the distribution of mental illness.[10]

The Biopsychosocial Model: The biopsychosocial model conceptualizes mental disorder as emerging from a human system that has both physical elements (biological nervous system) and psychosocial elements (relationships, family, community, and the wider society).[7]The model addresses the biological, social, environmental, psychological and behavioural aspects of mental illness and considers the non-medical determinants of disease in collaboration with the purely biological components.[11] The emphasis within the biopsycho-

social model is on social and psychological perspectives, and not exclusively on the biological aspects of mental disorder, needs to be given to how, in each case, the elements—bio, psycho, and social relate one to another. In practice, the model has been interpreted as reserving a dominant position for biomedical approaches—with social and psychological factors being acknowledged but nevertheless considered to be mere moderators of the direct causal role of biological processes.[7] Moreover, seen as the continuum between the medical and sociological models, the bio-psychosocial model promotes partnerships across multidisciplinary teams of professionals.[12]

After exploring the three models of mental health, let us explore an insight into mental health from a developmental perspective:

Mental Health: A Developmental Perspective

Mental health is an individual resource that develops over the lifespan. The lifespan or developmental approach is a popular paradigm in mental health whereby different stages of development are identified along with various life crisis and expected developmental tasks. The earliest signs and symptoms of a disorder may occur at any time throughout the lifespan and the nature and timing of prevention and early intervention depends not just on the individual's age, but also on the identified pathways to mental health concerns and the identified risk factors and critical transition points that characterise those pathways. Most mental health issues develop along a pathway, or trajectory, with gradually increasing frequency and severity of symptoms. Challenges experienced as a child (such as sexual abuse) may create an increased risk for a mental illness in later life. Likewise, personal coping mechanisms developed at an earlier life stage may protect the individual from developing a mental illness in adulthood. A lifespan development perspective leads to an early identification of psychosocial risks for mental illness and to early intervention, which would promote optimal mental health over the lifespan.[1]

Few mental illnesses develop slowly over time, such as some drug use disorders, others can be episodic in nature, such as schizophrenia and

Table 1.1: Developmental Tasks Across Life Span

Lifespan Stage	Major Developmental Tasks	Significant Socio Cultural Factors	Common Mental Health Issues
Childhood	Physical health and well-being, secure attachment, acquisition of language and social skills, entering school, scholastic achievement	Gender socialisation by family, school and community at large, child abuse, incest	Conduct disorders, mood disorders, Attention Deficit Hyperactive Disorder (ADHD), other behavioural maladjustments
Adolescence	Puberty, identity formation, pressure to excel in academics and vocations, career choice	Menarche followed by socio-cultural restrictions among girls, concerns about physical appearance/ pressure to look *slim/beautiful/macho*, gender specific professional aspirations, access to resources, sexuality	Anxiety, eating disorders (anorexia nervosa, bulimia nervosa, binge-eating), depression, onset of substance abuse / alcoholism, suicide
Adulthood	Professional development, income generation, marriage, stable interpersonal relationship with significant others, parenting/child rearing, employment related stress	Choice of partner, pregnancy and child birth, preference for male child, work-life balance, violence, single parenthood, divorce, sexuality, career choice, access to resources, sexual harassment at workplace	Anxiety, peri partum depression, sexual dysfunction, alcohol and substance abuse, Post Traumatic Stress Disorder (PTSD)
Old Age	Retirement, acceptance of physiological changes, relationship with children and grandchildren, wisdom, active aging	Neglect/abuse, widowhood, reduced social support	Neuro-cognitive disorders (e.g. dementia), depression

Table-1.2: Protective factors potentially influencing the development of mental health problems and mental disorders in individuals

Individual Factors	Family Factors	School Context	Life Events and Situations	Community and Cultural Factors
• Easy temperament	• Supportive caring parents	• Sense of belonging	• Involvement with significant other person (partner/ mentor)	• Sense of connectedness
• Adequate nutrition	• Family harmony	• Positive school climate	• Availability of opportunities at critical turning points or major life transitions	• Attachment to and networks within the community
• Attachment to family	• Secure and stable family	• Pro social peer group	• Economic security	• Participation in church or other community group
• Above-average intelligence	• Small family size	• Required responsibility and helpfulness	• Good physical health	
• School achievement	• More than two years between siblings	• Opportunities for some success and recognition of achievement		• Strong cultural identity and ethnic pride
• Problem-solving skills	• Responsibility within the family (for child or adult)	• School norms against violence		• Access to support services
• Internal locus of control	• Supportive relationship with other adult (for a child or adult)			• Community cultural norms against violence
• Social competence	• Strong family norms and morality			
• Social skills				
• Good coping style				
• Optimism				
• Moral beliefs				
• Values				
• Positive self related cognitions				

depression. Other disorders may develop very quickly following a major trigger event causing anxiety, depression or post-traumatic stress reactions in people who would otherwise not experience a mental health problem. Each developmental phase with the occurrence of recurrent life events leaves behind a residual effect of stress experienced in the psyche of an individual.[12] Table 1.1 presented below enumerates various lifespan stages along with their unique developmental tasks, significant socio-cultural factors and common mental health concerns with respect to that stage.

Treatment of Mental Illness

Because mental illnesses are typically persistent illnesses, continuous maintenance to help prevent the re-emergence of symptoms is recommended. The management of the illness includes attention to lifestyle, stress management, supports and also medication options. It is essential to put together a care plan with elements specific to individual needs. If mental illnesses are left untreated, the symptoms can become more pronounced. Recognition and diagnosis of any condition in its earliest stages is important so that one can receive effective treatment. Effective treatment plans usually include medication, psychotherapy, education, self-management strategies and external supports such as family, friends and formal support groups. Combining these elements and revising the treatment plan based on assessment of an individual's response is the best means of preventing relapse and reducing the severity of symptoms.

Prevention of Mental Illness: A Multilayered Framework

Prevention of mental disorders may appear to be too ambitious as a concept, considering the diversity of viewpoints with respect to the aetiology of most mental disorders. There is enough evidence available for genetic contribution in genesis of many mental disorders and biopsychosocial paradigm is applicable across most of the mental disorders. Psychosocial factors play a significant role in etiogenesis, accessing services, treatment, and rehabilitation of mental disorders.[13] Prevention of mental disorders indeed becomes very critical. World Health Organization emphasizes on the following domains with respect to prevention and promotion of mental health[14]:

- Prevention of mental disorders as a public health priority
- Multiple determinants of mental disorders
- Need for multi pronged and multidisciplinary effort
- Thrust on effective prevention to reduce the risk of mental disorders
- Relying on available evidence during implementation
- Public awareness on successful programs and policies
- Expansion of knowledge of evidence for effectiveness

There are also levels of prevention of mental disorders viz. primary, secondary and tertiary. ***Primary prevention*** is aimed at reducing the incidence of the illness. One of the examples of primary prevention is the reduction of risky behaviours such as substance use and unsafe sex that can contribute to the reduction of negative outcomes such as suicide, teen pregnancy, school dropout, and delinquency. Primary prevention is aimed at the individuals without recognized illness, to decrease the incidence of disease by reduction of risk factors and enhancement of protective factors at macro (society and the culture) as well as micro levels (individuals, small groups, or social networks).[15]

Secondary prevention focuses on early recognition and treatment of mental disorders. Its strategies aim at individuals with a diagnosable illness, intending to reduce the rate of complications due to an established disease. Since there are a number of barriers to secondary prevention including limited mental health resources, enormity of population with mental health problems, and stigma, lack of awareness and misconceptions about mental disorders interfering in access to services for treatment; solutions could include enhancing mental health resources in the community, creating community awareness especially about the early signs of mental disorders and their treatment, strategies at reducing stigma, and facilitating contact with mental health services. This would help in early recognition of mental disorders. The treating psychiatrists also need to take special care at ensuring adherence to treatment so as to promote recovery and prevent relapses.[16]

Tertiary prevention, as in public health, focuses on rehabilitation of the patients following treatment. It is also a long drawn process, considering frequent chronicity of mental disorders. Persons especially those with severe mental disorders such as schizophrenia, bipolar disorder, other psychotic disorders, and severe depression tend to run a chronic or relapsing course, many times with associated disability and deficits. Developing a rehabilitation program for persons with severe mental disorders and preventing disabilities is a major challenge in psychiatry in the background of meagre resources. Families are a major support here, but it is very important to mobilize the community and the policy makers in developing such programs.[16]

Preventing Mental Illness: Strengthening the Protective Factors

The determinants of mental health demonstrate a complex picture about what makes an individual mentally healthy or unhealthy. They provide a perspective on mental health (and mental illness) with implications for policy and program development. From a bio psychosocial perspective, in order to prevent mental illness, there is a need to focus on the protective factors that potentially influence the development of mental health problems and mental disorders in individuals. Table 1.2 presented below delineates these protective factors:[17,18]

An attempt to locate efforts to prevent mental illness reveals various international as well as national initiatives that focus on prevention with thrust on rights based approach towards treatment as well as prevention. The Mental Health Action

Plan 2013-2020 by the WHO recognizes the essential role of mental health in achieving health for all people. The plan includes four major objectives:

- More effective leadership and governance for mental health;
- The provision of comprehensive, integrated mental health and social care services in community-based settings;
- The implementation of strategies for promotion and prevention; and
- Strengthened information systems, evidence and research.

WHO's Mental Health Gap Action Programme (mhGAP), launched in 2008, uses evidence-based technical guidance, tools and training packages to expand service in countries, especially in resource-poor settings.

In the Indian context, we have National Mental Health Programme, District Mental Health Programme that focus on the provision of services for the persons with mental illness. Moreover, the *Mental Health Care Act 2017 has also been passed* to provide for mental healthcare and services for persons with mental illness and to protect, promote and fulfill the rights of such persons during delivery of mental healthcare and services. However, despite the laws and legislations in the international as well as national level, there is a dire need to work in the area of promotion of mental health and work towards strengthening of services related to mental health.

The Way Forward

Investigation of aetiology of mental illness and the efforts towards promotion of mental illness requires a truly interdisciplinary approach. The burden of mental disorders continues to grow with significant impacts on health and major social, human rights and economic consequences in all countries of the world.[5] Considering the huge populations in India and South Asia (nearly 1.8 billion) and the severe shortfall in the number of mental health professionals, a public health approach is needed.[13] Psychosocial approaches for prevention may include creating awareness about mental disorders in the community, especially about the early features of identification, need for treatment, removing myths, and misconceptions about mental disorders and appraising about the services available. Mental health promotion remains an important component of any preventive program. Therefore, lifestyle modification, regular physical exercise, deep breathing exercises, staying away from drugs and alcohol, taking adequate sleep, avoiding social isolation, developing hobbies, keeping time for family, and recreation are some simple principles which can be of great help in staying away from mental disorders in addition to strengthening the protective factors.

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Original Article

A Clinical study of Co-morbidities in subjects with Pervasive Developmental Disorders

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ABSTRACT

Objectives: *To study co-morbidities associated with Pervasive Developmental Disorders.* ***Background and aims:*** *Pervasive Developmental Disorders (PDD) are group of developmental disorder with impairments in interaction, communication and behaviour. Newer co-morbidities are being discovered now a day. The Study aims to explore the co-morbidities associated with PDD.* ***Materials and methods:*** *Patients in psychiatric outpatient department (OPD), presented with impairment in social- interaction, language, communication and mental retardation were diagnosed for PDD on the basis of ICD-10 Diagnostic Criteria for Research and Multi-Axial version of ICD-10. The subjects were assessed for severity of PDD on Childhood Autism Rating Scale (CARS) and co-morbidities by Kiddie Schedule for Affective Disorder and Schizophrenia (K-SADS).* ***Results:*** *Total number of screened positive cases were 20. Two subjects had specific phobia as they had fear of heights however the most frequent physical co-morbidity was seizure disorder (20%).* ***Conclusions:*** *Eighty percent (80%) of the subjects had co-morbid mental retardation and the most frequent physical co-morbidity was seizure disorder (20%).*

Keywords: *Pervasive developmental disorder, Comorbidity, Psychiatric, Physical.*

Introduction

The pervasive developmental disorders (PDD) include a group of disorders in which there are delays and deviance in the development of social skills, language and communication and behavioral repertoire. These disorders have their onset in early years of life. They disrupt diverse developmental processes and are often associated with mental retardation. These conditions differ from primary mental retardation and from the language and other specific developmental disorders in that the behavioral features and patterns of development are observed in multiple areas, are highly distinctive and are not simply a manifestation of developmental delay.

Among children, the prevalence of Childhood autism is about 13 per 10,000, Asperger's disorder is approximately 3 per 10,000, Childhood disintegrative disorder is very rare at about 0.2 per 10,000 and PDD NOS is 20.8 per 10,000[1]**.** The prevalence of Rett Syndrome is estimated to be between 1 in 10,000 and 1 in 22,000.[2]

Studies on PDD have been reported to be co-morbid with various other developmental and behavioral conditions. With the exception of Asperger's syndrome; mental retardation is frequently co-morbid with autism and other PDDs, and the frequency of symptoms suggestive of autism increases with the degree of mental retardation[3]. Individuals with PDD also exhibit many behavioral difficulties including hyperactivity, attentional problems, obsessive compulsive-like phenomena, self-injury and stereotypies, tics, and affective symptoms.[4-11] Feature suggesting

obsessive-compulsive disorder are frequently observed in adults with Asperger's syndrome and sometime PDD individuals may develop schizophrenia.[12]

In Indian context, only few case reports and systematic studies are found. Sitholey et al[13] reported two cases of childhood autism in Tuberous sclerosis. New co-morbidities are being reported for example, Separation Anxiety Disorder with Asperger's syndrome[14]. A study of co-morbid psychiatric disorders in Pervasive developmental disorders found almost half of the sample had a diagnosable co-morbidity.[15] Attention deficit hyperactivity disorder was most common co-morbidity (20% syndromal diagnosis and 8% sub-syndromal diagnosis); others were anxiety disorders, affective disorders, obsessive compulsive disorder and sleep disorders.

Material and Methods

Study Sample:

The subjects for this study were drawn form the child and adolescent psychiatric clinic, which registers children up to 16 years of age. It was proposed to draw sample from adult psychiatry outdoor also. Both the child and adolescent psychiatry outdoor and the adult psychiatry outdoors are located in the Department of Psychiatry, King George's Medical University, Lucknow. It was thought that a large sample may not be obtained from psychiatry out door only, therefore, it was decided to draw children with PDD from 'Parents' Network for Autism (PNFA) and 'Center for Autism'. PNFA and "Centre for Autism" are local association of parents of children with PDD in Lucknow.

Inclusion Criteria

Individuals with an ICD-10 DCR diagnosis of PDD.

Availability of at least one reliable informant who may be a parent or guardian of the patient.

Informed consents of the parent/guardian or informed consent/ assent of the subject, where applicable.

Exclusion Criteria

Non-availability of a reliable informant.

Parents or guardians not willing to give informed consent/assent.

Following tools were applied:

1. A Semi-Structured Proforma for socio-demographic details and psychiatric history.
2. Developmental Behaviour Checklist (DBC) (54 item)[16]
3. Childhood Autism Rating Scale (CARS).[17] It is 15-items, 4 points Likert scale ranging from 1.0 to 4.0 with intermediate values, between units.
4. Kiddie-Schedule for affective disorders and schizophrenia[18]. K-SADS is a semi-structured psychiatric interview designed for clinical or research assessment.
5. ICD-10 diagnostic criteria for research.[19]
6. Multi-axial version of ICD-10 classification of mental disorders of child and adolescents.[20]

Procedure

All the newly registered patients in child and adolescent psychiatry OPD and adult psychiatric OPD (on Saturdays), who presented with impairment in social interaction, language and communication and mental retardation were screened for features of PDD by applying DBC 54 items scale. After initial screening the subjects were selected on the basis of inclusion and exclusion criteria. All the old cases of PDD, registered in child and adolescent OPD, or registered in "Parent's Network for Autism" were also selected on the basis of inclusion and exclusion criteria.

The subjects who fulfilled selection criteria were evaluated in several sessions. The subjects were evaluated in outdoor, child's play room, in their own homes and the Center for Autism.

Socio-demographic details were recorded on a semi-structured proforma.Co-morbidities were evaluated using K-SADS for children between 6 to 18 years of age. For age group less than 6 years and more than 18 years, co-morbidities were assessed clinically. A thorough physical examination was done. The subjects were assessed for severity on CARS. The subjects with PDD were assessed for their intellectual ability by the clinical psychologist. Cases were diagnosed and classified by ICD-10 DCR and multi-axial version of ICD-10, classification of mental disorders of child and adolescent respectively.

Results

Table 1: Study Sample

Total number of new cases screened	24
Total number of new cases screened negative	05
Total number of new cases screened positive	19
Screened positive but final diagnosis non-PDD:	
Scholastic problem	01
Mild MR with hyperactivity	01

No psychiatric illness		01
Total:		**03**
Total Number of screened positive cases fulfilling inclusion criteria :		16
Total Number of dropouts*		02
(A)	**Number of new cases, screened positive with final diagnosis of PDD.**	**14**
(B)	**Total number of old cases screened positive with final diagnosis of PDD**	**06**
(C)	**Total sample size**	**20**

* Reason for dropout – one subject belonged to Nepal. Her mother was undergoing surgery and simultaneously the subject developed pneumonia. So family members took her back home. The other subject did not come for follow up.

Table – 2: Age and the PDD diagnostic categories

Age Groups	Type of PDD	Total No.
Up to 5 years	Childhood Autism	07
	Atypical Autism	01
6 – 12 years	Childhood Autism	06
	Rett's Disorder	02
	CDD	01
13 – 18 years	Childhood Autism	02
> 18 years	Childhood Autism	01

Table – 3: Multi-axial Classification of the Subjects (N=20)

Axis I (Clinical psychiatric Syndrome)	Childhood Autism 16 (80%)	Atypical Autism 1 (5%)	Rett's Disorder 2 (10%)	Other CDD *1 (5%)	Total (n=20)
Axis II (Specific disorders of psychological development)	**Nil**	**Nil**	**Nil**	**Nil**	**n = 0**
Axis III (Intellectual Level)					
Mild MR	4 (20%)	1 (5%)	—	—	n = 5
Moderate MR	4 (20%)	—	—	—	n = 4
Severe MR	4 (20%)	—	2 (10%)	—	n = 6
Profound MR	—	—	—	1 (5%)	n = 1
Total Cases of Mental Retardation	12 (60%)	1 (5%)	2 (10%)	1 (5%)	n = 16
Axis IV (Medical Conditions from ICD-10)	5 (25%)	—	1 (5%)	—	n = 6
Axis V(Associated abnormal psychological situation)	1 (5%)	—	1 (5%)	1 (5%)	n = 3
Axis VI (Global Assessment of psychological disability)					**n = 20**
Serious social disability	01 (5%)	—	—	—	n = 1
Profound & pervasive social disability	15 (75%)	01 (5%)	02 (10%)	01 (5%)	n = 19

**Other childhood disintegrative disorders.*

Table - 4: Severity of the Subjects on CARS

Subjects	CARS	Mean
Non-Autistic (N = 1)	29.5	—
Mild to moderately autistic (N = 3)	32.0 to 36.5	34.0 ± 2.50
Severely Autistic (N = 16)	40.0 to 55.0	45.16 ± 6.20

Table – 5: Mean total scores of CARS in Retarded and Non-Retarded subjects

Intellectual Level (N=20)	CARS (N=20)
Non-retarded (n = 4)	39.0 ± 6.0
Retarded (n = 16)	43.60 ± 5.90

(p value > 0.05)

Discussion

In this study Mental retardation was found most common co-morbidity (80%) on axis III. Malhotra, et al[21] also found 78% cases of mental retardation co-morbid with PDD. However Srinath et al[22] found that only 11% cases of PDD had comorbid mental retardation. Fombonne[23] reported that 30-70% of patients with PDD are also mentally retarded. In Lucknow study 20% cases had co-morbid seizure disorder, 5% (n=1) had congenital hydrocephalus and 5% (n=1) had bilateral myopia on axis-IV diagnosis. Epilepsy was the commonest physical condition (20%) associated with PDD. Similar findings were obtained by Srinath, et al[22] and Malhotra, et al[21], who found it to be 15% and 34% respectively. Previous literature also shows that approximately 10-35% of children with PDD have seizures[24,25]. On Axis-V we found 3 cases (15%) had abnormal psychosocial environment. So abnormal psychosocial environment does not seem to be an etiological factor in development of PDD. It also indicates towards biological etiology in development of PDD. Similar results were also found by Srinath, et al[22].

Now-a-days co-morbid diagnoses of ADHD with Autism Spectrum Disorders (ASD) or Autism Spectrum Disorder (ASD) with ADHD are frequently made. Stahlberg, et al,[26] and Girimaji et al[27] also reported 20% syndromal diagnosis of ADHD and 8% sub-syndromal diagnosis of ADHD in his 50 subjects with PDD. In present study, a majority of the cases had symptoms of hyperactivity (90%), inattention (80%) and impulsivity (45%). 65% cases needed medications to control their hyperactivity. But these hyperactivity, inattention and impulsivity are DBC items which were asked from parents of children rather than child observation. Inattention could not be checked properly because children were uncooperative and not involved in activities. It is very difficult to say whether attentional problems were due to PDD or ADHD. Studies who diagnosed ADHD in PDD belonged to higher functioning autistic children and children in this study were severely autistic. A confident diagnosis of ADHD could not be made in any one of the subject due to presence of PDD. Also both the present classificatory system, ICD-10 (1992) and DSM-IV TR (2000), does not allow co-morbid diagnosis of ADHD in subjects with PDD.

In this study 2 (10%) cases showed specific phobia as they had fear of heights. Similar finding were also reported by Girimaji, et al[27] (8%). They also found 4% cases having circadian rhythm disturbance. But present study did not find any circadian rhythm disturbance. However, erratic sleep pattern was found in 30% of cases. The available literature on sleep disorder in autism puts its prevalence between 44% and 89%.[28-30] So sleep disturbances is quite prominent in PDD individuals.

In the study, 5 (25%) cases showed co-occurring self-injurious behavior like head banging, biting, scratching, picking up their own skin or hurting self. Earlier literature revealed that approximately 20-30% of children with PDD exhibit serious behavioral problems, such as aggression, temper tantrums and self-injury[31].Only one subject of childhood autism had co-morbid stuttering on axis-I.

Conclusion

80% of the subjects had co-morbid mental retardation and the most frequent physical co-morbidity was seizure disorder (20%).

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Original Article

Building Coping and Resilience (Bounce Back) among Students through Ability Enhancement Course (Mental Health & Adjustment): Experiences from Central University of Kashmir

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ABSTRACT

Summary: *Mental Health has become a growing concern and a stark challenge among all the stakeholders including academicians. Taking a serious note of the vulnerability among student community amid exhaustive curriculum, exam anxiety, performance pressure, and a variety of personal, social and familial issues, the academicians feel a dire need to address this issue and make efforts in order to safeguard the students from developing several mal-adjustments.* ***Objective:*** *This study aims to assess the effectiveness of incorporating Ability Enhancement Course as an elective paper offered to the students in an effort to enhance the psychological capital (Resilience, Coping, Assertiveness, Self-discipline, Self-awareness, Self-motivation, Positive attitude, Emotional Intelligence etc) among the students and help them manage their stress and improve overall quality of life.* ***Method:*** *The study was conducted at School of Education, Central University of Kashmir. A sample of 50 students pursuing different P.G. courses and who had opted for Mental Health and Adjustment course as an elective paper offered by School of Education was taken for the study. Before starting the said course the students were assessed on the measures of Connor-Davidson Resilience Scale and Brief COPE. After completing the course, the students were again assessed on both the measures of assessment.* ***Results:*** *On comparing the pre-test and post test scores of the students, a significant difference was found in the scores at 95% level of significance.* ***Conclusion:*** *This study thus infers that incorporating such courses in the curriculum would play a pivotal role not only in managing various academic pressures of the students but also in enhancing their overall mental health and well-being. The course thus should be included in the curriculum as a compulsory subject and not an optional one.*

Key Words: *Curriculum, Academic Pressure, Ability Enhancement Course, Resilience, Coping*

Introduction

Stress is an inevitable part of human existence. It acts as a body's natural defense against a threatening situation. However, if the amount of stress exceeds beyond a certain level, it can have its repercussions on a person's physical as well as mental health. The student community is not spare of developing certain maladjustment and psychological exertion amid exhaustive curriculum and course overload. Students report of experiencing academic stress at several times during a semester, developing achievement anxiety while preparing for

exams (Continous Internal Assessments and End Semester Exams), grade competition, meeting deadlines, parental expectations etc. Moreover, societal compulsion upon the students to learn and acquire the necessary knowledge and skills in order to contribute positively to the development of the society in general and of their households in particular takes a heavy toll on their psychological well being. Study conducted by Zeidner also reveals that students appeared to be under high pressure originating from course overload[1], imposing excessively high self expectation[2], exam related stress resulting in suicidal attempts.[3] It is reported that every year about 25000 students in the age group of 18 to 20 years commit suicide during the examination month i.e., March to June.[4] In addition, several other factors which include breakups in relationships, financial issues, and familial conflicts exacerbates the problem which makes them feel crumbled before the stressful conditions.

Bounce it Back

Coping with stress has gained continuous attention from scholars and now a days it has become an important affair in academic arena as well. Often students engage themselves into various stress reduction techniques ranging from effective time management, social support, positive reappraisal and leisure pursuits[5] to chat with friends (real/virtual) on various social networking sites, online shopping etc. However, the need of the hour is to build resilience and coping, the two basic virtues, among the students so that each student would be able to adapt well overtime to life changing situations and stressful conditions.

Educationists are paying due attention to the sources of academic stress of students and evaluating the use of various strategies to assist students in the sound development of their bodies and mind. In a similar effort made by the authorities in the School of Education, Central University of Kashmir, an ability enhancement course (AEC) titled Mental Health and Adjustment is being offered to the students registered for different professional and Non-professional courses wherein trained faculty members having expertise in the area of mental health and well being are rendering their services. Thus in order to examine whether the proposed course brings any constructive change in developing psychological strengths among students, the present study was planned and carried out with the following objective.

(a) to study the effect of incorporating Ability Enhancement Course (Mental Health and Adjustment) on the mental health of the students.

Method

Design, Sample and Tools Used

The present study was conducted at the School of Education, Central university of Kashmir. One group pre-test post-test design was used in which a number of 50 students pursuing different Post Graduate Courses in the University were recruited for the study. Before starting the ability enhancement course (MHA), all the 50 students were first administered to Connor-Davidson Resilience scale[6] and BRIEF COPE[7] in order to get the pre-test scores of all the sample under study on both the measures. The course was started in April, 2017 which lasted for three months before the commencement of their End Semester Exams. The course was taught by a teacher (Investigator) having Doctorate in Psychology. The course conceives a blend of key concepts (Resilience, Coping, Positive attitude, Self-awareness, Self-motivation, Self-Discipline, Assertiveness, Adjustment, Conflict and Stress management) and theories (Behaviouristic, Psychoanalytic {Defence Mechanism}, Cognitive, Humanistic) related to human behavior. Emphasis was given on the topics related to Resilience (the ability to cope with adversity) and Coping (strategies to deal with an adverse situation) in an attempt to build these positive virtues among the students. Comprehensive lectures were delivered on the said topics followed by interactive sessions with the students.

Result and Conclusion

The socio-demographic profile of the students reveal that the mean age of the sample under study was 23 years. Majority (70%) of the subjects were females and 30% were males. A percentage of 60% of the subjects were from rural areas followed by 40% from urban areas. The descriptive statistics further depict a significant difference in the average scores obtained before and after the course on the measures of Coping and Resilience. The details can be seen in the table given below:

Table-1: Pre-test and Post-test scores of students on Coping scale (BRIEF COPE)

Coping	N	Mean	SD	t	Eta-squared
Pre-test	50	44.56	2.55	-3.69*	0.21
Post-test	50	46.82	3.95		

*p < 0.05

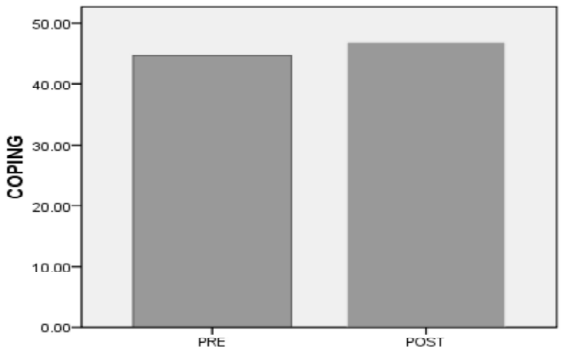

Fig-1: Bar graph showing pre-test and post-test scores of the subjects on Coping scale

Table-2: Pre-test and Post-test scores of students on Resilience scale

Resilience	N	MEAN	SD	t	Eta-squared
Pre-test	50	66.84	8.82	-3.44*	0.19
Post-test	50	71.40	9.87		

*p < 0.05

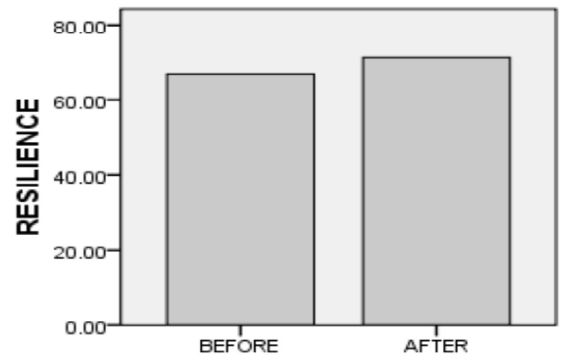

Fig-2: Bar graph representing Pre-test and Post-test scores on the measure of Resilience

The result of the present study clearly reveals that the average scores on both Coping and Resilience scales have increased considerably after the completion of the course. Following Cohen's interpretation, the Eta-squared values also depict a high effect of intervention on both the measures of assessment. Thus it can be argued that the differences seen in the scores on the measures of Coping and Resilience is due to the incorporation of Ability Enhancement Course in the syllabus of the students. In addition, the students themselves reported to have enhanced their psychological capital which in turn helps them in dealing with any kind of stress which was quite rewarding to the teacher(investigator). During the transaction phase, students were encouraged to have a comprehensive interaction with each other in order to gain insight into the problems and solutions thereof.

The present study thus suggests that this skill based course (Mental Health and Adjustment) should compulsorily be included in each programme offered by every institution. Incorporating such courses in the curriculum shall not only enhance student's resistance to stress related to their academics but also will help them adapt well overtime to life changing situations.

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Original Article

A study of caregiver burden and depression in primary caregivers of chronic kidney disease patients on dialysis

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ABSTRACT

Introduction*: Chronic kidney disease (CKD) is one of the major burden of diseases worldwide. Caregivers of hemodialysis patients face depression, anxiety, fatigue, social isolation, relationship strain and financial strain. This study aims at assessing caregiver burden and depression in primary caregivers of CKD patients.* ***Methods and Material:****85 primary caregivers of CKD patients undergoing hemodialysis were included. Socio-demographic profile, Perceived caregiver burden using Zarit Burden Inventory and Depression using Hamilton depression rating scale (HDRS) were assessed. WHO QOL-BREF scale was used to measure their quality of life.* ***Results:*** *Prevalence of caregiver burden was 78.82% in the study population among which 41.18% suffered with mild to moderate burden, 27.06% had moderate to severe burden and 10.59% with severe caregiver burden. Prevalence of depression was 48.24% in which 11.77% suffered with moderate to severe depression. There was a strong positive correlation between the caregiver burden and depression scores (p value <0.001). Factors like increasing age of the caregiver, being a female, primary earning member of the family and the absence of secondary caregiver were significantly associated with increasing caregiver burden which in turn decreased the quality of life in caregivers (p value <0.001).* ***Conclusions:*** *Caregiver burden and depression in primary caregiver of hemodialysis patients is high and impairs their QOL. Hence routine screening of caregivers should be incorporated during patient assessment. Diagnosing early and treating them may improve the quality of life of caregiver as well as patient.*

Key-words*: Caregiver burden, Depression, Primary caregiver, CKD, Dialysis, Quality of life*

Introduction

Recent research suggests that the mind and body interact and influence one another, and a number of psychiatric disorders are prevalent to various degrees in the general medical patients[1]. Chronic kidney disease (CKD) is one such medical condition which causes physical and psychological distress to both patient and the caregivers. Caregiving is a demanding task requiring time, dedication and perseveration, which affects the quality of life of millions of people world-wide[2]. The Indian subcontinent has about 7.85 million people suffering with Chronic Kidney Disease[3]. Hemodialysis is the most common modality of treatment of CKD[4]. The caregivers of these patients take care of their chronically ill family member and simultaneously have to maintain their quality of life as well[5]. Furthermore, the caregiver is also

challenged with complications and medical emergencies that arise in the patient resulting in frequent clinical appointments and dietary restrictions, which further lead to increased caregiver responsibilities, increased physical, emotional and economic burden.[6-10]

Studies on caregiver burden in CKD patients from various countries and ethnic background reveal that it affects both physical and psychological wellbeing as well as the quality of life of caregivers.[11-13] Many studies had reported that as high as 74.2% of the caregivers suffered from extreme physical and mental burden.[14,15] Various studies report that the prevalence of Depression in caregivers of CKD patients on hemodialysis ranges from 33-43%,[16,17] among whom 9% had severe depression[18] and more than 50% of the caregivers reported to have a moderate to low quality of life[15]. The most frequent complaints of the caregivers were sleep disturbances (37%),[6] being devoid of recreation and entertainment (65%) and a decrease in the social support (85%).[15]

Compared to other chronic medical illnesses like Stroke, the caregiver burden in chronic kidney disease is a less studied area. Not much literature has focused on syndromal depression and its correlates in the caregivers of hemodialysis patients. Hence this study is done aiming at assessing the caregiver burden, depression and quality of life in the primary caregivers of chronic kidney disease patients.

Material and Methods

It was a cross-sectional study conducted in the Department of Psychiatry in liaison with the Department of Nephrology of a tertiary care hospital. An approval from the Institutional Ethics Committee was obtained. Primary caregivers of 85 patients of CKD undergoing hemodialysis were included in the study by purposive sampling. Primary Caregivers were operationally defined as those family members who are involved in the care of the patient more than any other relative, for at least a period of 3 months[19]. Caregivers of both gender aged more than 18 years and those willing to give consent were included in the study. Caregivers with pre-existing severe medical and psychiatric illnesses and those on psychotropic drugs were excluded from the study. Informed written consent was obtained from the study participants as well as the patients. Socio-demographic and clinical details of the caregiver, patient's illness and dialysis details and the details about caregiving were collected using a semi-structured questionnaire. Psychiatric assessment of the caregivers was done and they were evaluated for Depression based on ICD-10 Diagnostic criteria. Zarit Burden Inventory[20] was used to assess the caregiver burden. Severity of Depression was rated with Hamilton Depression Rating Scale (HDRS)[21]. The World Health Organization-QOL (WHO-QOL) Scale-BREF[22] was used for evaluating the quality of life of caregiver. Statistical methods were used to assess the caregiver burden, depression and quality of life in the primary caregivers of chronic kidney disease patients.

Results

A total of 85 primary caregivers of CKD patients undergoing hemodialysis were included in the study. The mean age of the study population was 49.14 ± 11.52 years. Most of them were female spouses, had primary or middle school education and were unemployed. Occurrence of caregiver burden was considered as the primary outcome variable. The prevalence of caregiver burden was 78.82% in the study population among which 41.18% suffered with mild to moderate burden, 27.06% had moderate to severe burden and 10.59% had severe caregiver burden [Table 1]. The prevalence of depression was 48.24% in the study population in which 11.77% suffered with moderate to severe depression [Table 2].

For the purpose of statistical analysis, the caregivers were divided into two groups based on caregiver burden, one group with no caregiver burden and the other with caregiver burden (mild to severe). Mean age of the study population with caregiver burden (50.86 ± 9.966 years) was

Table-1: Prevalence and severity of caregiver burden in the study population (N=85)

Caregiver burden*	Number (N)	Percentage (%)
Little or no burden	18	21.18%
Mild to moderate burden	35	41.18%
Moderate to severe burden	23	27.06%
Severe burden	9	10.59%

* Based on Zarit Burden Inventory Schedule score

Table-2: Prevalence and severity of Depression in the study population (N=85)

Distribution*	Number (N)	Percentage (%)
Normal	44	51.76%
Mild Depression	31	36.47%
Moderate Depression	9	10.59%
Severe and Very severe Depression	1	1.18%

* Based on Hamilton Depression Rating Scale score

frequency, duration and the cost of dialysis, patient as the primary earner of the family, distance to dialysis centre and the duration of caregiving. Secondary caregivers were more available for those without caregiver burden (44.44%) in comparison to the group with caregiver burden(8.955%), which was statistically significant (X^2 = 10.53; p value <0.001). The proportion of caregivers as the primary

Table 3: Descriptive analysis of the factors determining caregiver burden in the study population(N=85)

Factors		Caregiver Burden		T value / Chi square value	P value
		Absent (N=18)	Present (N=67)		
Age of caregiver (years)		42.72 ± 14.67	50.86 ± 9.966	-2.765	0.007*
Gender	Male	5 (27.77%)	5 (7.462%)	3.853	0.018*
	Female	13 (72.22%)	62 (92.53%)		
Total duration of caregiving (months)		24.22 ± 9.741	24.76 ± 14.05	-0.153	0.879
Duration of caregivingper day (hours)		8.444 ± 3.166	7.268 ± 2.384	1.727	0.088
Age of onset of CKD (years)		52.61 ± 11.77	51.80 ± 10.72	0.277	0.782
Duration of dialysis (months)		24.22 ± 9.741	24.64 ± 13.94	-0.120	0.905
Frequency of dialysis per week (days)		2.055 ± 0.639	2.134 ± 0.489	-0.567	0.572
Distance to dialysis center (kms)		12.11 ± 8.743	19.41 ± 17.33	-1.725	0.078
Cost of dialysis per month (Rs)		4877. ± 4211	4549. ± 2967	0.379	0.705
Patient as family's	No	11 (61.11%)	41 (61.19%)	0	0.995
primary earner	Yes	7 (38.88%)	26 (38.80%)		
Caregiver as family's	No	15 (83.33%)	39 (58.20%)	2.857	0.049*
primary earner	Yes	3 (16.66%)	28 (41.79%)		
Secondary caregiver	No	10 (55.55%)	61 (91.04%)	10.53	<0.001*
availability	Yes	8 (44.44%)	6 (8.955%)		

* p<0.05 is considered statistically significant

Table 4: Comparison of Quality of life inthe study population with and without caregiver burden (N=85)

Quality of life	Caregiver Burden		T value / Chi square value	P value
	Absent (N=18)	Present (N=67)		
Physical	23.28 ± 2.08	20.76 ± 2.56	3.840	<0.001*
Psychological	20.67 ± 1.33	19.27 ± 1.67	3.286	<0.001*
Social	8.94 ± 2.26	6.7 ± 2.12	3.933	<0.001*
Environment	31 ± 3.69	25.61 ± 4.39	4.768	<0.001*

*p<0.05 is considered statistically significant

significantly higher (t test = 2.765, p value = 0.007) than those without caregiver burden (42.72 ± 14.67 years). The proportion of females were significantly higher (X^2 = 3.853; p value = 0.018) in the group with caregiver burden (92.53%) as compared to those with no caregiver burden (72.22%). There was no statistically significant difference observed between the two groups in the age of onset of CKD, earning member of the family were significantly higher (t test = 2.857, p value = 0.049) in the group with caregiver burden (41.79%) as compared to those with no caregiver burden (16.66%) [Table 3].

Quality of life was significantly poor (p value <0.001) in all the four domains in those with caregiver burden when compared to those without caregiver burden [Table 4]. There was a strong positive

correlation between Zarit Burden Interview score and HAM-D score among the primary caregivers, which was statistically significant (Pearson correlation coefficient r = 0.701, p value < 0.001) [Figure 1]. The factors like increasing age of the caregiver (odds ratio [OR] = 1.066; CI = 1.015–1.121; p valve 0.011), being a female (OR = 4.769; CI = 1.204–18.886; p value 0.026),being the primary earning member of the family (OR = 3.590; CI = 0.948–13.590; p value 0.048) and the absence of secondary caregiver (OR = 1.023; CI = 0.921 – 1.160; p value <0.001)were significantly associated with increasing caregiver burden [Table 5].

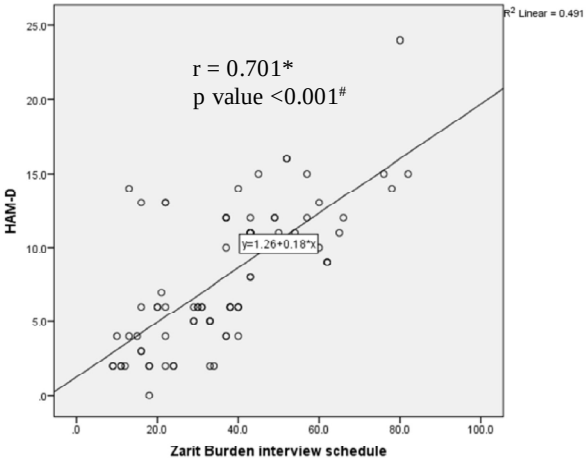
Discussion

Our study examined the prevalence and severity of caregiver burden and depression and the factors associated with caregiver burden in the primary caregivers of CKD patients undergoing dialysis. The overall prevalence of caregiver burden was high in the study population which was similar to previous studies.[14] There was a significant positive association between the caregiver burden and the presence of depressive symptoms similar to a few studies[17,19] whereas in contrast to another study.[18] The overall prevalence of depression was higher in the primary caregivers when compared to a previous study.[16]

Table 5: Association between the factors determining caregiver burden in the study population (N=85)

Factors	Odds ratio [OR]	95% CI#		P value
		Lower	Upper	
Age of caregiver	1.066	1.015	1.121	0.011*
Female caregiver	4.769	1.204	18.886	0.026*
Total caregiving duration	1.003	0.963	1.045	0.877
Caregiving hours / day	0.840	0.685	1.030	0.093
Age of onset of CKD	0.993	0.946	1.043	0.779
Dialysis duration	1.004	0.969	1.041	0.813
Frequency of dialysis	1.345	0.486	3.720	0.568
Distance to dialysis center	1.063	0.994	1.137	0.072
Cost of dialysis	1.000	1.000	1.000	0.702
Patient as the primary earning member of family	0.997	0.343	2.898	0.995
Caregiver as the primary earning member of family	3.590	0.948	13.590	0.048*
Secondary caregiver availability	1.023	0.921	1.160	<0.001*

#CI – Confidence interval
*p<0.05 is considered statistically significant



*r-correlation coefficient
#p < 0.05 is considered statistically significant

Figure 1: Correlation between Zarit Burden Interview Schedule and HDRS in the study group (N=85)

We inferred that the caregiver burden was more when the caregiver was a female, married and a primary earning member of the family. Similar studies[11,26] also revealed that being a less educated female spouse with children from a low socio-economic background and an employed caregiver was associated with a significant increase in the caregiver burden, especially with the role strain and personal strain. This was in contrast to one of the studies[16] which found that unemployment and low household income were associated with increased depressive symptoms, while their gender and education level were not related to the depression scores. As the age increased, an associated increase in the caregiver burden was noted which was similar to previous studies[12,19] but in contrast to a few studies[11,25] which stated that single young highly educated women from urban background perceived significantly more burden. This difference may be

because they might have been secondary rather than primary carers, which leads to an inference that the patient- primary caregiver relationship is more important than co-residence patterns.

The primary caregiver burden was lesser in families where secondary caregivers were available, comparable to previous studies.[27,28] According to a few studies[14,29] there was a significant positive correlation of the caregiver burden with the total duration of CKD, available number of family members, poor economic condition which was not observed to be significant in our study. A decrease in the quality of life was found with increasing caregiver burden, which was similar to previous studies.[8,26]

There were few limitations in our study. We did not evaluate the patients' dependency level, caregivers' co-morbid medical conditions, social support, interpersonal relationship issues as well as their coping behavior. Including these factors might make the assessment and management of caregiver burden and depression more comprehensive.

Conclusion

A high prevalence of caregiver burden and depression is seen in the primary caregivers of hemodialysis patients. Hence we emphasize the importance of incorporating routine screening of the caregivers during the patient's visit to hemodialysis. Establishing specific factors aid us to distinguish those at risk of developing caregiver burden and address them appropriately thereby reducing the occurrence of depression in them. This in turn may improve the overall quality of life of caregiver as well as improve the wellbeing of the patient.

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Original Article

Family Burden among caregivers of Individuals with Schizophrenia: A Mental Health Perspective

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ABSTRACT

Background: *Burden refers to the presence of problem, difficulties or adverse events which affect the lives of significant others in close contact with the individuals with schizophrenia. The term family burden can be defined as the extent of suffering experienced by the family of psychiatric patients due to various problems focused with regard to financial conditions, routine family interaction, and leisure, physical and mental health of other members of the family caused by the illness of the index patient.* ***Aims:*** *To compare the family burden among caregivers of Individual with Schizophrenia.* ***Method:*** *80 Samples (40 Caregivers of Individuals with Schizophrenia & 40 Normal Control) were included who were qualified the inclusion and exclusion criteria based on Purposive Sampling technique. They were evaluated on Family Burden Interview Schedule.* ***Result and Conclusion:*** *There is significant difference found in family burden among caregivers of Individual with Schizophrenia and Normal Control, showing that the caregivers of normal control showed less family burden than caregivers of Individuals with Schizophrenia.*

Keywords: *Family Burden, Schizophrenia, Mental health*

Introduction

Schizophrenia is a severe mental disorder that starts in late adolescence and early adulthood. Schizophrenia is characterized by disruption in thought process, perception and sense of self. It also includes psychiatric features or symptoms such as hallucinations or delusions. It also impaired the overall functioning because the loss of an acquired ability which is not being able to gain one's own livelihood or disruption of studies. Positive symptoms of schizophrenia tends to become less severe with over the time but socially devastating, negative or deficit symptoms may increase in severity. Although one-third of all patient with schizophrenia have some marginal or united social reality, most have lives characterized by aimlessness, inactivity, frequent hospitalization, and in burden setting homelessness and poverty.

[1]The term burden on the family in context to the concerns of the psychiatric problems. [2]More descriptive definitions which conditions that burden scopes to the occurrence of problem, complications or adverse events that affect the livelihood of psychiatric persons. Although the entire family perceives burden of the illness the concerns of caring is often shouldered by the primary caregiver who perceives psychological and emotional burden. Family burden may be labelled as some of the problems practiced by families who live with mentally ill members.

[3]Two variants of family burden, e.g., objective burden and subjective burden. Objective burden was defined in terms of the negative effects of the illness on the family whereas subjective burden was defined as the feelings of the family towards the presence and the behaviors of the patient, and the general feeling of being burdened.

The concept of burden share characteristics with that of social performance, for the person's poor social performance is another person's burden. The existence of burden indicates the breakdown of the reciprocal arrangements that people maintain in their relationship such that one person is doing more than a fair share. This may not only in sharing in task but also restricts ones outside relationship with the society[4]. Financial burden is likely to be experienced by the families due to the loss of patient's income especially when the patient's contribution to the family income is significant. Though psychiatric and substance treatment is affordable to most people, the family members may have heavy expenditure towards transport, food and other necessary arrangement.

In families of psychiatric patients there is also restriction of the normal recreational activities other family members may have to sacrifice their holidays and leisure time in turn to look after the patients. Sometimes the family may have to postpone or even cancel a planned leisure activity.

Normal routine is very adversely affected in the family of a patient. The patients may not go to work or school. The female or male patient's may not be in a position to help in household duties. There will be a destruction of routine activities due to the patient's internal demands and due to the care of the patient.

The presence of psychiatric patient in the family has an indirect negative impact on the general family atmosphere. There will be a reduction or even cessation of interaction with friends, relatives and neighbors. This eventually leads the family to become isolated from rest of the community. Caring for a patient at home causes considerable strain on the other members of the family. This adversely affects their physical health. The stress and strain associated with caring for patients relative has often a disruptive effect on mental health of other family members. Many key relatives of the patients are affected by psychosomatic complains like peptic ulcer, migraine, asthma, and tension headache. Generally close relatives often become depressive, weepy and irritable. Family members who deliver ongoing backing and are committed to the welfare of both child and adult patients are called "care provider", means caregivers or caretakers. This is denoted as functional accountability related to duty accomplishment rather than to Emotional participation.[5]

Severe mental disorders have the consequences and an adverse impact on the life of Significant others or caregivers of the patients, who are attached by love, kinship and close relation. For families, the impact of mental illness is multiple determined. Apart from shared grief of unfulfilled life expectations, there are various categorical sources of stress that affect family members of persons with major psychiatric disorders. At one level the behavioral disturbances and its disruptive effects considerably affect their overall life satisfaction or quality of life. [6]Primary caregiver as-responsibility for care of the patient is taken by the member of the family called the Primary caregivers'. Addition of care giving role to already existing family role may have become stressful, both psychologically and economically.[7, 8]

Material & Methods

Aim: To Compare the Family Burden among Caregivers of Individual with Schizophrenia and Normal Control.

Universe of the Study

The present study was conducted at Ranchi Institute of Neuro Psychiatry & Allied Sciences (RINPAS), Ranchi.

Sampling: The present study was cross sectional study by using purposive sampling technique. Total of 80 caregivers who further divided into 40 caregivers of individuals with schizophrenia and 40 with normal control**.**

Inclusion and Exclusion Criteria: The inclusion criteria for the patient and their caregivers are follows as:

Inclusion criteria for patient:

- Patient must fulfill the criteria of ICD-10 DCR for the diagnosis of Schizophrenia.
- Duration of illness 2 years or above.
- Both Males and Females
- Age between 20-50 years

Exclusion criteria for patient

- Patients with any physical illness, mental retardation and substance dependence.
- Any psychiatric Co morbidity
- Any history of Epilepsy.

Inclusion criteria for caregivers

- Duration of living with patient minimum of 2 years.
- The caregivers can be parents, spouse, sibling and children.
- Age range 20-55 years.

Exclusion criteria for caregivers

- Any history of epilepsy, organic brain disorder or major physical illness.
- Any history of psychiatric illness including substance dependence.
- Any history of personality disorders or mental retardation.

Tools used for data collection:

1. Socio-Demographic Data Sheet.
2. Family Burden Interview Schedule (FBIS) (S, Pai & R.L. Kapur, 1981)[9].

Results

Table 1 suggests that in socio-demographic variables no significant difference was found in any of the studied variables, which shows that both the groups were well matched and the findings of family burden of caregivers of individuals with Schizophrenia and normal control were not influenced by socio-demographic variables.

Table 2 revealed that in respect to family burden, majority of caregivers of Schizophrenic patient experienced moderate to severe level of burden in the area of financial burden, disruption of family interaction, disruption of family activity, effect on mental health, other burden and subjective burden. For overall burden among the caregivers of Schizophrenia and normal control there was significant difference found in the area of financial burden, disruption family interaction, disruption of family activity, effect on mental health, other burden and subjective burden. So present study finding suggest that caregivers of schizophrenic patient experience greater level of perceived burden in all domains of family burden interview schedule compare to caregivers of normal control.

Discussion

Total of Eighty Caregivers, Forty Caregivers of Individuals with Schizophrenia and Forty individuals with normal control were focus of the present study and the aim of the study was to compare the Family Burden among the both groups. The samples were collected from Ranchi Institute of Neuro-Psychiatry and Allied Sciences, Kanke, Ranchi (Jharkhand).The main tools administered were Family Burden Interview Schedule. The samples of both groups were matched with the variables like age, domicile, religion, family type etc. The analysis revealed that in Family Burden, Caregivers of individuals with schizophrenia is significantly more than caregivers of individuals with normal control at (.01 and .05 level). So the current study reveals that caregivers of individuals with schizophrenia perceives more family burden compared to caregivers of individuals with normal

Table-1: Socio Demographic Characteristics among the Caregivers of Individuals with Schizophrenia & Normal Control

Socio-Demographic Variables		Schizophrenia	Normal Control	x^2
Age	20-30 Yrs	15	14	3.89 NS
	31-40 Yrs	18	16	
	41-50 Yrs	07	10	
Domicile	Rural	18	15	0.89NS
	Urban	22	25	
Religion	Hindu	28	26	0.26NS
	Muslim	05	07	
	Christian	07	07	
Family type	Nuclear	22	21	1.87NS
	Joint	18	19	

NS- Not Significant

Table-2: Showing the Differences in the family burden between both the groups.

Domains of family burden		N= 80	Mean± SD	T
Financial burden	Schizophrenia	40	10.47+1.87	5.89**
	Normal Control	40	7.83+ 1.26	
Disruption of family activity	Schizophrenia	40	8.65+ 1.23	4.97**
	Normal Control	40	6.72+ 1.43	
Disruption of family leisure	Schizophrenia	40	6.41+ 2.45	1.68
	Normal Control	40	5.87+ 1.34	
Disruption of family Interaction	Schizophrenia	40	7.17+ 2.56	1.98*
	Normal Control	40	5.82+ 1.41	
Effect of physical health of other	Schizophrenia	40	2.67+ 1.14	0.89
	Normal Control	40	1.93+ 1.01	
Effect on mental of other	Schizophrenia	40	3.13+ 1.67	2.46**
	Normal Control	40	2.76+ 0.84	
Other burden	Schizophrenia	40	2.32+ 1.23	3.47**
	Normal Control	40	1.45+0.34	
Subjective Burden	Schizophrenia	40	1.69+ 0.25	5.63**
	Normal Control	40	1.23+ 0.42	

*Significant at .05, ** Significant at .01

control. In this study, the comparison of scores on family burden scale between the caregivers of Schizophrenia and Normal control revealed that financial burden, family routine, family leisure, family interaction, physical health emotional health and also other burden was significantly more perceived by the key caregivers of Schizophrenia patients.

These results comparable with previous study where analysis of data had shown that the extent and nature of activity related distress were and self-care distress in relatives of Schizophrenia patient were significantly higher.[10]

[11]Family members could tolerate a surprisingly high level of mental symptoms but this tolerance was at the expense of a great deal of internal distress and burden i.e. physical, financial and emotional. They also found that commonest behavior problems reported by family members of persons with Schizophrenia were those associated with social withdrawal, such as little interaction, slowness, lack of conversation, few leisure interests and self-neglect.

[12]Cross cultural assessment was done on 78 patients with Bipolar disorder or recurrent major depression and 60 patients with Schizophrenia. The extent of both objective and subjective burden was significantly high in relatives of Schizophrenia. The pattern of burden found was almost similar in both groups. Burden was particularly found in the area of family routine, family leisure, family interaction and finances. The emotional wellbeing of the family was quite intact and the impact on physical health of the caregivers due to burden of care was also negligible.[13]

Future Directions

For the detail assessment of family burden some other scales like relationship inventory scale, marital adjustment, and social adjustment scale should be used. To plan for safeguarding the future of the caregivers, similar study should be undertaken with larger sample size. As the findings of the present study reveals that caregivers of schizophrenic patient higher level family burden.

The result of the present study shows that, caregivers of both the studied group reported significant level of family burden, so there is an acute need to develop specific intervention package based on the findings of present study to address the need of caregivers and to enhance their overall well-being. Present study finding will help the mental health professional in assessment and planning of comprehensive management plan for the patient and caregivers of Schizophrenia, which will further help in rehabilitation of the patients, reduction in the family burden and enhances the quality of life of affected individual as well as their family member.

Conclusion

There was a significant Difference in Family Burden among the caregivers of individuals with schizophrenia and normal control showing that the

caregivers of individuals with schizophrenia perceives more family burden than caregivers of normal control. Family members play a crucial role in providing primary care to their patient before hospitalization and after hospitalization. Majority of chronically ill patients live with their family. This study will be extremely helpful to the professionals working in the field of mental health to extend their help and support to the patient and their family, to decrease their family burden and also it is helpful to improve their family environment and there adjustment.

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Original Article

A study of stress and coping strategies among parents of children with intellectual disabilities

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ABSTRACT

Background:*The diagnosis of intellectual disability in children is common and families of these children experience more psychological stress then average, they need effective strategy for coping.* ***Objective:****The study was conducted to evaluate the level of stress and coping strategies in the parents of children with intellectual disabilities and find out factors influencing the stress and coping in parents.* ***Material and Methods****: This study was carried out among sixty parents of children with intellectual disability at Government Medical College, Kota, a tertiary care hospital in India over a period of 1 year from March 2013 to March 2014. Parents who fulfill the inclusion and exclusion criteria of the study were interviewed by using Semistructured proforma, National Institute for the Mentally Handicapped Family Efficacy Scale (NIMH-FES), Problem Behavior Check list and Family Interview for Stress and Coping in Mental Retardation (FISC-MR).* ***Results:*** *Scores were significantly high in group B (intellectual disabled children with IQ< 50). The higher perceived stress was found in parents of children with low intelligence quotient (IQ). There was no significant difference (p>0.05) in coping mechanism employed by families of children with intellectual disability in order to overcome the stress except global support where the families of children with low IQ level scored significantly high (P<0.05).****Conclusion*** *In all dimension of perceived stress scores there were no significant difference found between two groups and coping mechanism employed by families of both the groups were also not differ significantly on different dimension of coping mechanism except global support.*

Key words*: Stress, Coping strategies, Intellectually disability, Intelligence quotient.*

Introduction

Intellectual disability is a neurodevelopmental disorder formerly known as a mental retardation. It is diagnosed, if an individual has an intellectual functioning level below average and significant deficit in adaptive reasoning and functioning emerges before the 18 years of age.[1] Intellectual disabilities present as a considerable burden over caregivers. According to World Heath Organization mental retardation (MR) has overall prevalence of 1-3% Worldwide.[2]

In general family of intellectually disabled children faced many problems, specially, depression, anxiety[3], marital and occupational crisis[4]. The negative psychological effects of heaving a child with disability mentioned in results of various studies which indicated low self esteem, high level of stress and depression in families of child with disability.[5,6]

The role of parents is very important in family response to mental disabilities. When a family has problem in accepting the reality, it cope with the problem by denying it.[7] Stress experience of parents also depends on level of dysfunction, age and gender of child, education and family income. Lower socioeconomic level was associated with greater symptom rates of cognitive disturbance, depression, anxiety and despair among parents. Sine et al and Emerson noted that mothers experienced more stress than fathers.[8,9] Mental retardation (MR) is a life-long disability which has a major impact on the lives of the children and their families.[10] While raising a child with chronic condition, parents experience psychological stress and disappointment when their child does not meet their hopes and expectations.[11] The continuing care of children with intellectual disability are often stressful experiences for parents as the children's difficulties inevitably touch their lives. Parents facing problems like disturbance infamily routine, leisure andfamily health, and also affect physical and emotional energy of the parents.[12] ***Aims*** of this study were to find out the stress and coping strategies in the parents of children with intellectual disabilities and to find out factors influencing the stress and coping in the parents.

Material and Methods

Study setting

The study was conducted in the psychiatry outpatient department of Government Medical College, Kota, Rajasthan and attached group of hospitals, in India from March, 2013 to March, 2014.

Sample size

Patients of any gender of children diagnosed as intellectual disability according to ICD- 10 criteria. A total of 60 patients were selected for study. An informed consent was obtained from the parents of the children with intellectual disability to participate in the study after explaining them the purpose of study and ensuring them that confidentiality would be maintained. The study was approved by ethical committee of government medical college.

We included children with intellectual disability below the age of 18 years and at same time excluded children with multiple disabilities and unwilling and uncooperative parents.

Sixty parents fulfilling selection criterion were selected for study and interviewed by using a proforma specially designed for the purpose of study, which included-Personal identification data of the subjects, details of birth history, milestone, neurotic traits, age of schooling, details of family e.g. Education, occupation of parents, age of mother at the time of birth of this child, birth order of the child and family income. National Institute for mentally handicapped – Family Efficacy Scale (NIMH-FES), Family Interview for Stress and Coping in Mental Retardation (FISC-MR) and Problem Behavior Check List tools were used.

For the purpose of study the selected intellectual disable children were divided in two groups. Group A: included children with IQ more than or equals to 50 and Group B: included children with IQ less than 50. Among the selected children, 36 had IQ more than or equals to 50 (belong to group A) and rest of the children had IQ less than 50 (belong to group B). The details of various scales used in the study-

1. **NIMH-FES**: Family Efficacy Scale (NIMH-FES) has been developed for Family Intervention and Support Programmers for persons with mental retardation. To measure the family's uniqueness and degree of strength the scale contains 15 themes:-Sacrifice, Faith in God, Financial, Values, Health, Trust, Acceptance, Crisis, Social support, Communication, Roles and responsibilities, Optimism, Decisions, Times, Independence.[13]

2. **Problem Behaviour Check-List**: An Indian adoption given by Reeta Peshawaria (NIMH).[13] It measures the various problem behaviors present in mentally retarded children. The scale consists of 75 test items grouped into 10 problem behaviors.1-16 items for aggressive & destructive behavior, 17-20 items for irritable behavior, 21-27 items for misbehaving with others, 28-37 items for self injurious behavior, 38-45 items for repetition behavior, 46-56 items for bizarre behavior, 57-62 items for rebelling behavior, 63-71 items for antisocial behavior and 74-75 tems for fearful behavior.

3. **Family Interview for Stress and Coping in Mental Retardation** (**FISC-MR)**: A tool to study stress and coping in families of children with mental retardation. This instrument has been developed not only for recording the perceived stress

and its mediators (or coping strategies) in the family, but also help in the formulation of family based intervention.[14]

Results

Sociodemographic variables of the study population

The study sample included 60 intellectually disabled children, of which 60% (n=36) were male and 40% (n=24) were female. The mean age of the children was 9.6 years (SD=1.24). Most of the children in the study belong to 4-8 years age group (approximately 72%). More than half 60% (n=36) of patients had IQ≥50 while 40% (n=24) had IQ<50 and the mean IQ was 45.73 (SD=5.90). About twenty seven percent (n=16) was had first birth order, 13.33% (n=8) had second, and 60% (n=36) had third or fourth birth order.

The mean age of parents was 26.34 years (SD=3.4). Most of the parents belongs to 20-30 year age group 55% (33), rural background 57% (34), Hindu religion 60% (36) and poorer section with total family income less then 5000Rs/month. Among 60 parents, 18 (30%) were illiterate, 22 (36.67%) were educated upto secondary/higher secondary and 20 (33.33%) were graduate/postgraduate.

Perceived stress among parents

It was observed that there is no significant difference between the two groups in dimensions of perceived stress i.e. financial stress, emotional stresses, social stress except daily care stress and total perceived stress. Parents of children with low IQ (<50) were significantly scored high in daily care stress (12.2±4.8) and total perceived stress (30.88±14.2) then parents of children with IQ>50.

According to gender of children, having a female child with intellectual disability was significantly more stressful for families in comparison to having male childin various dimension of perceived stress like social stress (5.02±1.6), financial stress (4.01±1.1) and total perceived stress (22.55±10.02). As regards to type of family, nuclear families faced significantly more stress in comparison to joint families in managing the children with intellectual disability. And results was significant for daily care stress (12.40±5.4), emotional stress (7.34±3.2) and total perceived stress (2.65±13.3) dimension. Similarly presence of problem behavior in children with intellectual disability was more stressful for families in comparison to families with no problem behaviourin children. The results were statistically significant for daily care stress (11.82±5.2), emotional stress (7.75±3.1) and social stress (7.39±1.16) dimension of perceived stress.

Coping mechanismemployed by parents

The coping mechanisms employed by parents of the children with intellectual disabilityin order to overcome the stress were not significantly differ on different dimension like awareness about mental retardation, attitude and expectation, rearing practices and social support except global support, where the families of children with low IQ level (>50) scored significantly high (P<0.05). And the total mean copying score of both the group was also not significantly differ (P>0.05).

Discussion

This study was aimed to find out the stress and coping strategies in the parents of children with intellectual disability and to find out factors influencing the stress and coping in parents. There is no significant difference between the two groups in various dimensions of perceived stress i.e. financial stress, emotional stresses and social stressexcept daily care stress and total perceived stress. The higher perceived stress in parents of children with low IQ can be understood by the fact that lower the IQ of the child needs more effort, time and energy todevelop daily care, social care, andemotional attachment which gives rise to more stress in family members.The high level of stress among parents of child with disabilities results from permanent feeing of crisis of parents and inability to provide effective efforts to handle behavioural problems in their child.[15]

We also observed that having a female child with intellectual disability was significantly more stressful in families comparison to having a male child with intellectual disability (p <0.001) in Indian scenario, stress associated with girl child may be because of specific cultural belief that a girl child is a burden on the family [16]. As regards to type of family, nuclear families faced significantly more stress in comparison to joint families in managing the intellectually disabled children (p <0.01). This may be due to other family members in joint family

take care of child with intellectual disability.[17] Indian tradition and culture of living in joint family is very protective. Similarly, presence of problem behaviour in children was significantly more stressful for families in comparison to families with no problem behaviour in intellectually disabled children ($p < 0.05$). This may be due to management of problem behaviour in children is difficult to parents.

In our study we wereobserved thatthe coping mechanism employed by families of the intellectually disabled children in order to overcome the stress were not significantly differ on different dimension like awareness about mentally retarded, attitude and expectation, rearing practices and social support except global support, where the families of children with IQ level <50 scored significantly high ($p < 0.05$). However, the total mean copying score of both group did not differ significantly ($p > 0.05$).Taanila et al, studied coping of parents with intellectually disabled children and concluded that the information and acceptance, good family cooperation and social support coping strategies were most frequently used.[18] Bawalsah mentioned that problem focused engagement coping strategies used more commonly by parents of child with disabilities than emotion focused engagement coping strategies.[19]

Limitation and Future Directions –The size of the sample was small and majority of the subjects included within the study were from single institution which could not truly represent the characteristics of children with intellectual disability and their family members in general population. Thus, the generalizability of results is limited. Future studies should include large sample size from different centers.

Conclusion

Psychological stress and coping strategies among parents of children with intellectual disabilities were affected by IQ level, gender, family type and problem behaviour of the child. Parents of these children need more attention and cooperation to change their misconception about child with intellectual disabilities. As a clinician we should always promote parents coping strategies in addition to provide guidance and training programme to the parents to manage children with low IQ and behavioural problems.

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Original Article

Study on effectiveness of psychosocial rehabilitation program for patients with chronic schizophrenia in Indian settings

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ABSTRACT

Background: *Psychosocial rehabilitation, although poorly defined, is an important component in management of severe mental illness specially schizophrenia. There is relative scarcity of Indian studies on this subject.* ***Method:*** *In this study we have evaluated the effectiveness of psychosocial rehabilitation program of shanti home psychiatric rehabilitation center by analysing the difference in PANSS (Positive and Negative Symptom Score) of 40 admitted patients.* ***Results:*** *Significant difference was noted in the baseline and post rehabilitation score emphasizing the need to promote further studies for development of such programs in future.*

Keywords*: Schizophrenia, Chronic, Disability, Psychosocial rehabilitation.*

Introduction

Psychosocial rehabilitation is an important component in the management of mentally ill patients specially schizophrenia. Although found to be pertinent in comprehensive care of patients, researchers have noted the lack of clear definition for the term[1]. As per United States Psychiatric Rehabilitation Association, psychiatric rehabilitation services are collaborative, person-directed, and individualized, an essential element of the human services spectrum, and should be evidence-based. They focus on helping individuals develop skills and access resources needed to increase their capacity to be successful and satisfied in the living, working, learning and social environments of their choice.[2]

The need for inclusion of psychosocial rehabilitation services in treatment and care of severe mentally ill patients especially schizophrenia can't be overemphasized but studies have shown that at any time only 1% of persons with schizophrenia receive intensive rehabilitation.[3] This leads to delayed recovery and disability. Associated disability could be due to treatment resistance, cognitive impairment, severe negative symptoms, substance misuse and challenging behaviours.[3-5] There is scarcity of studies on psychosocial rehabilitation. In this study we have looked for effectiveness of rehabilitation program at our center, Shanti Home, Advanced De Addiction, Mental Health and Psychiatry Rehabilitation Centre, Greater Noida, U.P.

Methodology

A total of 40 patients admitted at Shanti Home, Advanced De Addiction, Mental Health and Psychiatry Rehabilitation Centre, Greater Noida, Uttar Pradesh, India were included in the study using purposive sampling method. Diagnosis was made by qualified psychiatrist using International Classification of Diseases, tenth revision (ICD 10) as Schizophrenia. Baseline severity was assessed using Positive and Negative syndrome scale (PANSS) by a trained clinical psychologist. All included patients had more than forty percent disability as per Indian

disability evaluation and assessment scale (IDEAS). Included patients were enrolled in Shanti Home schizophrenia rehabilitation program.

Inclusion criteria

- Life time diagnosis of Schizophrenia.
- Admitted adult patients up to 50 years of age
- Both male and female gender included
- Duration of illness of 10 years or more.
- Patients with comorbid psychiatric illness were included.
- Patients with nicotine dependence were included.

Exclusion criteria

- Substance induced or psychosis due to general medical condition excluded.
- Current comorbid substance dependence other than nicotine excluded.

Shanti home schizophrenia rehabilitation program is based on personal recovery model and it focuses on individualized treatment plan. Apart from medication stabilization and managing medical comorbidities, rehabilitation program is individualized for comprehensive care of patients. Basic components of shanti home schizophrenia rehabilitation program include

- Training for activities of daily living – e.g. Brushing, bathing, self-hygiene, personal grooming, eating habits, managing personal belongings
- Focus on activity Initiation & day structuring
- Helping patients to get adjusted to individual and group activities
- Improving physical mobility through physical exercises, improving motor coordination, weight management.
- Social skills training – Here the focus is on identifying behavioural excesses, deficits, inappropriate behaviours, abnormal communication and reaction pattern and skills required in understanding and coping with symptoms. The techniques used for social skills training include token economy, differential reinforcement, observational learning in groups, role plays, prompting, coaching, modeling and exposure and training in real life situations.
- Cognitive behavior therapy – It is conducted in individual and group sessions. In individual therapy sessions using initial engagement and exploration, understanding is developed in patient's symptoms and his perceptions. Patient's emotions are addressed and gradually working through symptoms, insight is facilitated. Additionally, coping skills are enhanced and risk of relapse is managed.In group cognitive behaviour therapy focuses on developing communication skills, problem solving, emotion recognition and management, stress and anxiety management. Emphasis is laid on understanding symptoms of schizophrenia, its impact on self and family and its treatment. In individual and group session's patient's compliance needs and relapse prevention are also targeted.
- Social cognition and interpersonal training – It is done via both individual and group sessions. Emphasis is laid on training in affect regulation which is done either in pairs or in small groups, using set of pictures of emotional faces, video clips to help define basic emotions and linking them to facial expression, working on one's own facial expression using mirror exercises. In addition, role plays with interactive exercises are encouraged to refine social cognition related skills.Patients are also taught to focus on identifying and modifying interpersonal attributions by learning to distinguish facts from assumptions, personal biases, avoiding instant reactions, rechecking evidences and analyzing feedbacks. Integrating and generalizing these skills is encouraged by applying in interactive and role play sessions followed by real social situations.
- Patients are also helped to plan recreational and leisure time activities, for instance family outings, family weekends, picnics, movie outings, shopping, eating out initiatives.
- Additional activities include money management, game and music therapy
- Family interventions – For comprehensive care, patient's family support, family's understanding of illness, coping strategies,

expressed emotions, family resources, caregiver burden if any, are assessed and immediate concerns addressed. Special emphasis is laid on betterment of communication patterns within family and sessions with family are conducted to impart illness education, training on how to cope with symptoms associated with illness in real life situations, to provide emotional support and facilitating family support networks.

- Vocational training – All patients are included for vocational training. Individualized plan is formed in discussion with index patient and family and past experiences and blocks are taken into consideration while formulating the plan for vocational training. Patients are intensively groomed for work in community. Training is given in areas of home management skills, tailoring, textile designing, screen/block printing, art and craft related fields, horticulture, computer based training and office work(in liaison with NIIT and few other local institutes). A variety of methods are used. Emphasis is laid on rapid job search and on providing support and assistance in order to help find placement options/ competitive jobs in the community. In initial stages reward in form of stipend is provided. Initially mostly local options are explored with help of families and after initial training and placement, families are helped to look for permanent employment options.
- Community reintegration and follow up - Assertive followups are done with the help of case managers who coordinate with family and treating psychiatrists. Patients given 24x7 support for any crisis situation. Home visits are arranged as and when required and regular contact with employer/ family is made to ensure active work involvement

During the course of admission patients were periodically assessed clinically using serial mental status examinations, behavioural observation was done for identified target symptoms and symptoms were monitored on PANSS.

Descriptive statistics like mean and median were used to calculateage at presentation, average duration of illness and average duration of stay.Pre and post rehabilitation program PANSS scores were compared using paired t test since data was normally distributed.

Results

Out of the forty patients which were assessed 21 were females and 19 were males. The mean

Table-1: Illustration of age at presentation (in years), duration of illness (in years) and average duration of stay (in days) among 40 patients

S.No	Age at presentation (in years)	Duration of illness at presentation (in years)	Average duration of stay (in days)
1	45	22	365
2	38	22	365
3	30	10	79
4	31	11	213
5	44	15	93
6	50	12	76
7	37	10	90
8	30	10	83
9	48	20	60
10	30	14	276
11	59	10	180
12	30	13	127
13	40	15	576
14	34	13	927
15	35	10	180
16	48	15	180
17	43	24	90
18	40	20	270
19	37	19	67
20	49	20	55
21	38	20	90
22	39	20	127
23	53	30	335
24	52	20	123
25	56	10	75
26	53	20	90
27	47	15	91
28	34	18	182
29	35	12	91
30	31	15	91
31	45	15	185
32	33	16	343
33	38	15	666
34	42	20	730
35	41	21	665
36	40	20	246
37	48	15	180
38	41	15	180
39	36	12	180
40	42	12	180

age at presentation was 41.05 years .The median duration of illness at the time of presentation was 15 years and median duration of stay was 180 days. Out of 40 patients, 5(12.5 %) patients had comorbid nicotine dependence at the time of presentation. One patient had comorbid obsessive compulsive disorder and another Moderate depression. Medical comorbidity was noted in 16 patients (40%) and common medical comorbidities included hypothyroidism, diabetes, hypertension, epilepsy and obesity.

PANSS was applied at baseline and after the rehabilitation program and pre and post values of the three subdivisions of PANSS namely, positive, negative and general psychopathology were compared using paired t test. Significant differences have been noted in all domains of PANSS after rehabilitation model application.Values have been illustrated in Table 2 and 3.

Table-2: PANSS values at baseline (prepositive, prenegative and pregeneral psychopathology) and after Shanti home rehabilitation model application (post positive, post negative and post general psychopathology)

S.No	Prepositive	Postpositive	Prenegative	Postnegative	Pre general psychopathology	Post general psychopathology
1.	35	11	46	9	76	24
2	37	13	36	12	81	29
3	24	11	22	11	50	25
4	32	12	28	14	65	30
5	32	14	37	20	84	39
6	39	14	32	8	75	24
7	38	14	38	16	79	27
8	32	16	33	12	78	23
9	33	15	46	15	86	26
10	40	21	43	19	93	36
11	32	10	34	10	82	22
12	31	10	27	9	54	21
13	42	14	24	11	59	26
14	32	17	42	17	76	29
15	39	11	32	12	63	20
16	39	10	30	9	65	23
17	28	7	25	7	46	18
18	41	13	25	10	67	24
19	36	14	32	12	76	27
20	32	15	30	13	60	24
21	34	11	24	7	58	21
22	36	13	23	9	60	19
23	19	8	18	8	54	28
24	22	17	9	12	36	38
25	22	20	13	15	43	38
26	29	26	37	28	54	53
27	23	10	10	7	35	22
28	19	13	23	11	69	37
29	10	12	27	19	41	31
30	21	18	24	21	55	48
31	33	10	35	8	75	24
32	11	13	30	31	56	49
33	37	20	33	21	52	35
34	22	20	24	17	33	26
35	10	11	28	18	39	33
36	20	8	38	23	62	34
37	42	14	33	10	76	33
38	19	9	25	14	52	26
39	20	5	25	16	41	30
40	14	3	28	21	32	23

Table-3: Result of paired t test of comparison of baseline and post intervention PANSS values

	Mean	Std. Deviation	Std.error mean	Sig.(2 tailed)
Pair 1 – Prenegative - Postnegative	15.850	9.242	1.461	.000
Pair 2 –Prenegative - Postnegative	15.175	8.892	1.406	.000
Pair 3 –Prenegative - Postnegative	31.825	18.613	2.943	.000

In terms of functional recovery, about 34 out of 40 patients (85%) are currently productive either as home maker or are gainfully employed for 4 patients (10%) rehab process is ongoing and 2(5%) are behaviourally improved but not working.

Discussion

In this study, significant differences were noted in all domains of PANSS namely positive, negative and general psychopathology in patients after the rehabilitation program. These results indicate that 'Shanti home schizophrenia rehabilitation program' is effective in reducing symptomatology and improving the social functioning of patients with schizophrenia. It also helps them to understand and manage their illness. Studies from China and some developed countries have also found rehabilitation program to be effective in improving overall functional outcome in patients with schizophrenia[6,7]. There is scarcity of Indian studies on effectiveness of rehabilitative program although some studies have looked in components of rehabilitation i.e. cognitive remediation.[8]

There are few limitations in this study. Firstly, pre and post assessment was done by clinical psychologists who were not blinded to the study which could have affected the results. Secondly, small sample size reduces the generalizability of study.Finally, it needs to be established whether specific components of rehabilitation programs led to improvement and if so, what those components are.

Nevertheless, this study emphasises that developing appropriate rehabilitation program is a promising way to minimize the decline in patients' social functioning, increase the proportion that can become fully function, and, thus, substantially reduce the burden of the disease. Hence research in this area should be promoted.

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Original Article

Psychological Health of Smokers and Non Smokers: A Comparative Study

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ABSTRACT

Background: *Practically every individual is aware of the associated consequences of smoking on the physical health like high risk of cancer and cardiovascular diseases but a small number of people are aware of its effect on their mental health and well being. Mental health comprises of emotional, psychological and social well-being of a person. Decline in cognitive functioning, low self esteem, lack of confidence, instability, anxiety and depression are some of the repercussions which can affect the mental health of smokers.* ***Objective:*** *The present was carried out to compare the psychological health of smokers and non-smokers.* ***Method:*** *A purposive sample of 100 post graduate students from Haryana (50 smokers & 50 non-smokers) in the age range of 20-25 years was administered Mental Health Inventory by Veit and Ware (1983). The results were analyzed usingt-test.* ***Results:*** *Revealed that the smokers significantly differ from non-smokers on anxiety, depression, loss of behavioural/emotional control, psychological distress and psychological well-being indicating that smokers were found to be high on anxiety,* ***depression, loss of emotional control,*** *psychological distress and low on psychological well-being as compared to non-smokers.* ***Conclusion:*** *This study implicates that smoking not only causes physiological hazards but also affects the mental health and well-being of a person.*

Keywords: *Smokers, Non-smokers, Psychological Well-being, Mental Health*

Introduction

Psychological health is the combination of feeling good and functioning effectively. The basic tenets of psychological health is when person starts liking him/herself, acknowledging their mistakes, concerning about themselves, managing their emotions, anxiety, stress and anger, getting along well with other people and are optimistic. The psychological health is usually conceptualized as a combination of positive affective states such as happiness and functioning with optimal effectiveness in individual and social life[1]. The cognitive part of psychological health can be referred to mental health. Mental health is the beliefs and values in life and how one relates to others in relation to different situations to one's life. Mental health is comprised of an individual's ability to enjoy life and create a balance between life activities and efforts to achieve psychological resilience. The affective portion of psychological health is emotional health. Emotional health is a state where one effectively handles, controls and manages his/her emotions. It includes a positive mental functioning and a by and large experience of wellness. The conative part of psychological health is the social health. It refers to the capability to hold gratifying and fulfilling interpersonal relationships with others. It also involves the capacity to adjust contentedly and comfortably to diverse social situations and act accordingly and appropriately.

Smoking as a behaviour contributes to ill health.There is a strong connection between

smoking and mental health issues. The prevalence rate of smoking among persons with psychological distress is two to three times more than the general population. Studies reveal that smoking is prevalent approximately 40-50% among persons with depressive episodes and anxiety disorders and approximately 70% among persons with schizophrenia.[2] It is not established that smoking behaviour is the cause or the effect of mental problems in persons. Some researchers were of the opinion that smoking may work as an activator for ill psychological health.[3] A close relationship was evident in some studies which revealed that smoking increases the stress and anxiety and the chances of developing depression, anxiety disorders and other mental illnesses which in result diminish the psychological well-being and also found to be associated with increase in the chances of suicidal ideation.[4] Smoking can affect the health of persons having psychiatric problems, with elevatedintensity of smoking accountable for a large amount of the mortality of people with mental illness.[5]Those with mental health problems smoke significantly more, have increased levels of nicotine dependency are therefore at even greater risk of smoke-related harm. Smoking increases the risk of developing a mental health problem which is associated with an increased prevalence of all mental illnesses.[6-7] Moreover, some researches concluded that cessation of smoking can lead to significant mental health growth especially in the symptoms of anxiety[8] and depression.[9] The 2015 Scottish Health Survey Topic Report suggested that smokers had significantly low well-being as compared to the ones who gave up smoking and to the non-smokers.[10] However some other studies concluded that people who experience more stress, psychological distress, cognitive difficulties and who lack other coping styles tend to smoke as a means of coping with their stress.[11-13] The literature available indicate the neutral results that the efficacy of smoking increases or decreases the psychological distress. In order to ascertain this, the present study was planned to examine and compare the psychological health of smokers and non-smokers.

Material and Method

Design

A cross-sectional two group design was adopted. Group I consisted of 50 smokers who take at least 5 cigarettes a day and group II consisted of 50 non-smokers who had never experienced smoking in their life.

Sample

A purposive sample of 100 university students (50 smokers, 50 non-smokers) in the age range of 20-25 years studying in post graduation from Haryana state on the basis of convenience was selected for the study.

Tool

Mental Health Inventory-38[14]: To accomplish the goal this 38-item scale was used in which only two items are scored on 5- point scale and other items are scored on 6-point scale. It containssix subscales viz:anxiety, depression, loss of behavioural/emotional control, general positive affect, emotional ties, life satisfaction and two global scales i.e. psychological distress and psychological well-being. Cronbach alpha reliability of the inventory was found to be 0.93.

Statistical analysis

SPSS-20 version was used for statistical analysis. The t-test was employed to find out the difference between smokers and non-smokers on psychological health.

Results

Table 1 depicts the comparative mean and S.D and t-value for smokers and non-smokers on the six subscales and two global scales of MHI-38 i.e. anxiety, depression, loss of behavioural/emotional control, general positive affect, emotional ties, life satisfaction, psychological distress and psychological well-being.

The above table clearly shows the significant difference between smokers and non-smokers on anxiety ($t = 3.96$, $p < 0.01$), depression ($t = 3.88$, $p < 0.01$), loss of behavioural/emotional control ($t = 2.16$, $p < 0.01$), psychological distress ($t = 6.10$, $p < 0.01$) and psychological well-being ($t = 6.25$, $p < 0.01$). However no significant difference was evident on general positive affect, emotional ties and life satisfaction.

Discussion

The main aim was to compare the psychological

Table-1: Comparison of mean, SD and t-values for subscales and global scales of MHI-38

Variables	Groups	Mean	S.D.	t	p value
Anxiety	Smokers	30.22	7.57	3.96**	0.01
	Non-smokers	24.52	6.79		
Depression	Smokers	13.14	3.30	3.88**	0.01
	Non-Smokers	10.74	2.84		
Loss of Behavioural/Emotional Control	Smokers	23.62	5.88	2.16**	0.03
	Non-smokers	21.22	5.20		
General Positive Affect	Smokers	37.18	7.88	1.23	0.22
	Non-smokers	39.06	7.40		
Emotional Ties	Smokers	7.74	2.55	1.05	0.30
	Non-Smokers	7.24	2.19		
Life Satisfaction	Smokers	3.70	1.16	1.17	0.24
	Non-Smokers	4.88	7.01		
Psychological Distress	Smokers	76.74	13.33	6.10**	0.01
	Non-Smokers	61.12	12.21		
Psychological Well-being	Smokers	48.16	8.01	6.25**	0.01
	Non- Smokers	58.06	7.82		

** Significant at 0.01 level

health of smokers and non smokers. Findings from the above table revealed that on anxiety the smokers and non-smokers differed significantly with smokers scored more indicating that smokers exhibit more tension, worry and stress which can be explained by the likelihood of common cause for anxiety, depression and smoking in biological predispositions and/or environmental endowments.[15] The present study is in accordance with the researches[16-17] which found that the smokers with anxiety disorders exhibited more anxiety symptoms, negative affect, depressed mood as compared to non-smokers with anxiety disorders. Similarly the smokers and non-smokers differed significantly on depression where smokers obtained more scores in comparison to their counterparts. This suggested that young people who display more depressive signs tend to have low self esteem and confidence and in order to attain and boost their confidence they indulge in such health risk behaviours. They are of the view that smoking is associated with sexual attractiveness, appropriateness, masculinity and independence that is why they are more prone towards smoking behaviour. Moreover when the people are depressed they become more vulnerable to the influences of peer group. The study corroborates with the previous findings which concluded that smokers experienced more depressive symptoms than the non-smokers.[17-18] Further on loss of behavioural/emotional control the smokers andnon- smokers differed significantly being higher among smokers than the non-smokers indicating that smokers had lower control on their behavioural patterns and emotional reactivity as compared to non-smokers. This can be attributed to the fact that the smokers may have high impulsivity and extreme temperaments like anger, lower inhibition, self control and self direction as well as instable emotional reactivity.[19-20] It was also evident that the smokers and non-smokers differed significantly on psychological distress with smokers getting more scores in comparison to their counterparts indicating that the smokers might have some underlying psychological mechanisms like guilt, low self confidence and loss of behavioural/emotional control. They might have low or weak coping mechanisms, low mastery to handle life stressors that lead them to uptake smoking as their coping mechanism. The present results are in accordance with the previous studies which found significant difference on psychological distress between direct smokers and second hand smokers[21] and found a moderate and positive correlation between smoking and psychological distress.[22] The results also indicate the significant difference between smokers and non-smokers on psychological well-being with smokers obtained low scores than non-smokers reflecting that the smokers who were high on anxiety, depression, loss of behavioural patterns, loss of emotional reactivity and on psychological distress they would definitely be low on psychological well-being. They would react to the situations in maladaptive ways and they would analyze their life

in more negative manner. A large number of studies correspond with the findings of present study which indicated that smokers exhibited lower levels of psychological well-being as compared to the non-smokers.[23-25]

The study further suggested no significant difference between smokers and non-smokers on general positive affect, emotional ties and life satisfaction indicating that both groups have similar kind of pleasure, happiness, affective bonding and general satisfaction with life. The present results are not in accordance with the previous research[23] in which smokers showed lower levels of positive affect and life satisfaction as compared to non-smokers.

Conclusion

Significant difference was evidenced on anxiety, depression, loss of behavioural/ emotional control, psychological distress, psychological well being with smokers scored low on well- being and high on distress, anxiety and depression as compared to non-smokers. No significant difference was evident on positive affect, emotional ties and life satisfaction. This study predict that Smoking not only causes physiological hazards even it also causes anxiety, depression etc. which leads to bad quality of life and poor psychological well-being.

Limitations and Recommendations

Though it was a cross- sectional study it was not feasible to establish the causal directions on the basis of the results so longitudinal studies are required. Moreover the present investigation was relied on the self reporting questionnaire therefore the chances of social desirability cannot be controlled. Furtherthe study was restricted to a particular age group i.e. 20- 25 years postgraduate students so the results cannot be generalized to all the smokers. Another potential limitation is that the mental status or medical history has not taken before conducting the mental health index. The study did not address any health-related medical histories.

Even though the present findings are preliminary, it gives an insight to the general masses in providing such relevant knowledge. This also provides strong support for prospective linkages between psychological well being, distress, anxiety and depression and smoking behaviors among young adults. It is suggestive of more effective interventions for youngsters' smoking behaviour and psychological health which may be benefitted by incorporating this information into treatment protocols.

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Original Article

Anxiety, Stress, Affect and Self-efficacy in relation to Internet use among University Students

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ABSTRACT

Introduction: *Excessive Internet use is a common psychological problem of today's era that cause people to spend unnecessary time on a computer and electronic gadgets and thereby it affects their health. It is the most significant factor for physical, social and psychological problems among young adults.* ***Objectives:*** *Present study tries to explore the gender difference, relationships and predictors of internet use among university students.* ***Methods:*** *The participants (N=80, 40 male, 40 female; age range: 21-24 years) were post graduate students of Banaras Hindu University. Internet addiction scale (Young 1998), The Positive and Negative Affect Scale (Watson, Clark and Tellegen, 1988), Perceived stress scale (Cohen, 1983), General Self-Efficacy Scale (R. Schwarzer and M. Jerusalem, 1995) and Beck Anxiety Scale (Aaron T. Beck 1988) were administered. T-test, Pearson Product Moment Correlation and Stepwise multiple regression was administered.* ***Results:*** *The finding reveals that there is significant gender difference in internet use, significant positive correlation between internet use and anxiety, positive but non significant correlation between internet use and self-efficacy, stress and negative affect and anxiety emerged as significant predictor of internet use.* ***Conclusion:*** *Excessive internet use can make students vulnerable to anxiety, stress, and negative affect.*

Keywords*- Internet use, Self efficacy, Stress, Affect, Anxiety.*

Introduction

The digital revolution has taken the world by storm and everybody is just loving it. More than two-thirds of the people in global survey say that they can't imagine a life without the internet. Largest proportions of such respondents are in India, where 82% said it is no life without internet[1]. India has largest facebook users, second largest market of internet after China and by 2021, it is estimated that there will be around 358.2 million social network users in India. The growth in internet use made many persons depend too much on internet. The terms 'internet addiction', 'compulsive internet use', 'pathological internet use', 'problematic internet use', etc., are interchangeably used for excessive internet using.[2] The DSM-5 has included 'Internet Gaming Disorder'- a subtype of internet addiction, in section three. India is no exception to this global trend of excessive internet use. Internet and Mobile Association of India and market research firm reported that in urban India, 269 million (60%) and in rural India 163 million (17%) use internet.[3]

In spite of the widely perceived merits of internet, psychologists and educators are increasingly pointing out the negative impacts of its use relating to a wide range of physical, psychological and social problems. Social sharing sites like Facebook, Twitter, online shopping, different applications, online games and online gambling has increased the number of internet use cases and it

can become serious problem in the near future e.g. Online game 'Blue whale' has reported 100 suicidal incidents among internet users worldwide. Thus excessive internet use could represent addictive behavior with mental health implications. It is therefore worthwhile to investigate the factors that lead to problematic internet use among university students in India.

Anxiety refers to an unpleasant state of inner turmoil, often accompanied by nervous behaviour, somatic complaints and rumination[4]. It's a feeling of fear, uneasiness, and worry, usually generalized and unfocused as an overreaction to a situation that is only subjectively seen as menacing. Evidence from previous studies has shown a strong association between internet use and anxiety. The frequent use of internet cause psychological and mental disorders like anxiety, depression, stress and obsessive compulsive disorder. Increase in using internet makes problems like internet anxiety. Positive and significant correlation exists between anxiety and internet addiction[5]. Azher et.al[6] too found positive and significant relation between internet addiction and anxiety among university students.

Affect is the experience of feeling or emotion. Affect is a key part of the process of an organism's interaction with stimuli. The word also refers sometimes to affect display, which is "a facial, vocal, or gestural behaviour that serves as an indicator of affect".[2] Evidence from previous researches too have shown a association between affective disorders and internet use.[7] Significantly positive correlation was found between the internet addiction test scores and the negative affect scores. A positive correlation was also found between the daily duration of internet use and negative affect scores[8]. Oktan[9] has asserted that a negative relationship exists between the ability to manage emotions and internet addiction.

Stress is a real or perceived imbalance between environmental demands required for survival and an individual's capacity to adapt to these requirements[10,11]. Ostover et al[12] found that internet addiction is a predictor of stress and anxiety among adolescents and young adults. Internet addiction was found positively related to depression, anxiety, and stress.[13] Seifi et. al.[14] found that there is a positive and significant relationship between addiction to the internet and anxiety, stress, depression as a whole and all its components. The regression results also indicated that in general, addiction to the internet can predict about 17% of depression, 20% of anxiety and 13% of stress.

Self-efficacy is the extent or strength of one's belief in one's own ability to complete tasks and reach goals. It is the ability to persist and a person's ability to succeed with a task. Some studies[15,16] found significant positive relationship between internet addiction and self efficacy of high school students.

On the basis of above review the research study has proved its own rationality.

Methodology

Objectives

1. To assess the gender difference in Internet Use among university students.
2. To assess the relationship between Internet Use, and (1) Affect (2) Self-efficacy (3) Anxiety and (4) Stress among university students.

Hypotheses

1. There would be significant gender difference in Internet Use among university students.
2. There would be positive relationship between a) Internet Use b) Affect c) Self-efficacy d) Anxiety and e) Stress among university students.

Participants

The present study was conducted on 80 post graduate students with age range of 21-24 years from different faculties (faculty of science, faculty of social sciences) of Banaras Hindu University. Sample included equal number of boys and girls (Boys = 40 and Girls = 40)

Measures

Internet Addiction Scale (IAS) Young[17]. It consists of 20 items, scores ranging from 1 to 5 (giving a total score ranging from 20 to 100), with higher scores reflecting a greater tendency toward use. The IAT has high face validity. IAT is a valid and reliable instrument that is used in researches related to Internet use.

The Positive and Negative Affect Scale (PANAS) developed by Watson, Clark and Tellegen.[18] This scale consists of 20 items, scores ranging from 1 to 5. The 10 items are positive and10

items are negative. Reliability and validity is moderately good. For the positive affect scale, the cronbach's alpha coefficient was 0.96 to 0.90, for the negative affect scale, 0.84 to 0.87.

General Self-Efficacy Scale developed by Schwarzer and Jerusalem[19]. This scale consists of 10 items, score ranging from 1 to 4. The Cronbach's alphas ranged from .76 to .90.

Perceived stress scale developed by Cohen[20]. This scale consists of 10 items. The Cronbach's α ranged between .84-.86, Test-retest reliability for the PSS was .85.

Beck Anxiety Inventory developed by Aaron T. Beck[21]. This scale consists of 21 items, score ranging from 0 to 3. The BAI is psychometrically sound. Internal consistency (Cronbach's alpha) ranges from .92 to .94 for adults and test-retest (one week interval) reliability is .75.

Demographic sheet

Demographic sheet was developed by researcher containing information about age, gender, education, academic performance, (high school marks, intermediate marks, last two semester marks in percent), frequency of internet use, hours of internet use, percentage of internet use for non-academic purpose and residence.

Results

Descriptive statistics for means, standard deviations and t-value for internet use are summarized in the Table-1.

Table -1 indicates significant gender difference in internet use among university students.

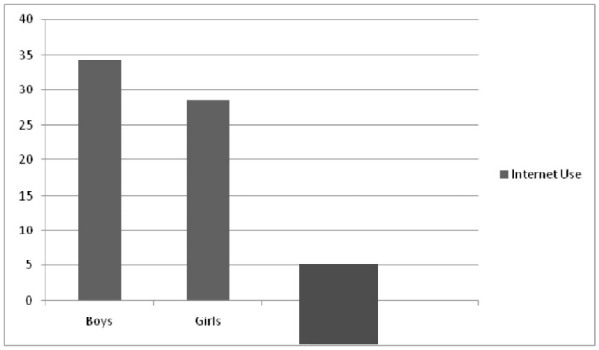
The obtained results presented in Table-2 shows that Internet use was positively significantly correlated with anxiety (r = .309) and positively non-significantly correlated with negative affect (r = .21) and total affect (r = 0.561), negatively correlated with positive affect (r = .10), positively non-significantly correlated with self-efficacy (*r* = 0.0304) and stress (r = .132).

Table-3 shows that anxiety emerged as the significant predictor for explaining the variance in internet use among boys and girls. Table depicts that anxiety explains 9.5% of variance in internet use.

Table-1 Mean, SD, t-value of the internet use on the basis of gender.

Variable	Boys		Girls		t-value
	Mean	SD	Mean	SD	
Internet use	34.37	17.199	28.55	12.766	1.720**

**=0.01 level of significance
*=0.05 level of significance



Graph-1 shows the mean of internet use among university students.

Table-2 Correlation matrix of internet use, affect, self-efficacy, stress and anxiety among university students

	Internet use			Affect	Self efficacy	Anxiety	Stress
Internet use		—					
Affect	PA	NA	Total	—			
	-.10	.21	.0561				
Self efficacy		.0304	.245*	—			
Anxiety		.309**		.210	-0.280*	—	
Stress		.132	-.017	-.462**	.511**	—	

(PA = Positive Affect, NA = Negative Affect)
**=0.01 level of significance
*=0.05 level of significance

Table-3 Stepwise multiple regression analysis for variables predicting internet use among university students

	R	R^2	Adjusted R	R^2 change	F	Significance level
Anxiety	.309	.095	.084	.095	.309	.005

Discussion

The first objective of this study was to investigate gender difference regarding internet use. Significant gender difference was found regarding internet use among university students. It indicates that male students are more addicted than female to internet. Free internet facility in the university campus to access online library for preparation of study material and assignments could be one of the reasons for excessive internet use among university students. Better knowledge about internet, websites and available applications, loneliness, boredom would have contributed to excessive internet use more among boys as compared to girls. This result is accordance with the results of Jalalinged[22] and Azher[6] but contradictory to previous researches on internet addiction, showing no gender difference in internet use.[23]

In terms of relationship significant positive correlation was found between internet use and anxiety level. Which implies, greater internet use is associated with enhanced anxiety level. This finding is consistent with other studies that have found relationship between internet use and anxiety.[5,6,13,23-28]

The findings of the study showed that there is a positive but non – significant correlation between internet use and affect. It implies that the more addictive to the internet a student is the more level of affect (negative affect) he/she has. This is contradictory to previous studies which have demonstrated a positive and highly significant correlation between the internet use and negative affect.[7,8]

Non significant positive correlation was found between stress and internet. Excessive and consistent use of internet can lead to decrease in friends, social support,[29] loneliness, poor mental health, low family involvement, lack of recreation and may enhance the level of loneliness and stress,[29,30] This finding is supported by earlier observations by Akin and Iskender[13] and contradictory to earlier observa-tions.[27,31]

Non-significant positive correlation was found between internet use and self efficacy which implies that the self efficient students have more internet usage. Due to the availability of numerous apps and literature on internet, students feel competent enough to face the challenges of everyday life. This finding is contradictory to previous research.[6]

Stepwise multiple regression analysis was computed. Anxiety emerged as the significant predictor for explaining the variance in internet use among university students. Anxiety score could explained 9.5% of variance in internet use. These results are accordance with the researches of Seifi et. al.[14]

So, it is concluded in the present research that the male students are more addicted than female students to use internet, either for studies purpose or other social engagements. The study indicates positive correlations between internet use, anxiety, stress, self-efficacy and negative affect. The more addictive the student is to internet access, the more stressed and anxious she/he is. Excessive internet use can make students vulnerable to anxiety, stress, and higher negative affect. The internet usage makes a student feel self- efficient. Among all these variable anxiety emerged as significant predictor of internet use. So the current study throws light on the relationship between internet use, anxiety, stress, affect and self-efficacy.

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Original Article

Magnitude and Pattern of Neuropsychological Impairment in Schizophrenia

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ABSTRACT

Background: *There is paucity of work from India on comprehensive neuropsychological assessment of patients with schizophrenia by standardized batteries.* ***Objective:*** *To compare the magnitude and pattern of cognitive dysfunction in patients with schizophrenia with that in patients with depressive disorders and normal subjects.* ***Material and Method****: 30 schizophrenics, 30 depressives and 30 normal subjects were assessed by the Standardized Luria- Nebraska Neuropsychological Battery (LNNB).* ***Results:*** *The group with schizophrenia, compared to the group with depressive disorders and normal group, performed poorly on all the Clinical scales, except Expressive Speech, Writing and Reading. On all the Summary and Localization scales the group with schizophrenia, compared to the group with depressive disorders, performed poorly on all the summary scales except left hemisphere, and poorly on all the localization scales except Left Parieto-Occipital and Right Frontal. 8 (26.7%) patients with schizophrenia and 18 (60%) with depressive disorders were not brain damaged. Significantly more patients with schizophrenia were mild / moderately brain damaged (43.3%) than those with depressive disorders (6.67%). In 15/22(68.2%) patients with schizophrenia there was predominantly right hemispheric impairment, while in 7/22(31.8%) of the patients there was predominantly left hemispheric dysfunction.* ***Conclusions:*** *(1) In majority of patients with schizophrenia and a minority of patients with depressive disorders there is brain damage. (2) Brain damage is more severe in patients with schizophrenia. (3) The findings of the study lend some support to heterogeneity of schizophrenia.*

Key words*: Schizophrenia; neuropsychology; cognitive impairment*

Introduction

Schizophrenia has been shown to be associated with abnormal performance on a wide range of neuropsychological tests.[1] In about 50% of patients with schizophrenia abnormal findings have been reported on psychological tests, which provide objective measures of neuropsychological performance.[1] Patients with schizophrenia perform one to two standard deviations below healthy controls on various neurocognitive tests.[2] Bilateral hemispheric dysfunction, with or without superimposed focal deficit, has been reported by most workers.[3-5] There is controversy regarding whether the focal deficit is pre-frontal,[6] temporal,[7,8] frontal and temporal,[8,9] temporo-hippocampal,[5,10] or dominant temporo-parietal.[11] Dominant hemispheric dysfunction by itself,[12,13,14] or with left hemispheric activation,[11,15] has also been reported.On the contrary, some investigators found dysfunction in patients with schizophrenia lateralized to the right side.[4]

Small sample size has been a limiting factor in previous studies.[7,11,13] Most workers employed

psychological tests to measure specific cognitive functions, rather than comprehensive test batteries. Surprisingly, even though it is recognized that schizophrenia is a heterogeneous entity,[14] in most of the previous studies comparisons have been made between group means, without regard to intra-group variation. Cognitive impairment has also been reported in affective disorder.[4,6,12] Thus, it remains to be shown conclusively that the cognitive deficits are specific to schizophrenia.Besides, studies on Indian patients are few in this area.[14,16,17]

The present study investigated and compared the magnitude and pattern of cognitive dysfunction in patients with schizophreniawith that in patients with depressive disorders (psychiatric controls) and normal subjects.

Material and Methods

Subjects

30 patients with schizophrenia and 30 with depressive disorders were selected from the patients admitted on specific beds of the consultant (IS) in the psychiatric ward of the University Hospital (UH), Banaras Hindu University (BHU), Varanasi, India, over a one-year period.They fulfilled diagnostic criteria of DSM-IV–TR,[18] were right-handed, on the scale of Piran et al,[19] between 16-55 years of age; and without another DSM IV-TR Axis I disorder, a concurrent physical illness, history of electro-convulsive therapy, head injury, or neurological disorder. 30 healthy volunteers (University staff and their relatives) were chosen; who were right-handed, and with optimal functioning with respect to the highest level of pre-morbid adjustment during the past year (>50 score on Global Assessment of Functioning (GAF) Scale of DSM-IV-TR). The 3 groups were matched on age, education, domicile and sex. All subjects underwent a clinical assessment to rule out any possible disorder. Informed consent was taken from all the patients and their accompanying relatives participating in the study.

Methods

Neuropsychological assessment was done by the Luria-Nebraska Neuropsychological Battery (LNNB Form I),[20] which is an individually administered battery designed to measure various types of cognitive deficits in adolescents and adults as an aid to neuropsychodiagnosis. In an inter-rater reliability study involving schizophrenic and 5 healthy volunteers, who were simultaneously scored by 2 raters while one of them administered the battery, the kappa coefficients were over 0.8 on each of the tasks, which was well within the acceptable limit.

All the patients were tested as soon as their clinical state permitted; psychotropic drugs were withdrawn 24 hours before testing to avoid any effect of medicines on the test results.[21] Neuropsychological assessments of patients and controls was done with the Standardized LNNB. Each patient was rated on the Expanded Brief Psychiatric Rating Scale (BPRS),[22] as closely as possible to the LNNB assessment.

All evaluations were done in the evening between 4-7 pm. LNNB was administered and scored in accordance with standard instructions given in the manual.[20]

Ethical approval

The study was approved by Research and Ethics Committee of the Institute of Medical Sciences, BHU, Varanasi, India.

Results

30 patients with schizophrenia (catatonic 12; paranoid 10;undifferentiated 10; disorganized 2), 30 patients with depressive disorders (major depressive disorder, single episode 22; major depressive disorder, recurrent 3; dysthymic disorder 5) and 30 normal subjects participated in the study. All the patients were receiving medication. The average duration of medication of the group with schizophrenia was 21.4 ± 9.6 (8-36) months and the average 'Current Chlorpromazine Equivalent Dose' (CCED), was 916 ± 392.5 (400-1800) mg/day. CCED was calculated from the antipsychotic equivalence chart.[23] The average duration of intake of the group with depressive disorders was 13.1 ± 12.6 (2-48) months. Majority (n=27) of the latter were on a tricyclic antidepressant, the average dose being 137 ± 39.3 (75-225) mg /day; 2 were receiving fluoxetine 40 mg /day and one was on amineptine 200 mg/day.

The socio-demographic and clinical characteristic of the sample are given in Table 1. There was no significant difference between the 3 groups of subjects with regard to age, education, domicile and sex distribution.

Table-1: Sample Characteristics

Variables	A Schizophrenia(N=30)		B Depression(N=30)		C Normals(N=30)	
	N	%	N	%	N	%
Age						
<20 years	8	26.7	3	10.0	3	10.0
21–30 years	11	36.7	11	36.7	12	40.0
31– 40 years	6	20.0	8	26.7	8	26.7
>40 years	5	16.7	8	26.7	7	23.3
Education						
Upto 10th std	12	40.0	11	36.7	11	36.7
11th – 12th std	5	16.7	7	23.3	6	20.0
Grad. & Above	13	43.3	12	40.0	13	43.3
Sex						
Male	15	50.0	16	53.3	15	50.0
Female	15	50.0	14	46.7	15	50.50
Domicile						
Urban	22	703.3	21	70.0	25	83.3
Rural	8	26.7	9	30.0	5	16.7
Age of Onset						
Upto 20 years	17	56.7	5	16.7		
21–30 years	7	23.3	10	33.3		
>30 years	6	20.0	15	50.0		
Durationof Illness						
<1/2 years	0	0.0	15	50.00		
1/2 – <1years	8	26.7	3	10.0		
> 2 years	11	36.7	8	26.7		

Table 2:Comparison of patients, with schizophrenia, patients with depressive disorders, and normal subjects on Clinical scales of LNNB

Scale	A Schizophrenia (N=30)		B Depression (N=30)		C Normals (N=30)		A vs B df=58	B vs C df=58	A vs C df=58
	Mean	SD	Mean	SD	Mean	SD			
C1 Motor	19.4	5.7	16.2	4.1	12.6	2.9	2.47c	3.94a	5.82a
C2 Rhythm	14.9	4.1	11.9	4.2	10.5	3.4	2.75b	1.42e	4.42a
C3 Tactile	5.8	2.6	3.2	2.9	2.8	1.8	3.64a	2.24d	6.18a
C3 Visual	11.7	2.7	9.6	2.6	8.9	2.2	3.l0a	1.07e	4.36a
CS Receptive	9.4	4.2	6.2	1.5	5.7	2.0	3.94a	0.99e	4.32a
C6 Expressive	22.5	11.5	17.4	8.3	17.3	10.3	l.95e	0.07e	1.85e
C7 Writing	5.2	3:6	4.7	3.1	4.2	3.0	0.55e	0.75e	1.01e
C8 Reading	5.5	3.6	4.9	3.3	4.7	4.1	0.71e	0.10e	0.62e
C9 Arithmetic	7.3	7.6	2.1	4.7	1.4	2.3	3.21b	0.73e	4.08a
C10 Memory	12.1	4.3	7.9	2.9	4.5	1.9	4.42a	5.35a	9.45a
C11 Intellectual	32.9	10.7	24.3	7.4	19.0	8.5	3.58a	2.57c	5.54a
S1 Pathognomonic	19.4	6.6	15.0	4.6	10.7	4.5	2.99b	3.62a	5.93a
S2 L Hemisphere	5.6	2.2	5.1	2.3	3.4	1.8	0.87e	3.05b	3.92a
S3 R Hemisphere	5.0	2.3	3.4	1.4	3.0	1.0	3.21b	1.43e	4.40a

NB: P: a=<0.001; b=<0.01; c=<0.02; d=<0.05; e=NS

The group with schizophrenia had an earlier age of onset (x^2 10.92; df 2; p <0.01) and longer duration of illness (x^2 21.01; df 3; p <0.001) compared to the group with depressive disorders. The severity of illness, as per the total score on BPRS, did not differ significantly between the 2 patient groups.

The performance of the sample on LNNB is depicted in Table 2-5.The group with schizophrenia, compared to the group with depressive disorders and normal group, performed poorly on all the

Clinical scales, except Expressive Speech, Writing and Reading. The group with depressive disorders was inferior to the normal group on Motor, Tactile, Memory and Intellectual functions (Table 2).

On all the Summary and Localization scales the group with schizophrenia, compared to the group with depressive disorders, performed poorly on all the Summary scales except Left Hemisphere, and poorly on all the Localization scales except Left Parieto-occipital and Right Frontal. In addition, the group with schizophrenia had an inferior performance, compared to the normal group, on all the Summary and Localization scales (Tables 3 and 4).

The LNNB protocols were also examined for brain damage in accordance with LNNB manual protocol. This was done by use of the critical level (CL) which was calculated by the formula CL = 68.8 + (0.214 × Age) – (1.47 × Education).[20] The number of scales (C1- C11, except C7 and C9; and S1) on the battery that exceeded the critical level were counted to yield the number of abnormal scores. Thus, 8 (26.7%) patients with schizophrenia and 18 (60%) with depressive disorder did not have brain damage. Significantly more patients with schizophrenia were mild / moderately brain damaged (43.3%) than those with depressive disorders (6.67%) (Table 5).

There was no significant difference between the normal and the brain damaged groups of patients on CCED, severity of illness, length and age of onset of illness.

The 34 LNNB protocols suggestive of brain damage were examined for hemispheric lateralization of brain dysfunction on the basis of distribution of localization scale scores according to the rules described.[20] Thus, 15 (68.2%) (definite: N = 14,63.6%; probable: N=1, 4.5%) patients with schizophrenia and 6 (50%) (definite: N 5, 41.7%; probable: 1, 8.3%) patients with depressive disorders had predominantly right sided dysfunction, while 7

Table-3: Comparison of patients, with schizophrenia, patients with depressive disorders, and normal subjects on Summary scales of LNNB

Scale	A Schizophrenia (N=30)		B Depression (N=30)		C Normals (N=30)		A vs B df=58	B vs C df=58	A vs C df=58
	Mean	SD	Mean	SD	Mean	SD			
S1 Pathognomonic	19.4	6.6	15.0	4.6	10.7	4.5	2.99b	3.6a	5.9a
S2 L Hemisphere	5.6	2.2	5.1	2.3	3.4	1.8	0.87e	3.05b	3.9a
S3 R Hemisphere	5.0	2.3	3.4	1.4	3.0	1.0	3.2b	1.4e	4.4a
S4 Profile Elevation	12.7	5.4	8.2	2.9	6.3	3.5	7.8a	2.2d	9.3a
S5 Impairment	21.3	9.5	12.6	61	10.0	6.5	4.2a	1.6e	5.4a

NB: P: a=<0.001; b=<0.01; c=<0.02; d=<0.05; e=NS

Table-4: Comparison of patients, with schizophrenia, patients with depressive disorders, and normal subjects on Localization scales of LNNB

Scale	A Schizophrenia (N=30)		B Depression (N=30)		C Normals (N=30)		A vs B df=58	B vs C df=58	A vs C df=58
	Mean	SD	Mean	SD	Mean	SD			
L1 L Frontal	17.1	8.1	12.9	5.1	11.6	6.6	2.38d	0.89e	2.90b
L2 L Sensorimotor	18.8	5.2	12.8	5.0	10.3	5.5	4.54a	1.87e	6.19a
L3 L Parietal-Occipital	15.2	8.5	11.7	5.4	8.8	6.4	1.88e	1.91e	4.39a
L4 L Temporal	15.1	3.7	12.1	2.6	11.5	3.8	5.90a	0.75e	4.98a
L5 R Frontal	11.9	3.7	10.3	2.6	9.2	2.7	1.96e	1.71e	3.33b
L6 R Sensorimotor	11.3	3.6	8.3	3.8	7.0	3.8	3.11b	1.30e	4.44a
L7 R Parietal-Occipital	15.7	4.8	10.5	3.7	9.8	4.0	4.68a	0.70e	5.17a
L8 R Temporal	23.8	7.9	17.3	6.7	16.2	6.9	3.40b	0.66e	3.96a

NB: P: a=<0.001; b=<0.01; c=<0.02; d=<0.05; e=NS

Table 5: Distribution of patients according brain damage

Criteria for brain damage	A Schizophrenia		B Depression	
	N	%	N	%
No brain damage(Up to 2 abnormal scores)	8	26.7	18	60
Borderline(3-4 abnormal scores)	9	30	10	33.3
Mildly Brain damaged(5-7 abnormal scores)	10	33.3	2	6.7
Moderately Brain damaged(>7 abnormal scores)	3	10	0	0.0

NB: Mild / Moderated Brain Damage v. No / borderline -X2 10.76; df 1; p 0.001

(31.8%) (definite: n=1, 8.3%; probable: N=5, 41.7%) patients with depressive disorders had predominantly left sided dysfunction. However, the difference between the groups with respect to lateralization was not significant (x^2 1.05; df 1; p NS).

There was no significant correlation between the total LNNB score on the 269 items and the CCED (r=-0.26; t=1.39), severity of illness (r=-0.02; t=0.11), duration (r=0.14; t=0.74) and age of onset (r=-0.02, t=-0.33).

Discussion

This study was a modest attempt to study the magnitude and pattern of neuropsychological impairment in patients with schizophrenia who presented at the UH, BHU Varanasi,a tertiary hospital in Eastern Uttar Pradesh.

Neuropsychological assessment was done by the standardized LNNB. The LNNB has proven to be highly reliable in identifying and localizing brain damage in adults, even when associated with severe psychiatric disabilities.[24] Performance on LNNB of patients with schizophrenia, patients with depressive disorders and healthy control subjects was compared in order to ascertain whether the findings were specific for schizophrenia.

On the clinical scales of LNNB, the patient groups exhibited significant impairment on 4 scales (Motor functions, Tactile, Memory and Intellectual) compared to group of healthy subjects. In addition, patients with schizophrenia showed significantly greater impairment on certain other scales (Rhythm, Visual, Receptive, and Arithmetic). The patient groups showed a similar neuro-cognitive profile except that there was more impairment in the group with schizophrenia (indicated by higher scores). Some functions (Reading, Writing and Expressive Speech), were relatively spared in both the patient groups.

On the Summary scales, in comparison to normal subjects, both the patient groups showed significant impairments on 3out of 5 Summary scales (Pathognomonic, Left Hemisphere and Profile Elevation). In addition, the group with schizophrenia showed significant impairment in Right hemisphere. The cognitive profile of the patient groups was again similar except that the group with schizophrenia showed significantly greater impairment on all the scale except Left Hemisphere.

Further comparisons involved the Localization scales. While the patients with schizophrenia, when compared to the normal subjects, showed significant greater impairment on all the scales, the patients with depressive disorders did not differ significantly from the group of healthy controls. The group with schizophrenia showed significantly more impairment than the group with depressive disorders on Left frontal, Left Sensori-motor, Left Temporal, Right Sensori-Motor, Right Parieto-occipital, and Right Temporal.

In order to get further evidence on brain damage in the sample comparisons were made using the criteria of Critical level, which takes into consideration age and educational level of the respondent. Accordingly, the majority of patients (schizophrenia 73.33% (N=22); depressive disorders 40% (N=12)) were found to have varying degrees of brain damage. It is noteworthy that, 43.33% of patients with schizophrenia and 6.67% of patients with depressive disorders had mild to moderate brain damage. Itis pertinent to mention here that the accuracy of identifying brain damage with this method is about 85-90%.[24] Thus 10-15% of brain damaged individuals could be misidentified as normal and would require further investigations.

Out of the 22 schizophrenics with abnormal LNNB profile, 10 (33.3%) were mild and 3 (10%) were moderately damaged. The latter 2 groups are

likely to be associated with enlarged lateral ventricles or impairment in cerebral metabolism.[25] Recent studies have shown association between abnormal LNNB profiles and Computerized Tomography (CT)[26] and Nuclear Magnetic Resonance[9] brain measures. Significant correlations between 8 out of 14 clinical scales and Ventricular Brain Ratio, with a multiple correlation of 0.72 was reported.[26] These reports confirm the importance of the findings of this study.

The LNNB protocols of schizophrenics suggestive of brain damage were re-examined for lateralization of brain dysfunction. About 2/3 (68.18%) of the patients with schizophrenia had Right sided brain dysfunction, while approximately 1/3 (31.82%) had Left hemispheric impairment. In patients with depressive disorders in half there was Right sided dysfunction and in half Left sided impairment. When the 2 groups of patients were compared there was no significant difference. Further work is needed on larger groups of patients to more clearly ascertain the difference in lateralization between patients with schizophrenia and depressive disorders.

It may be noted that this procedure is designed to yield the hemisphere likely to be most involved and does not rule out the possibility of bilateral injuries. Bellini et al observed that patients with schizophrenia and affective disorder were bilaterally impaired, but those with schizophrenia had more right sided impairment.[4] The discrepancy between the findings of this study and Bellini et al lateralization of brain dysfunction are probably because they analyzed mean scores instead of examining individual LNNB protocols, which was an obvious limitation of the study. From India combined cerebral dysfunction on the LNNB, more towards left hemisphere was reported.[14] From these findings it would be reasonable to suppose that schizophrenia is not a homogeneous entity, but comprises at least 2 subgroups, a larger group with predominantly right sided impairment and a smaller group with predominantly left sided impairment. These conclusions are however tentative because of the small numbers of patients in the subgroups.

No significant correlation was noted between clinical variables, CCED, age of onset and duration of illness, and the total LNNB score in this study. Thus it is unlikely that these variables appreciably affected the results. This requires further study.

The main conclusions of the study are: (1) A sizeable proportion of patients with schizophrenia (43.3%) have mild to moderate brain damage. Majority (68.18%) have predominantly right sided dysfunction, while a minority (31.82%) have left sided dysfunction. (2) A small proportion (6.67%) of patients with depressive disorders have mild brain damage, half of them have predominantly right sided dysfunction, while the remaining have predominantly left sided dysfunction. These findings are tentative and need to be confirmed in further work mounted on larger samples. The findings of the study lend support to heterogeneity of schizophrenia.

The implications of the findings are that LNNB could be utilized as a clinical tool for identifying brain damage in patients with schizophrenia particularly in developing countries, where advanced neuro-radiological investigations are expensive and available in only a few centers. Also, LNNB could be an aid for neuropsychological rehabilitation for monitoring progress.

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Original Article

Personality profile among alcohol dependent patients in comparison with non-alcoholic individuals

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ABSTRACT

Background: *Personality is frequently related to its context and the structure of the theory within which it is employed. Personality traits studies had shown that the prevalence of personality disorder among alcohol dependence were ranging from as low as 24–38% to as high as 58–78%.* ***Aim:*** *To assess the alcohol induced personality profile among patients with alcohol dependent syndrome.* ***Methodology:*** *Patients attending the psychiatric OPD in the age group of 18 – 55 years and those who met the CAGE criteria for alcohol dependent syndrome were included for the study. A total of 73 patients along with 100 controls were included as the study subjects. The personality assessment was performed for all these patients using Eysenck personality Questionnaire(EPQ) which includes four domains namely extrovert/introvert, psychoticism, neuroticism and lie and scoring was done for each domain. The mean scores between the cases and controls were compared using student T test, considering P <.05 as statistically significant.* ***Results:*** *The prevalence of introvert personality, psychoticism, neuroticism among alcohol dependent subjects were 46.5%, 71.2% and 79.4% respectively and a very high lie score was present in 83.5% of the alcohol dependent subjects. Except the score for extrovert domain all the other domain score were high in the alcohol dependent patients group than that of the control group and the difference in the score was found to be statistically significant (p <.05).* ***Conclusion:*** *Personality traits play an important role in the development of addictive behavior such as alcohol dependence and associated disorders and the present study concludes that alcohol dependent patients are more of introvert along with psychoticism and neuroticism type of personality.*

Keywords: *Personality disorder, alcohol dependence, Eysenck personality Questionnaire.*

Introduction

The prevalence of alcohol consumption was increasing globally day by day and the recent estimate quotes that approximately two billion people use alcohol worldwide and among them 76.3 million are expected to have at least one disorder caused by their alcohol use.[1] Data shows that impacts of alcohol consumption habit are extremely negative and it is usually associated with a series of illnesses like hepatic cirrhosis, neoplasia, gastritis, oesophageal varices, pancreatitis, diabetes mellitus are the few among them. Psychiatric disturbances like anxiety, depression or personality disorder are of major concern.[2,3] The literature has shown multiple variables predisposes alcoholism like genetic aspects gender, age, social influence and personality factors.[4-6]

Reports from various studies conducted in 1930's and 40's had shown that personality behavior

of alcoholics is different in some way from that of individuals who are not alcoholic. In 1950's the critical reviews which were published had reported that there was no consistent evidence for a distinct alcoholic personality.[7,8] The Alcoholics Sub-committee of the World Health Organization (WHO) discouraged the search for an alcoholic personality by stating 'It does not seem to emerge (that there is) . . . any specific personality trait or physical characteristic which inevitability would lead to excessive symptomatic drinking'. During the 1960s and '70s, a number of studies continued to report that certain behaviours appear to predispose individuals to alcoholism, but these behaviours were not conceptualised as personality which was substantiated by the study done by Morrison[9] and Stewart and Cantwell[10] found that hyperactive children were more likely than non-hyperactive children to have a biological father who was alcoholic and more likely to become alcoholic themselves. Later in 1980s, interest in the personality-based explanations for alcoholism began to increase again which was mainly for two reasons, one was increase in the prevalence rate of poly drug dependence and the second one is the repeated demonstration that genetic factors contribute fundamentally to individual differences in alcohol related behaviours.[11]

Personality is frequently related to its context and the structure of the theory within which it is employed. Personality is normally defined as behaviours and emotions which are characteristic of an individual, remains stable over time and situations, and often have some motivational and adaptive significance. The five types of personality traits are : a) neuroticism (which is linked to anxiety, anger, impulsiveness, negative affect and psychic suffering); b) extraversion (which is reinforced by positive emotions and linked to the individuals' degree of sociability, assertiveness and communication); c) openness (which is connected to curiosity, beliefs, flexibility, independent judgment, taste for complexity and novelty, as well as to non-conventional experiences); d) agreeableness (which refers to altruistic traces and is linked to sympathy and cooperation tendencies); and e) conscientiousness (which is linked to self-control, planning, discipline, determination and organization).[12,13] Based on these personality traits studies had shown that the prevalence of personality disorder among alcohol dependence were ranging from as low as 24–38% to as high as 58–78%.[14,15] This large disparity in the prevalence rate were due to the factors like usage of different assessment tools, different severity of alcoholism considered (abuse or dependence) and to the different mental health settings (inpatients or outpatients).[16]

As of today very few studies had been conducted in India in assessing the personality disorders among alcoholics and so the current study would throw some light in assessing the different personality disorders among the patients with alcohol dependent syndrome.

Aim

To assess the alcohol induced personality profile among patients with alcohol dependent syndrome.

Methodology

A cross-sectional study was conducted for a period of one year in the Department of Psychiatry at our medical college hospital. The study was conducted after getting the clearance from the institutional ethical committee. Patients attending the psychiatric OPD in the age group of 18 – 55 years and those who met the CAGE criteria for alcohol dependent syndrome were included for the study. CAGE is a widely used screening questionnaire for identifying alcohol dependence with a high sensitivity and specificity. Patients with score 2 and above for the CAGE questionnaire were included for the study. Patients with chronic physical illness like hypertension, diabetes mellitus, cerebro-vascular accidents, endocrine and neurological disorders and history of psychiatric illness prior to alcohol use were excluded from the study. Informed consent form was obtained from all the patients who were involved in the study. A total of 73 patients matching our inclusion and exclusion criteria were included in the study. The personality assessment was performed for all these patients using Eysenck personality Questionnaire (EPQ). A detailed history related to socio-demographic variables, like age in years, educational qualification, occupation, marital status, religion, income, residence and clinical variables, like types of substance, age of onset, pattern of intake, duration of dependence, family history of substance dependence, and treatment history were obtained from the study subjects. The EPQ measures four

domains in assessing the personality. First one is whether the person is extrovert/introvert, the score ranges from 0 to 24 lowest is introvert and highest is extrovert. Second one is neuroticism which is characterized by high levels of negative effect such as depression and anxiety and the score ranges from 0 – 24, higher the score greater level of negative effect. Third one is Psychoticism, which is associated not only with the liability to have a psychotic episode, but also with aggression for which the score ranges from 0 – 24 and higher the score greater the chance of psychotic episode. The fourth dimension is the lie scale which was introduced later in an attempt to measure to what extent subjects were deliberately attempting to control their scores and for this the score ranges from 0 – 9. Hundred age and sex matched controls were included in the study who are non-alcoholics.

All data were entered and analysed using SPSS version 21. Mean and standard deviation was derived for all the parametric variables and the mean scores between the cases and controls were compared using student T test, considering P<.05 as statistically significant.

Results

Table 1 shows the age wise distribution of the study subjects. It is seen from the table that there was almost equal distribution among the cases and controls in all age group and the mean age was 44.6 years among the cases and 42.8 years among the controls and there was no statistical significant difference between the two groups. The minimum age in both the groups was 20 years and the maximum age was 60 years. Both the cases and controls had only male subjects and so gender wise distribution was not shown in the table. The demographic characteristics among the alcohol dependent patients shows that majority of them were coolie by occupation with 95% of them were married and 70% of them had a family history of alcohol consumption or substance abuse. The drinking habits among them had shown that most of them had the habit of drinking for 5 – 10 years and only 15% of the subjects had less than 5 years of alcohol dependence. More than 50% of the alcohol

Table 1: Age wise distribution of the patients and the controls

Age group	Cases (n=73)	Controls (n=100)	P value
20 – 29	12 (16.4%)	15 (15%)	0.718
30 – 39	23 (31.5%)	26 (26%)	
40 – 49	21 (28.7%)	29 (29%)	
50 – 60	17 (23.2%)	30 (30%)	
Mean ± SD	44.6 ± 6.8	42.8 ± 7.2	

Table 2: Demographic characteristics and drinking habits among the alcohol dependant cases

Variable		Frequency (n=73)	Percentage
Occupation	Household	1	1.3%
	Agriculture	12	16.4%
	Business	18	24.6%
	Government Employee	2	2.7%
	Factory	8	10.9%
	Coolie	32	43.8%
Marital status	Married	69	94.5%
	Unmarried	5	6.8%
Family history of substance abuse		51	69.8%
Years of alcohol dependence	<5 years	11	15%
	5 – 10 years	45	61.6%
	>10 years	17	23.2%
Frequency of drinking	Daily	39	53.4%
	Weekly twice	23	31.5%
	Weekly once	11	15%
Quantity per drink	250 – 500ml	59	80.8%
	>500 ml	14	19.1%

Table 3: Clinical manifestations and usage of other drugs among the alcoholic dependent patients

Variables		Frequency (n=73)	Percentage
Clinical manifestations	Sleeplessness	38	52%
	Tremors	41	56.1%
	Anxiety	53	72.6%
Usage of other drugs	Tobacco	61	83.5%
	Cannabis	46	63%
	Cocaine	68	93.1%

Table 4: Distribution of alcohol dependent patients based on their CAGE scoring

CAGE score	Frequency	Percentage
1	1	1.3%
2	64	87.6%
3	5	6.8%
4	3	4.1%
Total	73	100%

Table-5: comparison of EPQ scores between alcohol dependent patients and the control group

Score variable		Alcohol dependent patients (n=73)	Controls (n=100)	P value
Extrovert score (0-24)	<7	34 (46.5%)	7 (7%)	<.0001
	>7	39 (53.4%)	93 (93%)	
	Mean	7.48	12.52	
Psychoticism (0-24)	<7	21 (28.7%)	96 (96%)	<.0001
	>7	52 (71.2%)	4 (4%)	
	Mean	9.65	4.82	
Neuroticism (0-24)	<7	15 (20.5%)	95 (95%)	<.0001
	>7	58 (79.4%)	5 (5%)	
	Mean	8.78	3.17	
Lie score (0-9)	<4	12 (16.4%)	96 (96%)	<.0001
	>4	61 (83.5%)	4 (4%)	
	Mean	5.28	2.16	

P value derived by applying student T test

dependent patients had the habit of consuming alcohol daily and the minimum frequency of consumption among them was weekly once. The minimum quantity of per drink for more than 80% of the alcoholic dependent subjects was 250 – 500 ml and 19% of them had more than 500 ml as per drink. Most of them had either whisky or brandy and less than 10% had beer as the type of alcohol (Table 2). The various clinical manifestations which were presented in more than 50% of the alcohol dependent subjects were sleeplessness, tremors and anxiety and among the usage of other drugs more than 80% had the habit of regular usage of tobacco either in the form of cigars, beedi or chewing tobacco leaves and surprisingly more than 90% of them had the habit of using cocaine regularly (Table 3). Alcohol dependency was assessed based on the CAGE questionnaire. In our subjects more than 85% had score 2 and only 4% had the maximum score of 4. The cut-off score which was usually followed for labeling a person as alcohol dependent was 2 and above and the same was followed in the present study (Table 4). The comparison of Eysenck personality Questionnaire score between the alcohol

dependent persons and the controls was shown in Table 5. The prevalence of introvert personality, psychoticism, neuroticism among alcohol dependent subjects were 46.5%, 71.2% and 79.4% respectively and a very high lie score was present in 83.5% of the alcohol dependent subjects. The extrovert score was high among the control group than that of the alcohol dependent group and the difference in score was found to be statistically significant ($p<.05$), which proves that most of the alcoholics are introvert type of person. The psychoticism and neuroticism score was statistically significantly higher in the alcohol dependent group than that of the control group which implies that alcohol dependent subjects are more prone in developing psychiatric and neurotic illnesses. Lie score was significantly higher among the alcohol dependent group substantiating that the tendency of lying among the alcoholic subjects is more common.

Discussion

The major objective of the present study was to assess the alcohol induced personality profile among patients with alcohol dependence syndrome in comparison with a control group. Our study sample contained 73 patients with alcohol dependent syndrome and 100 patients as controls and the mean age was between 42 and 44 in both the groups which was in par with the study done by Shihab Kattukulathil et al[17] and another study done by Singh et al.[18] The mean age of started using alcohol was 24.5 years which was similar to the study done by Singh et al and Shantna K et al.[18,19] The mean duration of alcohol dependence in our study subjects was 7.8 years which was much higher than the study done by Kattukulathil et al and almost similar to study done by Singh et al.[17,18] Similar to most other studies conducted in India on alcohol dependence, all our study subjects were males, as the reason could be that alcohol consumption by women is less socially acceptable in this part of India and also women are less likely to get admitted for treatment of alcohol dependence.[19,20] The current study shows that majority of the subjects with alcohol dependent syndrome were either coolie or daily wage laborer's and a study done by Kadri et al, in Ahmedabad city had also proven the same.[21] In the present study, the factors which had influenced the initiation of consuming alcohol habit were family problems, financial drawback, stress at work place and peer pressure and all these factors were quoted in a study done by Poornima Prabhu in 2014 in South India.[22]

Rapid situation assessments (RSA) are useful to study patterns of substance use. An RSA by the UNODC in 2002 of 4648 drug users showed that cannabis, alcohol and opioids were the major substances used and the results were almost similar to the present study.[23] Individuals with a high family history of alcoholism (specifically of the early-onset type, developing before 25 years of age) display a cluster of disinhibited behavioral traits, usually evident in childhood and persisting into adulthood.[24] In our study also we had a significant number of alcohol dependent patients had a family history of alcoholism.

In assessing the personality trait based on the Eysenck personality Questionnaire we found most of alcoholics were introvert compared to the controls A possible hypothesis to justify this finding is that individuals with lower indicators of such a trait are more introspective or shy, which may lead to high-risk behaviors such as the abuse of alcohol and other substances as a confrontation strategy.[25] However, these results contrast with the previous literature, which points out that increased alcohol consumption is associated with increased extraversion traits.[26] A possible explanation for such conflicting findings would be that these studies used a descriptive methodology, and lacked a comparison group of healthy participants, such as the one used in the present study. Additionally, these studies used samples of both genders. Previous studies involving the general population showed that women present stronger extraversion traits than do men.[27] The sample used in the present study was exclusively male, so the present research has allowed a detailed look at the influence of this factor on the male gender.

As for the neuroticism factor, the findings were almost similar to the previous studies, which would lead us to expect the presence of impulsivity, anger and negative emotions in alcoholic subjects.[27,28] The present study also highlights the stronger presence of psychoticism among alcohol dependent syndrome when compared to the controls, which infers that they are more prone for developing psychiatric disorders. Our results were substantiated by the study done by Kattukulathil etal in which he quoted the prevalence of psychiatric co-morbidity among

alcoholism was 66.7%.[17] One Indian study had demonstrated a higher prevalence of 81% in inpatients with alcohol dependence.[19] However, we should remember that, as per existing literature, even in outpatients with alcohol dependence the reported prevalence range is from 76.6% to 92% such wide range may be due to factors like the context, the tools used and stage of illness.[18,29]

The lie score in the present study was found to be significantly high in the alcohol dependent subjects and no such previous studies were conducted in assessing the lie score among the alcoholics only one study done by Sahasi[30] had observed a higher lie scores among heroin addicts. The present study has some limitations, firstly it had not used tools to assess the type of psychiatric disorder among the alcoholic dependent subjects and it also lacked systematic scales to evaluate the severity of alcoholism.

Conclusion

The current study concludes that alcohol dependent patients are more of introvert along with psychoticism and neuroticism type of personality. Personality traits play an important role in the development of addictive behavior such as alcohol dependence and associated disorders. That is why they are important factors to be considered during interventions that aim to diminish and/or treat this clinical condition and its impact and/or severity. Personality research related to alcohol addiction may be further better validated when it is directed towards investigating related to ethanol reactivity, hyperactivity, stress and coping, social peer group affiliations, acquisition of attitudes to alcohol and continuity of drinking across major life transitions.

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Original Article

Psychological Capital, Social Support and Psychological Well-Being among Adults

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ABSTRACT

Introduction*: Human beings are part of the whole cosmic order. In this era of globalization where an individual is connected to many, holistic living is important as it facilitates living in collaboration with others, meaning thereby, moving beyond the self and thinking about the whole. The concept of Psychological Well-being focuses on positive functioning across life span that includes positive psychological and social functioning as well as positive mental health. Therefore with the advent of increasing sources of stress in everyday life, wellbeing has positive implications especially for adults in their overall emotional wellbeing, psychological wellbeing and social wellbeing.* ***Objectives****: The present study attempts to explore the relationship between Psychological Capital, Social Support and Psychological Well-being among adults where Psychological Capital and Social Support are considered as antecedents of well-being.* ***Method:*** *The sample comprised of 76 female adults with an age range from 20 to 25 years. Psychological Capital Questionnaire, Perceived Social Support Scale and Psychological Well-being inventory had been used to measure said variables.* ***Results and Conclusion****: Results indicated important contributors to the Psychological Well-being which has practical implications to facilitate holistic living.*

Key Words*: Psychological Capital, Social Support, Psychological Well-being, Adults*

Introduction

The human beings are in relationship with everything in the world- with people, with the environment and with oneself. Human beings are part of the whole cosmic order where mind, body and soul are interconnected. Holistic living focuses on bringing together various parts of oneself and one's environment. In other words, it is establishing harmony between self, environment and relationships. The diversified yet unified universe is a result of connectedness at the global level, which in turn comes from love, care, challenge, support, sharing and encouragement between individuals. An individual constantly needs to integrate various aspects of his/ her life to form a whole in order to achieve holistic living. It is a state of equilibrium characterized by harmony between various aspects of one's self and one's relationships (with other people, the environment and the universe) so as to live one's life to its fullest. The present investigation focuses on the contributing role played by Psychology in fostering holistic living. For this purpose, psychological variables like psychological capital and social support were looked into as antecedents of psychological well-being.

The notion of difficulties in living has many meanings. A close look at these diverse meanings sets out happiness or a sense of psychological well-being as a primary important variable. Well-being and happiness are based on human strengths, personal striving, and growth.[1] Social engagement, physical health and productivity are important to an

individual in every phase of life. However, these are especially relevant among adult years of one's life as it is a time of settlement in terms of career, relationship, family and social ties. As a result, an individual goes through different expectations from others and oneself. Hence, well-being of adults hold special significance. Therefore, it is relevant to study it in relation to Psychological Capital and social support, which in turn are positive aspects of an individual's life. Human beings are considered social animal; as a result individuals cannot live in isolation. People frequently turn to family, friends and significant others for support in adverse situations. In Indian context, Society plays a major role in everyday life of an individual. Hence, support or rejection from it depicts an individual's well-being to a great extent. The positive association between social support and well-being is evident in various studies.[2,3] Moreover, it is found that developing social skills and networks may promote recovery from mental illness.[4] Support from others is an eminent source of dealing with problems as well as realizing one's potential. Various human strengths are influenced by belief, love, care and support from others. Positive constructs like hope, Optimism, Psychological capital and quality of life are either found to be positively associated with social support or are found to mediate or moderate its relation to subjective well-being.[5-8] Keeping in view these, the hypotheses formulated are:

H I: Social Support would be positively related to Psychological Capital among adults.

H II: Social support would positively predict Psychological Well-being among adults.

Psychological Capital is a significant development in the recent time and its relation to psychological well-being has been explored in various studies. Psychological capital is found to be related to well-being in different organizational settings.[9,10] Further, it is found to have a positive correlation with psychological well-being among adults as well.[11,12] In addition to this, well-being is found to be positively related to hope, resilience, optimism, positive self-efficacy and happiness.[13-16] Further, negative relationship of hope and psychological well-being to depression is also evident.[17] Most of the studies have explored the relation of various positive states to psychological well-being. The present study is an attempt to investigate the relation of core construct of psychological capital to psychological well-being. Hence, following hypothesis is formulated:

H III: Psychological Capital would positively predict Psychological Well-being among adults.

Material and Method

Sample

Informed consent has been taken from participants (100 female adults with age range 20 to 25) after briefing them about the study. The responses of 76 participants came out to be usable for analysis. The convenience sampling method has been used to collect the data. The female adults included in the sample are studying in different courses of Jamia Millia Islamia, New Delhi and residing in a hostel.

Tools

Psychological Capital Questionnaire (PCQ-24)[18,19] was used to measure the Psychological capital. It consists of 24 items (3 items reversed scored) divided into four dimensions of hope, efficacy, resilience and optimism with six items in each dimension. It is a six point scale with responses ranging from strongly disagrees to strongly agree. In various structural validation studies, PsyCap questionnaire is found to have reliabilities in the range of .89-.91.[20] PCQ is found to have satisfactory internal reliability ($\alpha = .72$) on the Indian sample as well.[21]

Multidimensional Scale of Perceived Social Support was used to measure social support of adults.[22] It consists of 12 items which measure support from family, friends and significant others. It is a seven point scale with responses ranging from very strongly disagrees to very strongly agree. The internal consistency of MSPSS is found to be as high as .92 in different studies.[23,24]

Psychological Well-being was measured with Psychological Well-being inventory.[25] It is an eighteen item inventory (8 items reversed scored) and consists of a series of statements reflecting the six areas of psychological well-being: autonomy, environmental mastery, personal growth, positive relations with others, purpose in life, and self-acceptance. It is a seven point scale with responses ranging from strongly disagrees to strongly agree.

It is reported to have high internal reliability (α = .85).[26]

Results and Discussion

Table 1 indicates the correlations for Psychological Capital, Social Support and Psychological Well-being among adults. It is clear from the table 1 that Psychological Capital was significantly related to Social Support, $r = 0.37$, p (one tailed) < .01. This finding fully supports *hypothesis I*. This finding is in line with previous findings.[6,8] Hence, it can be said that the experience of support, love and care from others has the power to facilitate one's level of hope, efficacy, resilience and optimism. It is evident that greater a society's future orientation, the higher will be its level of happiness, innovation and confidence.[27] The revelation that close social ties enhances positive attitudes among individuals is an important one provided the fact that India is classified as past oriented country in terms of peoples' time orientation.

Multiple regression analysis was used to test if Psychological Capital and Social Support predicted Psychological Well-being among adults. The results of the table 2 indicated the two predictors explained 25.6% of the variance ($R^2 = .256$, $F(2,73) = 12.53$, $p < .01$). It was found that Psychological capital significantly predicted Psychological Well-being ($\beta = .31$, $p < .01$), as did social support ($\beta = .29$, $p < .01$). Hence, the findings fully support *hypothesis II* and *III*. The result is in line with previous findings.[3,11,12] The explanation for the observed relation may lie in the fact that the experience of a supportive social network enhances one's coping skills which in turn has the power to strengthen one's psychological well-being. Further, positive strengths like Efficacy, hope and optimism along with resilience may influence psychological well-being in a positive manner.

Conclusion

Thus, the findings of the present investigation revealed significant relationship between variables under study. The evidence that social connectedness relates to well-being is an important finding as it may motivate individuals to share close ties with people which further will result in peaceful living. Moreover, PsyCap is a state like construct which means it could be developed. The revelation that social support and PsyCap are related implies that encouragement, belief and care from others has the power to facilitate positive attitudes among people. Finally, finding that PsyCap predicts well-being is important as it provides a clue that positive states like optimism and resilience, etc. are helpful in combating stress and enhancing endurance which further results in better adjustment. Apart from the significance, the present study is limited in its convenience sampling approach and limited sample size.In future, comparative study could be done with similar variables or present study can be extended to large sample. However, findings of the present

Table-1: Results of Pearson Correlation for Psychological Capital, Social Support and Psychological Well-being among Adults

Variable	Psychological Well-being	Psychological Capital	Social Support
Psychological Well-being	1		
Psychological Capital	.42**	1	
Social Support	.41**	.37**	1

**p < .01

Table 2: Result of Multiple Regression Analysis for Psychological capital and social support in relation to Psychological Well-being among adults

Variables	B	SE B	β	R^2
Constant	28.31	10.48		.256
Psychological Capital	0.29	0.01	.31**	
Social Support	0.38	0.13	.29**	

**p<.01

investigation are important as they reveal the significant role of Psychological Capital and Social Support in fostering Psychological Well-being, which in turn has the potential to facilitate holistic living.

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Original Article

Prevalence of Psychosexual Disorders in North India: A Retrospective Study

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ABSTRACT

Background*: Psychosexual Disorders (PSD) is commonly experienced as having a devastating effect on familial, vocational, psychological, or social lives of sufferers. Irrespective of high prevalence of PSD; only little number of patients seeks psychiatric consultation for the same. Some patients are ambivalent over getting professional help because of attached social stigma that lead to delayed or negating consultation. However, there is a paucity of studies investigating the prevalence of PSD, particularly in Indian context. The aim of this retrospective study is to determine the prevalence and pattern of PSD.* ***Materials and Methods:*** *A retrospective study was conducted to determine the four year trend prevalence of PSD among patients attending psychosexual clinic at State Institute of Mental Health, Rohtak, by reviewing their Case files. A total of 2121 case history Performa's of all cases consulted and registered to the psychosexual clinic, from the year 2011 (august) to 2014 (January), were reviewed and carefully analyzed.* ***Results:*** *Within the last four years (2011–2013) a total of 2121 cases are registered at psychosexual clinic and out of these 529 (24.94%) were patients with Erectile Dysfunction (ED) and 356 (16.78%) were that of Premature Ejaculation (PME). Comorbid, ED and PME accounted for 311 (14.66%) cases. Sexual Misconception (415 cases) and Dhat Syndrome (252) were also found to be highly prevalent, and the 21–30 year age group were more affected. Despite the apparent gender specific trends in the world literature (females are more prone to develop PSD), significant more number of males availed profession help in present study. Furthermore, a high number of treatment seekers also found to be suffered from psychiatric problems.* ***Conclusion:*** *Very few numbers of female patients seek treatment for their problems indicate an urgent need for public awareness and sigma removal program. In addition, presence of psychiatric co-morbidities further indicates need for screening psychiatric illnesses in this vulnerable population.*

Key-words*: Sexual Dysfunction, Erectile Dysfunction, Premature Ejaculation, Psychological problems.*

Introduction

Psychosexual dysfunctions (PSD) are widely recognized as highly prevalent health problem in both male and female.[1] Sexual dysfunction refers to a problem during any of the four phases (excitement, plateau, orgasm, and resolution) of the sexual response cycle that prevents the individual or couple from experiencing satisfaction from the sexual activity. Sexual problem in an individual stirs up intense feeling of inadequacy, guilt and frustration in not only the person experiencing the problem, but also the partner.[2] Living with PSD negatively affects every aspect of a person's life including mental health; these people are found to be more prone to

suffer from stress,[3] anxiety, depression and post-traumatic stress[4] as compared with the general population. In short, advance of sexual problems have a (clear) negative impact on both quality of life and emotional well-being[5] of sufferer; and can lead to psychological trauma if not addressed well.[6] Sexual dysfunction can result from a wide variety of psychological and physical causes.[7] Presence of psychiatric condition with SD can further complicate the situation as both conditions may likely to coexist in a related or unrelated fashion.[8] Moreover, experiencing sexual problems could lead to psychiatric symptoms, and psychiatric symptoms can function as an antecedent to sexual problems.[9] As a general agreement sexual dysfunction is multifactorial[10] as normal sexual function relies on the coordination of psychological, hormonal, neurological, vascular, and cavernosal factors. Therefore, an alteration in any one or combination of these factors may contribute to sexual problem.[11] As per APA, (1994) the spectrum of sexual dysfunction encompasses:

- Decreased sexual desire—persistent or recurrent deficiency or absence of desire for sexual activity giving rise to marked distress and interpersonal difficulty;
- Sexual aversion disorder—persistent or recurrent aversion and avoidance of all genital sexual contact leading to marked distress and interpersonal difficulty;
- Difficulty in erection—recurrent or persistent, partial or complete failure to attain or maintain an erection until the completion of the sex act;
- Difficulty in achieving orgasm—persistent or recurrent delay in or absence of orgasm, following a normal sexual excitement phase;
- Premature ejaculation—persistent or recurrent ejaculation with minimal sexual stimulation, before, on or shortly after penetration and before the person wishes it, which causes marked distress.[12]

PSD affects millions of people irrespective of social and economic tiers and impairs familial, vocational, psychological, legal, or social aspects of sufferer's life. Although, it is difficult to obtain precise statistics for prevalence of PSD in populations worldwide but studies conducted have reported the prevalence of PSD in the range of 10-25% among men and 25-64% among women.[13] Types of sexual disorders that are more common in women include: (a) Sexual desire disorders, (b) Sexual arousal disorders, (c) Orgasmic disorders, (d) Sexual pain disorders (vaginismus, dyspareunia);[14] whereas the commonest sexual disorders seen in male patients are premature ejaculation[15] and erectile dysfunction.[16] In addition, *Misconceptions about potency,* (a condition where in the patient feels that he will not be able to satisfy the opposite partner in heterosexual coitus despite normal desire and erection and attributes this to either deleterious effect of masturbation and night emission or to some imaginary defect in the genitalia *are also found be highly prevalent in Indian context.*[17]

Need for the study: Over the past decade, a number of studies have been conducted to determine the prevalence of sexual dysfunctions in world literature (see for review; but it seems less true in Indian context.[18] Actual prevalence of sexual disorders is difficult to conclude because less number of suffers seeks professional help, as pre research findings most patients (up to 70%) with sexual dysfunction never seek treatment.[19] It may be because of associated stigma or embarrassment of having sexual dysfunction lead to denial of the problem.[20] In addition, a number of patients in India tend to visit "quacks" and all kinds of "sex clinics" rather than to the hospital setting.[21] Information on nature and pattern of illness is fundamental to plan intervention programs. Widespread data in PSD is lacking and it is difficult to make generalizations because of cultural variations. The treasure of knowledge about the prevalence of PSD needs to be expanding in our settings. Keeping these points in mind the present retrospective study was done to understanding the prevalence and pattern of PSD in patients attending psychosexual clinic of State Institute of Mental Health between the periods of August, 2011- January, 2014.

Material and Methods

Procedure: Present study is a retrospective study in which case file of all 2121 patients registered in psychosexual clinic of State Institute of Mental Health (SIMH) between the periods of 2011 to 2014 were reviewed. Sample includes patients came directly to SIMH or referred from department of

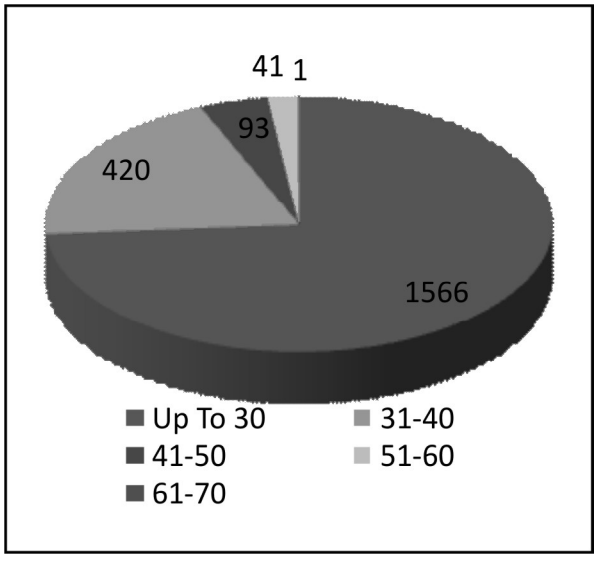
Psychiatry, Medicine, Urology, Surgery or Skin, *Post Graduate Institute of Medical Sciences (PGIMS)*, Rohtak to Psycho-Sexual Clinic of SIMH, Rohtak. In case of referral, at SIMH, they were further investigated and diagnosed as per ICD-10 criteria. As a routine practice after establishing rapport, a clinical interview to elicit complete sexual history is held along with detailed psychiatric examination followed by filling of Case History Performa. After reviewing the Case History Performas, percentage analysis was carried out to get the inference.

Tools

Records (Case History Performa): Data were collected from the practice records of each patient on a Case History Performa that includes detailed information on socio-demographic, presenting complaints, sexual, clinical, personal, marital, family details as well as information regarding number of consultations for sexual, physical and psychological problems in the past year; and current medication with known sexual side effects. The International Classification of Diseases-ICD-10 was used for the purpose of diagnosis.

Results

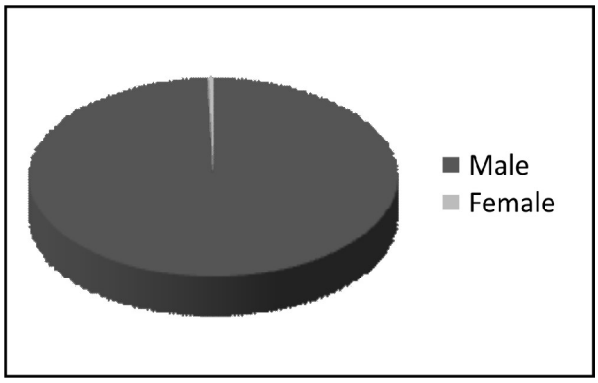
The analysis of the data and the results are presented below in the form of tables and graphs.



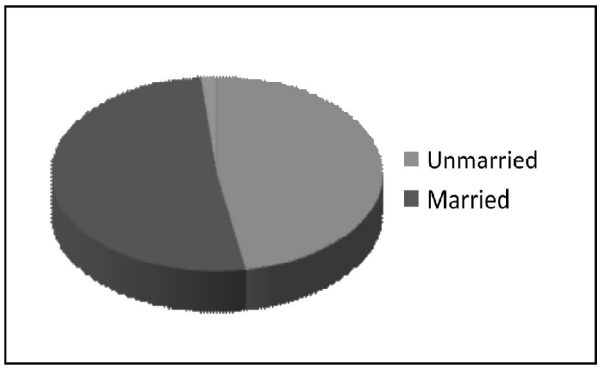
Age-wise Distribution

Discussion

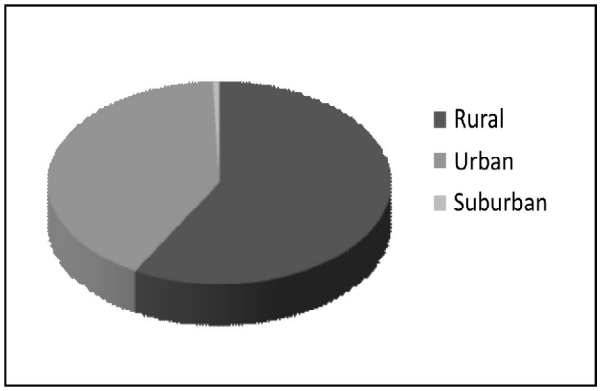
Sexual dysfunctions are common disorders in worldwide . In the past decade, there is also a strong



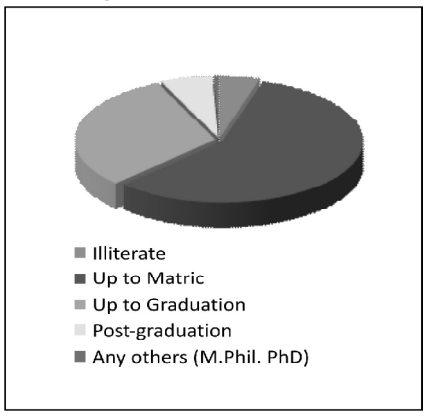
Sex-wise Distribution



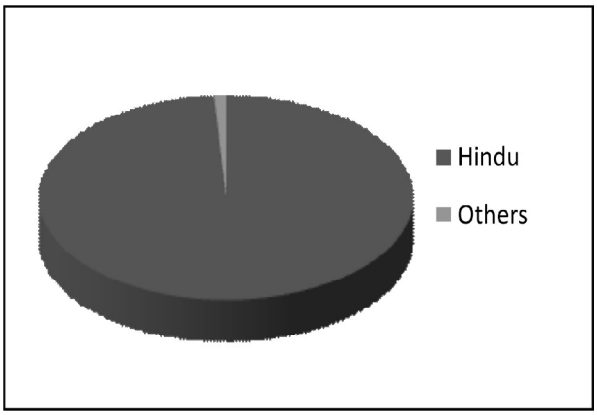
Marital-status-wise Distribution



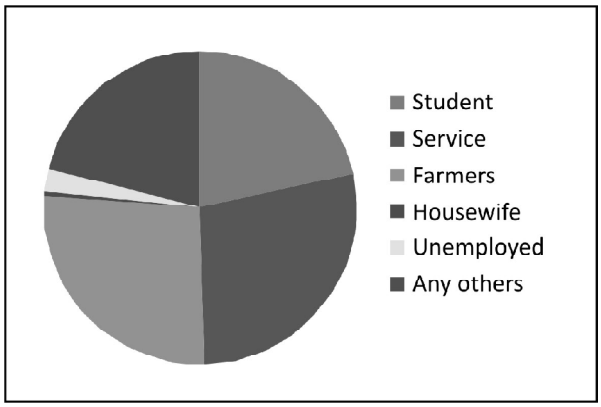
Background-wise Distribution



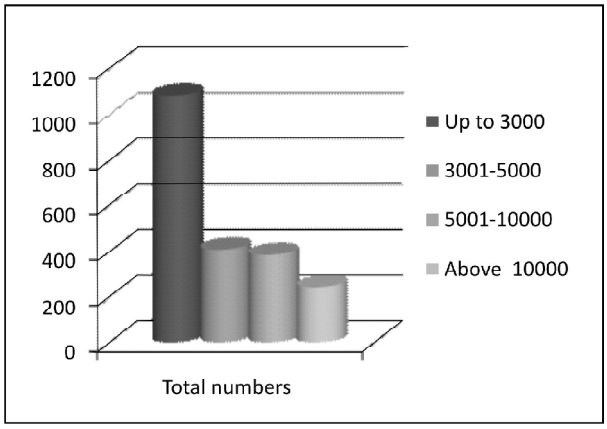
Education-wise Distribution



Religion-wise Distribution

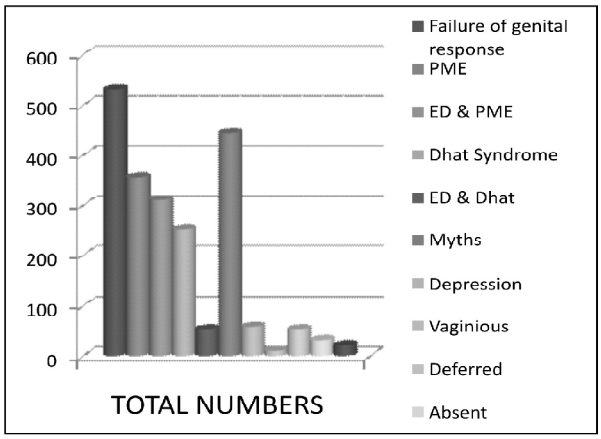


Occupation-wise Distribution



Income-wise Distribution

and growing interest in understanding the pattern of illness but most studies on pattern of PSD were conducted in Western countries. It is debatable whether such findings have adequate rationality to be directly transferred to the Indian populations [22]. Present study aimed to contribute to a better understanding of prevalence and pattern of PSD in Indian setting. An attempt was made to discuss the



Pattern of illnesses

results in the light of these objectives as well as the important findings emerged through the analysis, discussed as follows:

On demographic variables we found that present sample constituted mostly of males, this is contrary to existing literature which support that sexual dysfunctions are highly prevalent in both sexes, but females are more likely to be suffered from PSD.[23] Other researchers found that approximately 40-45% of female and 20-30% of males suffer from PSD. On the contrary in present study most of the treatment seekers were males (99.53%). These findings can be explained by the sensitive nature of problem, associative stigma or embarrassment and social factors. Indian society which is traditionally considered to be conservative in nature, especially with respect to discussion of sexual matters by females.[24] Sexual life is a very personal and private problem and many patients are reluctant to initiate discussions on sexual dysfunction even with their private physicians;[25] because of attached social stigma. As per general agreement, having sexual dysfunction is usually perceived as loosening of feminity/fertility/muscularity; it is also claimed that stigma or embarrassment of having sexual dysfunction may even lead to denial of the problem.[26]

We found that a high numbers of patients were from rural background (58.13%) and most of the treatment seekers were belong to Hindu religion (98.96%). High prevalence (60.19%) of PSD in young working age population (21-30 years old) is of major concern; these findings also supported by earlier researchers from North India.[17-22] In the study population PSD was most common in matriculates (41.73) and Graduates (25.46);

whereas lower prevalence was found in patients from lower Socio Economic Status, these findings are in line with previous study from Rohtak.[22] Furthermore, present findings revealed that the majority of the patients were students, farmers and employed, pointing towards that fact that working age population seeks treatment more readily as compare to other professional or retired persons.

Present study was also conducted to find out the pattern of PSD and the results show that ED and PME are found to be commonest conditions i.e. more than 50% of sample population (ED-24.94%; PME-16.78% & ED with PME-14.66%). Similar to earlier study conducted elsewhere;[27] we found that ED is the commonest problem as a high number of patients with erectile dysfunction attended our OPD followed by that of PME, or to be more specific it can be said that person with ED are most commonly seek treatment in Haryana. These findings are also in line with other studies which stated ED and PME are the frequent PSD in male.[15,16,28] Experts have also estimated that, by 2025,322 million men worldwide will have ED. In spite of the availability of effective treatment for PSD; Striking point is that sufferers are reported to believe that there is no cure for their ED.[29]

In present study Dhat syndrome is also found to be highly prevailing (14.38%). In line with the results of other studies from North India, estimating the prevalence of Dhat syndrome ranged 15% - 18 % of cases);[17-22] we also found some-what similar prevalence of Dhat Syndrome (Dhat Syndrome - 11.88% & ED with Dhat Syndrome-2.50%). Whereas, misconceptions are found to be more than double (19.56 %) in present study in comparison to earlier study (i.e. 7%) by Bhatia et al., 2011. In addition, only 1.32% of patients were having sexual anxiety, 0.09 were having homosexuality and hypoactive sexual disorder. Experts claimed that sexual anxiety may result in interrupted or insufficient desire, arousal, erectile, orgasmic (e.ganorgasmia) or pain disorder.[30] In 1970, Masters and Johnson noted that there is no such thing as an uninvolved partner in any marriage in which there is some form of sexual inadequacy.[31]

Although only two patients with homosexuality consulted for treatment but it may not be represent the true picture of the prevalence of homosexuality in the region. As both patients, during psychological intervention expressed their inner distress by blaming the society for its "*anti-homosexual attitudes*". So it seems quite reasonable to except that prevalence of homosexuality is difficult to determine because of being stigmatized, along with cultural and religious reasons also seems to make the sufferers reluctant to seek treatment. Experts's[32] following statement about sexual problems "*in fact what we see in our clinics is just the tip of the iceberg*" seems quite appropriate in our setting.

Sexual dysfunction in women may include disorders of sexual desire, sexual disgust, deficient arousal and orgasm, vaginismus, and dyspareunia.[33] Significant finding of the study is that out of 10 female patients all were suffering from Vaginismus, a sexual pain disorder that is commonly overlooked in clinical practice.[34] In a review[35] also cited an unpublished study that claimed that vaginismus, is one of the main problems in Indian female.

In addition, along with 21 patients who consulted for infertility and 53 other cases were not diagnosed were sent to other department for consultation. While 58 patients were also found to be suffering from mood disorder, presence of psychiatric condition in treatment seekers can be explained by the fact sexual dysfunction has been reported in high number of patients with established psychiatric conditions[36]. The prevalence of sexual dysfunction also reported to be increased in people with depression.[37] Ian Eardley (2002) raised the point that depression can certainly result in PSD[38] (particularly, ED), but mild depression can also result from PSD, such that it has become clear that treatment of PSD in men with mild depression can improve the depressive symptoms as well as the PSD.[39] Therefore their risk of treatment non adherence due to psychological problems may increase. Shah, Sultan, Dar (2004) concluded that mood disorder can be the contributing factors for sexual dysfunction and the physician should inquire about sexual dysfunction in any patient with depression.[40] To be our surprise 31 cases were came for registration but did not sought consultation these findings in our study can be explained by the fact that as a general agreement, a plenty of people with PSD feel difficulty while talking or consulting about their illness and presence of sexual problems can also affect self-image negatively. There may be different factors that play a role behind their disinclination either it is difficult to them to express

themselves or they may feel lack of confidence or have poor self-esteem.[41]

Considering that only a minority of the sufferer's of sexual difficulties seek medical help because of the numbers of reasons including inability to perceive such problems as potentially treatable medical conditions, or because of inaccessibility or unaffordability of medical care[42] to name a few are reported in Western world. Experts from India also claimed that issues such as self-esteem, body image, relationship with her partner, and ability to communicate sexual needs to her partner all impact sexual function.[43] In addition, other researchers also reported that impotency and other sexual problem are very closely associated with masculine psychosexuality and often linked with lowered self-esteem, guilt feelings, anxiety and a sense of loss of masculine identity [44] . Furthermore, it can be said for sure that irrespective of gender, emergence of PSD is distressful not because of symptoms of the illness but also associated psychiatric illness and stigma attached. These factors set alarm bells ringing, indicating need for the exploration of other possible solution of these multifactorial problems.

Psychosexual disorders originate in the mind, but manifest themselves through external behavioral symptoms, predominantly sexual dysfunctions and perversions. The problems, insecurities, and anxieties that accompany psychosexual disorders are significantly more deep-rooted, and pharmacotherapy alone may not work in many of such patients. Therapy (sex therapy, psychotherapy/ behavioral therapy) and discussion of the problems are the most reliable form of treatment of psychosexual disorders. These patients require a multidisciplinary approach involving a dermatologist, psychiatrist, psychiatric social worker and a psychologist.[45]

Conclusion

It is well-established that PSD is the common disorder worldwide, which impacts all social strata. Despite being a treatable condition very few sufferers seeks treatment in addition the associated psycho-social problems (depression, stigma etc.) makes the situation more dreadful. In spite of highly prevalent problem, very few prevalence based studies has been conducted in Indian setting that can help in assessing the disease burden. Present finding suggests that substantial proportion of working age male suffers from PSD and ED and PME are the commonest PSD conditions. In our country where we have limited resources, understanding the prevalence and pattern of PSD would minimize the financial and skilled manpower required for detection of problem in patient with PSD. So, present findings are motivating because these could have implications both for preventive strategies and treatment planning. In the light of the consensus that most sexual disorders are multi-factorial in genesis, we advocate that holistic management strategies must be included in evaluation and intervention programs. These findings are indicative to the need for holistic approaches by a multi-disciplinary team that can provide not only treatment but also well versed in providing the psychological support to rebuild self-esteem that lead to enhance coping skills that ultimately lead to better treatment outcome.

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Original Article

EMDR therapy in depression: an emerging treatment alternative

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ABSTRACT

Introduction: *EMDR therapy is an exciting new modality for management and augmentation of depression. As the research in this area is limited, this case series provides an important insight into the same.* ***Objective:*** *To study the role of EMDR therapy in depression.Method: 4 patients who fulfilled the criteria for depressive disorder according to ICD-10 were treated with EMDR therapy.* ***Results:*** *In first case, depression remitted with EMDR therapy alone without pharmacotherapy. In other 3 cases, EMDR therapy was used for remaining symptoms which did not respond with adequate trial of antidepressant. All the three cases improved with complete remission and no relapse occurred during one year follow up period.* ***Conclusion:*** *Treatment of depression has always been a challenge for clinicians and may require some augmentation along with pharmacotherapy. Stressor has important role in initiation and exacerbation of depressive episodes. EMDR therapy by processing stressful memories can help in both remission and prevention of relapse of depression. Because earlier data in this field is limited, this case series will help in providing a new alternative mode of treatment for stress related depression.*

Keywords: *EMDR, Depression, Stress,*

Introduction

It has always been a challenge to treat and prevent relapse and recurrence of depressionwith pharmacotherapy aloneand itmostly requires some forms of augmentation. EMDR therapy can be a good alternative for both management and augmentation.

STAR-D[1] trial found that half of the depressive patients do not achieve remission after first course of antidepressant treatment, and one-third do not experience remission even after four courses of treatment.Kessler et al.,[2] found at least 10% of depressive patients develop persistent or chronic depression.

Relapse and recurrence are also found to be high in depressive patients with recurrence rateup to 50% after first episode of depression and 80% after two or more episodes.[3-5]

Role of stressor in depression has been approved in many studies The stressors or trauma cantriggerthe onset of depression.[6-9] and can also cause recurrence and relapse of depression[10,11]

Shapiro,[12] explained dysfunctionally stored memories related to stress may be responsible for many mental disorders including depression. EMDR therapy can process stressful but non-traumatic memories to a more adaptive and positive state[13]and hence may improve depressive symptoms or prevent exaggeration of depressive episode triggered by stressor.

Various research evidences suggest the role of EMDR in depression.Initial studies weredone in patients of PTSD with comorbid depression to assess role of EMDR therapy. These studies showed

improvement in depressive symptoms in addition to its effects seen in PTSD[14,15] and these effects of therapy were maintained for 15 months on follow up.[16]

There is little research data available showing efficacy of EMDR therapy in cases of primary depression. There are various case reports indicating its effectiveness during acute phase of depression,[17-19] chronic depression[20] and in postpartum depression.[21]

The only case control study ofEMDR therapy in primary Depression by Hase et al,[22] on 32 patients in an inpatient setting found 68% of the patients in the EMDR group showed full remission and greater reduction in depressive symptoms. there were less relapses in comparison to control group over a one-year period of follow up.

Hogan[23] compared CBT with EMDR in patients with primary diagnosis of depression and found both to be equally effective.

There is only one case report from India, in which a significant improvement was seen in severely and chronically depressed woman with 9 EMDR sessions and the improvement was maintained at 6-month follow-up.[20]

EMDR

EMDR therapy was developed by Shapiro[24] based on the Adaptive Information Processing (AIP) model. As per Shapiro,[13] the brain has its own physiological information processing system, which generally directs any new information to a more adaptive state. But when the information from distressing or traumatic experiences is not sufficiently processed enough, it remains as a distorted thought or perception in its originally input form. This distressful memory causes a concurrent dysfunctional reaction, and the brain can adaptively process it with eye movements or other bilateral stimuli.

The EMDR therapy consist of eight phases which includes (1) client history and treatment planning, (2), preparation, (3) assessment, (4) desensitization and reprocessing, (5) installation, (6) body scan, (7) closure and (8) reevaluation. A key component of EMDR therapy is bilateral stimulation, usually therapist-guided eye movements, which initiate information processing on the targeted memory.[25]

Though there have been numerous studies on the efficacy of EMDR therapy in PTSD, the data regarding its utility in depression is limited.

We used EMDR therapy in 4 cases of stress related depression to assess its role in depression.

Case 1

A 22-year-old single, Muslim graduate working in call centre presented with chief complaints of sadness of mood, excessive worry, preoccupation with thoughts that her brother will die like her father and feeling of guilt for one month.

Illness started 1 month back after sudden death of her father and worsened 1 week back after her engagement was broken.Her in laws broke the engagement as there was financial crisis due to her father's death but blamed patient's rude behavior as the reason for breaking the tie. Patient started experiencing sadness of mood, decreased interest in all activities with disturbed sleep and appetite. She started feeling guilty and started blaming herself for all misery. She developed thoughts that her brother maydie leaving her alone.

She was diagnosed to be suffering with Major Depressive Disorder according to ICD- 10 criteria. She scored 18 on the Hamilton Depression Rating Scale[26] which was indicative of moderate level of depression. In the first session, education about the EMDR process was initially given. Then safe place exercises were carried out along with guided imagery to reduce anxiety and distress and she was also taught relaxation technique like deep breathing. She was prescribed anxiolytic medication for one week only.

First, the current issues and dominant symptoms bothering the patient were dealt with. It dealt with the image of her sister in law scolding her and blaming her behavior for breaking off the marriage. A total 25 sets of eye movements were conducted. The negative cognition associated with this was "I am responsible for all this misery and therefore I deserve to die". The positive cognition taught to the patient was "I deserve to live."

Then the past issues were discussed. It directly dealt with the memory of her father's death, and it began with the memory of viewing his dead body on the floor. 20 sets of eye movements were conducted. The negative cognition associated was "I am helpless." The positive cognition taught was "I can handle the situation."

Another past memory which was bothering the patient came up. It included the memory of two drunk boys who hit her and started abusing her. She felt helpless in this situation. The negative cognition associated was "I am powerless". The positive cognition was "Now I have many choices" A total of 16 sets of eye movements were conducted.

At the end of sessions, her SUD score changed from 7 to 0.

Her feelings of sadness and guilt decreased from before. The past memories bothered her less.

At two weeks follow up, she scored 4 on HAM-D[26] which was indicative of complete remission. She continued on follow up for 1 year and remained asymptomatic without antidepressants.

Case 2

A 38-year-old married housewife presented to the OPD with sadness of mood, restlessness, disturbed sleep.

Current episode started 7 years back following a major tragedy which changed her life course. Patient used to have frequent quarrels with husband. One day this quarrel turned violenton her refusal to give jewelry to him. Then he suddenly stabbed and absconded from thereand remained untraceable since then. She was hospitalized and took 1 month to get recovered. Since then she developed signs and symptoms suggestive of depression but did not take treatment from any psychiatrist. Past history revealed various stressor like parental conflict when she was youngand her conflict with husband and mother in law after marriage. Her depressive symptoms continued with exacerbation on trivial triggers. During the exacerbation she would develop symptoms like terrace falling on her when lying and dog barking on her when she was outside the home These episodes lasted for few months. She would take treatment from general physicians and her symptoms would subside partially but few depressive symptoms persisted throughout the illness.

Diagnosis of major depressive disorder according toICD-10 was made and she scored 25 on HAM-D scale.[26] There were no thoughts of repeated and intrusive recollection of the event in memories, daytime imagery or dreams nor was there any avoidance of cues which reminded her of the trauma.Her score on CAPS[27,28] was25 hence the diagnosis of PTSD was ruled out.

Even after adequate trial of antidepressant treatment, she never showed complete improvement. Symptoms like thoughts of "dogs barking" and "terrace falling" persisted.

As her symptoms were related to trauma, she was selected for EMDR therapy for which she gave consent. In the first session, education about the EMDR process was initially given. Then in second and third session, safe place exercises were carried out along with guided imagery to reduce anxiety and distress and taught relaxation technique like deep breathing.

In the fourth session, the major current stressor was dealt with. She visualized the image of her husband threatening her and eventually stabbing her. 24 sets of eye movements were carried out. The negative cognition "Why do bad things happen to me only" was changed to positive cognition "Good things will happen in future. Now my children are growing up and they will take care of me.'' In the next few session, she expressed various stressors like parental aggression on her due to their conflict, marital discord and adjustment problem with in laws.

A total of 8 sessions were taken with around 16-20 sets of eye movements in each session.After these sessions, patient's SUD score decreased from 7 to 0 at the end of 8 sessions. HAM –D[26] score reduced to 2 and her antidepressants were tapered off and stopped after 2 months. This improvement persisted on follow up for 1 year.

Case 3

A 25 years old unmarried male patient was under treatment for major depressive disorder from psychiatry OPD for two years. Though he would show response on antidepressants,his illness relapsed whenever some stressor occurred or antidepressants were tried to taper off. Even on regularmedication some symptoms like feeling of vague sensation, emptiness in chest and increased heart beat persisted in spite of giving trials of many antidepressants and anxiolytics.

His symptoms started 2 years back after a broken affair with complaints of sadness of mood, decreased interest in all activities, decreased concentration, restlessness, decreased interaction, disturbed sleep and multiple somatic complaints. He could not concentrate on his studies and failed in his

CA exams which occurred one month after the broken affair. At this stage he attended psychiatry opd and was diagnosed with major depressive disorder according to ICD 10 criteria, with HAM-D[26] score as 20. He was prescribed antidepressants. He showed significant improvement in above mentioned symptoms but few symptoms persisted. Next year again he gave CA exams and failed. The reason for failure in exam, he revealed that small cues used to remind him of the girl while studying. His heart used to sink and beat fast and felt vague sensation in chest and stomach whenever he remembered her.He was chosen for EMDR therapy to deal with ongoing stressor. EMDR and its role was discussed with the patient. On safe/calm place guided imagery, he imagined himself sitting in his big office as successful CA and also imagined to be relaxing near beach site. He was also taught deep breathing relaxation exercises.

He chose three worst memories as target of therapy (1) the broken affair; (2) his failure in CA exams; (3) demolition of his house.

While dealing with first target memory, train of thoughts started from the scene when his girlfriend was moving away from him and he felt as if some part of him was leaving and his heart was sinking. While describing this, he again felt vague sensations in his chest and stomach and his heart beat increased. Patient was made to relax and the session was discontinued. In the next session, he expressed his negative cognition "I am left alone and how would I live without her" The positive cognition at the end of session "I can have another girl who is more suited for me." The patient reported that he felt better and had less fear in relationships. In the next two sessions, the target memory of failure in CA exams and house demolition were dealt with. His negative cognition in the next two sessionswere "I am a failure'' and "I am responsible for all the problems". These negative cognitions were changed to positive cognition "I can succeed'' and ''I can handle all problems".

His SUD score decreased from 10 at the beginning of the therapy to 0 at the end of the therapy. His HAM D[26] score also decreased to 2

He was continued on antidepressants for next 2 months and gradually stopped. He passed his next CA exams and remained asymptomatic for next 1 year of follow up.

Case 4

A 42-year-old married female presented to the OPD with complaints of sadness of mood, decreased interest in activities, restlessness, disturbed sleep and appetite.

Her symptoms started 2 years back when she had strained relations with her husband and daughter on issue of uncooperative and demanding behaviour of her adolescent daughter. She felt overburdened with household responsibilities. She was put on antidepressants and anxiolytics. She showed significant improvement but her symptoms would recur on small stressors. Her illness relapsed when her only "support system", her sister in law expired. She used to share all her problems with her. After her death, she felt lonely, helpless and had death wishes. She often thought of running away from home. She was selected for EMDR therapy in view of frequent stressors related to recurrence of symptoms. She scored 22 on HAM D[26] score. PTSD was ruled out. Consent for EMDR was taken and 3 sessions of EMDR were carried out. Along with the relaxation exercises, she was taught coping skills. Her negative cognition before the onset of therapy was "I should die as I am unable to solve any problems" was changed to "I can solve all my problems and lead a good life." Her SUD score decreased from 6 to 0 at the end of therapy and HAM D score reduced to 2, indicating complete remission. She was followed up after 1 year and remission was maintained.

Discussion

EMDR is widely used for treatment of PTSD but its use in depression has not been studied much.In all cases, EMDR was used to deal with stressors which were responsible for exacerbations or continuation of depression.

In first case, illness was of short (1 month) duration. It started and worsened after major life events of father's death and breaking of engagement respectively which indicates a temporal relationship between stressor and illness. EMDR therapy alone showed significant improvement as per HAM-D[26] score as no antidepressant was used. Improvement was maintained for 1 year of follow up. This suggests EMDR can be effective in depression occurring due to stressor.

In all other three cases also, the temporal

relation between stressful life events and depression was present as initiation and exacerbations of depressive episodes occurred immediately after stressors or major life events.Illness duration in these cases was more than two years and no complete remission was seen inspite of adequate trials of antidepressants. The remaining somatic or depressive symptoms appeared to berelated to stressor. EMDR therapy was usedto deal with stress or related symptoms to achieve full remission and prevent relapse. In all the three cases, the remaining symptoms improved and no relapse occurred on 1 year follow up.

The nature of major stressor in third case was of exceptionally threatening type as she was stabbed by her husband which is usually seen in PTSD. Other features suggestive of PTSD like thoughts of repeated and intrusive recollection of the event in memories, day time imagery or dreams or autonomic arousal symptoms were not present. Hence diagnosis of PTSD was ruled out. In all our cases, depressive symptoms were of sufficient severe intensity to fulfill the criteria for moderate to severe depressive disorder, hence the diagnosis of adjustment disorder was excluded.

None of the patients reported any adverse effects during the therapy which indicates that the therapy was well tolerated by the patients.

There was significant reduction in HAM D[26] scores (up to 2) in all four cases which was indicative of remission of depression in all 4 cases and effect was maintained for one year of follow up period.

Similar result of effectiveness of EMDR therapy in depression has been reported by Bae et al.,[17] in 2 cases of adolescent unlike our cases who were adults. In this case report follow up of cases was done only for 3 months.

Broad RD and Wheeler K[29] in 2006 tried EMDR in an adult but here the stress was childhood trauma and psychoanalytic psychotherapy was also used along with EMDR therapy. Hence the independent role of EMDR could not be established.

Hase et al,[22] found a greater reduction in depressive symptoms and less relapse than the control group in EMDR group compared to control group in a case control study of 16 patients in each arm.

Conclusion

With newer data and studies in its favour, EMDR therapy presents an exciting new modality in treatment of cases of stress related depression. Because earlier data in this area is limited, future work in this field will further establish its role in the same.

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Original Article

Role of Cognitive Remediation in enhancing attention in patients of schizophrenia

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ABSTRACT

Background: *Cognitive impairment has a high prevalence in Schizophrenia and has been linked to functional outcome. To date statistically significant effects of medication on cognition in mood disorder trialsand in schizophrenia do not necessarily translate to clinically meaningful effects. Apart from it other potentials benefits like being less expensive, not being cause dependent and having no side effect increases demands of non pharmacological programs. Keeping this in view following objectives were set for the study.* ***Objectives:*** *Development of a cognitive remediation package and investigating the efficacy of that cognitive remediation program of neuropsychological deficits in terms of attention.* ***Material and Methods:*** *100 schizophrenic patients as per ICD 10 who came to Psychiatry OPD of Jawaharlal Nehru Medical College, Aligarh Muslim University, Aligarh, India were recruited for the study. Patients were randomly allocated to experimental group and control group. Patients in experimental group were given cognitive remediation therapy for 3 months and patients of control group were on treatment as usual. Attention was assessed at baseline, post treatment (3 months) and follow up (6 months).* ***Results:*** *Participants in experimental group improved more than those in control group on cognitive functioning post training with attenuation of some gains at the 6 months.* ***Conclusion:*** *Cognitive remediation in Schizophrenia should be aimed at improving not just specific cognitive deficits, but the functional deficits that arise from them. Focus on functional deficits is a much neglected area in which further research is urgently needed.*

Keywords: *Schizophrenia, Cognitive deficits, Cognitive remediation*

Introduction

Cognitive impairment has become an important focus for psychiatric research in major psychiatric disorders. Any group of psychiatrically disordered patients may be found to have cognitive impairment in comparison to control population.[1,2] It is well established that Schizophrenia patients show deficits on a wide range of cognitive domains including verbal memory, working memory, executive functions, attention and processing speed on a background of general intellectual impairment.[3,4] Cognitive deficits are core features of many patients with Schizophrenia as they are present already at the onset of the illness.[5-8] Schizophrenia is characterized by deficits in attention[9] and it has been claimed that these attention deficits are related to dysfunctional brain systems that underlie the pathophysiology of disease.[10] It is reasonable to conclude that cognitive impairment reliably occurs at very high rates in Schizophrenia, typically approaching 75% of the patient's population which equals or exceeds the prevalence of impairment in many neuropsychological disorders.

Cognitive impairment is an important determinant of poor engagement in activity of daily living or functional, occupational and social outcomes.

Research into measures to improve cognitive impairment is therefore driven by the hope that such improvement might also lead to better long term economic as well as functional outcome. A number of medications have been tried targeting cognitive function but so far none of the drugs available have shown substantial benefit so far[11]. This lack of progress in psychopharmacology has highlighted the need for effective non-pharmacological methods of cognitive remediation.

Cognitive remediation is relatively new to the field of psychiatry but its scientific roots are not. Cognitive remediation is an intervention which engages the participant in learning activities that improve cognitive skills.[12,13] It is regarded as a complex, behavioural treatment that uses drill and practice, compensatory and adaptive strategies to facilitate improvement in target cognitive areas like perception, attention, comprehension, learning, remembering, problem solving, reasoning and so forth.[14,15]

Objectives

1. To study the socio-demographic data of Schizophrenic patients.
2. To assess cognitive functions among patients of Schizophrenia disorder.
3. To study and find out the efficacy of the cognitive remediation program on attention in Schizophrenic disorder patients.

Material and Methods

Place of the study

The present study was conducted in department of Psychiatry, Jawaharlal Nehru Medical College and Hospital, Aligarh Muslim University, Aligarh, India.

Sample and Sampling procedure

Based on purposive sampling technique participants who attended Psychiatry OPD of J.N. Medical College & Hospital, A.M.U., India during the study period and were fulfilling the inclusion and exclusion criteria were recruited for the study. The sample of present study consisted of 78 patients of Schizophrenia (F20.0 to F20.9). Diagnosis of each patient was made according to International Classification of Diseases-10 (ICD-10) by a Consultant Psychiatrist.

Inclusion Criteria

Both genders, Age range between 18 to 60 years, Patients of Schizophrenia as per criteria of ICD- 10, First episode of illness, Duration of illness less than 2 years, Patients speaking English or Hindi fluently, Patient having education of at least primary level (minimum 8th standard), On the maintenance doses of anti-psychotic medication, Having moderate grade of cognitive impairment, Having moderate grade of illness severity, Who gave written consent.

Exclusion Criteria

Patients with severe psychopathology who had problem in comprehending instructions, Patients with Sensory and motor deficit, Clinical evidence of mental retardation, organic pathology,substance abuse or significant physical illness, History of significant head injury, Non-cooperative patients, Patients having mild or very severe grade of cognitive impairment, Patients having mild or very severe grade of illness, Patients/ patient's family member who did not gave the consent, Patients with other co morbidity of physical or mental illness, Patients those who had undergone electroconvulsive therapy in the past 6 month

Research Design

The study used a randomized controlled design. Patients who fulfilled the inclusion and exclusion criteria were randomly allocated to either the experimental group or the control group. The experimental group received 3 months of cognitive remediation program along with treatment as usual, which included drug treatment and psycho-education. Control group received only treatment as usual (drug treatment and psycho-education). Both groups received three sessions of psycho-education. The test/ tools were administered to patients at baseline (prior to the intervention), post intervention (after the intervention), and at 3 months follow-up (3 months after completion of the intervention).

Tools

The following tools were used in the present study.

A. Socio- demographic and Clinical Data Sheet

It is a semi structure Performa especially designed for this study. It contains information about

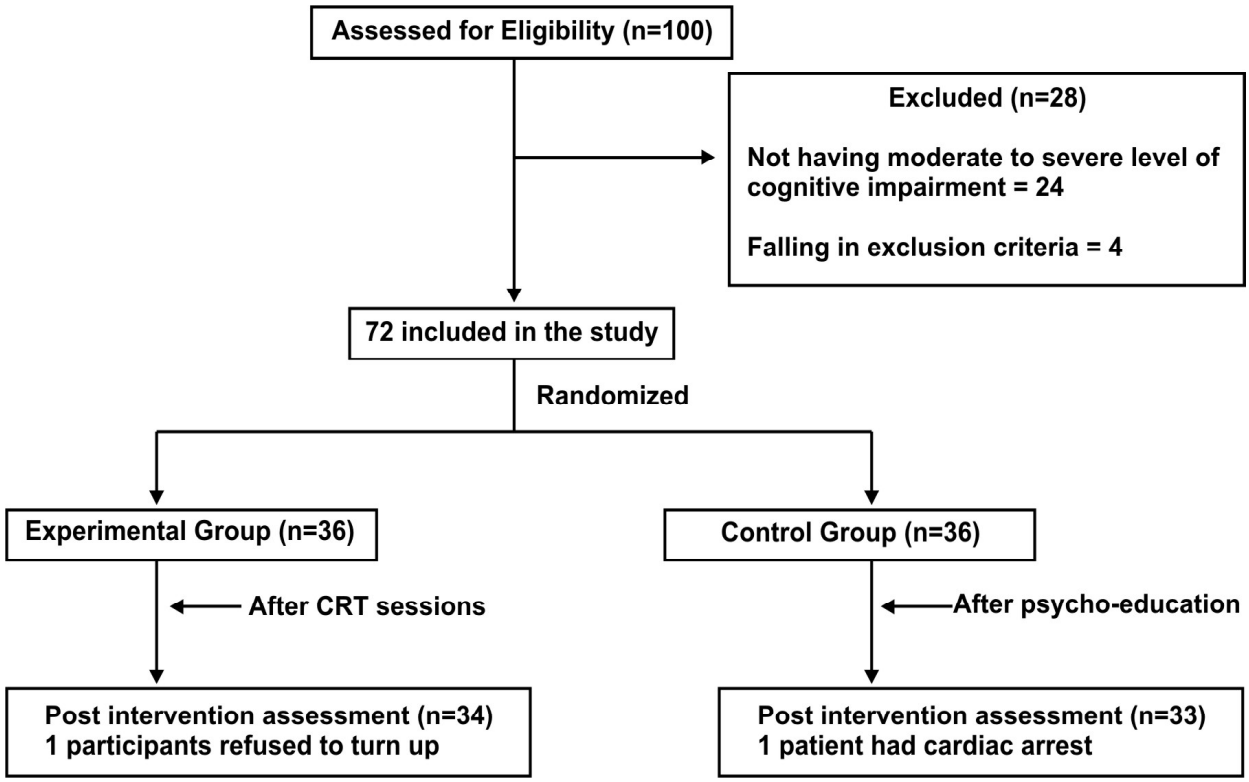


Fig-1: Flow chart of Schizophrenic patients recruited in the present study.

Socio demographic variables like age, sex, religion, marital status, domicile and occupation, family type, monthly income. Clinical details like age of onset, mode of onset, course, duration, medication and side effects, history of alchohol or substance abuse, any history of significant head injury, seizure, mental retardation and family history of mental illness along with it pre morbid and Personal history.

B. Positive and Negative Syndrome Scale (PANSS)[16]

PANSS is a severity symptom scale for Schizophrenia. It is a 30-item, seven point rating instrument for assessing positive, negative and other symptoms in Schizophrenia. Each item on the PANSS is accompanied by a complete definition as well as detailed anchoring criteria for all seven rating points, which represent increasing levels of psychopathology : 1 = absent, 2 = minimal, 3 = mild, 4 = moderate, 5 = moderately severe, 6 = severe, and 7 = extreme. It has high internal reliability, homogeneity among items (.73-.83 for each scale), good spit –half reliability for general pathology scale (.80).

C. Stroop Neuropsychological Screening Test (SNST)[17]

Stroop neuro-psychological screening test by Max. R. Trenury and Colleges briefly assesses cognitive processing and provides valuable information on brain dysfunction. SNST consist of form C and form C-W stimulus sheets. The form C stimulus sheet consists of 112 colour names (red, green, blue, tan) arranged in 4 columns of 28 names. The names are printed in one of four different colours of ink but no name is printed in its matching colour. The form C-W stimulus sheet is the same as the form C stimulus sheet, except for the order of the colour names. In the colour task, the individual reads aloud a list of colour names in which no name is printed in its matching colour. In the colour-word task, the individual names the ink colour in which the colour names are printed. Scoring is based on norms provided in manual.The test-retest reliability co-efficient of 0.90-0.83 in two parts of the test has been reported.[17]

D. Comprehensive Trail Making Test (CTMT)[18]

The CTMT comprises of a standardized set of

five visual search and sequencing tasks that are heavily influenced by attention, concentration, resistance to distraction and cognitive flexibility (or set sifting). The basic task of trail making, and thus of CTMT is to connect a series of stimuli (numbers, expressed as numerical or in word form, and letter) in a specified order as rapidly as possible. Test-retest values for the five trials of CTMT ranges from 0.70 to 0.98. Inter rater reliabilities are exceptionally high for the five trails of the CTMT (range 0.96-0.98).

Technique

The Cognitive Remediation Package for Intervention

Target for Intervention: The package was designed so as to improve attention of the patients.

Therapeutic Package: The package broadly consisted of Psycho education and Cognitive Training.

Psychoeducation

- Psychoeducation was provided to all patients along with medication. Three psychoeducation sessions were given to the patients one at pre-assessment other at post assessment and last one after 3months follow-up. Control group was only given psycho-education sessions along with pharmacological therapy. Each session lasted 45 minutes to 1 hour

Cognitive Training

- Cognitive remediation package consisted of various strategies which were adopted from Shantala Hegde et al[19] Home-based Cognitive retraining program and UAB Home Stimulation Program by Tom Novack et al[20].
- The cognitive training program consisted of 27 hours (average) individuals training divided into 85 minutes per session. Patients were called twice a week to the psychological lab of JNMCH, Department of Psychiatry for the intervention for the period of 3 months. In total all patients underwent 20 sessions.
- Techniques used in attention Module were: Grouping of Cards (8 levels), Visual scanning/cancellation tasks (8 levels), Auditory attention (8 levels), Grain sorting (8 levels),Number sequence (8 levels), Joining beads (4 levels), Joining dots (10 levels)

Statistical Analysis

The data obtained from this study was analyzed with the help of statistical package for social science-20 (SPSS-20), by using following statistical methods. For other socio- demographic variables, chi-square test was applied. Series of Non-parametric test were used for analyzing the data as it was not normally distributed. Mann Whitney test was applied to data for between group analysis for neuro-cognitive measures of cognitive remediation group and control group at baseline, after 3 months of intervention and at follow up. For within group analysis in repeated measures, Friedman tests were applied for all the measures to show the level of changes in both the group with intervention over time. For post –hoc analysis Wilcoxon Signed Rank test was applied for analyzing the data to evaluate changes in all variable over time. Evaluation was seen at three level viz. change from baseline to 3 months, 3 months to follow up and from baseline to follow-up.

Results

Table 1: Compares socio demographic profile of Schizophrenic patients belonging to experimental group and control group. Both the groups were matched on all socio-demographic variables i.e. age, gender, marital status, religion, residence, family type, socio economic status. There was no significant difference found between both the groups on socio-demographic variables at 0.05.

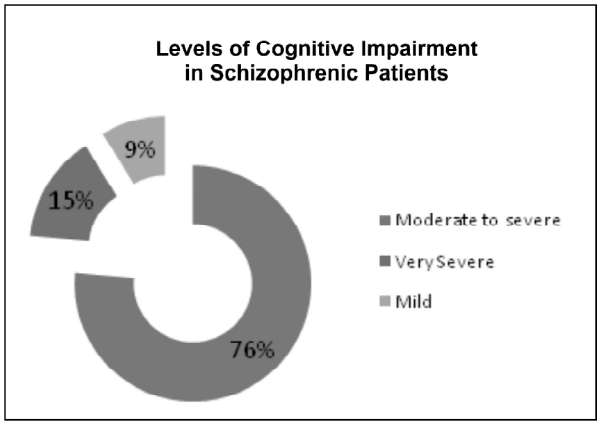


Figure II Severity of cognitive impairment in Schizophrenic patients

Table 1: Showing Socio demographic profiles of Schizophrenic patients in Experimental and Control groups

Variables	Experimental Group N=36N (n%)	Control Group N=36N (n%)	$\chi 2$	p value
Age				
20-29	19 (53)	16 (44)		
30-39	5 (14)	10 (28)		
40-49	9 (25)	6 (11)	2.66	.469
50-60	3 (8)	4 (11)		
Gender				
Male	30 (83)	24 (67)		
Female	6 (17)	12 (33)	2.67	.102
Marital Status				
Married	18 (50)	19 (53)		
Unmarried	17 (47)	15 (41)	.485	.856
Widowed	01 (03)	02 (06)		
Religion				
Hindu	15 (42)	17 (47)		
Muslim	19 (52)	17 (47)	.236	.926
Christian	02 (06)	02 (06)		
Residence				
Urban	22 (61)	23 (64)	.059	.808
Rural	14 (39)	13 (36)		
Family Type				
Nuclear	11 (30)	10 (28)		
Joint	19 (53)	19 (53)	.125	.940
Extended	06 (17)	07 (19)		
***SES**				
Upper	19 (53)	24 (67)		
Lower Middle	16 (44)	11 (30)	1.50	.658
Upper Lower	01 (03)	01 (03)		

* Socio economic status: it was determined using Kuppuswamy's Socio Economic status scale. Education, occupation and income

Table-2: Showing difference between experimental and control groups on measures of attention of schizophrenic patients in three condition: baseline, post intervention and at follow up

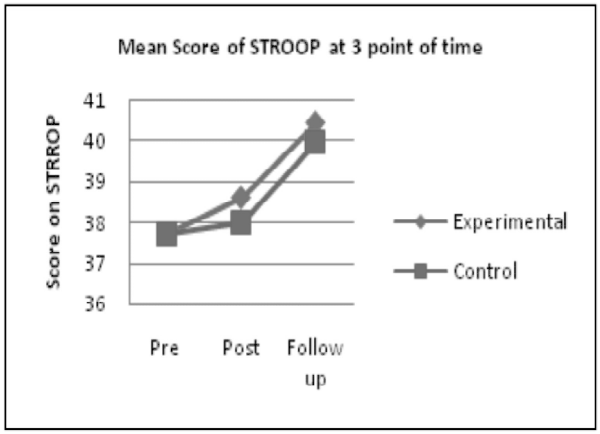
Measures of Attention	Conditions								
	Baseline			Post Intervention			Follow up		
	z	*p*	*ES*	*z*	*p*	*ES*	*z*	*p*	*ES*
STROOP Total Score	-.376	.707	.004	-2.375	.018	.290	-2.458	.014	.314
CTMT Trail I	-.310	.757	.003	-1.950	.051	.238	-2.273	.023	.291

Figure II shows level of cognitive impairment in cognitively impaired schizophrenic patients. 76 % of Schizophrenic patients were having moderate to severe level of cognitive impairment which was followed by 15% of very severe level of cognitive impairment patients and 9% of patient reported of having mild level of cognitive impairment.

Table 2: Shows between group analyses. The scores obtained on STROOP and time taken on CTMT-Trail A in experimental group did not differed

at baseline but differed significantly from control group after 3 months of intervention and follow up. Mean rank of experimental group was found to be better than mean rank of control group with small effect size, indicating CRT as being an effective intervention for enhancing attention and sustaining it in future.

Figure III: Scores obtained on STROOP and time taken on CTMT-Trail A by Schizophrenic patients in the experimental group and control group on each of the three conditions: Pre intervention, Post intervention and after follow up of 6 months.



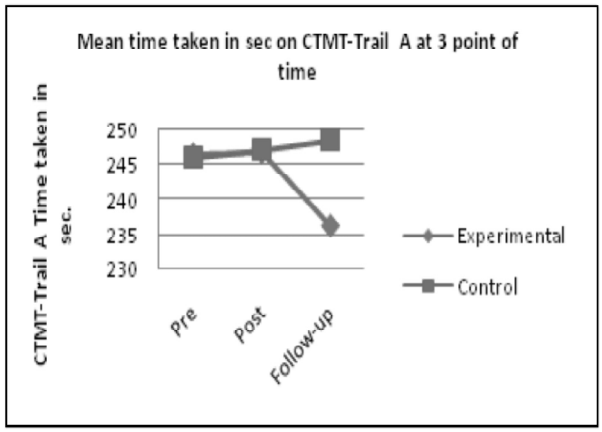


Figure III: Shows within group analysis. The scores obtained on Stroop test by Schizophrenic patients, differed significantly at 3 conditions (pre, post, follow up) in experimental group ($\chi 2$ (2) = 28.94, p <0.001) but not in control group ($\chi 2$ (2) = 6.07, p = .068). Post hoc analysis with Wilcoxon signed rank test was conducted with a Bonferroni correction, so all effects are reported at 0.167 level of significance. Experimental group showed significant reduction in scores on Stroop test from baseline to post intervention (z = -4.190, p <.001, r = .514) from baseline to follow up (z = -4.422, p <.001, r = .566) and from post intervention to follow up (z = 2.467, p = .014, r = .314). Significant change in control group was observed from baseline to follow up (z = -2.205, p =.029, r = .288). Effect size was found to be moderately large for experimental group. The time taken on CTMT-Trail-A by Schizophrenic patients differed significantly at 3 conditions (pre, post, follow up) in experimental group ($\chi 2$ (2) = 34.06, p <0.001) but not in control group ($\chi 2$ (2) = .590, p = .744). Post hoc analysis showed that experimental group showed significant reduction in time taken on CTMT-Trail A from baseline to post intervention (z = -4.60, p <.001, r = .564) from baseline to follow up (z = -395, p <.001, r = .505) and from post intervention to follow up (z = 2.15, p = .031, r = .275). No Significant change in control group was observed concluding that cognitive remediation therapy is effective intervention for enhancing attention.

Discussion

The sample for the study was drawn from the psychiatry department of Jawaharlal Nehru Medical College and Hospital, a tertiary care hospital of Aligarh district in Uttar Pradesh, India. This was a time bound study and more over many centers around Aligarh were not having trained therapist. Hence the study was carried out in single center. Usually single center studies on effectiveness of CRT have been reported for Schizophrenia[19,20]Single center study in this context have an upper hand of meeting better control over homogeneity of setting, sample and the intervention being carried out by the single therapist.

Evaluative approach with Randomized Control Trial (RCT) design was adopted by for the present study. The previous researchers who have used RCT on schizophrenic patients are Hedge,[19] Drake et al[22] and Mendella et al.[23] While other researchers have adopted quasi experimental design or pre-test post-test design for knowing the efficacy of CRT among Schizophrenia patients.[21,24] Better internal and external validity is promised by RCT when compared to the other designs. Cross over designs could also be used to decrease confounding covariates but in such study only control groups can be switched to experimental because CRT might bring long lasting effect in the experimental group.

Hence the status of experimental group cannot be reversed to control group (after the wash out period). RCT was considered more appropriate as it has standard controls like randomization, control group and blinding. Single blinding was applied to the present study as the participants were kept away from knowing that intervention is not being given to both the groups.

Demographic characteristics of the sample

The present study showed that majority of the sample were in 20-29 years of age, were males, married, hailing from rural and belonged to upper middle class in experimental and control group of Schizophrenic patients. India has the world's largest youth population despite having a smaller population than china. The report titled 'the power of 1.8 billon: 2017" reported that 28% of India's population i.e. 356 million are youth population. Similar age group of patients has been recruited by similar studies as well for evaluating the efficacy of CRT[19,25]. Females were found to be less as compared to males; India being male dominant society, where females are still underprivileged and are given less priority possibly explains this ratio[26-28]. Majority of patients in our study were married and it can be attributed to the age range, as in India the mean age of female marriage varies from 18 years to 24 years while among male it varies from 21 years to 29 years as reported by Census, 2001. Present study reported maximum patients were hailing from urban area and were from upper middle class. The reason could be because the hospital where this study was conducted is in district head quarter hence greater number of urban patients visited here. In other socio-demographic character no significant findings was found.

Cognitive Measure of the sample

Significant cognitive impairment was found in both patients of Schizophrenia. Such impairment could impact adversely on patient's everyday lives and on the course of the illness. 78% Schizophrenia patients were having moderate grade of cognitive impairment. Prevalence of cognitive impairment is more severe have been repeatedly reported in previous studies like in ours. Empirical and meta-analytical studies have shown fairly consistently that the degree of cognitive impairment in Schizophrenia.

The cognitive measure which was assessed in our study was attention. Attention refers to the ability to identify relevant stimuli focus on these stimuli rather than others (selective attention), ability to perform a task in the presence of distracting stimuli (focused attention), sustain focus on the stimuli to higher level process. The STROOP neuropsychological screening test and CTMT trial is commonly used for measuring attention. Friedman repeated measures test for neurocognitive variables for attention was applied and post hoc analysis with Wilcoxon signed rank test was conducted. In cognitive remediation group, significant improvement in all variables was found over time. For the control group value were not found to be significant. Results indicate that, though overall improvement is seen, but the degree of improvement in attention dropped in follow up for the cognitive remediation group.

Our result is in concordance with previous studies[22,29.30] which indicated dramatic improvement in attention in the cognitive rehabilitation condition compared with the control condition. Consistent with our results, previous authors like Burda et.al[29] andBenedict et.al[30], have concluded that cognitive intervention strategies have beneficial effect on attention.

Limitation

There were several limitations to the current study. The lack of blinded assessments may have biased the clinical and neuropsychological results. There was absence of independent rater that was blind to the allocation of patients to the two groups. The current study was also relatively modest in terms of sample size and may have been underpowered to detect small effects typical of CR studies, so future studies should use larger samples. Even though being a randomized trial, no active placebo treatment was administered to the control group, who instead received treatment as usual. Hence effect of drugs and psycho education might affect our result. Cognitive remediation in Schizophrenia should be aimed at improving not just specific cognitive deficits, but the functional deficits that arise from them. Focus on functional deficits is a much neglected area in which further research is urgently needed.Nomeasure of social functioning was included.

Future Duration and Suggestion

Future studies may benefit from incorporating motivational interviewing techniques into CR programmes to help facilitate engagement and, as a result adherence. Future studies should also examine the factors that predict treatment response, which was not currently conducted because of the restrictive sample size

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Original Article

Sexual Self-Concept, Sexual Self-Efficacy and Sexual Attitude in Persons with Dhat Syndrome

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ABSTRACT

Background*: A person's beliefs, attitudes, and perceptions about himself/herself in the sexual real make up important components of who he/she is and serve as both antecedents and consequents of sexual behavior and sexual related dysfunctions.* ***Method****: This study examined three different aspects of the sexual self (i.e., sexual self-concept, sexual self-efficacy and sexual attitude) in Persons with Dhat Syndrome.Participants were N=60 (n=30 Persons with Dhat Syndrome and n=30 Healthy Controls).* ***Results****: Descriptive statistics indicated that Dhat Syndrome group is not significantly differed in Mean age and education in comparison to Healthy Control group andt test analysis revealed that sexual self-concept, sexual self-efficacy and sexual attitude of Dhat Syndrome have significantly differed in comparison to Healthy Controls.*

Keywords: *Dhat syndrome; Sexual self-concept; Sexual self-efficacy;Sexual attitude.*

Introduction

Sexual health is important for human beings. The World Health Organization defines sexual health as " a state of physical, emotional, mental, and social well-being related to sexuality that requires a positive and respectful approach to sexuality and sexual responses, as well as the possibility of having pleasurable and safe sexual experiences".[1] As we know that humans live in society and follow a culture. Human societies and their culture affect their behaviors and cognitive processes. There are many syndromes which found in a specific culture, for example, Dhat Syndrome in the Indian subcontinent and *koro* found primarily in China.Dhat Syndrome is described as a culture bound sexual neurosis especially of the Indian sub-continent characterized by psychological distress related to semen loss.[2] The term "Dhat'' originated from the Sanskrit word "Dhatu which means "metal" "elixir" or "constituent part of the body" which was anciently thought to be "the most concentrated perfect and powerful bodily substance".[3] The belief in Indian culture is that the loss of *virya* through any sexual act or imagery (such as masturbation, *swapnadosh* or wet dreams) is considered both physically and spiritually harmful. There is also a myth prevalent among people of the Indian subcontinent is that "it takes 40 days for 40 drops of food to be converted to one drop of blood, 40 drops of blood to make one drop of bone marrow and 40 drops of bone marrow form one drop of semen.[4] Patients with Dhat Syndrome show excessive concern of semen loss because semen is culturally a symbol of masculinity. The common symptoms of that syndrome are weakness, fatigability, disturbed sleep, multiple somatic complaints, depression, anxiety and sexual dysfunction.[5,6] It also affects self-esteem, a part of self-concept, negatively.[7]

Self-concept is studied in various mental health disorders.Self-esteem, a component of self-concept, is

not only seen as a basic feature of mental health, but also as a protective factor that contributes to better health and positive social behavior through its role as a buffer against the impact of negative influences.An unstable self-concept and poor self-esteem can play a critical role in the development of an array of mental disorders and social problems, such as depression, anorexia nervosa, bulimia, anxiety, violence, substance abuse and high-risk behaviors.Empirical studies over the last two decades indicate that self-esteem, a part of self-concept, is an important psychological factor contributing to health and quality of life.[6]

Sexual self-concept is considered a multidimensional construct that refers to an individual's positive and negative perceptions and feelings about him or herself as a sexual being. **S**exual self-concept is defined as an individual's evaluation of his or her own sexual feelings and actions.[8]

Self-efficacy is another important concept of self-concept but also studies separately. According to social cognitive theory,[9] self-efficacy, or an individual's beliefs about his/her ability to perform a particular behavior in a given situation, mediates the relationship between an individual's knowledge and skills related to performing a behavior and his or her actual performance of the behavior. For example, in the area of sexual risk taking, contraceptive self-efficacy has been found to be linked to actual contraceptive use level at last sexual intercourse.[10] A sexual attitudecan be defined as a tendency to respond positively or negatively toward a certain idea, person, object, or situation. Attitude developed through peoples' experiences as they live and work with others, can affect the way they behave toward those ideas, people, objects, and situations and can include opinions, beliefs, and biases. In fact, attitudes influence the way people view these things *before* they've actually been exposed to them.[11] There are many studies reported that lack of self-esteem and self-efficacy is found in sexual disorders.

Most of the studies of Dhat Syndrome focus on measuring associated symptoms and comorbidity of other disorders. There is lack of studies investigating their sexual self-concept, sexual self-efficacy, and sexual attitude. There is evidence that Persons with Dhat Syndrome have associated anxiety, depression and other psychiatric disorders. Thus it becomes an important area to be investigated as it may help in detecting patients who are vulnerable to develop other psychiatric disorders (e.g., patients with low self-esteem) and proper psychological intervention.The present study is proposed for the comprehensive understanding of the Persons with Dhat Syndrome.

This is study was planned to see the sexual self-concept, sexual self-efficacy and sexual attitude in Persons diagnosed with Dhat Syndrome and Healthy Controls.

Materials and Method

Participants: The sample is selected using purposive sampling and consisted of 30 Persons diagnosed with Dhat Syndrome and 30 Healthy Controls in the age group of 17-30 years. For cases 30 Persons with Dhat Syndrome were selected from Marital and Psychosexual clinic (MPSC), IHBAS. A group of 30 healthy individuals was selected from residential colony of east Delhi as controls. With the consent of participants following tests were administered.

Measures

Multidimensional Sexual Self-Concept Questionnaire (MSSCQ): [12] Sexual self-concept is measured with the help of Multidimensional Sexual Self-Concept Questionnaire. It is a 100 items objective self-report instrument designed to measure 20 psychological aspects of human sexuality. The 20 MSSCQ subscales have more than adequate internal consistency.

Sexual Self-Efficacy Scale (SSE) [13]: It is a 20-item scale assessing respondent confidence to engage in activities relating to sexual behavior. Items are rated in two ways: First, individuals would be rated if they are able to perform a specific behavior. Second, items that individuals would be rated as able to perform were further evaluated in terms of perceived confidence on a five-point scale ranging from 1 (very uncertain) to 5 (very certain). The two question types was merged during data analysis such that reporting a "no" on the binary can/cannot do items was made into a score of "0" on the perceived confidence scale. Therefore, for the present study each of the 20 items had a 6-point scale from 0 (cannot do at all) to 5 (very certain can do).

Sexual Attitude: Sexual attitude is measured with the help of Sexual Attitude Questionnaire. There are 40 items with four subscales: arousal, exploration, anxiety, and commitment. This scale is

a five point's scale. Items were rated from 1 (strongly disagree) to 5 (strongly agree).

Procedure of Data Collection

Participants were informed about the study and their written informed consent was obtained for their participation in the study. The tools were administered individually in all the groups. Scoring was done manually and data was analyzed using SPSS version 20.

Results

Table-1: Demographic characteristic of the participants

Variables	Dhat Syndromes (n=30)	Healthy Controls (n=30)	Sig.
Age (Years)	M=21.12 (SD=2.26)	M=23.73(SD=3.46)	.559
Education (Years)	M=11.77(SD=2.52)	M=12.87(SD=3.51)	.442
Socioeconomic status (SES)			
Lower SES	17 (56.7%)	14 (46.7%)	.281
Middle SES	13 (43.3%)	14 (40%)	
Upper SES	00 (00%)	00(00%)	
Marital Status			
Unmarried	11 (36.66%)	12 (40%)	.430
Married	19 (63.33 %)	18 (60%)	
Divorced	3 (10%)	00(00%)	
Religion			
Hindu	25 (83.3%)	23 (76.7%)	.748
Muslim	5 (16.7%)	7 (23.3%)	

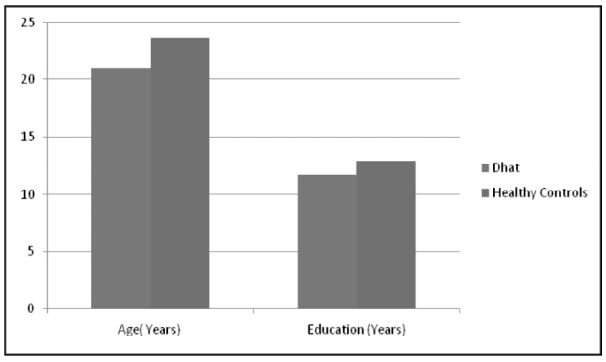

Fig-1. Graph showing the mean age and mean education of Dhat and Healthy Controls groups

Table-1 shows that mean age and education of Dhat syndrome group are 21.12 and 23.73 that is not significantly differ from healthy control group. There is also no significant difference in socioeconomic status, marital status and religion of Dhat syndrome group and healthy control.

Table-2 depicts the mean and SD of Dhat Syndrome and Healthy Controls group on subscales of the sexual self-concept. The Dhat Syndrome group has higher scores on anxiety, fear of sex and depression subscales of sexual self-concept. On the other subscales (efficacy, optimism, esteem, satisfaction, and self-schema) Dhat Syndrome group has lower scores than Healthy Controls. There is not much difference in the scores of Dhat Syndrome groups on self-blame and motivation subscales.

Table-3 showed that Dhat Syndrome group has lower scores on the assertion and precaution subscales of sexual self-efficacy in compare to Healthy Controls group. The total scores on sexual self-efficacy highlight that the scores of Dhat Syndrome grouphave lower than Healthy Control group.

The results are presented in Table 4 reveal that Dhat Syndrome group and Healthy Control group differ significantly in sexual attitude. Persons with Dhat Syndrome are significantly differed from Healthy Controls group on anxiety, arousal, and commitment subscales of sexual attitude.

Discussion

The aim of present study was to examine sexual self-concept, sexual self-efficacy, and sexual attitude in Persons with Dhat Syndrome.As the result of sexual self-concept indicated, persons with Dhat Syndrome have significantly high level of sexual anxiety and sexual depression. The results obtained in this study are consistent with the findings achieved in a study with the sample of 40 patientswith Dhat

Table-2: Comparison of Sexual Self-Concept (SSC) in Persons with Dhat Syndrome and Healthy Controls

Variables	Samples	Mean	SD	t-test
Anxiety	Healthy Controls	2.40	.83	.000***
	Dhat Syndrome	15.13	2.77	
Efficacy	Healthy Controls	17.60	1.77	.000***
	Dhat Syndrome	10.47	1.69	
Optimism	Healthy Controls	16.80	.76	.000***
	Dhat Syndrome	8.20	4.61	
Self blame	Healthy Controls	13.00	6.06	.218
	Dhat Syndrome	15.40	4.22	
Motivation	Healthy Controls	14.20	3.98	.536
	Dhat Syndrome	12.07	2.87	
Esteem	Healthy Controls	16.20	2.68	.000***
	Dhat Syndrome	7.00	4.27	
Satisfaction	Healthy Controls	15.20	2.97	.000***
	Dhat Syndrome	4.57	4.51	
Self schema	Healthy Controls	16.40	2.09	.036
	Dhat Syndrome	13.47	4.10	
Fear of sex	Healthy Controls	2.00	.85	.000***
	Dhat Syndrome	13.83	4.51	
Depression	Healthy Controls	.80	.76	.000***
	Dhat Syndrome	16.93	2.83	

**p < 0.05, **p< 0.01, ***p<0.001*

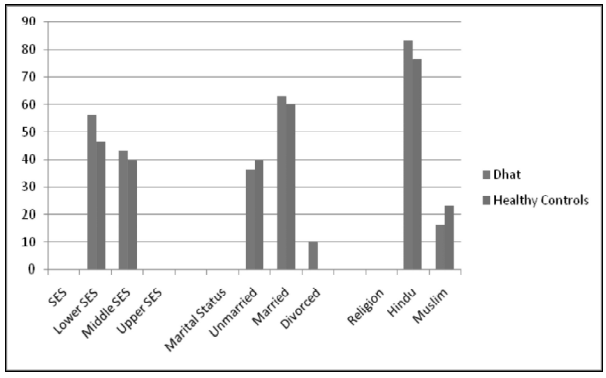

Fig-2 Graph showing percentage of socioeconomic status (SES), marital Status & religion of Dhat Syndromeand Healthy Control groups.

syndrome in which 48% patients suffered from depression and 16% from anxiety[3]. Persons with Dhat Syndrome have high-level fear of sex in comparison to healthy control, the possible explanation of it due to loss of semen persons who are suffering from Dhat syndrome used to start negatively analyses of their sexual competency and have fear whenever they think about engaging in sexual activity with other. Findings of the present study also revealed that persons with Dhat syndrome have low sexual efficacy, sexual optimism, sexual esteem and sexual satisfaction. This finding is supported by the research on the development of cognitive behavioral therapy interventions for patients with Dhat Syndrome; they mentioned that all the depressive cognitions and lack of self-esteem was intrinsically related to Dhat Syndrome.[14]

On subscales,sexual Self-blame, sexual motivation and sexual self-schema of sexual self-concept, the scores of Dhat syndrome group are not significantly different from scores of Healthy Controls. These findings suggest that participants with Dhat Syndrome had sense of personal responsibility of taking his problem as well as they are equally motivated to have sex like Healthy

Table-3: Comparison of Sexual Self-Efficacy (SSE) in Persons with Dhat Syndrome and Healthy Controls

Variables	Groups	Mean	SD	t-test
Assertion	Healthy controls	25.00	2.65	.000***
	Dhat Syndrome	19.87	5.53	
Precaution	Healthy Controls	25.40	5.59	.000***
	Dhat Syndrome	17.27	5.65	
Resistive	Healthy Controls	40.20	7.56	.075
	Dhat Syndrome	34.57	11.92	
SSE Total Scores	Healthy Controls	87.60	11.51	.000***
	Dhat Syndrome	68.93	16.83	

**p < 0.05, **p< 0.01, ***p<0.001*

Table-4: *Comparison of Sexual Attitude (SA) in Persons with Dhat Syndrome and Healthy Controls*

Variables	Groups	Mean	SD	t-test
Anxiety	Healthy Controls	24.00	7.69	.000***
	Dhat Syndrome	39.60	7.15	
Arousal	Healthy Controls	33.87	5.23	.000***
	Dhat Syndrome	35.97	4.15	
Openness	Healthy Controls	29.23	7.33	.138
	Dhat Syndrome	29.83	7.25	
Commitment	Healthy Controls	26.20	7.64	.000***
	Dhat Syndrome	31.57	2.67	
SA Total Score	Healthy Controls	123.80	10.94	.004**
	Dhat Syndrome	134.26	13.26	

p<0.05p<0.01***p<0.001*

Controls. Sexual self-schema score indicates that even though the person having Dhat syndrome, but their sexual self-schema is not changed.

According to the results obtained from this study, sexual self-efficacy of the Dhat syndrome patient can be understand respectively by three dimensions assertion, precaution, and resistive. Persons who are suffering from Dhat syndromes have low perceived assertive in sexual situations and they have low perceived ability to do certain behaviour like starting sexual activities with their partners and refusing to do something with their partners which they do not feel comfortable about in sexual situations. The present study also suggests that Persons with Dhat Syndrome have low perceived ability to use precaution when engaging in sexual activity and have difficulties discussing about precautions with their partner. Low perceived ability to use precautions could make them vulnerable for sexually transmitted diseases. Participants of Dhat Syndrome were not significantly differed than Healthy Controls in Resistive subscale of SSE. It suggests that Persons with Dhat Syndrome have equal perceived sense to resist whenever they do not want to indulge in a sexual behaviour.

The present study intended to study patterns of sexual attitude in Persons with Dhat Syndrome. It was found that the persons who are suffering from Dhat syndrome have significantly negative attitude about sexuality. The all four (anxiety, arousal/desire, openness/exploration, commitment) dimensions of sexual attitude study presents more comprehensive pattern of sexual attitude in Dhat syndrome patients. It was found that Dhat syndrome patients had higher

level of sexual anxiety and they used to have negative cognitions and feelings as a sexual being and it seems that they find oneself hard to enjoy sex and most of the time they would worry about their sexuality.

With regard to the results obtained from on dimensions of arousal and desire level of sexual attitude of these studies, it can be said in certifying the results of this study that Dhat syndrome patients not only have feeling of low sexual energy but also have feeling of less desire to have sex.The present study also suggests that Persons with Dhat Syndrome have equal level of openness towards sex and have a tendency for exploration. The score on Commitment scale indicates that Persons with Dhat Syndrome had no issue in having multiple sexual partners; reason of this attitude may be because Persons with Dhat Syndrome had gradually developed doubt on their potential and they were frequently in search to test their potency with a partner, whenever they had the chance to have sex. Because the sexual self-efficacy dimension suggest that person with Dhat syndrome have low perceived ability to use precautions whenever they indulge in sexual activities and sexual attitude dimension suggest that person with syndrome does not have issues with multiple partners both things suggest that they may be highly vulnerable to sexually transmitted disease.

Finding of this study not only help us a comprehensive understanding of the sexual self in person with Dhat syndrome but also suggest that they are highly vulnerable to sexually transmitted diseases. There is very important for the therapist to emphasis on imparting of STD knowledge.

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Original Article

Study of Vitamin D levels in the patients of Depression in Tertiary Care Centre

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ABSTRACT

***Background**: Vitamin D has recently been indicated in a broader way than mere regulation of calcium metabolism alone. Available Indian literature is scarce regarding the role of Vitamin D in depression. **Method**: In an observational case control hospital-based study, 50 patients with the main diagnosis of a ICD 10 current Depressive episode and 47 age matched controls who were healthy caregivers accompanying the patients were taken. Each subject was assessed for the severity of depression using Beck Depression Inventory II (BDI II) and vitamin D levels of both the cases and controls were assessed using 3ml of blood. Vitamin D was measured in serum using Enhanced Chemiluminescence Technique. **Results**: 32(33%) cases were having deficient Vitamin D level, N=10(10.3%) had insufficient level and only N=8(8.2%) had sufficient Vitamin D level. On comparing the mean vitamin D level between cases and control it was found that the mean vitamin D level in cases was 44.00 ± 23.89nmol/l which was significantly less (p=0.001) than the control group where the level of vitamin D was found to be 63.21 ± 29.21nmol/l. **Conclusion**: Patients of depression have lower Vitamin D levels than controls. Vitamin D deficiency had significant correlation with severity of depression. Therefore, screening of Vitamin D levels should be done along with prompt treatment in patients of depression.*

***Key words** -Vitamin D; Deficiency; Insufficiency; Depression*

Introduction

Depression is a major mood disorder of public health concern having impact on morbidity, mortality, and quality of life.[1]In high-income countries, it is considered to be the third leading cause of disability, affecting approximately 840 million people worldwide.[2] Projections in future suggest that by 2020, depression will be second only to heart disease in its contribution to the global burden of disease as measured by disability adjusted life years.[3]

Depression etiology and pathophysiology have not yet been fully illuminated. Current advances in basic and clinical research highlighted the potential role of new biological factors that may affect mood in combination with the more traditional neurochemical and neuroendocrine mechanisms. Although many aspects have been researched upon, the etiology remains elusive but most likely to be multifactorial.

Depression does appear to be linked to poor nutritional status bidirectionally. Main nutrients commonly prescribed as adjuvant drugs in clinical practice include omega-3 fish oils, S-adenosyl-methionine (SAMe), L-tryptophan, and folic acid.[4]

It has been postulated that Vitamin D plays an important role in causation of depression.[5] Vitamin

D receptors are present on neurons and glia in many areas of the brain including the cingulate cortex and hippocampus, known areas to be involved in pathophysiology of depression.[5] Vitamin D is also involved in numerous brain processes including neuroimmunomodulation, regulation of neurotrophic factors, neuroprotection, neuroplasticity and brain development, making it biologically plausible that it might be associated with depression and that its supplementation might play an important part in the treatment of depression.[6]

In India, so far no study has tested the role of vitamin D in development of depression. And it would be imperative, to determine the association of vitamin D levels and depression in this country.

Aims and Objectives

The main aim of the observational case control hospital based study was to find out any correlation between Vitamin D level and depression in tertiary care centre. We also investigated, if there is any relationship between Vitamin D levels and severity of depression. We hypothesized that serum vitamin D levels would be lower in currently depressed patients as compared with healthy controls.

Material and Method

Selection of Cases

The patients coming to Department of Psychiatry OPD/IPD, Era Lucknow Medical College between April 2017 to January 2018 with a primary diagnosis of current depressive episode as per ICD-10 guidelines. A total of 65 cases were screened out of which 50 were included in the study and 15 were excluded. Out of these 15, 3 had associated substance abuse, 5 were excluded due to associated medical conditions, 8 were having other associated psychiatric illnesses. Patients included in the study were aged 16-60 years, both male and female and willing to give informed consent. Patients having severe depression with psychotic symptoms or associated comorbid psychiatric illness or chronic medical or surgical condition or having mental retardation and pregnant or lactating females were excluded from the study.

Selection of Controls

Healthy relatives (n - 47) accompanying the patients were taken as controls, aged between 16-60 years, both male and female and giving informed consent were taken in the study. However, those with any psychiatric illness or having mental retardation or any acute or chronic medical or surgical illness and pregnant or lactating females were excluded from the study. Age of both cases and control group were matched.

Evaluation of psychiatric disorders and depression

A semi structured performa was used to collect information about the socio demographic profile of the patients and controls. Additionally, MINI was applied on every participant to rule out any possibility of other psychiatric illness. Further assessment of severity of depression was done on cases by application of Beck Depression Inventory-II (BDI II).

Mini International Neuropsychiatric Interview (M.I.N.I.)

The Mini International Neuropsychiatric Interview (M.I.N.I.) is a brief structured interview for the major Axis I psychiatric disorders including depression in DSM-IV and ICD-10. The results of recent studies showed that M.I.N.I. had acceptably high validation and reliability scores.[7]

Beck Depression Inventory II (BDI II)

Beck Depression Inventory II is a 21-item scale that covers the severity of depressive mood over the last two weeks, including today.[8,9] Each item is scored with a value between 0 and 3, yielding a total score between 0 and 63. We used cut-off points to identify men with 'no depression' (score 0–13) versus 'mild to severe depression' (14–63).[8] The validity of these subscales has recently been reevaluated.[10] The scale was obtained from a study done by Kulkarni et al who used it after translating the standardized English version into Hindi language.[11]

Assessment of Vitamin D levels

The sample were collected from an intravenous access in a Plain vial and minimum 3 ml of the blood was collected and then immediately sent for assay Vitamin D in Hospital Laboratories Services (HLS) of Era's Lucknow Medical College and Hospital, Lucknow. Serum Vitamin D levels were measured

using Enhanced Chemiluminescence Technique. Lower limits of detection are 10 nmol/l for the first assay and 20.3 nmol/l for the second one. To account for the different techniques, the applied vitamin D assay method was dummy coded and was then analysed. Following previous guidelines for the definition of vitamin D status, vitamin D concentrations >75 nmol/l were considered sufficient vitamin D. Levels between 50 and 75 nmol/l and <50 nmol/l of vitamin D were defined insufficient and deficient vitamin D levels, respectively.[12]

Statistical Analysis

The results were analysed using descriptive statistics and making comparisons between treatment groups with respect to growth parameters. Discrete (categorical) data were summarized as in proportions and percentages (%) while quantitative data were summarized as mean and SD. Proportions were compared using chi-square (χ^2) test. Unpaired student's t-test was used to compare mean values of quantitative parameters between cases and controls.

A two-sided (α = 2) p <0.05 was considered statistically significant. Software's MS-Excel and SPSS v 18 were used for analysis.

Results

After matching the age among cases and controls, most of the cases 54% and controls 61.7% were males, having Hindu religion. (Table 1)

Married individuals mostly belong to rural background with income less than 10000 per annum. It was found that most of the cases (40%) had BMI <21kg/m^2 on comparing to controls who mostly had normal BMI 21 – 23.9 kg/m^2.

Our result revealed that upon comparing the mean Vitamin D level between cases and control, cases had 44.00 ± 23.89 nmol/l Vitamin D level which were significantly less (p = 0.001) than the control group 63.21 ± 29.21 nmol/l. (Table 2)

Table-1: Demographic Profile

Variable	Category	Cases		Control		chi sq/t-value	p-value
		No.	%	No.	%		
Age (Mean±SD)	36.68±11.64	36.04±3.54	0.371	0.711			
Sex	Female	23	46.0%	18	38.3%	0.589	0.443
	Male	27	54.0%	29	61.7%		
Religion	Hindu	31	62.0	27	57.4	0.21	0.9
	Muslim	18	36.0	19	40.4		
	Sikh	1	2.0	1	2.1		
Marital status	Divorced	1	2.0	4	8.5	9.904	0.057
	Married	38	76.0	37	78.8		
	Unmarried	10	20.0	2	4.3		
	Widowed	1	2.0	4	8.5		
Socio-economic stat us	<10000	40	80.0	36	76.6	1.369	0.713
	>10000	10	20.0	11	23.4		
Place	Rural	29	58.0	26	55.3	0.071	0.965
	Semi-urban	5	10.0	5	10.6		
	Urban	16	32.0	16	34.0		
BMI Status	Normal	12	24.0	18	38.3	4.497	0.213
	Overweight	9	18.0	10	21.3		
	Obese	9	18.0	9	19.1		
	Underweight	20	40.0	10	21.3		
	Total	**50**	**100.0**	**47**	**100.0**		

Table 2: Comparison of mean Vitamin D level between Cases and Controls

Group	n	Mean	SD	t-value	p-value
Control	47	63.21	29.21	3.556	0.001
Case	50	44.00	23.89		

p = 0.008

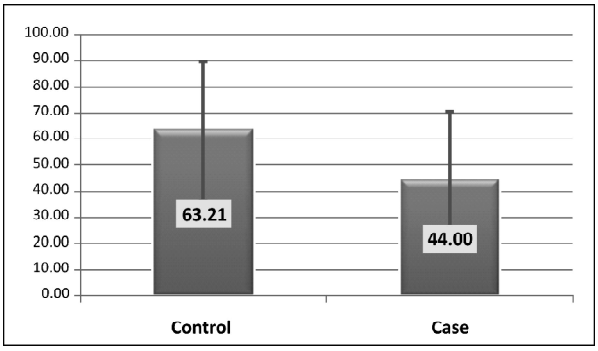

Figure 1: Comparing mean vitamin D level between cases and controls

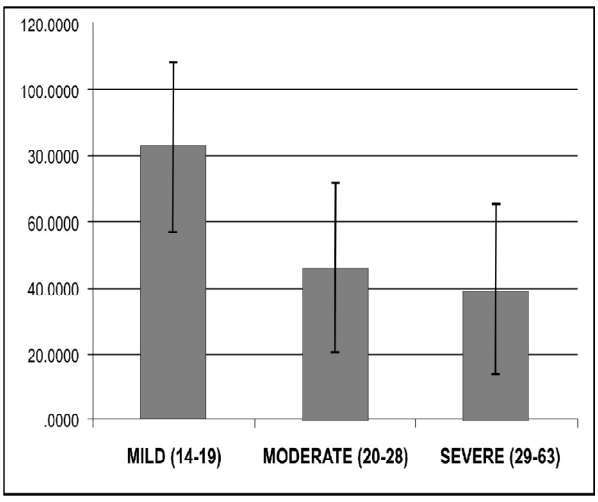

Figure 2: Correlation between Vitamin D levels with severity of depression

On further assessment using BDI II scale it was observed that, cases with severe depression had least Vitamin D levels with mean 39.86 ± 22.09 compared to moderate depression where mean was 46.32 ± 18.87 and mild depressive cases where mean value 82.95 ± 33.44. (Figure 2) According to ANOVA test, the difference in mean Vitamin D level among the three depression severity levels was found to be highly significant (p = 0.008). A highly significant negative correlation was found between BDI score and Vitamin D level.

Discussion

In this study, we investigated the association between Vitamin D status and Depression in the tertiary care centre.

Our findings were consistent with the hypothesis that low serum Vitamin D levels was significantly less in depressed cases than among control group (p = 0.001).

In a Longitudinal Aging Study conducted by Hoogendijk et al evaluated 25(OH) D levels and prevalent depression, using Centre for Epidemiologic Studies – Depression (CES-D) scale and psychiatric evaluation, in men and women of 65 years and older. They found that 25(OH)D levels in 26 participants with MDD and 169 with minor depression was significantly lower (P < 0.001) than those of 1087 non-depressed individuals.[13]

However, studies conducted at other centres have denied any relationship between vitamin D and depression. In a study conducted in China, even after adjustment for a variety of factors including geography, body mass index, physical activity and smoking, 25(OH)D levels were not associated with depressive symptoms[14]. Two other studies on depression and bone health did not suggest that vitamin D levels were lower in women with depression than in healthy controls.[15,16]

Furthermore, we also found that subjects with serum Vitamin D levels <50 nmol/ L have higher scores on the BDI II total compared with those with serum Vitamin D levels >75 nmol/L. Ronald et al investigated 380 patients with current episode depression and concluded that Low Vitamin D levels are frequent in hospitalized patients with a current episode of depression and Vitamin D deficient patients scored higher on the BDI-II scale than those with sufficient vitamin D(p=0.007)[17] other studies done by Penckofer et al[18] and Armstrong et al[19] revealed similar findings.

On the contrary, Zhao et al utilizing the data reported in National Health and Nutrition Examination Survey (NHANES) 2005-2006 (n = 3916), found no significant association between serum concentrations of vitamin D and depression. However, they observed a trend of decreasing depression with increasing quartiles of serum vitamin D concentration.[20]

Vitamin D linkage to depressive symptoms remains largely theoretical, and in context to our cross-sectional data, it could be interpreted in number of ways. One of the possible effects could be direct, as suggested by the observation that treatment with 1,25-dihydroxyvitamin D results in increased choline acetyl transferase activity in specific brain nucleus[21] or could operate via neuroprotective pathways as demonstrated by the stimulation of neurotrophin production[22] and modulation of neuronal calcium

homeostasis by vitamin D.[23] Vitamin D receptor knockout mice have been shown to exhibit an increased anxiety-like phenotype,[24,25] overlapping with emotional behaviours seen in animal models of depression. Alternatively, low levels of vitamin D may affect cerebrovascular health which may have direct impact on mood. There are evidences for such mechanism from previous data linking low vitamin D levels with an increased risk of cerebrovascular death,[26] concomitant with the late-life model of 'vascular depression'.[27,28] In addition to this, experimental data also exist supporting immunoregulatory actions of 1,25-dihydroxyvitamin D, including inhibition of antigen-presenting cell maturation[29] and modulation of tissue matrix metalloproteinases involved in atherosclerotic lesion development,[30] functions consistent with direct vasculo-protective properties of vitamin D.

The inverse association between 25(OH)D levels and depression is likely mediated through multiple mechanisms. This can be explained by the fact that individuals with depression tend to have a poor diet,[31] are engaged in less physical activity,[32] have less sun exposure,[33] which are underlying causes of low serum 25(OH)D concentrations.[34]

Therefore, treating vitamin D deficiency and insufficiency by modifying the vitamin levels may lead to a reduction in depression.

Strengths and Limitations

The strength of our study was the deseasonalization of Vitamin D levels, which is important since blood samples were collected year-round and vitamin D levels vary with respect to season of blood collection. Limitations of the study were that important confounding factors like physical activity and sunlight exposure were not assessed. Other limitations were smaller sample and most of the patients were from lower socio-economic strata having poor nutritional status.

Conclusion

In conclusion, the study suggests that people suffering from depression are more likely to suffer from Vitamin D deficiency and insufficiency. This is similar to other studies that consider vitamin D deficiency to be an underlying cause of depression. Therefore, based on the current finding it may be prudent to supplement depressive patients population with Vitamin D.

Recommendations

Further research should be carried out to investigate the prevalence of vitamin D deficiency in among Indian and to estimate its relationship with other psychological disorders such as mood disorder, bipolar mood disorder, psychotic disorder, and sleep disorder. Furthermore, investigating the difference between males and females, and based on age, regarding their vitamin D levels and depression would enrich in the body of knowledge.

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Original Article

Dermatologic manifestations in psychiatric outpatients: A hospital based study

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ABSTRACT

Introduction & Objectives: *To study the prevalence and spectrum of dermatological diseases in outpatients with psychiatric disorders.* ***Materials & Methods:*** *It was a prospective, hospital based, cross-sectional, observational study. A total of 500 subjects attending psychiatric clinic of any age, of either sex, who understood either English or Hindi and willing to give informed and written consent him/herself or through attendant were enrolled by the predesigned recruitment of first two new patients registered in psychiatry OPD on each day. History and cutaneous examination was carried out as per the predesigned clinical proforma by a dermatologist.* ***Results:****The mean age of the study patients was 37.1±14.4 years. (Range: 6 years to 79 years) Male to female ratio was 1.1:1. Almost three-fourth of the patients were married. Hinduism was the most common religion. Twenty six percent of the subjects were illiterate while the rest were educated till primary level or beyond. A total of 120 patients reported drug abuse of which tobacco was the most commonly abused drug. Mood disorders formed the largest group (48.4%) followed by Neurotic, stress related and somatoform disorders, Schizophrenia, schizotypal and delusional disorders and headache. Dermatological manifestations were detected in 189 (37.8 %) patients.Infective conditions were diagnosed in 28 patients out of which, Tinea was the most common followed by Scabies. Non infective conditions (161 patients) detected in patients were classified as mucosal, appendageal disorders, eczematous, pigmentary disorders, sebaceous gland related, papulosquamous, metabolic, connective tissue disorders, premalignant conditions etc.* ***Conclusions:****A large number of psychiatric patients had skin conditions which points towards lack of hygiene, neglect and indifference towards dermatological problems by patients as well as care-givers. Drug abuse and presence of psychiatric illness in the family significantly affect the skin care in patients.*

Keywords: *Psychiatric outpatients, Dermatology presentations, Prevalance, Spectrum, Aetiology*

Introduction

Skin and central nervous system are interconnected at the embryonal level through ectoderm. The psychological state of a person can produce manifestations in the skin. Stress has been found to be a perpetuating factor in certain skin conditions like chronic inflammatory dermatoses. There is complex interplay between skin, neuro-endocrine and immune systems. Stress and psychological disturbances are accompanied by reduced natural killer cells cytototoxicity, suppressed lymphocyte proliferative responses and blunted humoral responses to immunization.[1] Psychiatric condition can have implications in skin diseases by virtue of the condition itself, the treatment of psychiatric illness, or other factors. Hence, we

conducted this study to assess the various dermatologic manifestations in psychiatric outpatients.

Materials and Methods

The aim of our study was to determine the prevalence of dermatological diseases common among psychiatric disorders and also to assess the type of disease.

It was a prospective, hospital based, cross-sectional, observational study conducted from June 2016 to May 2017 in department of Psychiatry and Dermatology and STD in Dr. BSA Medical College and Hospital.A total of 500 subjects attending psychiatric clinic were enrolled by the predesigned recruitment of first two new patients registered in psychiatry OPD on each day during the above mentioned study period. Patients with psychiatric disorders of either sex and any age, who understood either English or Hindi and willing to give informed and written consent him/herself or through attendant were included in the study. Patients were initially assessed by a psychiatrist and later the dermatologic assessment was carried out as per the predesigned clinical proforma by a dermatologist. Relevant investigations (if needed) were carried out.

Outcome Variables

Primary Outcome

1. Prevalence of dermatological diseases common among psychiatric disorders.

Secondary Outcome

1. Type of dermatological diseases in patients with psychiatric disorders.

Data was coded and entered in SPSS version 16. Qualitative data was expressed in proportions / percentage. Chi-square test and t- test were applied wherever applicable. A p- value of < 0.05 was considered statistically significant.

Results

The study consisted of 500 patients attending the Psychiatry outpatient department of our hospital. The demographic characteristics of the patients are given in Table 1. The age of study population ranged from 6 years to 79 years with a mean of 37.1 ± 14.4

Table-1: Demographic characteristics of study patients

		Number of patients (%) (n=500)	Number of patients with skin disease (%)	Number of patients without skin disease (%)
Gender	**Male**	263 (52.6)	98 (37.3)	165 (62.7)
	Female	237 (47.4)	91 (38.4)	146 (61.6)
Marital status	**Unmarried**	115 (23.0)	39 (33.9)	76 (66.1)
	Married	371 (74.2)	143 (38.5)	228 (61.5)
	Widow	6 (1.2)	4 (66.6)	2 (33.3)
	Divorcee	8 (1.6)	3 (37.5)	5 (62.5)
Religion	**Hindu**	451 (90.2)	165 (36.6)	286 (63.4)
	Muslim	40 (8.0)	21 (52.5)	19 (47.5)
	Christian	1 (0.2)	0 (0.0)	1 (100)
	Sikh	8 (1.6)	3 (37.5)	5 (62.5)
Occupation	**Unemployed**	41 (8.2)	14 (34.1)	27 (65.9)
	Home maker	206 (41.2)	80 (38.8)	126 (61.2)
	Unskilled	74 (14.8)	30 (40.5)	44 (59.5)
	Skilled	58 (11.6)	19 (32.8)	39 (67.2)
	Self-employed	35 (7.0)	16 (45.7)	19 (54.3)
	Professional	44 (8.8)	14 (31.8)	30 (68.2)
	Studying	42 (8.4)	16 (38.1)	26 (61.9)
Education	**Illiterate**	130 (26.0)	56 (43.1)	74 (56.9)
	Primary	47 (9.4)	20 (42.5)	27 (57.5)
	Secondary	135 (27.0)	44 (32.6)	91 (67.4)
	Higher secondary	87 (17.4)	29 (33.3)	58 (66.7)
	Graduate	73 (14.6)	36 (49.3)	37 (41.7)
	Postgraduate	28 (5.6)	4 (14.3)	24 (85.7)
Drug abuse	**Tobacco**	80(16%)	60 (75.0)	20 (25.0)
	Alcohol	44(8.8%)	18 (40.9)	26 (59.1)
	Opioid	9(1.8%)	3 (33.3)	6 (66.7)
	Cannabis	6(1.2%)	3 (50.0)	3 (50.0)

years. Male to female ratio was 1.1:1. Most of the patients were married (74.2%). Hinduism was the religion of 90.2% of the study patients. Twenty six percent of the subjects were illiterate while the rest were educated till primary level or beyond. A total of 120 patients reported drug abuse of which tobacco was the most commonly abused drug (80%), followed by alcohol and opiods.

Psychiatric disorder characteristics in these patients are listed in Table 2. The mean duration of Psychiatric illness was 57.3±70.9 months. (Range: 1 day to 516 months). Mood disorders formed the largest group (48.4%) followed by neurotic, stress related and somatoform disorders in 19%. Out of the total of 500 study patients, 69 patients had a family history of psychiatric disorder in at least one of the family member. Twenty five patients had psychiatric illness in mother, followed by brother (13 patients), father and son (10 each), sister (9 patients) and others (6 patients).

Dermatological manifestations were detected in 189 (37.8%) patients out of the 500 enrolled

Table 2: Psychiatric diagnosis of study patients

Psychiatric Diagnosis	Number of patients (%) (n=500)	Number of patients with skin disease (%)		Number of patients without skin disease (%)
		Infective	Non infective	
Dementia	5 (1)	0 (0.0)	2 (40)	3 (60)
Mental and behavioral disorders due to psychoactive substance use	38 (7.6)	2 (5.3)	12 (31.5)	24 (63.1)
Schizophrenia, schizotypal and delusional disorders	89 (17.8)	6 (6.7)	25 (28.1)	60 (67.4)
Mood (affective) disorders	242 (48.4)	14 (5.7)	89 (36.7)	141 (58.2)
Neurotic, stress related and somatoform disorders	95 (19)	5 (5.2)	34 (35.7)	57 (60.0)
Behavioral syndromes associated with physiological syndromes and physical factors	7 (1.4)	0 (0.0)	2 (28.5)	5 (71.4)
Mental retardation	14 (2.8)	1 (7.1)	5 (35.7)	8 (57.1)
Seizure disorder	22 (4.4)	1 (4.5)	5 (22.7)	17 (77.2)
Headache	50 (10)	2 (4.0)	14 (28.0)	34 (68.0)
Disorders of adult personality and behavior	3 (0.6)	0 (0.0)	1 (33.3)	2 (66.7)

Table 3: Dermatology manifestations in the study patients

Skin involvement			Number of patients
Infections and Infestations			
	Bacterial		
		Pitted keratolysis	1
		Furunculosis	1
	Fungal		
		Tinea	16
		Intertrigo	2
		Pityriasis versicolor	1
	Viral		
		Verruca	1
		Herpes labialis	1
	Parasitic		
		Pediculosis capitis	1
		Scabies	4
Non infective			
	Papulosquamous		
		Lichen simplex chronicus	8
		Psoriasis	2
	Eczematous		
		Seborrhoic dermatitis	11

Skin involvement		Number of patients
	Allergic contact dermatitis	15
	Chronic Contact Irritant Dermatitis	2
	Endogenous eczema	3
	Polymorphic Light Eruption	1
Pigmentary		
	Vitiligo	6
	Melasma	20
	Pigmented Purpuric Dermatosis	2
Appendageal disorders		
Hair		
	Diffuse hair loss	18
	Telogen effluvium (Drug Induced)	3
	AGA	7
	Premature Canities	5
Nails		
	Longitudinal melanonychia	1
	Nail biting	2
	Nail pitting	1
Sebaceous gland		
	Acne	11
	Acneiform eruption drug induced	5
	Rosacea	2
	Sebaceous cyst	1
Mucosal		
	Tobaccco staining	44
	Submucous fibrosis	2
	Aphthous ulcer	1
	Leukoplakia	1
Metabolic		
	Acanthosis nigricans	3
	Xanthelesma palpebrum	2
Connective Tissue Diseases		
	Morphea	1
Premalignant		
	Seborrhoic keratosis	2
Others		
	Pruritus	4
	Urticaria	6
	Acne keloidalis	1
	Callosity	2

patients. (Table 3)Mean age of patients with skin disease was 38.3 ± 14.4 years as compared to those without skin disease (Mean age: 36.4 ± 14.4 years). Mean duration of illness of those with skin disease was 58.3 ± 65.5 months as compared to those without skin disease (Mean duration: 56.7 ± 74.1 months) There was no impact of age or duration of illness on the presence of skin disease.

The most commonly abused drug was tobacco by 80 patients (16%), followed by alcohol by 44 (8.8%), opioid by 9 (1.9%) and cannabis by 6 (1.2%). Out of 120 patients with a history of drug abuse, a significantly higher number of patients i.e. 73 patients (60.8%) had skin disease as compared to 116 (30.5%) out of 380 patients who did not have history of drug abuse.(p=0.000) Out of 69 patients with a family history of psychiatric illness, a significantly higher number of patients i.e. 37 patients (53.6 %) had skin disease as compared to 152 (35.3%) out of 431 patients who did not have any family member with history of psychiatric illness.(p=0.004) Out of 130 illiterate patients, 56 (43.1%) had skin disease as compared to 133 (35.9%) patients out of 370 educated patients.

(p=0.149)

Infective conditions were diagnosed in 28 patients. Fungal infection was the commonest (19 patients) primarily due to tinea (10 patients), followed by parasitic in 5 patients. Non infective conditions were diagnosed in 161 patients. Non infective conditions were classified as papulosquamous (10 patients), eczematous (32 patients), connective tissue disorders (1 patients), metabolic (5 patients), mucosal (48 patients), pigmentary disorders (28 patients), appendageal disorders (37 patients), premalignant conditions (2 patients), sebaceous gland related (19 patients) and others (13 patients). (Table 3)

Discussion

Psychodermatology deals with the inter-relationship between psychiatric disorders and dermatologic manifestations.Psychopathological factors play an etiological role in the development of skin disorders, can aggravate pre-existing skin disorders or certain dermatological conditions may lead to psychosocial consequences of disfigurement. Psychiatric disorder that can cause or exacerbate a skin condition is seen in approximately 30–40% of patients presenting for dermatologic treatment.[2]This study was aimed at analyzing the frequency and nature of dermatologic conditions that can manifest in a psychiatric patient.

In our study, males outnumbered the females. (263 males, 237 females). In contrast, female preponderance has been seen in the study group by Moftah et al[3] (122 females and 78 males out of total 200 patients) and Kuruvila et al[4] (female 168, 56%).Male preponderance in our study can be attributed to a large number of migrant populations in our study population. Mean age of the patients enrolled in our study was 37.1 ± 14.4 years which is comparable to the earlier study done by Moftah et al.[3] (mean 33.0±8.67 years) and Marthoenis et al[5] (mean 33.3 years)[5]done on long stay psychiatric patients. Out of 130 illiterate patients, 56 (43.1%) had skin disease as compared to 133 (35.9%) patients out of 370 educated patients.As per the Indonesian study on long stay inpatients[5],almost half (49.3%) of Graduates suffered from skin diseases.[5] Illiteracy can contribute to overcrowding, poor hygiene, lack of nutrition, poor knowledge about health resources etc, which might be the reason for increased incidence of skin diseases in them as compared to that in educated population.

The most commonly abused drug in our study was tobacco followed by alcohol. Seventy -three patients (60.8%) with history of drug abuse had skin disease as compared to 116 (30.5%) out of 380 patients who did not have history of drug abuse. This difference was statistically significant. While in the study done by Marthoenis et al[5] 75% (60)of tobacco users, 40.9% of alcohol abusers, half of cannabis abusers and 33.3% of opioid abusers had skin diseases.[5]Alcohol is known to suppress the B cells and NK cells and compromises the host defenses against bacterial infections.[6] Nicotine also damages the immune system by depleting the Th1-type immune response. This immunosupressive action of alcohol and tobacco may be responsible for the increased incidence of skin infections in these patients.

In our study, maximum patients (48.4%) were of mood (affective) disorders followed by neurotic, stress related and somatoform disorders(19%), followed by Schizophrenia, schizotypal and delusional disorders (17.8%). In the study done by Moftah et al.[3] Maximum patients were of Schizophrenia (38%), followed by depression (33.5%). Kuruvila et al.[4] reported the most common psychiatric disorder to be manic depressive psychosis (53.33%) followed by depression (36.33%), schizophrenia (8.3%) and anxiety (2%) which are similar to the findings of our study.

Dermatological manifestations were detected in 189 (37.8%) patients out of the 500 enrolled patients. Infective conditions were diagnosed in 28 (14.8%) patients and non infective conditions in 161 patients (85.2%). Non infective conditions were more common in our study population in contrast to the previously reported findings by Moftah et al.[3] (infectious disease in 66.9% patients), Kuruvila et al.[4] (infectious diseases in 68.7%) probably due to our population being urban and living in rather hygienic conditions. Also, since we examined the patients irrespective of their complaints, we were more likely to detect asymptomatic non infective conditions. As per Moftah et al,[3] pediculosis capitis was the most common parasitic infection followed by scabies in their psychiatric patients, while in our study scabies was the commonest. Non-infectious dermatological conditions were consistently more

common in all psychiatric diagnoses as compared to infective conditions. Among the patients with mood disorders, 14 had infective skin conditions while 89 had non-infective skin conditions. Out of 95 Neurotic, stress related and somatoform disorders, 5 had infective and 34 had non-infective skin diseases.

In our study, a significantly higher prevalence of skin disease was detected in those patients who had a family member suffering from a psychiatric disease (37/69, 53.6%) as compared to those who did not (152/431, 35.3%). Family history of psychiatric illness and dermatological problems in psychiatric patients also points towards underlying common psychopathology and transmission even at genetic levels which can be an interesting area of research. Moreover, the family burden of psychiatric illness can lead to neglect, poor self care and delay or inability in seeking consultation.

The psychological state of a patient along with stress can produce dermatological manifestations in a patient. Immunosuppression arising out of reduced killer cell cytotoxicity, suppressed lymphocytic proliferative reponses and blunted humoral responses due to various psychiatric illnesses predispose the patients to infective as well as non-infective dermatological diseases. Acne form eruption (5) and telogen effuvium (3 patients) could be temporally correlated with drug intake. High prevalence of skin diseases in psychiatric patients points towards lack of hygiene, neglect and indifference towards dermatological problems by patients as well as the care-givers.

Conclusion

Various dermatological diseases (both infective and non-infective) are present in patients with psychiatric disorders. These diseases can be primarily associated with the psychiatric condition (trichotillomania, delusion of parasitosis), or aggravated by psychiatric condition (neurotic excoriation, lichen simplex chronicus), or can be due to neglect /lack of personal hygiene (tinea, scabies, pediculosis) or even drug induced side effects (telogen effluvium, acneiform eruption). The non-infective/inflammatory diseases are more common than the infective diseases as they can be easily ignored by the patient or care givers (like sebaceous cyst, melasma).There is no impact of age or duration of illness on the presence of skin disease. Increased incidence of dermatological disease was seen in patients with drug abuse, and in those with positive family history of psychiatric illness. A comprehensive approach by both the psychiatrist and the dermatologist can lead to early diagnosis of the condition, may reduce complications and give higher patient satisfaction which can in turn also improve the psychiatric prognosis and follow up.

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Original Article

A Study on Stress among Medical Students due to English as a medium of Instruction

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ABSTRACT

Background: *Language plays the most significant role in the field of education. In fact in current Indian scenario proficiency in English language is perceived to pave road for success in all the esteemed profession. But being a country of diversity in culture and religion there is no one language which is common to all the states and regions. India has different states, languages and follows vernacular medium for teaching the students at schools but when the students enter any professional college the mode of instruction suddenly changes to mainly English. We need to explore if lack of proficiency in English language aptitude causes any hindrance in the learning process or is a reason of distress among medical students.* ***Aim:*** *The aim of the study was to establish if there is any relationship between English as medium of instruction and stress among medical college students.* ***Material and Method:*** *185 medical students of 1st year were assessed on English aptitude and level of stress using standardized test of English aptitude and perceived stress scale.* ***Results:*** *Medical students were found to have adequate knowledge of English, although errors in grammatical section were present for all the students. On perceived stress scale, 87% students were found to be moderately stressed and a positive but non-significant correlation was found between English aptitude and level of stress perceived by the medical students.* ***Conclusion:*** *Hardly any medical institution has paid any heed to the students who find it difficult to cope with the transformation into English medium. We duly support the NAAC'S (National Accreditation Assessment Council) criteria "V" of Student progression and strongly recommend that they must go through the three month foundation course as suggested by Medical Council of India in 2015. One of the aim of MCI vision is to equip all the students with good quality of English skills so that they can excel at personal and professional level.*

Keywords: *English medium, Aptitude, Perceived stress.*

Introduction

Post British colonization we continued pursuing English language in many ways especially in our education system. It has gradually grown to the level where professional education is imparted in English medium only. India is a country of huge cultural diversity, where many areas are dominated by the regional language. At school, English is part of the curriculum and subjects are also taught in English medium, but it is not always attained as efficiently as the regional or spoken language. It's easy for any learner to acquire the information in his/her spoken language rather than in English.[1] As per National University for Education Planning and Administration (NUEPA), almost 50% of all higher secondary students in India study in Hindi medium option only.[2] Being an international language it's impossible for any career-oriented person to ignore

the significance of English. But we also need to explore if lack or inadequate English aptitude causes any hindrance in the learning process or is a reason of distress among medical students.

Medical education is seen as quite demanding and strenuous professional course.[3] Academic demand producing stress among medical student is not unknown, but it is not the only source of stress among them. In any medical college across India, students take admission from different states and most of them have studied English. But still one of the stress causing factor is difficulty to cope up with English as medium of instructions. Many students are able to read and comprehend the content written in English but when it comes to understand difficult terminologies, expressing their learning and experience they lack the confidence and hesitate.

Thus,current research focuses on whether English as a medium of instruction causes stress among medical students.

Material & Methods

The study was carried out in Santosh University located in Ghaziabad city of U.P. Study was conducted between year 2015-2016 on 185 first year students of MBBS and BDS course. Students were examined on differential aptitude test for language usage (English) and level of perceived stress.

Differential aptitude test for Language usage[4] consisted of two sections, one was to identify errors in English spellings of 100 words and other section assessed grammar by re-arranging 50 jumbled sentences.

Perceived Stress Scale (PSS-10)[5] of ten items, measuring occurrence by "never," "almost never," "sometimes," "fairly often," and "very often," rated on a scale from 0 to 4, respectively, assessed the stress perception. Statistical analysis was done by using descriptive statistics i.e., mean, standard deviation percentage and correlation coefficient.

Results

A total of 185 students participated in the study after signing consent form. The mean scores of English aptitude is 94.14 (±15.14) which is 62.76%, majority of the students have scored above average (Table 1). But if we analyse scores of students separately on spellings and grammar we found mean scores of students on spelling is 72.58 (± 12.06) and on grammar calculated mean is 21.98 (± 5.52). We observed that students did comparatively better on spelling section than on grammar section.

Table-1. Mean and Standard deviation for scores on English aptitude test & stress

	Mean	S.D.	Range of Scores
Spelling	72.58	12.06	40-100
Grammar	21.98	5.52	1-39
Total Scores	94.18	15.14	55-125
Stress	16.98	3.98	6-27

Table-2. Showing the percentage of students falling in different categories on spelling, grammar & overall aptitude in English

	Poor	Below average	Average	Above average	Good
Spelling	Nil	Nil	13.51%	48.64%	37.83%
Grammar	3%	10%	76.21%	9.7%	1.62%
English Aptitude	Nil	Nil	21.6%	66.4%	11.8%

As it is evident from table 2, all the medical students have scored average and beyond average on spellings but as far as scores on grammar is concerned 10% students have scored below average and 3% have scored in poor category.

Mean scores on perceived stress scale is 16.98 (± 3.98) which indicates that majority of the students are moderately stressed. 87% (Figure 1) students have scored in moderate range and 3% in severely stressed range on PSS.

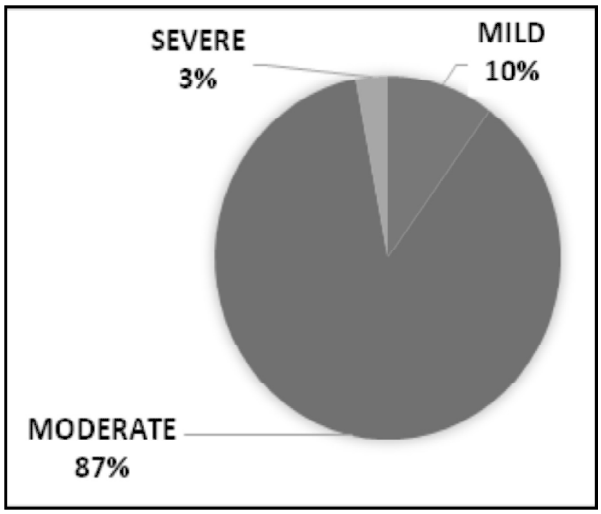

Fig-1: Showing percentage of students falling in different category of stress

Table-3. Showing correlation between different variables

English Aptitude & Stress	0.23
Spelling & Stress	0.10
Grammar & Stress	0.14

When we correlate scores (Table 3) on English aptitude with stress, Pearson's correlation coefficient found to be 0.23 which is non-significant but trend is positive. Similarly the sub parts of English aptitude (spelling and grammar) were correlated with students' scores on stress which are 0.10 and 0.14 respectively but non-significant with positive trend.

Discussion

The present study is an attempt in direction to support medical students. It's been observed that not all the students get exposed to skill based communicative language and hence even after receiving their professional degree they are unable to fetch a good job and excel in their life.Current findings revealed that the most of the medical students i.e., 67% has adequate English aptitude but 13% of total students scored very poor on the usage of grammar. Gupta et al (2017) reported that professional students were more comfortable with English as mode of instructions but simultaneously there is considerable proportion of students who were struggling to understand concepts in english.[6] Khan A. also concluded in his study that spoken English is a well-established problem for students from vernacular medium.[7] They make basic grammatical errors and struggle to speak fluently and hence its affects them unfavourably. It is the agony of the student who find comprehending the lecture and the course content difficult. They even hesitate to approach their teachers and peers for any kind of support.It is contributing to the stress they are experiencing.

Medical education is in itself one of the toughest professional journey. We found that majority of the students were stressed and the findings are supported by various previous researches which confirm that medical students undergo high level of perceived stress.[8]

Lack of english aptitude is found to be distressing to some extent. The findings were strengthen by the research conducted in Gujrat where it was found that students with vernacular medium were less anxious and stressed, were less likely to make mistakes in classrooms, were less fearful of exam than the students of english medium.[9] In Iran, medical students perceived low english proficiency as a significant stressful problem.[10] English medium instructions has psychological impact and which in turn had effect on their learning.[11]

Many colleges and universities in India are now setting English laboratories to help vernacular medium students[7],but until unless we bring reform at school level it is less likely for any student to develop their English language skills effectively.

Conclusion & Suggestion

The success of any educational institution reflects by achievement or success of its students. To empower their students many institutes have different policies related to their academic and extracurricular activities and sports etc. But hardly any institution have paid any heed to the students who find it difficult to cope with the transformation into English medium. All the students should be trained in four skills of english: listening, speaking, reading and writing. Reading club, dialogues chains, role play, group discussions etc. may be very helpful in improving their communication skills and instil confidence in them

We duly support the NAAC's (National accreditation assessment council) criteria "V" of Student progression and strongly recommend that they must go through the three month foundation course as suggested by Medical Council of India in 2015. One of the aim of MCI(Medical council of India) vision is to equip all the students with good quality of communication skills so that they can excel at personal and professional level.

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Psychomicrobiology

Gut microbiome and psychiatric disorders: is there a link ?

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Introduction

The human microbiota consists of the 10-100 trillion symbiotic microbial cells which is harbored by each person, primarily in the gut and the human microbiome consists of the genes these cells harbor.[1] Studies of the diversity of the human microbiome started with Antonie van Leewenhoek, who, as early as the 1680s, had compared his oral and fecal microbiota. He noted the striking differences in microbes between these two habitats and also between samples from individuals in states of health and disease in both of these sites[2,3].Thus, studies of the profound differences in microbes at different body sites, and between health and disease, are as old as microbiology itself. What is new today being not the ability to observe these obvious differences, but rather the ability to use powerful molecular techniques to gain insight into why these differences exist, and to understand how we can affect transformations from one state to another. It has been observed that gut microbiome diversity has been strongly associated with mood-relating behaviours, including major depressive disorder (MDD). This association stems from the recently characterized bi-directional communication system between the gut and the brain, mediated by neuroimmune, neuroendocrine and sensory neural pathways. The current paper will be reviewing the correlation between gut microbiome and the psychiatric illnesses.

Various Cinical trials

The gastrointestinal (GI) tract of a human infant provides a brand new environment for microbial colonization.[4] Indeed, the microbiota that an infant begins to acquire depends strongly on mode of delivery.[5] Twenty minutes after birth, the microbiota of vaginally delivered infants resembles the microbiota of their mother's vagina, while infants delivered via Cesarean section harbor microbial communities typically found on human skin[6]. The acquisition of microbiota continues over the first few years of life, as an infant's GI tract microbiome begins to resemble that of an adult as early as 1 year of life[6]. In one case-study following an infant's microbiota over the first 2.5 years of life, phylogenetic diversity increases significantly and linearly with time.[7] Additionally, significant changes in gut microbiota composition were apparent at five time points; starting a diet of breast milk, development of fever at day 92, introduction of rice cereal at day 134, introduction of formula and table foods at day 161, and antibiotic treatment and adult diet at day 371.[7] Interestingly, each dietary change was accompanied by changes in gut microbiota and the enrichment of corresponding genes. For example, as the infant began to receive a full adult diet, genes in the microbiome associated with vitamin biosynthesis and polysaccharide digestion became enriched.[7]

Recently studieshave revealed the importance of gut microbiota to the function of the CNS. Bidirectional communication between the brain and the gut has long been recognized. Established pathways of communication include the autonomic nervous system (ANS), the enteric nervous system (ENS), the neuroendocrine system, and the immune system. Lately, there has been a rethinking of how the CNS and periphery communicate, largely due to a growing body of experimental data from animal studies focused on the micro-biome.

Neuroscientists are now taking notice of these novel reports that highlight the 'bottom-up' influence of microbes themselves, with several studies showing that commensal bacteria are important to CNS function The idea that bacteria teeming in the gut—collectively known as the microbiome—can affect not only the gut, but also the mind drives the psychiatrist to perform various clinical studies. In just the last few years, evidence has mounted from studies in rodents that the gut microbiome can influence neural development, brain chemistry and a

wide range of behavioral phenomena, including emotional behavior, pain perception and how the stress system responds.

Research has found, for example, that altering the balance between beneficial and disease-causing bacteria in an animal's gut can alter its brain chemistry and lead it to become either bolder or more anxious. The brain can also exert a powerful influence on gut bacteria; as many studies have shown, even mild stress can tip the microbial balance in the gut, making the host more vulnerable to infectious disease and triggering a cascade of molecular reactions that feed back to the central nervous system As exciting as these investigations may be, research on how gut bacteria affect psychological well-being in humans is still in its infancy. For one, the studies have been almost entirely limited to rodents. Second, researchers have only begun to probe how such effects occur. Finally, correcting microbial imbalances to treat disease requires first defining what constitutes a healthy gut microbiome—something that scientists are still trying to understand.

Indeed, a flurry of studies[8] in the past several years indicates that the gut microbiome's importance goes beyond physical health: It is also a key player in the gut-brain connection. In one striking demonstration of the potency of the so-called "microbiome-gut-brain axis," published in 2011, scientists gave BALB/c mice, a strain of mice that are typically timid and shy, a cocktail of antibiotics, dramatically changing the composition of their gut bacteria. It was observed that their behavior completely changed and they became bold and adventurous."

The antibiotic treatment also boosted levels of brain-derived neurotrophic factor (BDNF) in the hippocampus. This neurochemical promotes neural connections and is an important factor in memory and mood. When the antibiotic regimen was stopped, the animals soon reverted to their usual, cautious selves, and their brain biochemistry also returned to normal.

In a follow-up experiment, researchers' team corralled two strains of mice born and raised in a sterile environment: timid BALB/c mice, and NIH Swiss mice, known for their courageous, exploratory behavior[8]. The researchers then colonized each group of these "germ-free" mice with bacteria from mice of the opposite strain. The result of this microbial swap was uncanny: The normally anxiety-prone BALB/c mice became much more fearless explorers, while the typically daring NIH Swiss mice suddenly grew more hesitant and shy. The results prove that at least in laboratory mice, some seemingly intrinsic characteristics are driven not solely by the animals themselves, but also by microbes inhabiting the gut. Whether the pattern holds up in humans, whose guts harbor more diverse microbial communities remains to be seen.

It doesn't necessarily take a full-scale microbial transplant to trigger behavioral change. The addition of a single bacterial strain can also change mouse behavior. In one of the earliest studies showing that adding a single bacterium can influence behavior, microbiologist Texas Tech University Health Sciences Center, and colleagues stirred a small dose of the pathogenic bacterium Campylobacter jejuni - too little to trigger an immune response - into saline solution and fed it to a group of lab mice. The results showed that two days later, mice that consumed the bacteria were more cautious about entering exposed areas of a laboratory maze—a common measure of anxiety in rodents—compared with mice in a control group.

Role of Gut Inflammation in Psychiatric Illness

Researchers identify brain inflammation by quantifying levels of inflammatory proteins, such as C-reactive protein,procalcitonin etc.. New research is showing that markers of inflammation are elevated in depressed patients. In one study, researchers found that when depressive symptoms resolved, these signs of inflammation also decreased to normal levels.[8] In another study, researchers measured C-reactive protein levels in over 1000 women for several years. They found that increases in C-reactive protein triggered the onset of depression[8]. When inflammation was triggered, depression was triggered.

Furthermore, when inflammation is created in healthy people, they develop depressive symptoms. On the flip side, anti-inflammatory treatments effectively resolve depression.[8] The treatments that lower inflammation, not reset serotonin, are the real "antidepressants."

These studies, that show that body inflammation creates brain symptoms, support the exciting concept of psychoneuroimmunology. Psychoneuroimmunology helps us understand that no one is "just born with it" when it comes to disease. We have the power to heal ourselves.

Gut- The path to our brain

The intestinal wall is our border with the outside world. Because the gut is where things from the outside (like food) are absorbed inside our bodies, the intestinal wall is designed to handle a many types of interactions with foreign matter. Considering the functions of our gut, it makes sense that most of our immune cells are located in the gut. Further, the gut is home to our microbiome, the trillions of beneficial microbes that live inside our gastrointestinal tract. When a potential threat is sensed in the gut, large, far-reaching inflammation occurs. This

inflammation can travel directly from your gut to your brain, especially through the vagus nerve.

The vagus nerve is the longest nerve stemming from the brain. This nerve is connected to several parts of the gut, including the stomach and intestines. The vagus nerve also touches other organs important for digestion, like the pancreas.

The vagus nerve is a two-way information highway that connects 200-600 million nerve cells between our intestines and brain. Many of us have felt this gut-brain link. We feel too stressed to eat or felt butterflies in our stomach.Interestingly, this perceived stress, anxiety, and nervousness isn't just in your head; it can lead to inflammation in your gut and beyond . While it's best to manage stressors to reduce stress-related symptoms, like depression, Studies have found that one of the most direct and quick ways to calm the vagus nerve is through dietary change. Just as emotions send messages to our gut, food sends messages to our brain.

Role of food in causing inflammation

There are many drivers of gut inflammation that leads to depressive symptoms. Processed foods, which often are the bedrock of the Standard American Diet (SAD), are foreign to our bodies. When we eat highly processed foods, our gut cells set off the alarm of inflammation. Further, many people are unknowingly eating inflammatory foods like gluten and dairy that cause allergenic reactions too mild for most people to notice. Sugar, artificial sweeteners, and casein proteins (found in dairy) have been shown to activate inflammation.

The SAD can also cause nutrient deficiencies, as people are filling up on bagels and granola bars instead of nutrient-rich foods. Beyond food, many people pop pills without thinking about what they do to their bodies. Often, patients come to psychiatrists like me after they've been dosed with a cocktail of 'harmless' drugs like Tylenol, statins, antibiotics, acid blockers, and birth control pills.

Consuming processed, nutrient-poor foods and pharmaceuticals can radically change the gut microbiome. Alterations in the microbiome, called dysbiosis (or "wrong living"), can lead to intestinal permeability, or leaky gut. Leaky gut fans the flames of inflammation and depression. Several studies have shown that a healthy microbiome is essential for a healthy brain. A gastroenterology research team revealed that certain types of microbial ecosystems are linked to anxiety and impaired brain function. In one study, researchers treated mice with a probiotic bacteria called *Bifidobacterium longum*. Dosing mice with probiotics reduced their anxiety-like behavior. Interestingly, they created a mouse model of anxiety by inducing inflammation, further evidence that inflammation causes depression.

Gut–brain axis and neurochemistry

Bidirectional communication between gut microbiota and components of the gut–brain axis influences normal homeostasis and may contribute to risk of disease through alterations in GI, CNS, ANS, and immune systems. A critical question facing neuroscientists is whether changes in behavior mediated by microbiota are a result of long-term changes in central signaling systems. To date, investigators have provided evidence that both neuroplasticity-related systems and neuro-transmitter systems are influenced by the gut–brain axis.

Brain-derived neurotrophic factor

Brain-derived neurotrophic factor (BDNF), a member of the neurotrophin family, influences many processes, such as the survival and differentiation of neurons, formation of functional synapses, and neuroplasticity during development and in adulthood[9]. Changes in hippocampal BDNF mRNA and protein have been noted in relation to the gut–brain axis. In infection models known to lead to alterations in the microbiota profile, reduced expression of hippocampal BDNF mRNA or protein was associated with increased anxiety-like behaviors.[10] Reversal of behavioral changes by probiotic treatment in these studies was associated with a return to control levels of BDNF expression.[10] This work is consistent with previous work linking stress to reduced hippocampal BDNF expression and restoration of normal levels following administration of antidepressants.[11]

In the case of low levels of anxiety, as observed in GF mice, the reports related to hippocampal BDNF are varied. BDNF protein levels, measured by ELISA, were reduced in the hippocampus and cortex of male GF mice compared with SPF. By contrast, an increase in BDNF mRNA specifically in the dentate gyrus of the hippocampus of female GF mice has been reported.[12] A recently released report showed that a decrease in hippocampal BDNF mRNA expression was observed only in male GF mice. In female GF mice, a qualitative increase in BDNF mRNA expression was present, suggesting that BDNF expression differences are related to sex. A limitation to a broader interpretation of these results is the mismatch between sex differences in this molecular readout and the reduced anxiety-like behavior that is observed in both male and female GF mice. Although the importance of sexual dimorphism to CNS function and behavior is evident, determining the precise roles for various sex-specific factors will require additional study.

GABAergic signaling

GABA is a major inhibitory neurotransmitter in the

CNS, and dysfunctions in GABA signaling are linked to anxiety and depression[13]. Interestingly, Lactobacillus and Bifidobacterium bacteria are capable of metabolizing glutamate to produce GABA in culture In vivo feeding of L. rhamnosus to mice, noted above to influence anxiety- and depressive-like behaviors, also altered central expression of GABA receptors in key CNS stress-related brain regions. Importantly, in these healthy mice, CNS effects on gene expression and behavioral effects may be mediated by the vagus nerve, because vagotomized mice did not show behavioral or CNS changes.[14]

Serotonergic signaling

The serotonergic system is recognized as a major biological substrate in the pathogenesis of mood disorders,[15] and pharmacological and genetic studies also provide evidences for the role of serotonergic signaling molecules in the neurobiology of anxiety[16]. Increased serotonin turn-over and altered levels of related metabolites in the striatum of GF miceand hippocampus have been reported. At the level of gene expression, increased hippocampal expression of 5-hydroxytryptamine 1A (5HT1A) receptor mRNA and 5HT2C receptor mRNA has been observed. Together, these initial studies show an association between microbiota and serotonin signaling; however, studies are needed to provide a better under-standing of how changes in serotonergic signaling, peripheral[17] and central, might influence neural function. In particular, given that microarray profiling revealed altered gene expression in a cluster of genes functionally related to synaptic long-term potentiation, there is a clear need for physiology experiments to determine the impact of micro-biota on neuro-transmission

CNS influences

Just as gut bacteria affect the brain, the brain can also exert profound influences on the gut microbiome—with feedback effects on behavior. Numerous studies, for example, have shown that psychological stress suppresses beneficial bacteria. In a study conducted in Ohio State University, and the University of Wisconsin it was found that infant monkeys whose mothers had been startled by loud noises during pregnancy had fewer *Lactobacilli and Bifidobacteria*. The results also extend to humans. In 2008, researchers of Swinburne University of Technology in Australia found that during exam week, university students' stool samples contained fewer lactobacilli than they had during the relatively untroubled first days of the semester.

In a 2011 study in mice scientists examined how stress-induced changes to the gut microbiome affect health. They reported that sharing a cage with more aggressive mice - a "social disruption" stressor - tamped down beneficial bacteria, decreased the overall diversity of the gut microbiome, and promoted the overgrowth of harmful bacteria, making animals more susceptible to infection and causing inflammation in the gut.

In a follow-up study, it was found that giving mice broad-spectrum antibiotics to suppress gut bacteria prevented stress from causing inflammation. Similarly, they found that germ-free mice also did not show stress-induced inflammation—but when the germ-free mice were colonized with a normal population of bacteria, stress again prompted gut inflammation.

"With all these experiments, it is clear that these intestinal bacteria are playing a role in stress-induced increases in inflammation.

Stress-induced changes to the microbiome may in turn affect the brain and behavior. A few studies suggest that defensive molecules the gut produced during infection, called inflammatory cytokines, disrupt brain neurochemistry and make people more vulnerable to anxiety and depression. Scientists believes that this process may help explain why more than half of people with chronic GI disorders such as Crohn's disease, ulcerative colitis and irritable bowel syndrome (IBS) are also plagued by anxiety and depression.[18-20]

Recognizing that communication between the brain and the gut is bidirectional also points toward new ways of treating both the physical symptoms of intestinal disease and the psychological disorders that are so often present. Keeping anxiety and depression under control, suggests may improve inflammation in the gut; and treating inflammation in the gut may improve mood by altering brain biochemistry.

But before clinicians can capitalize on gut bacteria to treat either physiological or psychological disorders, a great deal more research is needed. Despite intense interest in how beneficial gut bacteria might promote psychological well-being, few studies have probed such effects in human subjects. In one such study, published in 2011, researchers found that a 30-day course of probiotic bacteria (a mix of *Lactobacillus helveticus and Bifidobacteria longum*) led to decreased anxiety and depression in healthy human volunteers.[21]

In an effort to better understand how gut bacteria affect human brain activity,a gastroenterologist group of researchers have just completed a neuroimaging study examining the effects of probiotics on brain activity in healthy human volunteers. They decline to detail the study's results since it is not yet published, but says the results revealed an "observable" effect on volunteers' brain activities while they viewed either neutral or negative emotional stimuli.

A renowned group of scientists and their collaborators have set out to learn whether and how gut

bacteria influence mood and brain function in IBS patients who also have depression and anxiety. They are now enrolling patients in an exploratory study that will examine the effect of the probiotic *Bifidobacterium longum* on a variety of measures, including mood, brain function and brain biochemistry. They hope to have results by the end of this year.

The days of analyzing a patient's gut bacteria to treat her depression or anxiety are probably far away. Still, scientists following this line of research have become increasingly convinced that to fully understand our emotions and behaviors, we need to study the gut as much as the brain.[8]

Stress and microbiota

Clinically, depressive episodes are associated with dysregulation of the hypothalamic–pituitary–adrenal (HPA) axis[22] and resolution of depressive systems with normalization of the HPA axis.[23] A direct link between microbiota and HPA reactivity was established with the 2004 report that showed an exaggerated corticosterone (CORT) and adrenocorticotrophin (ACTH) response to restraint stress in germ-free (GF) mice when compared with conventionally house-specific pathogen-free (SPF) mice. GF mice have no commensal microbiota and exhibit an undeveloped immune system[24]. Theuse of mice raised in a GF environment allows investigators to assess directly the contribution of the microbiota to the development of brain and body systems. This land-mark study showing increased stress reactivity in GF mice was the catalyst for neuroscientists to consider the importance of microbiota in CNS function. Recent work has reproduced these findings, showing enhanced stress reactivity in both male and female mice to a novel environmental stressor.[17]

Over the past few years, it has become clear that gut microbiota plays a role in both the programming of the HPA axis early in life and stress reactivity over the lifespan. The stress response system is functionally immature at birth and continues to develop throughout the postnatal period, a developmental period coinciding with intestinal bacterial colonization. Studies using maternal separation in rats show that neonatal stress leads to long-term changes in the diversity and composition of gut microbiota[24,25], which may contribute to long-term alterations in stress reactivity and stress-related behavior observed in these rats. In support of this, concurrent treatment with probiotics (Lactobacillus sp.) during the early stress period has been shown to normalize basal CORT levels, which are elevated following maternal separation. An indirect role for microbiota in the stress response was recently demonstrated in an animal model of stress-induced social disruption, where it was shown that microbiota is necessary for some of the stress-induced changes in inflammation. Stress is known to increase intestinal permeability, thus affording bacteria an opportunity to translocate across the intestinal mucosa and directly access both immune cells and neuronal cells of the ENS.[26]

This is therefore a potential pathway whereby the microbiota can influence the CNS via the immune system and ENS in the presence of stress. Intriguingly, a recent study has shown that pretreating rats with probiotic Lactobacillus farciminis reduced the intestinal permeability that typically results from restraint stress and also prevented associated HPA hyper-reactivity.[27,28]

Infection and gut inflammation increase anxiety-like behavior

Exposure to a sub-pathogenic infection of C. jejuni in-creased anxiety-like behavior measured in the EPM 2 days after infection, which was notable given the absence of an immune response in the periphery[28]. Two additional studies with C. rodentium and C. jejuni showed increased anxiety-like behavior 8 h post-infection, again with no difference in plasma cytokine levels or intestinal inflammation compared with control mice.[29] These studies show that the presence of pathogenic bacteria in the GI tract, in the absence of a systemic immune response, can increase anxiety-like behavior.

In experiments that result in increased GI inflammation, there are notable increases in anxiety-like behavior.[21] Mice with Trichuris muris showed GI inflammation and related increased anxiety-like behavior when were tested in both the L/D test and step-down test. Treatment with the probiotic Bifidobacterium longum was able to normalize anxiety-like behavior in infected mice.[25] In a well-established mouse model of colitis (GI inflammatory disease), animals treated with dextran sodium sulfate (DSS) show GI inflammation and increased anxiety-like behavior; however, mice pretreated with DSS showed a reduction of anxiety-like symptoms after treatment with probiotic B. longum.[21]

Influences of inflammatory stateon behavior

The studies described above suggest that increased inflammation is associated with increased anxiety-like behavior. Of note, animal studies show that probiotic treatment can reverse inflammation-related increased anxiety-like behavior[21]. Additional animal studies with a neuroscience focus and clinical studies in psychiatric populations are needed in the area of probiotic treatment. Importantly, recent progress has resulted in the availability of tools to study microbiota in clinical populations, and we expect that this area of research will continue to expand in the immediate future.

Prevention of inflammation and depression

For many people, committing to stop eating the top

gut bombs that drive inflammation is an effective start to resolving depression. For others, it is useful to help the gut microbiome by supplementing with probiotics.

Curcumin, the active ingredient of turmeric, has been extensively researched as a superior anti-inflammatory and antidepressant. Studies have shown that curcumin is better than Prozac for depression.

Role of Probiotic

While harmful bacteria can ramp up anxiety, several studies have shown that beneficial bacteria can cause anxiety-prone mice to calm down. In a 2011 study, researchers fed one group of BALB/c mice broth laced with *Lactobacillus rhamnosus*, a microbe frequently touted for its probiotic qualities. Mice in a control group got just broth, with no microbial bonus. After 28 days, the researchers ran the mice through a battery of tests to detect signs of anxiety or depression.

Compared with mice in the control group, those fed Lactobacillus were more willing to enter exposed areas of a maze, and also less likely to give up and just start floating when subjected to a "forced-swim" test—a test that serves as a mouse analog of some aspects of human depression. The probiotic diet also blunted animals' physiological responses to the stress of the forced-swim test, causing them to produce lower levels of the stress hormone corticosterone. And in the mice fed *Lactobacillus*, some brain regions showed an increase in the number of receptors for gamma-aminobutyric acid, or GABA—a neurotransmitter that mutes neuronal activity, keeping anxiety in check.

Many researchers have wondered whether beneficial gut bacteria might temper the anxiety and depression that often accompany GI disorders such as Crohn's disease, ulcerative colitis and irritable bowel syndrome (IBS). They first infected mice with a parasite to induce chronic, low-grade gut inflammation. In addition to causing intestinal inflammation, this treatment suppressed levels of BDNF in the hippocampus and caused the mice to behave more anxiously. When mice were then treated to a 10-day course of the beneficial microbe Bifidobacterium longum, their behavior normalized, as did their BDNF levels.

How could gut bacteria influence the brain and behavior so profoundly? One way, some studies indicate, is by co-opting the immune system itself, using immune cells and the chemicals they synthesize to send messages to the brain. But as a study conducted in 1998 showed, some bacteria can induce behavioral changes even without triggering an immune response, suggesting that other channels of gut-brain communication must be at work. Other studies, have found that at least in some cases, bacteria communicate with the brain via the vagus nerve: When the vagus nerve is severed, effects of gut bacteria on brain biochemistry, stress response and behavior evaporate. Those findings not only shed light on how bacteria may influence the brain, but also fit with other work in humans that suggests that vagal stimulation can be used as a last resort for treating depression. "This opens up the idea that once we learn how the bacteria talk to the vagus, we may be able to simulate that with novel molecules – drugs without the bacteria. A study in conducted in 2011, proposed a neurochemical "delivery system" by which gut bacteria, such as probiotics, can send messages to the brain. Gut bacteria both produce and respond to the same neurochemicals—such as GABA, serotonin, norepinephrine, dopamine, acetylcholine and melatonin—that the brain uses to regulate mood and cognition. Such neurochemicals probably allow the brain to tune its behavior to the feedback it receives from the army of bacteria in the gut.

Conclusion

Significant progress has been made over the past decade in recognizing the importance of gut microbiota to brain function. Key findings show that stress influences the composition of the gut microbiota and that bidirectional communication between microbiota and the CNS influences stress reactivity. Several studies have shown that microbiota influence behavior and that immune challenges that influence anxiety- and depressive-like behaviors are associated with alterations in microbiota. Emerging work notes that alterations in microbiota modulate plasticity-related, serotonergic, and GABAergic signaling systems in the CNS.

Considering the sheer abundance of bacteria awash in the human gut, it makes sense to believe that our brain would want to keep tabs on it. Just how that communication unfolds is an open question; however, scientists are really at the beginning of trying to understand how everything links up[30]. What is clear already is that "it's a very interactive environment, much more so than ever expected when one tries to understand these things as stand-alone systems."

Thus many more case studies need to be carried out to illustrate the diverse interactions that have been shown to exist between the human psychology and their microbial inhabitants in gut. Elucidation of these interactions requires new technologies and an interdisciplinary approach. Genomics and ecology, once separate disciplines, are showing rapid convergence, and may together allow us to understand the molecular basis underlying the adaptations and interactions of the communities of life.[31]

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Psychophysiotherapy

Physiotherapeutic management of physical and psychological problems of burn patients

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Almost 11 million people a year require burn related medical attention worldwide.[1] An estimated 1,80,000 deaths every year are caused by burns, the vast majority occur in low and middle income countries. Burns are among the leading causes of disability adjusted life years (DALYs) lost in low and middle income countries. In India, over 10,00,000 people are moderately or severely burnt every year.[2]

Burn injuries are among the most devastating of all injuries and a major global public health crisis[3] with long term physical and psychosocial effects. Scar formation remains a problematic consequence of burns and may be a factor that influences psychosocial adjustment, especially in the case of facial scarring.[4] With an alteration in body appearance, burn scars often lead to disfigurement, potentially causing an altered body image, lack of effective social functioning and poor quality of life for the patient.[5] The traumatic nature of the burn accident and the painful treatment may induce psychopathological responses. Burn-related pain during surgical procedures and physical rehabilitation is also known to be associated with anxiety, and studies have shown that procedural pain associated anxiety increases as therapy progresses.[6] Predisposing factors such as grief and mourning, pain, social isolation during hospitalization and pre-burn depression have been associated with post burn depression.[7]

The most common psychological problems faced by burn injury patients are pain, anxiety, depression, post-traumatic stress disorder, concern about bodily disfigurement, social isolation and financial burden due to the prolonged duration of hospitalization and treatment required.[8] Depression and post-traumatic stress disorder (PTSD), which are prevalent in 13–23% and 13–45% of cases, respectively, have been the most common areas of research in burn patients.[9]

Causes of Psychological distress after Burn injuries

Burn injuries can be extremely upsetting and distressing for the survivor, as well as for family members because of the following distress.[10]

- Thinking about the event
- Worries about the future / loss of job
- Issues about financial insecurity
- Appearance of the injury
- Remembering the way the wounds looked both at the scene and in the hospital
- Changes in appearance because of scars and contractures
- Physical discomfort
- Pain while the wound is still healing, during dressing changes and in future
- Itching as wounds heal and scars form
- Changes in lifestyle
- Limitations in physical abilities
- Loss of independence
- Separation from family and friends while in the hospital
- Difficulty in returning to work or school
- Loss of property, residence etc.
- Interruption of daily life activities
- Stress on intimate relationships
- Challenges with sexual interests and intimacy
- Extensive medical needs and new financial burdens because of morbidity.

Underlying factors for Psychological distress

According to Orth, an underlying factor that has a strong association with depressive symptoms is low self-esteem. It is conceivable that a facial burn affects someone's physical appearance that consequently may impact one's self-esteem and associated depression.[11] J.F. Sowislo et al meta-analysis found stronger evidence for the vulnerability model stating that low self-esteem contributes to the onset and maintenance of depression compared to the scar model suggesting that depression erodes self-esteem.[12]

According to the *Vulnerability model*, people with low self-esteem are likely to have negative evaluations of the self and might seek negative feedback from others to verify their negative self-concept,[11] so they are more sensitive to rejection. In this line of reasoning, facial burns may elicit negative reactions from others that reinforces negative self-believes and affects self-esteem.The *Scar model* on the other hand suggests that low self-esteem is a consequence of depression rather than an eliciting factor. In this model, an episode of depression is thought to damage social networks and change how others perceive the individual. Both are important for one's self-esteem and consequently might leave permanent scars on one's self-esteem[11]. Pre-burn affective problems have also been found to influence post-burn depressive symptoms[13] and patients with a psychiatric history have a higher risk of post-burn psychiatric problems, including major

Table 1: Phases of Recovery with expected physical and psychosocial symptoms and suggested treatments

Phase	Expected Symptoms	Recommended Treatment
Admission	• Anxiety • Terror • Pain • Delirium, confusion • Sadness, Grief • Distressed breathing in inhalational burns	• Antianxiety medication • Analgesic medication • Normalisation of vitals • Physiotherapy positioning techniques for pain relief & prevention of contractures • Deep breathing & Relaxation exercises • Psychological support & Reassurance
Critical Care Phase	• All above • Over/ Understimulation • Impaired communication • Acute stress disorder • Sleep disturbance • Respiratory distress	• Antianxiety medication • Analgesic medication • Medication targeting acute stress • Positioning exercises • ROM exercises • Chest Physiotherapy especially for patients on ventillatory support • Psychological support • Family support
In Hospital Recuperation	• Increased pain • Anxiety • Depressive episodes • Rapid emotional shifting • Anger, rage • Grief • Reduced ROM • Contractures • Reduced functional independence	• Targetted administration of analgesics • Psychotherapy (CBT & Family Therapy) • Pharmacological treatment of anxiety & depression • Pain management • Positioning & stretching exercises • ROM exercises • Preventive splinting • Functional mobility exercises
Rehabilitation and Reintegration	• Physical – Pain, itching, stiffness, scarring, reduced function ability • Adjustment difficulties • Post traumatic stress • Anxiety/ Phobia • Depression • Social- Changing roles, body image, sexual issues	• Medication targeting Post traumatic stress disorder • Psychotherapy (CBT & Family Therapy, Social skills) • Anti-depressant medication • Stretching, Strengthening exercises • Pain management • Scar mobilization • Exercises for functional independence & ADL training to increase self confidence

depression.[14] There are many evidences supporting both the models. Moreover, both can actually cause a negative spiral i.e. depression contributing to low self-esteem which in turn causes aggravation of depressive symptoms.

Many researches have suggested that physiological recovery of burn patients is seen as a continual process divided into three stages and the psychological needs of patients are unique at each stage.

Risk factors for developing Psychological distress

- Survivor's perception about self and situation
- Low self esteem
- Maladaptive coping strategies
- Lack of family/ social support
- History of Previous anxiety/ depressive problems
- Facial injury and scarring
- Any other additional stress

Psychological distress

Pain following burn: Pain is a serious problem during the early phases and for years after wounds have closed. Pain arises both from the burns and their treatment, the latter including dressing changes, surgical operations, and physical therapy sessions. Choniere et al found ongoing pain concerns in 35% of burn survivors, at least 1 year after injury.[15] Similarly, Dauber et al.found that 52% of burn survivors who were on an average of 10 years after injury reported the presence of pain.[16] Of those with pain, almost half reported that pain interfered with their daily lives.Pain has been associated with other negative outcomes among burn patients. Patterson has demonstrated that elevated pain during hospitalization for burn injuries is associated with poorer adjustment and reduced physical functioning up to 2 years after discharge from the hospital.[17]

*Anxiety following Burns:*Anxiety is an affective response commonly reported by persons after the emotional and physical trauma of burn injury. Anxiety may be related to a burn injury in different ways such as basic threat to narcissistic integrity, fear of strangers, fear of separation, fear of loss of love and approval, fear of loss of body parts or of injury to them, fear of loss of developmentally achieved function or fear of retaliation.[18] Anxiety is often related to body image and grievance over ones new image or avoidance of reflection.

Depression following Burns: Depression is a significant problem following burn injury evoked by several causes. It is an expected response to any loss or threatened loss. All of the fears that bring anxiety also involve some degree of loss and therefore, can also bring about depressed feelings. Grief and mourning, pain, social isolation during hospitalization and premorbid depression may also have a relationship with post burn depression.[19] Depression manifests itself in many ways, such as sadness, decreased appetite, weight loss, sleep disturbances, early morning awakening, diminished psychomotor activity, low self-esteem, feeling of helplessness and hopelessness. Risk factors related to depression are pre-burn depression and female gender in combination with facial disfigurement.[9] Depression has been associated with reduced physical function and change in physical health over time among burn patients.[20] For most burn survivors, average scores on depression indices occur within the mild to moderate range. However, moderate to severe symptoms of depression have been found in 18–45% of burn survivors, years after their physical injuries have healed.[21]

*Post Traumatic Stress Disorder (PTSD) following Burns:*Stress disorders, including PTSD, are reported to occur after burn injuries in 18%–33% of cases. PTSD usually occurs 3–6 months after the burn injury or even a year or more later[22]. Risk factors related to PTSD are pre-burn depression, type and severity of baseline symptoms, anxiety related to pain, and visibility of burn injury. Neuropsychological problems are also described, mostly associated with electrical injuries.[9] Tedstone concluded that the prevalence of clinically significant levels of anxiety, intrusions and avoidance remained similar at 2 weeks and 3 months postburn. However, the prevalence of depression and Post Traumatic Stress Disorder (PTSD) increased 6 and 4 times, respectively by 3 months.[23]

Sleep disturbance: Central to both anxiety and depression is sleep disturbance. The hospital environment can be loud, and patients are awakened periodically during the night for analgesia or for checking vital signs. Patients' mood, pain, depression,

anxiety, agitation, and nightmares can all affect sleep.[24]

Grief: Patients begin the grieving process when they become more aware of the impact of the burn injuries on their lives. Family members, friends, or pets may have died in the incident and patients may have lost their personal property. In addition to these external losses, grief may also be due to loss of job, mobility, physical ability, appearance etc.[24]

Social problems following Burns: Social problems include difficulties in sexual life and social interactions. Quality of life initially seems to be lower in burn patients compared with the general population. Problems in the mental area are more troublesome than physical problems. The quality of life gradually becomes better over a period of time.

A study by Tucker found that patients with a previous psychiatric history achieved poor post-burn psychological adjustment.[25] Mediating variables such as low social and family support, emotion and avoidant coping styles, and personality traits such as neuroticism and low extraversion, negatively affect adjustment after burn injury.[9] Large family size and higher socioeconomic status were associated with better outcome.[26]

Psychological reactions in Children

According to Noronha, psychological reactions in children, adolescents and young adults can be clustered into three categories: depression, anxiety and other psychological reactions.[27] Many studies have found that of the negative psychological outcomes, depression is a common childhood psychological reaction to burn injury. The most problematic of the depressive reactions include suicidal ideation, self-rejection, aggressiveness, irritability, and withdrawal.[28] Anger, grief, and guilt can also be seen among pediatric burn patients. Anxiety can also be identified amongst such patients. Children, adolescents, and young adults who have been burned may experience body image issues, academic difficulties and sleep disturbances. Thus, burn injury has been found to impact social, educational, and occupational functioning as well as medical compliance.[29]

Effects of psychological distress on health and recovery

Psychological distress has been shown to affect the way the mind works (e.g., poor memory, short attention span) and the ways the body functions (e.g., immune system, digestion). Distress can also worsen other medical conditions (e.g., blood pressure, glucose control). Psychological distress can interfere with recovery and can make pain and itching feel even worse, reduce effort and persistence in participating in rehabilitation therapies and wound care, make communication with burn team members difficult, reduce interest and pleasure in daily activities and disrupt sleep.[10]

Treatment

Treatment of people with burn injuries includes recovery of optimal function for survivors to fully participate in society, psychologically and physically.

Burn survivors often suffer from

- Physical problems like permanent scarring, reduced range of motion, contractures, weakness and impaired functional capacity.
- Psychological and social problems, which significantly affect their ability to resume normal functions. Therefore, rehabilitation requires a prolonged, dedicated and multidisciplinary effort to optimise patient outcomes as inpatients and outpatients.

Physiotherapy Management

Role of Physiotherapy

- Early Mobilization
- Prevention of loss of mobility/Joint contractures
  - ROM exercises
  - Splinting
  - Positioning
  - Assistive devices/Orthosis
  - Postural management
- Prevention of Pulmonary complications (especially in circumferential chest burns)
  - Deep Breathing /Segmental Breathing exercises
  - Postural drainage positions
  - Chest Physiotherapy techniques
  - Incentive spirometry
  - Pep devices
  - PNF patterns for chest mobilization
- Reduction of Edema with proper positioning, compression and ROM exercises
- Promotion of functional independence

  - Transfers
  - Use of assistive devices/ Orthosis
  - Activities of daily living
  - Gait training
- Patient and Family Education
  - Importance of mobilization
  - Importance of positioning/ splinting
- Scar Management
  - Preserve ROM
  - Splinting/ Positioning
  - Prolonged stretch
  - Apply pressure to scar/ Pressure garments
- Evaluative activities of daily living and modification with assistive devices as needed.
- Conditioning program consisting of treadmill, upper-body ergometer and bike.
- Individualized strengthening programs for mononeuropathies.

Benefits of Early mobilization: It helps in improvement of pulmonary status, aides in prevention of DVT/ pulmonary embolism, promotes functional independence and promotes overall wellbeing (Pyschological impact).

Positioning & Splinting: It helps to minimize edema formation, prevent tissue destruction, maintain soft tissues in elongated state and helps in prevention of contracture and reduction of scar. Anti-contracture positioning should continue to be encouraged for many months post-injury whenever the individual is at rest (Table 2). Without the benefit of custom made splints and casting, exercise programs could be in vain. Splints prescribed are not only essential for positioning but also for stretching and lengthening the contracted scar tissue.Splints are of 3 types- primary, postural and follow up.

Stretching and Range of motion (ROM) exercises

In the early stages, post wound healing scars are extremely active and dynamic and the contractile force is at its highest. If the burn is close to or over a joint, it must be stretched to avoid loss of ROM and to prevent a postburn contracture development. Preventive and maintenance exercises and splinting programs, employed prior to the development of contractures are crucial to preserve required functional length. Passive, active and active assistive exercises helps in maintaining joint range and muscle length.

Pain management that provides pharmacological and non-pharmacological approaches should be established. Opioid agonists are the most commonly used analgesics. Non-pharmacological pain control techniques include cognitive behaviour therapy, hypnosis etc. along with Ultrasonic therapy, TENS, Relaxation and Virtual reality techniques.

Virtual Reality: Immersive virtual reality (VR) allows a user to interact with a realistic, computer-generated environment. Since attentional focus is limited and a person cannot attend to more than one stimulus at a time, virtual reality creates a realistic environment for patients to absorb themselves in during painful procedures, thus taking focus away from the discomfort.[24] It provides a intense form of cognitive distraction during brief, painful procedures. Immersive VR was first reported by Hoffman et al. as an adjunctive analgesic treatment of physical therapy pain in burn injured adults.[30] Each of the twelve patients performed 3 min of physical therapy (passive ROM exercises) with no VR and 3 min of physical therapy while in immersive VR. Notably, all patients reported significantly less pain and anxiety when distracted

Table 2: Comfortable position of joints and therapeutic position to prevent contractures

Joint	Position of comfort	Therapeutic position
Neck	Flexed	Extended: Towel roll/ Collar/ No pillows
Shoulder	Adducted/Internal rotated	Abduct 90: wedge/airplane splint
Elbow	Flexed	Extended -5
Wrist	Flexed	Extended 30-60
Hand	Clawed with MCP extension, PIP/DIP flexion, adducted thumb	MCP flexion 70/ PIP &DIP extension/ Thumb abduction
Hip	Flexed/ Internal Rotated	Extended/ neutral rotation/ Abduction
Knee	Flexed	Full extension: No pillows
Ankle	Plantarflexion/Inversion	Dorsiflexion/ Neurtral inversion/eversion, use AFO

with VR. Immersive VR can be an effective non-pharmacologic pain reduction technique for burn patients experiencing severe to excruciating pain during wound care.

Scar management

Hypertrophic scars are common following burn injury and may cause significant functional and cosmetic impairment. The longer a wound takes to heal, the greater the likelihood of hypertrophic scars developing.

Pressure therapy: Applying pressure to a burn is thought to reduce scarring by hastening scar maturation and encouraging reorientation of collagen fibres into uniform, parallel patterns as opposed to the whorled pattern seen in untreated scars. It is thought to create localised hypoxia to the scar tissue reducing blood flow to hyper-vascular scars and therefore reducing the influx of collagen and decreasing scar formation. As soon as the wounds are fully closed and able to tolerate pressure, patients are fitted with pressure garments.

Other treatment of choice for scars include silicon gel sheet, Laser therapy, Ultrasound, Cryotherapy, Elevation, ROM, positioning & splinting.

Modalities for Burn Rehabilitation: Certain modalities have been found useful in treating specific burn complications.

- ***Transcutaneous electrical nerve stimulator (TENS)*** is useful for treatment of various pain problems, especially shoulder due to prolonged or faulty positioning.
- ***Ultrasound*** can treat painful joints and facilitate better tolerance of ROM exercise. It can also been applied along with ice massage to decrease hypertrophic scar pain.
- ***Intermittent compression units*** are valuable in *reducing edema* in extremities, primarily the edematous hand.
- ***Continuous passive motion (CPM)*** machines can be used in patient who resists the exercise program from fear of pain, in children who seem to relax better with CPM and in patients following excision of heterotopic ossification.

Psychological Approach

- Drug management of anxiety, sleeplessness, acute stress and depression
- **Cognitive Behaviour therapy** (CBT) is a short-term, goal-oriented psychotherapy treatment that takes a hands-on, practical approach to problem solving. Its goal is to change patterns of thinking or behavior that are behind people's difficulties, and so change the way they feel. CBT act as a suitable intervention technique to overcome the psychological co morbidities and improve self esteem which help in rehabilitation i.e., social, occupational and emotional needs of the patient can be handled more effectively by this approach.[31] Researches have shown that Cognitive (behavioral) and pharmacological (selective serotonin reuptake inhibitors) interventions have a positive effect on depression.[9]
- **Relaxation techniques**: Drugs and various relaxation techniques can help patients to sleep. Informing patients that nightmares are common and typically subside in about a month can help allay concerns. Patients may benefit from being able to talk through the events of the incident repeatedly, allowing them to confront rather than avoid reminders of the trauma.[24]
- **Hypnosis**: Patterson studied the clinical utility of hypnosis for controlling pain during burn wound debridement and found that only hypnotized patients reported significant pain reductions relative to pretreatment baseline. So, hypnosis is a viable adjunct treatment for burn pain.[32]
- **Motor Imagery:** Guillot et al studied the effects of a 2-week Motor Imagery training program combined with conventional rehabilitation on the recovery of motor functions in hand burn patient and found that Motor Imagery may facilitate motor recovery and improve the efficacy of conventional rehabilitation programs.[33] The addition of biofeedback to the relaxation and imagery procedure can result in some

improvement over the use of relaxation and imagery alone.

- **Family therapy:** Members of the family are helped to understand how their behaviors affect one another and instructions and strategies for making changes are provided.
- **Interpersonal psychotherapy:** Feelings and responses are explored within the context of different interpersonal or social relationships and situations.
- **Group therapy:** Issues are explored within a group setting with individuals who share similar problems.
- **Brief psychological counselling** can help both depression and anxiety but drugs may also be necessary. When offering counselling, it is often helpful to provide reassurance that symptoms often diminish on their own, particularly if the patient has no premorbid history of depression or anxiety.
- **Other strategies:** Stress Management, Learning practices like deep breathing, meditation or staying "present in the moment", Coping strategies such as active problem solving.Sexual health promotion and counseling may decrease problems in sexual life,[9] Communication and Social skills training, Support groups, Peer counselling and Vocational counselling are also important part of burns rehabilitation.

Conclusion

Burn patients have to undergo various levels of adjustments along with many emotional challenges along their course of recovery. Adjustments involve a complex interplay between preburn personality traits, moderating environmental factors, severity of the injury alongwith medical care and family support. Understanding and treating both the physical and psychological distress can help in facilitating positive adaptation to the challenges of traumatic injury, painful treatment and permanent disfigurement, thus, speeding up the recovery and greater enhancement of their quality of life and wellbeing.Symptoms of psychological distress should be the subject of screening in the postburn phase and must be treated along with physical impairments.Since contact of the Physiotherapist with the burnt patient lasts for a prolonged time, right from the admission till the rehabilitation phase, that too for long hours, Physiotherapist can play a major role to address the physical as well as psychological issues of the patient.

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Psychophysiotherapy

Psycho-physical Impacts and Managements of Urinary Incontinence in Females

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Introduction

The International Continence Society defines urinary incontinence (UI) as any involuntary leakage of urine.[1 2] Incontinence is approximately six times more common in females than in males[3] and its prevalence in women is reported to be as high as 55%.[1,4] This number is an underestimate, as up to half of women fail to report urinary incontinence to their physician due to embarrassment, lack of knowledge about treatment options, or a belief that urinary incontinence is a normal inevitable part of aging.[5,6]

UI is not really a disease, but rather a symptom, as a result of either a bladder or sphincter disorder.[7] According to International Urogynecological Association (IUGA), 2010, incontinence can mainly be divided into stress, urgency and mixed incontinence.[1] Stress urinary incontinence (SUI) is voluntary loss of urine on effort, physical exertion, or on sneezing or coughing.[2] Stress incontinence occurs in 25 – 45% of females aged over 30 years.[3] It is caused by atrophy or damage to the pelvic floor muscles, ligaments or fascia. This is usually associated with childbirth and menopause.[8] Urgency Urinary Incontinence (UUI) is involuntary loss of urine accompanied by or following a sudden compelling desire to void which is difficult to defer[7] and total emptying of the bladder, known as complete incontinence may occur.[3] It occurs due to detrusor muscle over activity which may be neurogenic resulting from stroke, multiple scelerosis, spinal cord injury or spina bifida,[7] secondary to underlying pathology including urinary tract infection, sexually transmitted infections, pelvic radiation or surgical treatment or idiopathic which is poorly understood, but occurs with ageing. Urge incontinence with idiopathic cause is often referred to as overactive bladder. Mixed urinary incontinence is defined as "the involuntary urine loss accompanied by urgency and present by effort, exercise, sneeze or cough". [2,7]

Although not a life-threatening condition, it has a physical and psychological affect on the patient's health which generates feelings of anger and sadness, as well as embarrassment and depression.[7] Most complications of incontinence are psychosocial, including depression, feelings of shame, anxiety, lower perceived sense of wellbeing, loss of sleep, and increased risk of falls and fractures (due to hurrying to the bathroom).[3,9] Patients avoid social gatherings and lose self-confidence, which has a proportional impact on their social interactions, their sexual life and emotional health.[7] Apart from this, urinary incontinence is a risk factor for other physical conditions, while simultaneously being an additional financial burden (due to the cost of pads, bedding, laundry and reduced ability to work) on the patient and family.[3]

Physical and Psychosocial Incidence of Urinary Incontinence

Physical Incidences: Contact of urine with skin leads to decreased integrity and altered histological structure, along with increased humidity and changed pH which allows for the development of microbes such as Staphylococcus and Candida albicans leading to many bacterial and fungal skin infections. The increased humidity of the skin ultimately causes a mechanical damage and hence dermal erosions

thereby causing decubitus ulceration and increased risk of cellulitis.[10] Incontinence dermatitis, which is actually dermatitis caused by urinary or fecal incontinence causing severe pain and inflammation in the vagina, the perineum and the buttocks can also occur. Frequency, nocturia, urgency, as well as urge incontinence increase the risk of falls, leading to fractures and other morbidities.[11]

Psychosocial incidences: Patients suffering from incontinence may have an even higher cost in psychosocial terms than most of us can imagine. Psycho-social incidences includes stress, depression, loss of self-respect and self-confidence, embarrassment, avoid of social events, reduce personal activities, social insularity, loss of independence and financial burden.[12]

Depression and anxiety have been suggested to co-occur in incontinent persons[13] Women with UI are also more likely to report a poorer quality of life.[14] In a study, 38% of women and 32% of men reported that the female partner's incontinence impacted negatively on their relationship leading to sexual dysfunction[15] while 20% of women and 17% of men reported reduced intimacy, affection and physical proximity. Also, incontinence have been reported a factor in marriage breakdown and subsequent divorce.[16]

Incontinent women tend to give up activities such as swimming, dancing, long walks and gymnastic due to a fear that others will discover their condition.[17] Urinary incontinence acts as barrier to exercise due to leakage of urine during exercise and difficulty in finding a toilet urgently.[17] This results in a more sedentary lifestyle leading to obesity which further increases risk of developing more serious medical conditions such as type II diabetes and ischaemic heart disease[18] Worries regarding feeling wet and smelling of urine have been reported to lead to loss of concentration (19%), loss of ability to perform physical tasks (29%) and interruption of work for toilet breaks (34%) leading to occupational restrictions producing a negative impact on women's work performance and, of equal importance, their self-confidence at work.[19]

Women suffering from urinary incontinence, often feel reluctant to travel, visit new places and prefers to stay at homes due to lack of or queuing at public toilets, and lack of transports with toilet facilities.[20] Also, the need to pack protective materials such as sanitary pads, in case of urine leakage, thinking of a way to dispose of used pads and the need to change into dry clothing makes these women reluctant to travel. The quality and amount of sleep is most negatively affected in patients suffering from urgency incontinence. Waking up several times at night with the urgent need to urinate and delaying in reaching bathroom leads to either bed wetting (enuresis) or being incontinent on the way to the bathroom. Also rushing to bathrooms every time increases a risk of falling and hence fractures, especially in elderly. In addition, leakage of urine in bed during turning over or coughing and wearing protective pads during sleeping can be uncomfortable and irritating, thereby having a negative impact on the quality of sleep. This leads to sleep deprivation with negative impact on daytime functioning including reduced concentration and reduced effectiveness at work and a reduction in normal activity.[21]

Patho-Physiology of UI

Three main anatomic hypotheses have been proposed for development of SUI. These are:

1) Loss of structural support hypotheses states that any disruption /weakness in shelf formed by the supportive structures of bladder neck, urethra and intact attachments of sub-urethral fascia to the fascia of the arcus tendineus and the Levator Ani muscle results in reduced absorption of increased forces that generate during coughing and sneezing which leads to stress incontinence. Aging and childbirth injury are considered the main etiological factors for Levator Ani muscle weakness[22]
2) In hammock hypotheses , the compression of the pelvic floor muscles and fascia, which support the urethra, is decreased. Normally, intra-abdominal pressure pushes the urethra against the hammock like supportive layer, and the urethral lumen closes, which in turn does not allow urine to pass. However, in the case of an abnormal supportive layer, the lumen is not closed completely, thus resulting in urine leakage.[22,23]
3) The neural hypothesesis associated with injury to pudendal nerve which innervates the external urethral sphincter and any

damage to which (e.g., due to the recent vaginal delivery) results in SUI.[24]

4) Some risk factors that may result in the occurrence of SUI are Childbirth, Age, Obesity. Smoking, chronic cough, respiratory diseases, Pelvic surgery, Chronic constipation, and Carbonated drinks , pelvic organ prolapse, medications, fluid intake, fecal incontinence, and pelvic pain.[25]

Treatment

Treatment initially focuses on lifestyle changes and behavioural interventions, such as pelvic floor muscle exercises and bladder training. If these are ineffective, pharmacological treatments can be trialled, depending on the type of incontinence. Surgical options are available for some types of urinary incontinence, particularly stress incontinence, if conservative treatments are unsuccessful. The prognosis for people with UI depends on the type of incontinence, the severity, the underlying cause(s), any contributing factors and the individual's motivation for treatment. However, most incontinence can be substantially improved even where it cannot be "cured".

1. Physiotherapy treatment

a) *Pelvic Floor Muscle Strengthening Exercises (PFME) / Kegels Excises:* Pelvic floor muscle training to enhance continence and sexual function was pioneered by Arnorld Kegel in mid 1900s yet there is evidence prior to Kegel these exercises were introduced in UK.[26] PFME or specifically contraction of the Levator Ani (LA) muscle is one of the most effective treatments for UI. The premise of this intervention is that pelvic floor muscle contractions strengthens LA which affects urethral position, clamps the urethra closed, improves urethral closure, increases urethral pressure and improves pelvic organ support. It is hypothesized that compression of the urethra by contraction of the pelvic floor muscle will stop urine leakage if the contraction is of sufficient force and properly timed.[27,28,29] It seems reasonable that LA muscle exercise could increase the compression function of the muscle. Since the LA muscle consists of both type I (slow twitch) and type II (fast twitch) muscle fibres, specific strength training exercises can affect type II muscle fibre size through hypertrophy. Thus, strengthening type II fibres of the LA muscle could aid the urethral sphincter in maintaining continence.[30] PFMEs such as Kegel exercises are taught either by verbal instruction or manual palpation, and produce contraction of the LA against intra-abdominal pressure

b) *Electrical Stimulation:* Electro-stimulation of the pelvic floor is widely used in the management of female urinary incontinence The feeling of contracting the muscles of the pelvic floor is a useful reminder to the patient of the sensation that should be perceived, and they are encouraged to try to contract the pelvic floor muscles during treatment.[31]

- *Medium frequency stimulation / Interferential therapy (IFT)* used alone has been shown to be an effective treatment in patients with stress incontinence[32] and is a useful adjunct to pelvic floor exercise. Medium frequency currents in the region of either 4 KHz or 2 KHz are being used therapeutically in the treatment of UI.IFT produces contractions of pelvic floor muscles as a means of increasing the patients cortical awareness, thereby facilitating the ability to perform voluntary contractions. It is assumed that urethral closure is most effectively achieved at pulse duration 0.1-1.0ms. Neurons serving slow twitch muscle fibres discharge at frequencies of about 10-40 Hz per second whereas those to fast twitch fibres discharge at 30-60 per second. So a frequency sweep of 10-40 Hz for 15 minutes using a 2000 Hz carrier wave and the maximum tolerable intensity is favoured for stress incontinence.[33]
- Low frequency stimulation has been reported to be effective for stress incontinence, cure and improvement rates being reported to range from 30% to 50%, and from 6% to 90%, respectively. Electrodes for electrical stimulation are divided into

two types: external (non-implantable) and internal (implantable) Frequencies of 20–50 Hz, with a pulse duration of 1–5 ms, have been reported to be effective for urethral closure.[34]

c) **Biofeedback**
Biofeedback uses electrical or mechanical device to relay visual or auditory evidence of pelvic floor muscle tone, in order to improve awareness of PFM to improve performance of PF exercise.[35] Biofeedback can be used as an adjunct to pelvic floor muscle exercises. By providing patients with concurrent feedback on muscle tone, it is intended to improve the patient's ability to perform pelvic floor muscle exercises resulting in greater improvement in self control of incontinence.

d) General Range of Motion and Strengthening Exercises Joint mobilizations, Manual physiotherapy procedures, Soft tissue mobilization to decrease soft tissue restriction and improve range of motion and flexibility exercises[25] for hip and lumbo-pelvic region are very important to make patient able to get up from sitting / lying position and making them able to rush to washroom in time in order to control their incontinence.Strengthening exercises for bilateral lower limbs and stabilization exercises to improve strength of abdominal and/or lumbar stabilizer muscles are again very importantin treating incontinence.

1. Psychophysiotherapy treatment

a) *Bladder Retraining (Frewen,1978):* Bladder retraining is used in management of frequency, urgency without leakage and urge incontinence. It is particularly suited to women who, through years of leakage have developed habit of going to the toilet 'just in case' at every available opportunity so that should an accident occur there is little in the bladder. The patient must be mentally able to understand the instructions and willing to participate. Bladder retraining can be achieved in following steps:

1. Begin by going to toilet at specific intervals during the day, starting with a short time interval between the trips.
2. If there is an urgent need to urinate before it is time to go the toilet again, try to suppress the urge by standing or sitting still, performing the pelvic muscle exercise ("freeze and squeeze"), and thinking of the urge as a wave that is fading away.
3. When urine control improves, increase the time between toilet trips by 15 minutes up to a more normal interval.
4. *Delaying the event:* The aim is to control urge. The patient learns how to delay urination whenever there is an urge to do so.
5. *Double voiding:* This involves urinating, then waiting for a couple of minutes, then urinating again.
6. *Toilet timetable:* The person schedules bathroom at set times during the day, for example, every 2 hours. Bladder training helps the patient gradually regain control over their bladder.

b) Patient Counselling and Behavioural Training - Educating patients at all levels of organisations about urinary incontinence reduces embarrassment, aid communication and inform them about the treatments available. Behavioural Training includes teaching patients' skills and strategies for preventing incontinence and providing instructions for daily home practice. It mainly consists of identifying and actively using pelvic muscles and teaching patients how to contract and relax these muscles selectively while keeping abdominal muscles relaxed, teaching patients how to respond adaptively to the sensation of urgency (urge strategies), fine-tuning home practice, and encouraging persistence. Two main therapies under this treatment are:

- Urge suppression training: Patients are instructed to stay calm when they get an urge, to sit down or stand quietly, then asked to squeeze pelvic floor muscles quickly but not to relax completely, trying o distract themselves to other works and when the urge subsides, seeing how long they can wait before going to toilet and then slowly increasing the time.
- Prompted voiding: It should occur every 2 to 3 hours. It is successful in individuals who do not void more often than 4 times in a 12-hour period and who are continent 75% of the time. It is also effective in cognitively impaired individual but it requires a great deal of effort

on part of the caregiver

c) **Lifestyle modifications**

- Weight loss – In people who are overweight, losing weight often helps to reduce urine leakage in addition to improving other chronic medical conditions that are associated with incontinence (e.g. diabetes and hypertension).
- Fluid management – cutting back on excessive fluids intake reduces urinary leakage. Also drinking too little fluid makes urine concentrated and darker than usual which irritates bladder and increase the urgency to urinate. One recommendation is to drink small amounts of fluid at regular intervals throughout the day (rather than drinking larger amounts all at once).Also, reducing the amount of alcoholic, caffeinated, and carbonated beverages helps to decrease urinary urgency and leakage to control nocturia, drinking fluids should be stopped three to four hours before going to bed.
- Avoiding constipation & Diet Modification – Constipation can make urinary leakage worse. Constipation can be prevented by increasing the amount of fibre in diet. Diet modification including reduction of diuretics such as Caffeine and Carbonated beverage reduction and diet enriched in fibres helps in controlling incontinence to certain extent. [37]
- Scheduled voiding – Emptying bladder ("voiding") at regular intervals, rather than waiting until bladder is very full, can decrease episodes of urgency incontinence and prevent stress leakage during physical activity with a full bladder. Patients should be made to try urinating every three to four hours regularly throughout the day.

2. Medical management

Medications are generally used in combination with other techniques or exercises. Anticholinergics calm overactive bladders and help patients with urge incontinence. Topical estrogen may reinforce tissue in the urethra and vaginal areas and lessen some of the symptoms. Imipramine is tricyclic antidepressant which helps in dealing with various psychological symptoms. Medical devices including Urethral inserts (inserted before activity and taken out during urination), Pessaries (rigid ring inserted into the vagina and worn all day and helps hold the bladder up and prevent leakage), Weighted vaginal cones and urethral plugs have also proved to be effective in certain situations. Other medical treatment includes

1. Radiofrequency therapy in which tissue in the lower urinary tract is heated and after healing, they become firmer, resulting in better urinary control.
2. Injecting Botulinum toxin type A (Botox) in bladder muscle and Bulking agents into tissues around the urethra help keep the urethra closed.
3. Sacral nerve stimulator is implanted under the skin of the buttock and a wire connected from stimulator to nerve that runs from the spinal cord to the bladder. The wire emits an electrical pulse that stimulates the nerve, helping bladder control.

3. Surgical management

Surgery has proved to be effective in certain cases UI that are not responsive to pharmacological and behavioral interventions .Various surgeries include:

1) *Sling procedures:* A mesh is inserted under the neck of the bladder to help support the urethra and stop urine from leaking out.
2) *Colposuspension:* bladder neck is lifted to relieve stress incontinence.
3) *Artificial sphincter:* An artificial sphincter, or valve, may be inserted to control the flow of urine from the bladder into the urethra.
4) Other options include Urinary Catheterization and use of a wide range of Absorbent pads available in markets.

Conclusion

Incontinent women are burdened with anxieties and feelings of embarrassment and live in constant fear that others will discover their condition. Women's impaired sexual function and major depression augments their feelings of low self-confidence, low self-esteem, and increased social withdrawal and, ultimately, a reduction in quality of life. Physiotherapy for the strengthening of the pelvic floor muscles, intravaginal and/or surface electrical

stimulation and biofeedback has shown impressive results for the improvement of UI symptoms. Strengthening of the pelvic floor muscles favours a conscious and effective contraction in times of increased intra-abdominal pressure, thus preventing urinary losses. Moreover, it helps to improve the tone, urethral pressures transmissions, reinforcing the urinary continence mechanism. Although most of the psychological components are taken care of as the physical symptoms improve but all the psychiatric components must be treated appropriately. Women must be educated on the wider health implications relating to their condition and the impact it has on their lives. This can empower women to live active, normal lives and minimise the psychological distress associated with this potentially debilitating condition.

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Commentary

The Challenges of Psychotherapy in India

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Psychotherapy is a treatment that utilizes an interpersonal relationship to enable people to develop self-understanding and to make changes in their lives. It employs various psychotherapeutic modalities that are more specific and organized in their approach to treatment.[1]Psychotherapists work within a clearly contracted, principled relationship that allows individuals to obtain assistance in exploring and resolving issues of an interpersonal, intra-psychic and personal nature. Psychotherapeutic practice requires in-depth training to utilize a range of therapeutic interventions. These are differentiated from the use of counseling skills by other professionals.[2]There are several schools of psychotherapy that exist in practice with a wide population and of those, some popular ones that are a part of regular practice include Existential Psychotherapy, Cognitive Behavior Therapy (CBT), Rational Emotive Behavior Therapy (REBT) and Psychodynamic Psychotherapy.

Psychotherapy research has entered a new phase in the new century with more than 450 different forms of psychotherapy being documented. From experiential and introspective narrations, it has taken a different turn with more evidence-based research appearing in the span of period from 1959 to 2007.[3] Psychotherapy has been a vital treatment in health care since development of the great innovative and technical approaches embodied by psychoanalysis and behaviorism at the beginning of the 20th century. Contemporarily, psychotherapeutic intervention goes hand in glove with psychiatric medicines for treatment of mental health issues. This combination treatment is suggested to be an ideal mode of treatment and superior to either medication or psychotherapy alone across studies.[4]While, medical treatment helps biological adaptation and changes to cause recovery, psychotherapy helps attitudinal and behavioral adjusted learning to return to pre-morbid functionality. Sometimes, psychotherapeutic treatments based in or coupled with alternative treatments of meditation, mindfulness, breathing techniques and yoga (however, these alternative treatments are under the guidance and control of the psychotherapist, in the best interest of the client).[5]

Psychotherapy is an intricate process that is difficult to fully capture even in a work of large scope. The interplay between the science of particular strategies and the actual implementation of a given therapeutic technique is not always isomorphic. Also, how theory drives practice and ultimately the empirical basis of such practice is not always clear cut and parallel.Moreover, it is not just one modality of psychotherapy that benefits all. Psychotherapy is designed to serve the needs of a multi-faceted audience.[6] Different people find compatibilities with different psychotherapeutic work, where one therapy may work absolutely well with one client, while it may not work at all for the other. Similarly, where one type of psychotherapy may befit the context of a problem, it may require another psychotherapeutic perspective to understand and deal with another problem. Thus, a psychotherapist is ideally expected to be eclectic in his or her approach of practice, expected to be have an understanding of at least 3-4 varying modalities of practice in order to deal with an array of problems.[7]

To demonstrate with example, a psychodynamic approach may be an appropriate approach to understand sexual abuse and traumatic experiences of client; existentialism may work better with the geriatric sect; whereas, body work and / or gestalt may be a better approach to deal with the client's psychosomatic symptoms. Conclusively, the

expectation to be variously specialized in therapies, places an unapparent burden on the practitioner. With context to India, the dynamic poise of a psychotherapist is further challenges by strong attitudinal rigidity of people and severe insufficiency of supervising infrastructure.[8]

There is an observed void of infrastructure for formal training in psychotherapy in the country. Where the government and national policy makers have placed mental health programmes at national and district levels in the policy drafts, the gap of addressing the mental health issues and providing mental health services remain unabridged. India has a severe dearth of training and supervision infrastructure and this must be filled in order to bring greater competence and expertise in the field of mental health.[9]The doctor to patient ratio continues to remain poor, awareness levels are progressing at a low rate, mental health services are unaffordable for a large section of the society and government aided treatment falls short of technical and manual expertise.[10]Negligible supervision training for upcoming, novel psychologists leaves them with little proficiency before they enter the professional world of practice. The supervising task becomes more cumbersome due to multilingual nature of the patients, trainees and trainers. An added infrastructural uncertainty that the profession grapples with till date is the lack of ethical principles, code of conduct and a feeble statutory body.[11]

Reports on psychotherapy training are very meager and researchers have delineated five reasons for the neglect of psychotherapy training in India, which are observed as –

1. Psychotherapy is highly subjective and individualistic;
2. Novelty of the psychological and philosophical concepts to the trainee;
3. Impracticability of analysis of the trainee as required by some psychoanalytically oriented approaches;
4. Time required for training that extends beyond the training period; and
5. Lack of inclination among trainees.

The confluence of cultural, ûnancial, legislative and forensic issues further complicate the intricacies of psychotherapy. These are third entities that could be a spouse or loved one or intangible factors like finances or irregular schedule conflict with psychotherapeutic meetings.[12]

Cultural insensitivity or lack of socio-cultural understanding of the client and their issues pose a challenge from the first to later stages in psychotherapeutic intervention, i.e. from the stage of building rapport to deeper stages of therapy. Further in association, it is also required for a psychotherapist to gather detailed information about a client's socio-demographic details along with personal and family history to gauge a deeper understanding of the reported issues. Cultural and socio-demographic variables playan important role in determining the health and development of individuals.[13]

Beside, the process of psychotherapy is relatively long, lasting from anywhere between 8-12 or more sessions. This makes psychotherapy a detailed and long process, which many people are unwilling to undergo, taken the consideration of time factors. Additionally, the lack of 'quick results' that people expect is a missing factor. Overall, it is difficult to convince the people of the beneficial results of psychotherapy. The length of psychotherapy is faced with high dropout rates of clients, irregularity in sessions and dwindling follow up.[14]

The persistent label of stigma attached to mental health creates hindrance in establishing the faith that clients come with, for treatment. It is not only challenging to convince people for psychotherapy, but to also sustain them in the process of healing. Coming to a mental health professional remains to be the last sought measure, after seeking help from faith healers and superstitious means. Additionally, there are entrenched myths about mental health that prevail in our societies till date, because of which people still do not attribute equal importance to mental health concerns.[15]

Psychotherapeutic challenges also entail the lack of visibility and identity of the practitioners. Where the lack of representation partially stems out from an absence of a statutory body, the rest of it stems from shortage of established professionalism. An absence of uniform ethical principles also brings into question the confidentiality concerns of clients and practice of therapist. A challenge in the realm of the practitioners is also the ability to work with a diverse population that ranges from children, women, LGBT community, geriatric population, abuse victims, clinical and special population.[16]

With the diversity of population, comes diversity of problems which demands an understanding that is holistic from the view of multiple perspectives (individual, societal, cultural and historical). A therapist must be aware of the client's individual background, family, cultural boundaries, socio-culturally acceptable practices and environment in order to decide the best therapy for them. Thus, working with various populations demands a certain level of sensitivity and expertise, both, which is an underlying challenge for practitioners.

Psychotherapy is often subject to 'burnout' issues as a result of the nature of their profession. To work with negative emotions of clients and simultaneously handling own problems pushes the practitioners closer to the stress threshold. Dealing with clinical populations who are not on medication is also difficult, bleakly successful task and adds to the burnout impact. A psychotherapist is equally responsible for their own sound physical and mental health as well.Also, psychotherapy works well with clients who are relatively intelligent and are able to carry out assignment homework and tasks in the process of therapy that make therapy outcomes beneficial for the client. Therefore, there is a possible proportion of clientele that is unfit for therapy and thus cannot be exposed to the proposed benefits of psychotherapy.[17]

Of the many dilemmas that psychotherapists have been facing, one problem pertains to the Indian context in which psychotherapy is practiced. Most of all the psychotherapies are based out of theories, principles and practices of the West, which might be suitable only for those living in cosmopolitan cities of India and not for majority of the population. It was felt that the tool being used is 'alien' to the culture andthe socio-cultural milieu, at times appears contradictory to the basic tenets of psychotherapy.[18]

Differences have been reported in the history of psychotherapy in India and that of the West on four lines viz.[19]

1. It was not meant only for the sick;
2. The patient and the therapist cannot be considered equals and hence dyadic relationship is not possible;
3. The patient has to accept what the therapist considers as 'truth' and
4. Everyone is not considered fit for psychotherapeutic relationship.

Researchers have pointed out start differences among the needs of the patients too, which differ in the Indian from the West patients. Indian patients are more dependent unlike Western patients who look for integration, confidentiality and privacy. It has been opined that these terms, in Indian context do not even exist in Indian languages. In the socio-cultural context, the concepts of privacy could severe people from interdependent society of intra psychic processes and a tendency for dissociation between thinking, feeling and acting and may block the process of psychotherapy. Researchers have raised objections to the applicability of the Western type of psychotherapy in India.

Seven distinct features of the Indian population, which may not help the work of psychotherapy in the Indian context in comparison to the western populations has been delineated upon by research.[20] The seven factors comprise –

1. Dependence/interdependence
2. Lack of psychological sophistication
3. Social distance between the doctor and the patient
4. Religious belief in rebirth and fatalism
5. Guilt attributed to misdeeds in past life
6. Confidentiality
7. Personal responsibility in decision making.

Other challenges involve difficulties from the point of view of the therapy process. To begin with, the process of therapy is taxing for the therapist as it is not easy to convince the client and make them understand that mental health services are in their benefit. Talk therapy may not always make the client feel better; it is difficult to go through the transition phase and it requires an equal amount of concerted effort from the therapist to deal with maladaptive thoughts and behaviors. The healing process of therapy can sometimes be overwhelming and may not always be a very smooth one.Therapy is faced with the client's resistance, inability of expression and cathartic modulation of negative emotions. [21]

One of the other challenging aspects of conducting therapy is to finesse the balance between meeting clients where they are at and also encouraging them to grow while maintaining a healthy detachment relation. It is difficult when clients focus on others (who they cannot control) and continue to cycle in a way that is self-limiting. Another challenge faced in the practice of

maintaining professional distance, is a probable risk of developing transference and counter transference between the therapist and client.This risk cripples the effectiveness of therapy outcomes, thus care is expected to be maintained.[22]

There are several other niche factors that interfere in the psychotherapeutic process. Designing tactful homework and assignments by the therapist is one of them. Tasks to be carried out at home are part of therapy that help the client gain confidence and independence in order to return to healthy functioning and thus a responsibly designed or assigned homework can have a lot of impact on the client's growth in therapy. Consideration for time is another important that sometimes erupts as challenge for the process of therapy. A lot of clients do not realize the value of time which is a crucial aspect that psychotherapists deal with.The payment of fee is yet another aspect where there is huge discrepancy. As people and government fail to see mental health in the purview of critical issues, the emphasis laid on its understanding is less.[23]

Consequentially, people fail to recognize the value of service they obtain out of therapy sessions. Distinctly, the way private and government facilities of counseling and psychotherapy are made available to the masses is also at variance. With the disparity in payment received by private and government professionals, the quality of service also comes into question and so does the quality indices of health of the service seekers.

The psychotherapeutic set up is also fraught with the negative motivators that bring counselors to the profession. This incongruence poses threat to the ethical circumventing of the profession along with the well being of the client. The dysfunctional motivators of becoming a counselor include various aspects of the professional- dealing with emotional distress and unresolved personal traumas, vicariously coping unfulfilled desires through client's lives, seek for relations to overcome loneliness and isolation, a desire for power over impotent clients, a need for love that stems out of grandiosity and narcissistic and vicarious rebellion.[24]

Psychotherapeutic challenges must be dealt with appropriate ways in order to facilitate a smoother and more meaningful healing process. Counselors must enter the profession seeking positively motivating qualities in order to maintain the effectiveness of therapy. One must also polish their skills with time in order to match up to the rising concerns and treatment modalities, to serve best to mental health service seekers. Psychotherapists may plan sessions in advance, receive appropriate training and supervision, formalize sessions with respect to time and monetary involvements and appropriately deal with the emotional drain they face.There is a need to increase the space of awareness to bring in light the issues with shrunken localized and nationalized mental health budget, services and community support for the masses.[25]

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View Point

Approach to Scholastic Backwardness

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Introduction

Learning is a complex process for which both a child's cognitive skills and environmental stimulation are required.[1] With an increase in the awareness about the significance of education, there has also been an increase in awareness about scholastic backwardness.

Scholastic backwardness, which is defined as overall mark percentage below 35% or repeated failure in grades, is one of the commonest reasons for which a child is brought to the clinician.[2,3] Prevalence of scholastic backwardness ranges from 10% to 20% in various studies.[3-5] It may not only lead to low self-esteem and emotional issues in the child, but also can cause great distress to the parents and significant others.[4] It may also lead to underemployment in the future which implies a great loss to the individual, his family and the society. Overall it may be one of the important factors affecting the quality of life of an individual. Early identification of the causes and institution of corrective measures may help in decreasing the stress and improving the quality of life. This article reviews how to identify the factors responsible for scholastic backwardness and management of the same.

Causes of Scholastic Backwardness

Scholastic backwardness may be caused due to a child's intrinsic defects or external environmental causes.[6] These factors can be broadly divided into:[1,4]

A. Intrinsic causes:
   1. *Medical issues:*
      a) Nutritional deficiency-anemia, micronutrient deficiency
      b) Endocrine abnormalities (eg. hypothyroidism)
      c) Visual/hearing impairment
      d) Neurological causes (eg. epilepsy)
      e) Chronic medical conditions (eg. bronchial asthma, hemophilia, thalassemia)
   2. *Psychological issues:*
      a) Attention deficit hyperactivity disorder
      b) Emotional issues: depression, anxiety
      c) Psychotic disorders/ bipolar disorder
      d) Disruptive behavior disorder
   3. Intellectual factors- slow learner/ intellectual disability
   4. Other neurodevelopmental disorders
      a) Specific Learning Disorder
      b) Autism Spectrum Disorder
      c) Developmental Coordination Disorder
   5. Educational factors – language barrier

B. Extrinsic/ environmental causes:
   1. Parental factors
      a) Less family income
      b) Poor parental education
      c) Parents' occupation
      d) Early parental separation
      e) Alcohol abuse in father
      f) Domestic violence
      g) Mental illness in parents
   2. School factors
      a) Quality of teaching
      b) Unfavorable environment

Many of the above mentioned conditions may co-occur, hence for an accurate diagnosis, a thorough history and a complete physical examination is essential[4]. Ideally, the evaluation and management is best carried out by a team consisting of child

psychiatrist/pediatrician, psychologist, occupational therapist and special educator. A thorough history is a very important tool to accurate diagnosis and should be obtained both from parents and the child and also from school reports, wherever possible.

A step wise history helps a lot in reaching to the diagnosis, which can be confirmed by assessing the child and using additional tests, if necessary.

History Taking

Certain key points in history which can help in identifying the responsible factors are:

a) Birth history

Any maternal infection or significant stressors during antenatal period may hamper the normal neural development and give rise to various neuro developmental disorders like attention deficit hyperactivity disorder, specific learning disorder, autism spectrum disorder, intellectual disability.

Low birth weight and prematurity also predispose to neurodevelopmental disorders. Upto 33% of children born preterm between 32 to 35 weeks of pregnancy and upto 25% of low birth weight babies (weighing less than 2000 grams) are at risk for school problems even when not neurologically impaired.[7,8] Small for gestational age babies and those with birth weight less than 1500 grams tend to have very weak cognitive abilities.[9,10]

Delayed cry after birth or neonatal history of convulsions may suggest hypoxic insult to the brain and hamper normal brain development.Studies have shown that children having epilepsy have difficulty processing memory tasks.[11]

b) Developmental history

Major developmental milestones are motor, speech and language, social, emotional and cognitive.

Below average intelligence: A child with delay in all these milestones i.e having global developmental delay, should be further evaluated for low intelligence.[12,13] Detailed history regarding independence in activities of daily living (bathing, eating, dressing) and understanding of money and time concepts, in addition to academic difficulties, can help in differentiating children who fall in slow learners category (dull normal intelligence/ borderline intellectual functioning) from those who fall in the intellectual disability category. Slow learners are independent in their activities of daily living whereas intellectually disabled children usually require assistance for the same.[14] These children have difficulty understanding abstract concepts which leads to poor academic performance.[15,16]

Specific Learning Disorder: A delay in only speech and language milestone with all other milestones being achieved age appropriately may be indicative of specific learning disorder.[17]

Autism Spectrum Disorder: A child who has speech delay together with poor social interaction may fall under autism spectrum disorder category. Impaired social interactions, poor communication skills and restricted interests/repetitive behaviors impair learning in these children.[18,19]

Developmental Coordination Disorder: Children presenting with coordination issues in the absence of any other neurological abnormality may have developmental coordination disorder, where their motor performance is markedly lower than expected for their age and intelligence. They generally have delay in motor milestones, have frequent falls while walking and are clumsy (bump into objects, drop things). They may have difficulty in day-to-day activities like riding bicycle, differentiating left-right, telling time, tying shoelace, buttoning, putting key in lock,using scissors or holding pen properly.[1] Poor pen grip may affect their hand writing leading to poor marks in exams. Some of these children may also have difficulty in spatial organization.[1]

c) Present complaints

Specific Learning Disorder: A detailed history of 'age when academic problems' were noted and details of academic problems may help in ruling out specific learning disorder, where generally the specific errors can be recognized during elementary school years when children learn to read and write. Trouble playing games with rhyming words or confusing words with similar sounds are pointers towards specific learning disorder in preschool children.[17] These children generally present with slow and effortful reading, inaccurate reading, omission of words while reading, weak comprehension of read material, spelling and grammatical errors, illegible handwriting, poor calculation skills and weak in solving applied problems in mathematics. They show 'unexpected

academic underachievement' which means that the academic performance is markedly lower than expected for chronological age, intelligence and education.[20]

Attention Deficit Hyperactivity Disorder: Complaints of poor attention span, hyperactivity or impulsivity from parents and school/tuition teachers are suggestive of attention deficit hyperactivity disorder (ADHD). ADHD is associated with reduced study time, incompleteness in study, tutoring requirement, failures and expulsions from school.[1] Such children are at increased risk for poor school performance in view of their core symptoms.[21] ADHD children also have deficits in executive functioning, especially in working memory which is responsible for difficulty in mathematics.[22] Studies have shown that although both disruptive behaviors and cognitive deficits are responsible for academic difficulty in these children, disruptive behaviors have a greater negative impact on academics as compared to cognitive deficits.[23] When in doubt, parent and teachers' rating scales and occupational therapy observation may aid in diagnosing ADHD.

Emotional disturbance: A recent history of withdrawn behavior or increased irritability with disturbed sleep and appetite may suggest emotional disturbance. Disruptive behavior disorders (oppositional defiance disorder, conduct disorder) may also be a manifestation of underlying emotional issues. In a recent study conducted in 1456 adolescents at Aligarh, 5.42% had emotional issues and 5.56% had conduct disorder (a type of Disruptive Behavior Disorder).[24] Emotional problems may be genetically determined or environmentally mediated. Poor school performance or pressure from significant others related to academics may be one of the environmental factors leading to frustration and emotional upsets.[13,25]

Psychotic disorder: Psychotic disorders can be easily identified by the patient's impaired judgement, lack of insight and loss of contact with reality.

Chronic medical conditions: They may lead to frequent absenteeism from school and thereby impair academic performance.[26,27] Also drugs used for treatment of many of these conditions like antihistaminics for allergic rhinitis and antiepileptics, especially phenobarbitone and topiramate for epilepsy, may adversely affect cognition.[28,29] In a recent study conducted in South India, the authors found that 48% of children who were scholastically backward had a medical condition contributing to it. 26% of those children had either epilepsy, bronchial asthma or congenital heart disease and another 22% had visual, hearing or speech defects.[2]

d) Social history

Environmental stimulation is crucial for a child to develop his/her abilities and skills.[1] For a child, both the environment at his home and school are important mediators of his performance.

Role of family: Various studies have shown the impact of variables like family income, parents' occupation and parents' educational qualification on the child's school performance.[30,31] Higher the family income, the greater the chances of the child receiving good schooling and hence, better environmental stimulation and better cognitive development . Parental education and occupation also imply better environmental stimulation as high education ensures dignified occupation and thus, high family income.[32] Poor socio-economic status may also be responsible for malnutrition in the child which adversely affects his cognitive development.[33] Also, language barrier for English may be an impediment to learning for children who come from low stimulating environments and study in English medium schools or when there been a shift in the medium of instruction due to change in school.[15] As these children have difficulty comprehending 'English language', they are not able to do well in studies.

Unfavorable home environments where a child witnesses domestic violence, abuse or early parental separation, may lead to emotional disturbance in the child and thereby hamper his academic performance.[3,34,35]

In a recent study conducted in Odisha, the authors found that amongst 125 students who had scholastic backwardness, 88% had parents who were illiterate and would not contribute to academics, 41.2% had fathers who had alcohol dependence and 7.2% children faced domestic violence.[36] They also found that 8.8% children had a history of depressive and suicidal thoughts.

Role of school: Similarly, school environment also plays an important role. Good quality of teaching in kindergarten and first grade and availability of more experienced teachers leads to better cognitive stimulation.[32]Also, a positive relationship between

student and teacher and perception of the teacher as encouraging by the child boosts his/her academic performance.[37]

Assessment of the Child

a) **Physical examination**

Presence of dysmorphic features may be indicative of chromosomal defects or associated low intelligence.[15]

A thorough physical examination will help in ruling out physical causes responsible for academic difficulty like neurological issues, nutritional deficiency, thyroid problems, visual/hearing impairment etc.

b) **Interviewing the child**

This is the final step towards diagnosis. While talking to the child, a clinician can get a fair idea of his intelligence, emotional state, any evidence of ADHD or language barrier. Also his writing sample may be checked for the presence of errors suggestive of specific learning disorder.

Management

The cornerstone of management is early diagnosis of causative factors and appropriate intervention for the same. It not only prevents further decline in school performance but also results in better overall quality of life for the child and his/her parents. Children treated appropriately have better prognosis as compared to those who are left untreated.[38,39]

First and foremost, parents and significant others, including school teachers and other family members should be informed about the factors responsible for scholastic backwardness, the treatment needed and the need for adherence to treatment.

The child may then be referred to other specialists like Pediatrician, Neurologist, Ophthalmologist, Otolaryngologist or Speech therapist for effective control of medical condition or speech deficits, if needed. Management of psychological causes are as follows:

a) ADHD: Treatment of ADHD involves use of stimulant medications like methylphenidate, non-stimulant medications like atomoxetine and occupational therapy. Effective treatment of ADHD results in better school performance.[21]

b) Developmental Coordination Disorder: It may also improve with occupational therapy.

c) Emotional issues: For emotional issues and other environmental factors, child and sometimes family members need to take counselling sessions. Severe emotional disturbance may have to be treated with medications, usually Selective Serotonin Reuptake Inhibitors (SSRIs) or Tricyclic Antidepressants (TCAs). Antipsychotics and mood stabilizers need to be prescribed for psychotic disorder and bipolar disorder respectively.

Once, the clinician feels that ADHD, emotional issues or other similar factors have been corrected and would not interfere with testing, the child can be sent to a clinical psychologist for a standardized intelligence test, like Weschlers' Intelligence Scale for Children (Indian Adaptation by Mahendrika Bhatt). If the IQ scores fall in the average or higher than average range, then standard educational tests like Woodcock Johnson Tests of Achievement, Wide Range Achievement Tests or Curriculum Based Test can be used to look for deficits in areas of reading, spelling, written language and mathematics. If the child's performance on these tests is two years below his/her actual grade or chronological age, it is considered diagnostic of specific learning disorder.[17,40]

d) Specific Learning Disorder: Treatment of Specific Learning Disorder includes remediation and accommodation.[17,40] Remedial education is given by special educators according to an Individual Education Program to bridge the gap in specific learning areas such as reading, writing and mathematics. Children are taught phoeneme awareness and phonics.[41] Many children who do not reach academic proficiency with remediation alone require accommodation. Provisions like exemption from spelling mistakes, provision of extra time in exams, dropping a second language and substituting it with work experience, dropping algebra and geometry and substituting it with lower grade mathematics or work experience, are meant to help children cope up in mainstream school.[17,40]

e) Below average intelligence: For children who have lesser than average IQ, experts still favor regular mainstream schooling (Inclusive education).[4] But exposing a child to extremely difficult tasks which are beyond his/her capacity may lead to decreased interest, demotivation and distraction. It may further

cause frustration, emotional upset and stress to parents.[42] Hence, if the cognitive deficits are so strong that the child cannot cope in a regular mainstream school, option of National Institute of Open Schooling may be considered.[43] Children with severe or profound impairments may be sent to special school.

f) **Language barrier:** Children with language barrier should be referred for language enrichment or get education in their own language medium schools.[44]

Conclusion

A multi-disciplinary approach is needed for early recognition of the causes responsible for academic difficulty. Early intervention will help the child attain his maximum potential and become a healthy and productive member of the society.

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View Point

The Pain: An Anthropological Perspective

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Introduction

Anthropology of Pain...

.....various forms of pain from an anthropological point of view. First, I shall try to show the necessity and usefulness of physical pain as a voice of the Freudian "reality principle" that speaks against the excesses and consequences of the opposite "pleasure principle". Then, I shall proceed to various forms of spiritual pain, such as fears and anguish. Even there, pain and worry are not only the necessary background for relief and joy, but can be something like a last resort for escaping from the deep feelings of the void and nothingness. In the last step, I shall briefly mention shared pains and sorrows as interpersonal phenomena, which link us with others and contribute to building up relations of compassion, charity and love.

(An excerpt of Inaugural Lecture, International Psychoanalytic Association World Congress[1])

We are living human beings often experience pain and grief, at one time or other.The social events like divorce and breakups, exclusion from attractive groups, the deaths of loved ones, natural disaster … etc threaten our social relationships. Our bodies adopt trajectories of physical or bodily pain and transcribed the descriptions of these experiences in language of physical pain. Pain, in cultural context, reveals-how do people express body pain or social pain and its explicit behavior in clinic or in wards of a hospital, a community or in society? It is a universal character of all living organism- from unicellular to multi-cellular expressing pain as expression of the intrinsic neural stimulations. So pain remains an inseparable part of everyday life. Hence it is the most common and challenging part of clinical practices to manage. It is in normal physiological part of life activities: pregnancy, child birth or menstruations and any injury or diseases. The *meaning* of pain can be different to different people or any other ethnic group. Further, their perception and their response may depend upon their cultural as well as personal background.[2]

In this paper[1] an attempt has been made to explore pain, social and physical, their metaphors and its suffering *in* and *beyond* body. It also review evidences for neuro-chemical and neural overlap between social and physical pain, and has explored some of the consequences of this overlap followed by the socio-cultural aspects of pain *through* anthropological lens. It is believed that this anthropological exploration will benefit the understanding of the human pain and suffering beyond their body in their local world to our clinicians and other professionals; anesthesiologists, neurologists, psychiatrists, clinical psychologists and psychiatric social workers working particularly in tertiary level neuropsychiatry facility center.

Metaphors-Do Nerves speak them*?* *Anthropology offers explanations*

Do we express when we are in pain? Yes, we all do. What are these expressions? Let us see what do we express when we are in pain? I mention here its *language* or *phrase* of pain which most of us express. These are *metaphors* lead our lives, are not peculiar in this part of north India or broadly in

entire South-East Asian countries. These *metaphors* reflect our social pain through our body as medium to express its own stress. Lets' think an example; the *social exclusion* is experienced as painful because reactions to rejection are mediated by aspects of the physical pain system. Here we can think of recent events- how social discrimination lead to induce the social pain (see the University Students suicides among marginalized population) in our country. It begins the overlap between social and physical pain as an evolutionary development to aid social animals in responding to threats to inclusion. The evidence reviewed show that humans demonstrate convergence between two types of pain in thought, emotion, and behavior, and demonstrate, primarily through non-human animal research, that social and physical pain share common physiological mechanisms. These *metaphors* are culturally embedded in our social fabric reflecting social pain such as profound distress experienced when social ties are absent, threatened, damaged, or lost. I have discussed them in later part of this paper. This involved neural and neuro-chemical substrates in processing physical pain.[2-4] In other words, social disconnection, separation or *exclusion* or *hurts* in a real way because it is the neural mechanisms that respond to physical or mental injury. This social disconnection may be seen as absence of social relationships in either in family or kinship. I extend further its emphasizes on social institutions like marriage , kinship and family network, if these do not work well or malfunction then social disconnection finally generate a social pain. Anthropology here can inform us a deep insight into the local world of suffering. One may inferred from these studies that social pains, as mentioned earlier, generate physical pain. Therefore it is pertinent to understand social pain, its generation and maintenance mechanism leading to physical pain.

Social Pain: *Mechanism of its Management*

We are the social species, whose joy and despondent moments arise from the gratification and frustration of social belongingness needs.[6] Our motivation to maintain stable and meaningful social relationships is rooted in evolutionary history.[7] It is well evident that our ancestors might have lived in groups as it was a way for the survival mechanism defending from the predators, and it have facilitated hunting, foraging, mating, as well as childrearing[7,8] and has provided a life-sustaining source of care during illness, injury and the utter dependency of childhood.[9]

Anthropologists are well aware of this evolutionary mechanism. They may all agree that solitary individuals were ill-equipped to face the daunting challenges of their environment, the survival of our ancestors depended as much on the integrity of their social network as on the integrity of their physical body. Consequently, the evolutionarily ancient pain signal, which serves to limit damage to the body, may have been co-opted to alert humans and other social mammals to the possibility of damage to one's social relationships.[3,4] The physical pain protects animals by drawing attention to the site of physical injury and motivating them for appropriate restorative action. Similarly the social pain may signal potential estrangement from one's social network and motivate restoration of belongingness. This idea is further explored, with some of the neuro-chemical and neural systems that subserve both physical and social painin the following section.

Neuro-chemical Evidence: Does Physical and Social Pain overlap?

The morphine from poppy heads and injection of morphine can stop the pain within minutes.[10] These are opioid drugs, a class of potent painkillers, which also alleviate social pain or from the ache of social loss. Indeed, the endogenous opioid system appears to play a key role in modulating both physical pain and social affect. Morphine, whose pain-relieving effects are primarily mediated through the μ-opioid receptor subclass,[11] attenuates social separation distress in a variety of animal species.[12-15] Here one may note that if morphine is taken in low and non-sedative doses it does not affect other normal behavioral responses. In contrast, opioid receptor antagonists, which are known to aggravate physical pain, increase distress vocalizations in isolated animals[14,15] and slow the reduction in distress vocalizations typically seen when animals are reunited with their companions.[3,13,14] These findings suggest that the endogenous opioid system, a primary neuro-chemical system for regulating physical pain and also mediates social attachments.[3] Through these studies it may be postulated that the social separation causes a painful and low-opioid state which motivate

social proximity. This painful state terminates as soon as the social contact is resumed which prompts the release of endogenous opioids. Further it is also viewed that if μ-opioid receptors are eliminated through genetic engineering then it causes deficits in attachment.[16]

Neural Evidences: *Neural Substrates of Physical Pain*

The experience of physical pain can be divided into two constituent components: the sensory-discriminative and the affective-motivational.[17] Former provides information about the intensity, quality, and spatiotemporal characteristics of the pain stimulus, whereas latter is associated with the perceived unpleasantness of the stimulus, promotes focus on the pain stimulus, and provides the motivation to terminate the painful experience.[17,18] These two pain elements are sub served by different neural mechanisms.[17,19,20] Pain sensation is processed in the primary and secondary somatosensory cortices (SI and SII) and the posterior insula (PI), whereas pain affect relies on the dorsal anterior cingulate cortex (dACC) and the anterior insula (AI) (**Figure-1**). Although highly correlated, the dissociability of the two components of pain is evident in the fact that individuals with lesions to the dACC and the AI[21] can still identify the presence of pain, but finds it less bothersome and distracting. Given that social exclusion does not involve tissue damage but does require an efficient mechanism for capturing attention and motivating pain-terminating behavior, it is probable that the affective component of physical pain is more directly involved in social pain experience, although the sensory component has been shown to play a role in certain types of social pain as well.[22]

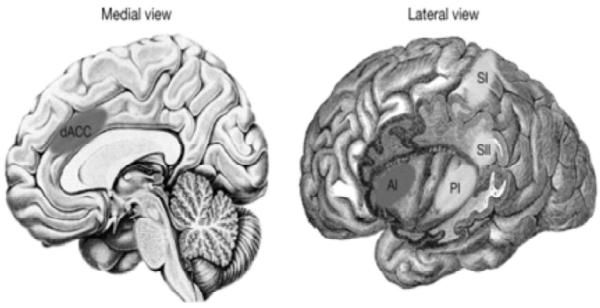

Figure-1: Cortical substrates of the affective and sensory components of pain. Regions displayed in red are hypothesized to be more strongly involved in the affective component of pain while regions displayed in yellow are hypothesized to be more strongly involved in the sensory component of pain. The medial view (on the left) shows the dorsal anterior cingulate cortex (dACC). The lateral view (on the right) shows the anterior insula (AI), posterior insula (PI), primary somatosensory cortex (SI), and secondary somatosensory cortex (SII).(Source: Treede et al., 1999)[17]

The social and physical pain overlap reveal neural evidences are related to various anatomical parts of brain. This dialectical relationship remains under the influences of external circumstances, and social situation causing physical pain.

Human Pain and Suffering *through* Anthropological lens

Helman[2] explains neuro-physiological perspective of pain as the devices for drawing attention to tissues damage or to physiological malfunctioning. It arises when a nerve ending affected so it is necessary to protect the body for survival in all possible environment. It depends upon two components-original sensation and reaction to the sensation. It is this reaction, voluntary and involuntary, which causes pain behavior[23]. Such behavior is expressed through facial expression, activities, making certain peculiar sound or words depicting their conditions or may appeal for help. Often we involuntary exhibit painful behavior and seldom we do not do. This pain behavior is grouped into two kinds of behavior: *private* and *public* pain behavior.[2]

The private pain elaborates on the behavior among some societies hidden and person who is undergoing through this pain remains unexpressed. Anglo-Saxon adults' men and warriors for "*stiff upper lips*" symbolize the ability to bear pain without a cry or without overt behavior. It further indicates sign of becoming manhood as part of initiation for the rituals marking the transition from boyhood to manhood. In another example they mention about Cheyenne Indian of Great Plains, young men who wanted to display their manhood to gain social prestige through self torture in the *Sun Dance ceremony* in which one has to be suspended from a pole by hook thorough Chest skin[23]. People neither accept nor complaint or cries about pain which are dramatic private pain behavior.[2]

In contrast, public pain behavior, voluntary aspects of the behavior influenced by the cultural, social, and psychological facts determining such pain in public pain behavior. The interpretation of such

pain behavior explained in two examples. One, the American women were asked about their body state and its dysfunctions and only a small number of women reported the dysmenorrhoea as the dysfunction. Two, abnormal pain which require the medical attention and treatment varies culture to culture.[24] In clinical setting the presentation of pain reveal different aspects.How do the people express pain in clinical or other public setting? Here, Zola[24] illuminates that degree recognition and gynecological treatment are normally influenced by socio-cultural factors of their lives. Other aspects of the public pain may depend upon the "*Body Image"*and structure and function of the body.

The Pain - *Can it be Misfortune?*

Pain may be related to misfortune among simpler societies or folk communities. Anthropologists explore such aspects of human pain in any part of the body which may be linked to a broad spectrum of *misfortune*. Misfortunes, a cultural category where people generally think about everyday events causing body pain and link such events to misfortune. They question themselves when unexpected happened –why it has happened to me only? Or why has it happened now? What have I done or do I deserve this? Such questions to the *self* often lead to attribute it as "*divine punishment*" (Helman, 2007, p-187)[2]. It can be felt as suffering and often related to divine misfortune, witchcraft etc. and need to follow the ritualistic procedures in the concerned societies. However such aspects of pain are recognized in western biomedicines, but are very common with its treatment procedures or rituals in non-western communities. In contrast western treatment of pain either used pain reliving drugs. They call it as psychosomatic pain or psychogenic pain, but they do not consider the social, psychological or moral aspects of the pain which are very common among the non-western or simpler communities. There is direct relation between social, psychological, moral and religious aspects of everyday life which influences their perception of the ill health. In our North Indian culture, there are various meaning of pain and different metaphors are used for expressing pain. Further it is briefly mentioned about these metaphors as "integrated mind-body system of Indian culture. Treatment of pain through various drugs can depend upon the healers or clinicians minimizing the pain.

People have its own language of distress, own complex idioms expressing illness and different ways of presenting to other about their suffering. Such pain presentation is often culturally determined in response to this behavior and depends upon the other factors –whether their culture values or not their emotional expression. In contrast there are some cultural groups or families displaying the presence of the pain in theatrical manner. Similarly Italian-Americans and Irish-American express the pain response as "*expressiveness* or *expansiveness*". These people tend to ignore their bodily complaints as they often say "*I ignore it like I do most thing*" which means they deliberately ignore their body pain.[24] Zola[24] enumerates different aspects of pain presentation among them and warns us as they try to deny or play down the presence of pain. Here, he further mentioned about such behavior as denial as a defense mechanism against the "*Oppressive sense of guilt*" – a common feature among rural Irish people. Further he adds about "*self fulfilling prophecy*" among Irish Americans. This behavior of pain presentation reveals the verbal aspects of pain presentation. In contrast non-verbal pain presentations in every culture are also patterned in due course of cultural advancement in the communities. They could be – immobility, screaming, groaning, or using certain pain gesture etc. are elaborately discussed in the study of bodily gestures which differ cross-culturally in societies and can be such gestures may be with facial expression and exclamation whose meaning depends upon the context in which they are being observed(*see* Le Barre *c.f.* Helman, 2007).[2]

This verbal or non-verbal pain behavior standardized in a culture and imitated seldom for seeking attention or to gain sympathy by revealing public pain without any underlying causes. Such conditions may be attributed to hypochondriac, malingerer, etc. *Munchaunsen's Syndrome,* mimic real pain behavior and often undergo surgical procedures or investigations. It may be the masks of psychological state-anxiety state, depression or emotional conflict as it occur in *Somatization.* In such cases the primary symptoms as being complaint as latter may not be such but rather they can be weakness, breathlessness, sweating or pain in

particular areas of the body. These symptoms are common in low income countries in West(Helman, 2007, p-190).[2] However similar cases have been seen in higher socio-economic groups of people in different cultures. In Taiwan, people do not display their emotional distress, but it is expressed as physical or somatic language of pain. Arthur Kleinman[25] had studied them in 1980 and remarked that Chinese cultures define the somatic complaints as primary complaints, even if it is physiological. Further he explained the records of the OPD of a hospital in Taiwan where about 70 percent patients visit OPD for physical symptoms (Helman, 2007, pp-190-191)[2]. Besides he informs further in Chinese or in other cultures, people do complain of pain every where in their body, which he calls a kind of somatisation with no physical cause and adds that they are common in all other cultures of societies irrespective of the their socio-economic positions. Patterns of cultures can influence the somatisation and the doctor who is well trained in systems of physical examination will definitely look for the physical symptoms of ill health and other colleagues who may be interested in psychodynamics or other social processes of the patients. It is also interesting to explore that how one may feels pain or how one describes or express it vary from person to person. Often it is described in one's local language and the belief it hold about their own body. I often see in our Neurology OPD, patients present symptoms of headache on different location in head and a clinical examination may be different to co-relate with their presentation of symptoms. Seldom patients do not know equivalent language to the medical terms i.e. migraine! Whenever such pain presentation come across then clinician tries to rule out the psycho-somatic pain, then further question like: does it travel in left arm from head? Or does it occur when you climb stairs? Or does it happen like light banding at the chest? Such questions generally clinicians ask the patients to ascertain the real cause of pain.

Pain Behaviour: ***its Socio-cultural aspects***

The socio-cultural aspects of pain, one can see as relationship of body, duration, its nature determining relationship and how does it is expressed to people in society. Pain, as social relationship with society can be examined in three aspects of human growth and development: child rearing practices; pain in birth rituals; pain in religious healing; and pain in rites of passages and pain Politics (Helman, 2007, pp-191-195).[2] It is very important to know that expectations of pain behavior. Why do people express certain pain behavior? Whether is it learned during child hood or in infancy? Here Engel[26] throw some light on the pain and its play on the psychological development and growth during one's growth and different kinds of pain depend on context in which they are experienced- *Pain prone patients* or *psychogenic pain*. These forms of pain are complaining for one or other reasons as a means self-denial, self depreciation, etc.; all may be attributed as self-inflicted punishments related to feeling of guilt.

Child rearing practices normally shape the attitudes of parent's expectation of pain in later life. Zborowski[27] found among the American parents that the cultural values, ethnic background, parent's substitutes, peer groups, and siblings all together contribute to child rearing practices. He further explains about American families of some ethnic and religious groups where the parents are "*over protective*" and "*over concerned*" for their children for health and their participatory activities. Most of them are over instruct their children. But he adds further that American protestants who remains less over protective and often child is told "*not to run*" for everything to mother and also told about pain in sports / games which one need not to react in the emotional ways. In contrast Old American families normally do not express much about their pain to a health professional. Moreover they believe over aggravating their pain is useless and do not help anybody. In the clinical setting a patient opinioned- I like to avoid a nuisance like a good American. Otherwise, if it is presented in an over aggravated then clinician or other health staff will think in about us as we do have less/lower threshold for the pain or may identified as neurotic or hypo-chondriac. This study concludes two main observations-one, different ethnic groups do not express the same pain behavior as compared to other population groups; two, the reaction to pain behavior may serve different purposes in other cultures.

Pain behavior in child birth also varies for communities or societies. Normally child birth is a welcome sign of joy and celebration of new arrival

to the folk women. van Hollen[27] studied in south Indian villages in Tamil Nadu for child birth in government hospital where women frequently do ask for oxytocin injection for enhancing the labour pain. This enhancement in pain is assumed as indicator of *"shakti"* of women who are to deliver baby soon, and in contrast, in the western hospital women prefer to take analgesic drugs to reduce this pain.

Pain in rituals or religious healing is very common in all cultures of the society. As already discussed about private pain or public pain behavior, the cultural rituals are performed for healing the bodily pain. In public pain ceremonies, mainly religious, for healing among communities of Africans and Latin Americans and rural areas of western countries such healing pattern are very common as religious rituals for personal and religious transformations. A Welsh spiritualist Church where women are encouraged to share their painful symptoms with others, and to "*possessed*" by the pain of an ill member, so it help in lessening her pain by sharing among themselves. Similarly a healer in Catholic Charismatic Renewal movement in USA, a charismatic healing, healer embodies the pain of suffers which is in parts of the diagnosis as well as of healing. Further among Episcopalians do think about pain as God given so God becomes closer to such people who feel pain. People of eastern meditation group think pain as the message to individual body. Those who perform the *yoga*, body *ashans* in traditional India, expressed pain as the body language where something has gone wrong within body and being messaged to person(Helman, 2007, pp.191-192).[2]

There are other aspects of ritualistic pain which are self generated-self-flagellation or mortifying the flesh-and very common among the religious. These symbolize the way to commemorating the spiritual deities. Self-flagellation practices were very common among Christian monastic orders and religious movements-flagellants. Some Christian communities still practices: in Philippines there is Holy Week when the practice of self flagellation to remember the Jesus Christ, while in some others it is Good Friday; the ritual of pentencia-some person nailed themselves on the cross just to commorate Christ's own crusification. Some of these practices are not approved by catholic Christian. Similarly self-flagellation practices are common on the occasion of *Moharram* in some sect of Islam wherein they commemorate of martyrdom of Imman Hussain at the Battle of Karbala. During tenth day of public procession of *Moharram,* people flaying the upper back with chain carrying small knives and leave several scars on the back of the people. Similarly in Sri Lanka there is annual festival - *Katargama Esla,* where Hindu Buddhist worshippers' fire-walk on red hot ember or suspend their bodies from the rope with hook embedded in their skin. Such self flagellation in Sri-Lanka is done for fulfilling the promises made to their God-*Si Skanda (*Helman, 2007, p.193).[2]

Pains in rites *de passage*, rituals in one's life, such aspects of pain are the public expression of pain. These are the part of the rituals performed at different age of the growing person to mark the social identities- for example male and female children circumcision or painful initiation of rituals *of* being warriors. In some of the traditional societies there are healing rituals performed by their community healers. As Hsu (*c.f.* Helman, 2007,p.193)[2]has clearly mentioned about their social function in the community. She has explained the relevance of these rituals for the acute pain. She says that there are two aspects of their function- biological function for survival and social togetherness. In case of former it breaks the barrier between people and enhances the potential for social relationship. In her words, sensory experiences of acute pain are essential for the community building. Further she explains Chinese acupuncture example. In this she says healing through the needling is main therapeutic process-where healers and the patients become socially connected which may be therapeutic in unspecific ways. This process is not well recognized modern medicine. These examples explained the acute pain and their management and their social function in public life. It is a pathway to the religious rituals may lead to greater self knowledge, absolution or making a new social identity (*Ibid,* p-193).

There is a politics in pain expressed in public or private life or it may be used as tool for torture. When it is so for political gain, regime of torture turns as the public pain exhibiting the power of State forces. There is UN *Convention against Torture (1995)* wherein torture of any kind to a person is prohibited. This Convention curbs it in all manners,

but it has been in the history of mankind it continues. It is practices openly among people-political powers groups, religious sects etc. It can go to any sexual humiliation, social isolation and other kinds of psychological suffering to any person. There are well planned reasons for torture which often linked to political roles which make these as visible.[28]

Chronic Pain (CP): *Why should the Anthropologists study it?*

Chronic pain (CP) is the private pain disorder and often invisible, it only seen when bruise, bandage, scar, plaster cast etc. remains to *"other"* — family friends that how has began and it remains continuous suffering and distress[29]. A special volume edited to cover different aspects of chronic pain in neuro-psychiatry which cover six well drafted articles dealing with different aspects of chronic pain: overview, measurement and assessment of chronic pain, chronic pain and abnormal illness behavior and follow up of chronic pain patients are well discussed.[30] Ware and Kleinman[31] elaborated studies on depression explained that depression, anxiety and other family serious conditions often accelerate the chronic pain. Further there is an increase in life expectancy which may leads to increase in the incidence of chronic pain or similar chronic diseases like arthritis or degenerative disorders, all such conditions holistically will pose new challenge for the health professional (Helman, 2007, p-195).[2]

Good, Brodwin and Kleinman[32] have discussed its anthropological needs. They enumerated reasons - effect of environmental hazards, powers structures at work place, crisis in disabilities, and the relations to welfare programme, negatives consequences of medicalisation and its relations to political economic market systems for pain related products, pain professional and pain institutions or clinics (p. 7). Further added economic changes or transformations in political economic potential or further investigation (*see c.f.* Helman, 2007)[2] and emotional embodied experiences.[33,34] They studied stress as embodiment structures in cultural category and its relationship with body, meaning and institution. Some psychological and medical anthropologists expressed the need to examine pain in the local cultural category. Human conditions, variety of meanings, sources and consequences of human suffering must all be looked together as part of an anthropological study of chronic pain.[35,36] These anthropologists are frustrated with the *"business as usual"* which means their examination of CP and its suffering as the sum of experience of clinicians in the local cultural categories. Most of the medical or psychological anthropologists have written about chronic pain as a human condition of suffering where one analyze the cultural aspects-its meaning to friends and family members and to patients itself. In this sense study of chronic pain in anthropology explore-its source, variety of meanings and consequences of suffering.[33,37,38] Chronic pain experience and its resistance of suffer lead to biomedical treatment and psychological care. Can the Chronic pain in body be mapped? Here its mapping must be recorded because the body is both *Source* as well as *Site* of this pain. This part of chronic pain is very poorly recorded as narratives in any anthropological research study.

Can Anthropology speak for this pain? Yes, it can. The interpersonal experiences of person in pain must be recorded and must be placed in centre of analysis for chronic pain. This analysis will inscribe all history of cultural meaning and conflict social relations which all should be the subject of analysis for the anthropology. This needs to be analyzed and recorded as experience when one is in pain.

Anthropology must explore *four* aspects of chronic pain: *First*,how can anthropology adequately represent the experiences and situate chronic pain in the main analysis? *Second*, anthropology must reveal the relationship between chronic pain experiences and narratives as told by patients or suffers, infers the nature of pain experiences for the stories told by stories and narratives those who are in the pain. Kleinman felt that how narratives of experiences have turned to humanities for re-interpretations of illness and its narratives.[36,39,40] *Third*, anthropology can reveal the chronic pain embedded in broad ways between body and society? Besides how can the anthropology can illuminates phenomenologies of Chronic pain experiences? This the third area where anthropology needs to explore critical phenomenology of chronic pain experiences which a body goes through in the society. In this sense body generate experience in response to social realities of the local world and its relationships to a wider society. Hence the studies of CP require a

critical phemenonmeology for better understanding the resonance among *Body- Local social world-society*. *Last*, medical anthropology must illuminate the experiences of chronic pain in local world and then its relationship to a wider and complex society. Anthropology has not yet begun this exploration. Precisely, the chronic pain is an important health problem and its medical treatment remains costly affair- drugs, surgical procedures, pharmacology and other diagnostics in modern medicine.[33] A Biomedical researcher sees pain as the change in the "*material*". This material can be, pre-dominantly, sensory receptors, afferent neural relays and higher cortical modulating the pain. This is reductionist approach to analyze the prevailing paradigm-molecular or physiological investigations. In this approach the investigation are reduced to biological approach or malfunctioned organs or tissues. Pain then correlated to this investigation. Furthermore tissue pathology, if any seen, can be attributed to it and considered more valid than electrophysiological pathology. But such investigations to the malfunctioning of body or pain then neurobiological co-relationship and socio-psychological processes have been long gaps which do not reveal the felt experience of the patients (*Ibid*, p. 9).

These perspectives from biomedical or biological approach, reductionism often have failed to illuminate its continuity and its disability. Chronic illness in this way is a *"natural course"* which reveal plan of development where as the *"disease"* is an element, a natural phenomenon. Similarly disability is an impairment which results from "natural course" of this disorder. Further disability has been studied well as administrative and political category whose meaning, interpretation depends upon the context wherein it is used (*Ibid* pp 9-10). Individual who have same pathology may have different disability because of pain which means differently in live of patients. Moreover there may be similarities in pain and disabilities sites even their course of experiences, meaning, their relationship within family, friends, healthcare institutions and resources available to cure pain would be different to different patients.

Kleinman[36] has studied human suffering in the local world of patients in Twain and China. He linked various dimensions- social inequality, oppression, and extraordinary and political events occurred during the Cultural Revolution in China. He claimed in his work *"Social Origin of Distress and Diseases: Depression, Neurasthenia and Pain in Modern China (1986)"* on different patients and communities in contemporary North America (p-199). He mentioned about people expressing symptoms of body pain, fatigue, weakness which are attributed as *neurasthenia*, a different category in Chinese folk medicine during the Cultural Revolution in China. He finally concludes his research in this work as: the body mediating mechanism to social and political forces and their interpretations with reference to body structures and functions. He felt the needs to study the *macro-social* processes affecting the human body in cross-cultural ways. The different cross-cultural ways must be analyzed for better understanding the experiences of human body phenomenology. Further, expressing the need to explore the construction of "*self"* in the local world-how it is build up created in the local world has shaped it.

He elaborately explained the pain as human experience of suffering, but its nature of suffering varies. He traces it since World war-II and account for the day to day events which had occurred and have caused brutality. Further he observed soldiers fought war, their accounts of suffering- bounded bodies, fear etc likely to death. Such suffering is also a pain, generated through human actions. Similarly pain in other form have been well reported for the survivors, systematic murder in Ngor[41] explains experiences of Cambodian genocides; Nein Cheng[42] write about the China Cultural Revolution; Veena Das[43] had written about Bhopal Gas Disaster where thousand people fall victims and she account for the anti- Sikh Riots in 1984. Such descriptions are available in literature describing human suffering. Most of them are man-made disaster, systematic discrimination, poverty, etc. and therefore the human suffering is endless mentions Kleinman.[33]

In this paper pain has been reviewed as suffering of body and mind in anthropological perspective mainly concerns social and physical aspects, neural overlap, neural substrate, misfortune and metaphors of pain. A multidisciplinary team of professionals concern to minimize pain either in body or in mind in the neuropsychiatric hospital. Besides other team professionals, epidemiologists and medical anthropologists also focus on the wider

context of socio-cultural aspects of neuropsychiatric diseases by designing and planning preventive measures for such diseases. The ethnographic work in medical anthropology illuminates human suffering-social pain in everyday life and informs different aspects of pain embedded in our social fabric[44-51]. Besides political and economic power modulate and shape local world of suffering where bodies' remains in social pain mediated to physical pain which is the big challenge to modern medicine. Medical anthropology can contribute in understanding the pain as a reality through its research methods-*clinical ethnography* — in wards, pre and post operative surgeries of the patients and in society. It can open up new avenues of generating knowledge about neuropsychiatric diseases in holistic manner for research, teaching and training the young professionals not only for treatment but also for healing beyond medicine.

Notes:

1. This paper is revised after a talk on *Pain-Some Cultural Aspects* delivered to General Physicians, East Delhi Branch of the Indian Medical Association during celebration of the Brain Awareness Week (BAW), 12-19, March 2014. Institute celebrates BAW every year to mark 12th March-International Brain Day and to create awareness about its diseases and treatment among common people. I wish to express my gratitude to Prof NG Desai, Director and regards to my colleague, now Professor of Neuroanesthesiology, Dr Mukul K Jain, then Chief Coordinator, BAW-2014 who provided this opportunity for interactions with east Delhi physicians. I extend my gratitude to Prof. Ashok Kumar Saxsena, Head, Deptt. of Anesthesiology, GTB Hospital, Dilshad Garden, Delhi for his discussion on pain management clinic in OPD and other physicians who raised various issues and question on pain pleasure, ritualistic pain in cultural practices etc.
2. *Social exclusion* and *social inclusion* are a category culturally constructed and officially recognized. In term of *exclusion* social pain we can think of recent events e.g. in south India forced famous suicide of Rohit Vemeulla, a *dalit* research scholar in Central University of Hyderabad, murder of Gauri Lankesh, an eminent journalist and intellectual writer; Cow meat eaters, Muslims, in north India etc. Here just think *how* social discrimination lead to social pain!
3. Here I wish to mention about a Pain Management Clinic (PMC) in our OPD. I recall that once Department of Neuro-anesthesiology proposed this clinic in the Institute. It was initially suggested that it may have different professionals from Neurosurgery, Neurology, Psychiatry, Clinical Psychology, Medical anthropology and Psychiatric social work. This clinic sees pain *beyond* body in a holistic way and suggests appropriate measures from clinic to home. Now it works in afternoon OPD twice a week in the Institute.

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Drug Review

Homotaurine

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Introduction

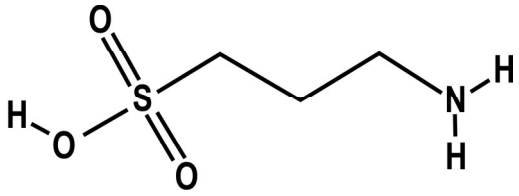
Homotaurine is a chemically produced synthetic analogue of the naturally occurring compound that is found in the red and green algae species Grateloupialivida, Chondrus ocellatus, Rhododymenia-intricate, Ascrosorium uncinatum and clado-phora densa. It is an aminosulfonate compound to counteract the Aβ fibrillogenesis.[1]

Mechanism of action

Homotaurine, a small amino sulfonate compound naturally found in seaweeds. It is a glycosaminoglycan (GAG) mimetic designed to interfere with the actions of Aβ early in the cascade of amyloidogenic events.[2] Besides the anti-amyloid action, homotaurine is also a close structural analogue of natural gamma aminobutyric acid (GABA) and has direct effects also on neuronal activity as a modulator of excitatory neurotransmission, due to its binding affinity for $GABA_A$ receptors (GABARs). Homotaurine inhibits β amyloid mediated apoptosis and also inhibits basal stress induced cellular mortality by activation of $GABA_A$ receptors. Homotaurine reduces brain and plasma levels of Aβ, prevents fibril formation and exerts cytoprotective effects in the brain.

Chemical Structure and Pharmacokinetics

Homotaurine is a homolog of the amino acid taurine (2–aminoethanesulfonic acid) with a difference of an additional carbon atom between the two terminal functional groups in the molecule. The chemical name is 3-Amino-1-propanesulfonic acid with molecular weight of 139.169g/mol (Fig 1). It is administered by oral route and maximum plasma concentration (C_{max}) are usually attained between 4.5 hours and 6 hours after dosing. Elimination half



life is estimated to be 1.86 to 25 hours. Increase in systemic exposure is dose dependent for homotaurine. It has been also detected in CSF indicating its ability to cross blood brain barrier.[3]

Indications

Homotaurine is found to have neuroprotective effects and confers protective effects on cognition and executive function in healthy adults. It is also effective in individuals suffering with excessive sleepiness.[4] Homotaurine has been shown to reverse Aβ-induced inhibition of long term potentiation (LTP).[5] It protects against ischemic stroke by disrupting the interaction between PSD95 and nNOS and inhibition of nNOS translocation.[1, 5,6]

Clinical trials

Homotaurine has been studied and reported as a promising agent in effective neuroprotection in a number of clinical trials.In a Phase III clinical trial by Caltagirone et al, homotaurine in Alzheimer's disease did not show efficacy in its primary end points but showed significant effects on secondary endpoints including a reduction in hippocampal volume loss and lower decline in memory function suggesting disease modifying effects.[5]

In a multi-centric, double blind placebo controlled study, the Alphase study, effect of homotaurine 100 mg and 150 mg per day was compared with placebo in patients with mild to moderate Alzheimer disease in a phase III clinical study over

a 78 week period. It was found that there were statistical trends in favour of homotaurine on six ADAS-cog subscales.[7]

Another randomized, double-blind, placebo-controlled parallel-arm multi-center study reported that APOE4/4 homozygotes receiving 150 mg BID of homotaurine had statistically significant effects on ADAS-cog and positive trends on CDR-SB while APOE4 heterozygotes showed intermediate efficacy, and non-carriers showed no benefit.[8]

There are no trials or studies found at present where comparison of homotaurine with other neuroprotective drugs is reported. But considering it to be a synthetic analogue of natural compound, it is expected to have better safety and tolerability profile when used with other known and commonly used drugs indicated for Alzheimer's Disease.

Dosage

Homotaurine is advised to be taken orally as one to two tablets per day containing 50 mg. At higher dosage people may experience nausea, vomiting, weight loss and dizziness or fainting.

Side effects

It has a satisfactory safety and tolerability profile. It is not associated with any safety issue related to vital signs, ECG, blood chemistries, liver function tests, lipid profile, urinalysis, C reactive protein. Most common adverse events are nausea, vomiting and gastrointestinal irritation in a dose dependent manner. GI events are usually transient in nature.[9]

Special Concerns

This drug should not be used in those who are pregnant or are planning for pregnancy. It should be avoided in those who are breast feeding.

It is not recommended for children and adolescents less than 18 years.

Contraindications

It is not advisable to use this drug in patients with stomach ulcer or low blood pressure.

Conclusion

Homotaurine is a chemically produced synthetic compound of naturally occurring sea weeds. It acts as a neuroprotective agent by preventing Aβ fibrillation and even affects executive functions. Trials with homotaurine have shown promising effect on patient with cognitive impairment like Alzheimer's disease but this is still under investigation and warrants more randomized large sample studies to validate its efficacy.

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Forensic Psychiatry

Euthanasia : An Indian perspective

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Introduction

In our society, the palliative care and quality of life issues in patients with terminal illnesses like advanced cancer and AIDS have become an important concern for clinicians. Parallel to this concern has arisen another controversial issue-euthanasia or "mercy–killing" of terminally ill patients. When a person ends his life by his own act it is called "suicide" but to end life of a person by others though on the request of the deceased, is called "euthanasia" or "mercy killing".

Definition

Euthanasia is defined as the act, undertaken only by a physician, that intentionally ends the life of a person at his or her request.[1] The term Euthanasia comes from two Ancient Greek words: 'Eu' means 'Good', and 'thantos' means 'death', so Euthanasia means good death. Though the purpose of suicide and euthanasia is self-destruction but there is clear difference between the two. In physician-assisted suicide (PAS), a person self-administers a lethal substance prescribed by a physician. Euthanasia may be classified in different categories like active and passive euthanasia, voluntary, involuntary and non-voluntary euthanasia. Active euthanasia is where a person directly and deliberately causes the patient's death while a passive euthanasia is usually defined as withdrawing medical treatment which is needed for keeping the person alive like a ventilator. Involuntary euthanasia refers to a situation in which a person possesses the capacity but has not provided consent, and non-voluntary euthanasia, to a situation in which a person is unable to provide consent for reasons such as severe dementia or coma and voluntary euthanasia is the one which performed with the patient's consent.

Legal status

Right to life and that too with dignity is a basic human right and this includes to die with dignity in its natural course but should not be mixed with right to die an unnatural death curtailing the natural course. These apart the opinion of sociologists regarding euthanasia, its legal position in India in view of the Constitution of India, Indian Penal Code and other laws in vogue, so also the position of different countries of the world are varied. The Northern Territory of Australia became the first country to legalize euthanasia by passing the Rights of the Terminally Ill Act, 1996. To date, the Netherlands, Belgium,Colombia, Luxembourg, Canada have legalized euthanasia. In the United States, the states of Oregon and Washington legalized PAS in 1997 and 1999 respectively, but euthanasia remains illegal.[2]

India had been and still is in dilemma over euthanasia for it to be or not to be. Aruna Shanbaug case with the tragic incident and its heart breaking consequences can make any person sit and ponder over the need for a person to have the right to die with dignity. And this led to release of a reforming judgment by Supreme Court in 2011 in Aruna Ramchandra Shanbaug v. Union of India where passive euthanasia was allowed but court also advised caution and to put certain rules and regulations in place to prevent its abuse.[6]

Where there are few who have legalized there are many who have voted against. France, Scotland, England, South Australia, and New Hampshire have opted to improve palliative care services and to educate health professionals and the public in preference over euthanasia.[5]

The United Nations has found that the euthanasia is in violation of its Universal Declaration of Human Rights because of the risk it poses to the rights of safety and integrity for every person's life. In all jurisdictions, laws and safeguards are put in place to prevent abuse and misuse of these practices but even UN has voiced concerns that system may fail to detect or prevent unwanted situations and circumvent the safeguards that are in place.

Prevention measures have included, among others, explicit consent by the person requesting euthanasia, mandatory reporting of all cases, administration only by physicians (with the exception of Switzerland), and consultation by a second physician. Statistics estimated the number of deaths by euthanasia in Flanders was 1.8% in 2007[3] and in Holland 1.7% in 2005.[4] These are predicted to be reduced rates as compared to before but a possible cause may be that as many as half of these cases are not reported.[7]

Community Perception

What does community think about euthanasia? Are they in favour or are against? What about the medical professionals who are actually the centre stage of this process. One of the major dilemma probably every physician faces is that it contrast with their oath to not to harm. A recent study in Karachi by Kumar et al in 456 students from medical and non medical institutions were evaluated about students' knowledge and understanding of euthanasia. The majority of medical students (84.5%) felt that cardiopulmonary resuscitation (CPR) must always be provided. Furthermore, medical students (57.6%) were more in favor of continuing maximum medical treatment including CPR than non-medical students indicating a difference of perception among the medical and non medical students.[8] A study done in the Chinese University of Hong Kong reported that attitudes of medical students towards end-of-life decisions changed during medical training where those in senior years had more acceptability towards withdrawing life support but less for administering a fatal dose of drugs to patients.[9] In another multinational study attitude towards end of life care (EOLC) among health care providers reported that about 62.4% felt that cardiopulmonary resuscitation should be done selectively, 22.9% have atleast been once contacted to hasten death, and 33% felt that training was insufficient to prepare them for skills in issues of EOLC.[10] In a community based study in 677 New Zealanders' to evaluate attitude towards physician assisted dying it was found that about 82% approved of legalization. This study highlighted the high value respondents placed on patient's autonomy with regards to end-of-life choices; however it should not be considered as a 'right' that should be available to all but only to certain special groups.[11] Attitude regarding end of life not only varied among population but also with the type of illness one suffered from. Levin et al studied attitude with between groups experimental design in three illness type i.e. cancer, schizophrenia, depression and two groups of patient-initiated or family-initiated euthanasia type. It was suggested that attitudes toward euthanasia were more positive for patients with a physical illness than a mental illness and approval was greater for patient-, than, family-, initiated euthanasia in those with cancer or depression.[12]

For and Against

The battle continues where euthanasia struggles under its benefits and the fear of it being misused. Those who protest against its legalization put forward reasons like that right to life is a basic constitution right and it's the duty of state to protect the people from being taken away this basic right. Also for doctors who undergo Hippocratic oath euthanasia is seen as immoral and failing in their duty of protecting the patient. It was even voiced by Indian Court that the low ethical levels existing in our society and the rampant commercialization and corruption the possibility that unscrupulous persons with the help of some unscrupulous doctors may fabricate material to show that it is a terminal case with no chance of recovery and can misuse if euthanasia is legalized.[6] There are some who can due to their malicious intent to benefit monetarily from the death of the concerned person can also use this as an easy approach to their goal. Earlier diseases outcome was discussed in terms of 'CURE' but today diseases such as cancer, AIDS, diabetes, hyper-tension and mental illness are debated in terms best 'CARE'. The expectation of society is, 'cure', but the role of medical professionals is to provide 'care'. Hence, euthanasia for no cure illness does

not have a logical argument.[7] Last but not the least concerns regarding mental state of those with terminal illness should also be taken into view. It has been postulated that at times those with terminal / debilitating / chronic illness are at times under depression which can be due to either illness per se (i.e chronic suffering/ end of life or neurochemical disturbances / drug interactions) or as an independent entity. Such cases need to be evaluated carefully for their reasons of end of life before going further on.

Those who propose favor for euthanasia quote that people who have an incurable, degene-rative, disabling should be allowed to die in dignity. Apart from this, recognition of right to refuse medical treatment including medical treatment that sustains or prolongs life like DNR or those with cancer can refuse treatment as they do not wish to suffer the pain of undergoing chemoradiotherapy gives a way for passive euthanasia. At times many patients in chronic illness, do not want to be a burden on their family members and wish to die. In these cases, euthanasia upholds by honoring 'Right to die' with dignity similar to right to life.

Conclusion

In a developing country like India, where investment in health care is still low and public health system not mature enough to handle the intricacies for a complicated issue like euthanasia. Still the Supreme Court verdict where on this sensitive issue is a first step towards a new era of health care in terminally ill patients. The judgment laid down is to preserve harmony within a society, when faced with a complex medical, social and legal dilemma. India needs to re evaluate its resources in provision of better healthcare so as to ascertain Right to Health and hence indirectly enforcing Right to life.

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Case Report

Clozapine tolerability in treatment resistant schizophrenia with Dandy Walker variant disorder

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Introduction

The term "Dandy-Walker complex" which includes dandy walker malformation, dandy walker variant disorder and mega cisterna, has been used to describe disorders which lie on a continuum of developmental anomalies of the posterior fossa.The dandy-walker malformation is a congenital brain malformation characterized by cystic dilatation of the fourth ventricle, dysgenesis of the cerebellar vermis, and higher position of the tentorium. Dandy-walker variant disorder and mega cisterna magna represent the less severe nature of the disorder. Dandy-walker variant disorder involves cerebellar hypoplasia without marked expansion of the posterior fossa, whereas expanded posterior fossa with relatively minor hypoplasia of the cerebellum has been termed as mega cisterna magna.[1]

Various neuropsychiatric disorders have been described in association with dandy-walker complex, ranging from schizophrenia, bipolar disorder, obsessive compulsive disorder and attention deficit hyperactivity disorder.[2-5] Three cases of schizophrenia co-morbid with obsessive compulsive disorder in association with dandy walker complex have been reported in the literature.[4,6,7] There is a case report regarding increased sensitivity to atypical neuroleptics in schizophrenia co-morbid with dandy walker variant disorder, but none of the cases of treatment resistant schizophrenia has been described so far.[8] We report a case of dandy walker variant disorder co-morbid with treatment resistant schizophrenia and obsessive compulsive disorder who developed intolerable adverse effects with low doses of clozapine.

Case History

A 35- year old lady with nil significant family history with right eye enophthalmos, mature cataract, iris coloboma and visual impairment presented with five-year illness of delusion of reference and persecution, second and third person auditory hallucinations and two suicide attempts and one- year history of sexual obsessions and sexual imagery. There was the history of negligible response to adequate trials of risperidone and olanzapine. Her physical examination was unremarkable except for right eye cataract and visual impairment. Her mental status examination was corroborative. Her haemoglobin was 10 gm/dl and peripheral picture was suggestive of iron deficiency anaemia. Rest of blood investigations were within normal limits. Her MRI brain revealed hypoplasia of the inferior cerebellar vermis with fourth ventricle communicating with the cisterna magna with enlargement of cisterna magna suggestive of Dandy Walker variant disorder. She was diagnosed with schizophrenia, paranoid subtype, treatment resistant with obsessive compulsive disorder predominantly obsessions co-morbid with dandy walker variant disorder, iron deficiency anaemia, right eye enophthalmos, mature cataract and iris coloboma.

In view of treatment resistant schizophrenia tab clozapine was initiated at 12.5 mg/d and gradually titrated up to 100mg/d. For obsessions capsule fluoxetine was initiated and gradually increased from 20 to 60 mg/d. Oral iron supplements were initiated for iron deficiency anaemia. The weekly monitoring of blood counts was done. Titration of clozapine was done depending on patient's response and side

effects profile. During the course of titrating clozapine dose patient developed sedation and sialorrhoea at night which were appropriately treated. Around two weeks of clozapine initiation, when she was on clozapine 100 mg/d and capsule fluoxetine 60 mg/d she developed problematic side effects in form of bilateral tremors and rigidity. She also developed myoclonic jerks which are usually not reported with this less dose of clozapine.

Discussion

Our patient was diagnosed as having treatment resistant schizophrenia with obsessive compulsive disorder, and had radiological features suggestive of dandy walker variant disorder.

Long- term experience has shown that clozapine, compared to classic neuroleptics, induces relatively few extrapyramidal syndromes (EPS), especially less akathisia and tremor and usually no dystonia or rigidity and which could be linked to the special receptor-binding profile of this drug.[9] While treating with therapeutic doses of clozapine, the level of D_2 receptor blockade is too low (40% to 50% occupancy by positron emission tomography) to induce EPS, and the D_1 receptor blockade (also 40% to 50% occupancy) has a lower EPS potential than the D_2 blockade. In patients with Parkinson's disease and drug-induced psychosis when clozapine was used in low doses, it had no deleterious effects on parkinsonism and it improved tremors in such patients.[10] Although clozapine is known to have multiple adverse effects and is being reserved for treatment resistant cases, however, it exhibits favourable motoric side effect profile making it a good choice in cases of high risk of motoric side effects. However, atypicality in index case is that motoric side effects were noted even with low doses of clozapine.

Our case emphasizes the need to do through assessment if a patient presents with atypical features. As has been shown in the previous case reports wherein patients with Dandy Walker complex were sensitive to side effect with even low doses of atypical antipsychotics our patient also developed side effects with low doses of clozapine, and this emphasizes the need for cautious use of neuroleptic drugs, in cases of pre-existing brain insult.[8]

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Case Report

Schooling problem of Attention Deficit Hyperkinetic Disorder (ADHD) child

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Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is first described by Heinrich Hoff in 1854 and it is among the most common childhood onset psychiatric disorders. It is also known as minimal brain dysfunction, hyperkinetic syndrome, Strauss syndrome, organic drivenness and minimal brain damage.

Attention deficit disorder is of four types[1]:

1. Attention deficit disorder with hyperactivity (Hyperkinetic disorder):This is commonest type. The characteristic clinical features are:

Poor attention span with distractibility

i. Fails to finish the things started.
ii. Shifts form one uncompleted activity to another.
iii. Doesn't seem to listen.
iv. Easily distracted by external stimuli.
v. Often loses things.

Hyperactivity

i. Fidgety
ii. Difficulty in sitting still at one place for long.
iii. Moving about here and there.
iv. Talks excessively.
v. Interference in other people's activities.

Impulsivity: Acts before thinking, on the spur of the moment. There is difficulty in waiting for turn at work or play.

2. Attention deficit disorder without hyperactivity:

It is a rare disorder with similar clinical features, except hyperactivity.

3. Residual type:

It is usually diagnosed in a patient in adulthood, with a past history of ADD and presence of a few residual features in adult life.

4. Hyperkinetic disorder with conduct disorder (Hyperkinetic conduct disorder).

The worldwide prevalence of which is 8-12% and the prevalence in India has been estimated to be 3-5% in the school children. Males are 6-8 times more often affected. The onset occurs before the age of 7 years and a large majority of patients exhibit symptoms by the 4th year of age. It is a common chronic disorder in children with 30 to 50% of those individuals diagnosed in childhood continuing to have symptoms into adulthood. Inattention, hyperactivity, and impulsivity are the key behaviors of ADHD.[2] The symptoms of ADHD are especially difficult to define because it is hard to draw the line at where normal levels of inattention, hyperactivity, and impulsivity end and clinically significant levels requiring intervention[3]. In children with ADHD, these behaviors are more severe and occur more often. Most children with ADHD are referred between the ages of 5-12 yrs. But it can also be problematic in the preschool age group and continues into adulthood.

Case Report

Patient A.R., five years old Muslim male child, school dropout, hailing from lower-socio-economic status and rural background of Hindpuri, Ranchi, (Jharkhand) was brought to hospital by his mother. The patient started showing signs of restlessness and increased psychomotor activities when he was three years old. He didn't sit at one place for any considerable period of time, started biting his classmates, friends and teachers at school, could

not concentrate on any activity and would break off from one task before completing to start another. After coming from the school he would throw his stuff, household items and anything that he can lay his hands on. He could not concentrate on any task and later on stopped going to Madarsa.

Patient was born out of Non-Consanguineous parents and stays in joint family. Patient is youngest among three siblings. On mental status examination patient is well dressed, uncooperative and partially maintaining eye contact. His attention and concentration were poor. Childhood home environment was congenial. Father is nominal head of the family. Mother is the functional head of the family. Most of the family decisions are taken by patient's mother. Switchboard communication is present between patient's father and mother. Everyone was playing their role adequately except father who was very critical of patient's behavior. Social, care & financial burden is present. Punishment pattern of family is negative. Patient's elder brother father and sometimes patient's mother punish him for showing no interest in studies. In social areas his secondary support was not adequate however primary and tertiary supports were adequate. Family members are religious and moral values are present in family.

Discussion

The case report highlights breaking off one task to another and leaving activities unfinished, restlessness, inappropriate behavioral according to his age, comprehension was poor, and difficulties in learning academic skills which are the main cause of school dropouts.

Under the federal Individuals with Disabilities Education Act (IDEA)[4], schools must provide an appropriate education for all children, including those diagnosed with ADHD. Federal law also has specific regulations about discipline of students with ADHD. Schools and teachers must assess an ADHD child's troubling behaviour and develop positive interventions to address the behaviour. Educators must determine whether the behaviour is a manifestation of the child's disorder. Under federal law, schools can remove a child for up to ten school days at a time for violations of school rules as long as there is not a pattern of removals. Schools cannot give a child with a disability a longer suspension or expel the student for behaviour that is a manifestation of his or her disability. If that child is suspended or expelled, the school must continue services for the children. Schools and teachers do not have to be subject to dangerous behaviour, however. In the event a child brings a gun to school, schools do have the authority to remove the child. Schools may also request a hearing officer to remove a child for up to 45 days if keeping the child in his or her current placement is substantially likely to result in injury to the child or to others.

Many psychological therapies used to treat ADHD include

- Psycho Educational Input,
- Behavior Therapy,
- Cognitive Behavioral Therapy (CBT),
- Interpersonal Psychotherapy (IPT),
- Family Therapy,
- School-based Interventions,
- Social Skills Training
- and Parent Management Training.

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Case Report

A Case of Rare Cranial Dystonia — Meige Syndrome

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Introduction

Meige Syndrome, named after the French neurologist, Henry Meige, who first described the symptoms in detail in 1910,[1] consists of oro-mandibular dystonia and blepharospasm; though what Meige first described was essentially oro-mandibular dystonia.There can be repetitive sustained spasms of the masticatory, facial, or lingual muscles result in involuntary, and possibly painful, jaw movementswith repetitive blinking.[2-3] It is more likely to be seen in women than in men (2:1) and the symptoms usually begin between the age of 30 and 70 years.[4] It is a rare disorder with incidence of about 1 in 20000 people[5] and, hence, misdiagnosis is common. It is, therefore, imperative to report such cases. This is first case of its kind being reported from the subcontinent to the best of our knowledge.

Case Report

A 54 year old lady presented with 4 year history of involuntary repetitive movements of jaw mouth, tongue and with frequent closing of eyes impairing her vision. The movements were present at rest and with activity and when with others or alone, and they would disappear after sleep. The condition started abruptly with no prior history of any head injury, trauma, cerebrovascular event, seizure, or any history of major medical, dental or surgical illness or any other neurological symptom. There was no history of drug or medication intake in the patient. On examination patient was found to have involuntary blinking and chin thrusting with excessive tongue protrusion. Patient did not have any sign of laryngeal dystonia. She was found to have oro-mandibular dystonias with blepharospasm, frequently observed concomitantly in a patient of Meige Syndrome. Cranial nerve examination was unremarkable. The masticatory muscles were non tender on palpation and no joint sounds were detected on examination.

She had been suffering from this problem with its intensity increasing gradually for 4 years. There was no record of any medication for treatment or any other form of therapy been given to the patient as she was mostly seen by indigenous practitioners and was referred to a mental health professional to rule out any mental disorder.

After being thoroughly examined by a neurologist she was advised investigations including magnetic resonance imaging of the brain and radiograph of bilateral Temporo-mandibular joint.

Discussion

Patients with rare cranial cervical dystonias (Meige Syndrome) are usually misdiagnosed due to their varied clinical profile. They are usually thought and treated as psychological disturbances due to their dramatic clinical presentation especially in a general set up. The diagnosis of Meige Syndrome can be difficult as it is based on clinical findings that can be affected by several factors at the time of presentation as well as psychological status of the patient and the training of the physician.[2,6]

As described in this case, the muscles involved may be muscles of mastication, leading to misdiagnosis as temporomandibular joint disorder, bruxism, or another dental problem.[7-9] Patients may present with abnormal jaw opening such as jaw

deflection, jaw retrusion or a combination.[7,10] Dystonic spasms may also result in lip and tongue dyskinesias, and mouth retraction.[7,11] Other associated symptoms may include eating dysfunction,[12-13] dysarthria, dysphagia, dysphonia, breathing difficulties and alteration in vocalization,[8] depending on the muscles involved. Exacerbating factors such as stress, depression, fatigue and chewing are often reported, along with compensatory behaviours.[13] Certain medications might also induce oromandibular dystonia.[14] Patients with oromandibular dystonia may also present with accompanying psychiatric conditions such as depression, anxiety, obsessive compulsive disorder, and other psychological conditions, which may further confound the diagnosis.

They are correctly diagnosed by a neurologist especially trained in movement disorders. Each case of unusual movement disorder involving cranium and/or cervical muscles require thorough and detailed neurological and psychological evaluation.

Since, abnormal movements or postures often present a diagnostic and therapeutic challenge to the psychiatrist or neurologist, it is important to rule out conditions like tardive dyskinesia which is a consequence of Chronic Neuroleptic therapy, Huntington's disease, Spontaneous Dyskinesias, and abnormal movements accompanying psychiatric illnesses, Wilson's disease, Parkinson's disease, LIDs, facial chorea, Neuroacanthocytosis and Lesch Nyhan syndrome.

Oromandibular dystonia is characterized by reduced inhibition and abnormal plasticity at various motor system levels as well as the presence of sensory abnormalities. The mechanism is not well understood but is thought to originate from defects in the basal ganglia.[2]

Although, currently the definite cause of Meige Syndrome is still evasive and there are no specific guidelines for managing these cases but the treatment options are varied[10] and the pharmacological therapy is the first line of management[15] and Botulinum toxin a forms the mainstay of the treatment[13,15] and can include other medications including anticholinergics such as Trihexphenidyl[16] or Benztropine[17] and a few are benefited by muscle relaxants such as Baclofen.[18] Anti-convulsants such as Levitracetam[19] have also been employed with sporadic benefit.

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Case Report

Progressive Supranuclear Palsy

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Introduction

Progressive supranuclear palsy (PSP) is a rare neurodegenerative disease affecting the brain stem, basal ganglia, and cerebellum.[1] It is also named Steele–Richardson–Olszewski disease.[2] Although the exact cause of this disease is not known, evidence suggests it is due to abnormal deposition of tau protein in neuronal tissues, thereby making it a tauopathy. An overall prevalence of 1.39 cases per 100,000 populations was seen in a population-based study carried out in New Jersey, along with a slight male preponderance. The adjusted prevalence ratio among patients older than 55 years is 7 in 100,000, making it a rare disease. PSP is a disorder of middle or late age, affecting both men and women almost equally after the sixth decade of life, with a prevalence rate of 5-6 per 100,000 and median survival of 7-12 years after diagnosis.[3] The presentation may vary from complaints of multiple falls directed backwards, dysarthria, downward gaze palsy, axial rigidity, and eventually cognitive impairment.[1,3] Magnetic resonance imaging (MRI) is helpful in making the diagnosis. Here, we report a case of early onset PSP presenting with repetition of words, abnormal eye movement, and repeated falls.

Case Report

A 63 year old married right handed male, Muslim by religion and educated upto the 4th standard, previously working as a watchman presented to the outpatient psychiatry department with history of forgetfulness since last 2 years along with difficulty in walking and slurring of speech since last 6 months.

The patient was fine till 2 years back when the patient started forgetting numbers which slowly progressed to forgetting names of people and difficulty recognizing them. Then 6 months back while patient was at work, he suddenly fell down and was taken to the hospital. Following that, family members started noticing that patient would fall repeatedly due to his inability to look downwards. He was unable to take care of himself and would spill food while eating and had to use both hands to eat. He would have difficulty understanding orders and would get irritable and angry at family members.Sleep and appetite were impaired with no h/o tremulousness, hallucinations and urinary incontinence. No h/o hypertension and diabetes and no treatment had been sought before.

On general examination, vital parameters were normal. Multiple marks on the head due to recurrent falls were noticed but systemic examination was normal.

On examining the nervous system, pupils were bilaterally equal and reactive to light. Eyes remained fixed in a constant staring upward gaze depicting supranuclear horizontal and vertical gaze palsies. Slow saccades were present and dolls eye reflex was present. Axial rigidity in form of nuchal rigidity, stiffness of back muscles, lead pipe rigidity in all four limbs and grade 4 power existed. All deep tendon reflexes were brisk. Bradykinesia with difficulty in walking was present. Glabellar tap, palmomental reflex and suckling reflex (primitive reflexes) were present.This was also confirmed via a neurology opinion that was sought.

On mental status examination, patient was conscious, cooperative and partially oriented to time place and person. Patient had slurred speech with no formal thought disorder. Rest of MSE was deferred.

Routine investigations were within normal

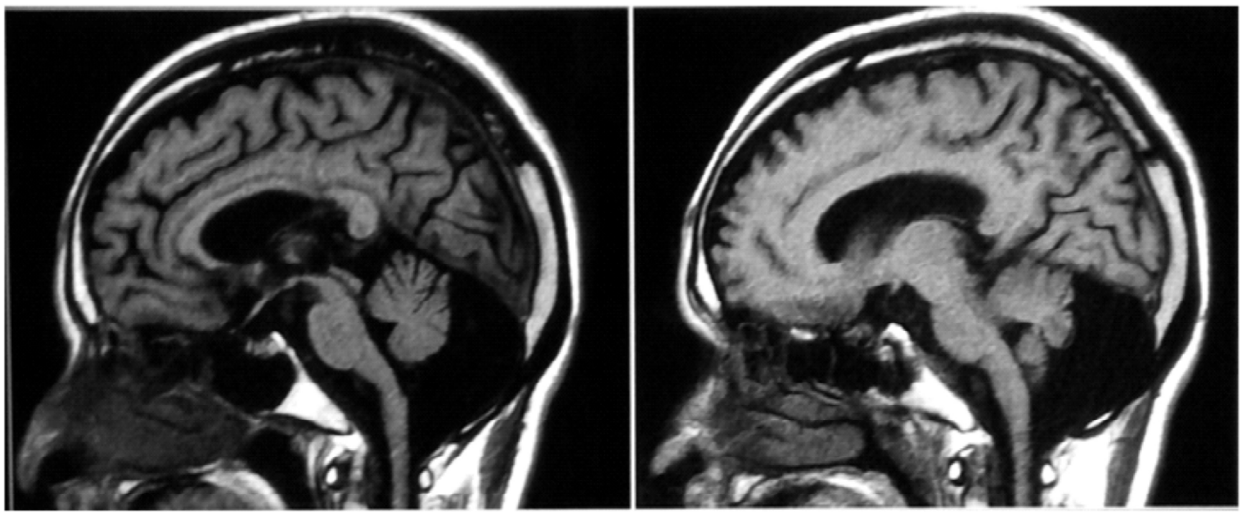

Fig-1. MRI Brain showing Humming Bird sign in PSP

limits. MRI showed a characteristic 'Humming Bird sign' in axial view along with atrophy in frontal lobe (Figure 1).

A combined neurological and psychiatric opinion of case reached a diagnosis of Progressive Supranuclear Palsy.

Treatment provided was mainly symptomatic in the form of Escitalopram (5 mg twice daily) in view of irritability considering it to be a part of depression, Citicoline (500 mg twice daily), Piracetam (800 mg twice daily), Baclofen (30 mg twice daily) for rigidity, and Clonazepam (0.5 mg at night) for sleep. Levodopa + carbidopa (110 + 10 mg in two divided doses) was added by the neurophysician for the rigidity. Physiotherapy was started as well. There was minimal improvement after 2 weeks of treatment. Sleep improved slightly but communication remained poor. The prognosis was explained to the relatives. The patient has been following up with both the psychiatry and neurology departments ever since.

Discussion

The clinical research criteria given by the National Institute of Neurological Disorders and Stroke (NINDS-SPS) for PSP.[5] The usual upwardly convex outline of the superior aspect of the midbrain is flattened or concave.[6] A diagnosis of PSP was made after eliminating other Parkinson's diseases. PSP often overlaps with Parkinson's disease, but there are differences such as a poor response to levodopa, distinctive pathological characteristics, and poor prognosis.[7] To our dismay, no effective treatment guidelines are available for PSP. A few recent studies have pointed toward the use of rivastigmine for cognitive enhancement and zolpidem to improve sleep, but these studies are anecdotal in nature.[8-10] The role of a multispecialty treatment team is a must in the management of this complex disorder. PSP often goes under reported or misdiagnosed and better understanding of PSP can help the clinicians identify the condition. The role of neuroimaging as a tool in diagnosis is crucial along with one's clinical judgment. This case was aimed at highlighting the fact that PSP may present with psychiatric symptoms and a dementia like picture to the psychiatry department and a thorough neuro-logical examination and MRI evaluation helps in clinching the diagnosis.

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Case Report

Psychiatric Presentation of a Frontal Lobe Neoplasm

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Introduction

Patients with brain tumors typically present with headaches, papilloedema, seizures, focal neurological deficits, or non-specific cognitive or personality changes.[1] A large series study of tumor patients reported mental symptoms in 78% of 530 cases.[2] Gliomas make up about 30% of all brain and central nervous system tumors and 80% of all malignant brain tumors[3]and have an incidence of about 6 in 100,000.[4] Out of various form of gliomas, oligodendroglioma tend to be a lower grade tumor characterized by encapsulation with a good prognosis.[5] Frontal lobe tumors are well known to present under semblance that may present as primary dementing disorder. The characteristic sign and symptoms also depend upon the location of tumor within the frontal region. For example, apathy, abulia, lack of spontaneity and psychomotor retardation are found in tumor involving the dorsolateral prefrontal convexities of frontal lobe.[6]

Case Description

A 48 years old male r/o Uttarakhand was shown to a general practitioner for complaints of memory loss, insomnia, decreased psychomotor activity and withdrawn behavior for 1½ months. As per the records, his general condition was not fair, orientation was disturbed and pallor was present. As per practitioner's note his appearance was described as depressed, at times anxious, with a mask like face, memory and co-ordination were impaired, deep tendon reflexes were sluggish and plantar showed flexor response. The patient was referred to a secondary care centre where he was attended by a medical specialist who finally referred him to tertiary care centre for psychiatric consultation.

On psychiatric evaluation, history revealed that the patient used to frequently forget his daily routine activities, remained withdrawn and required assistance for personal hygiene. He was not attending his job for the past 2 months. Appetite was normal and there was no history of fearfulness, suspiciousness, hearing voices, elevated mood, grandiose ideas, low mood, worthlessness, hopelessness, seizure, hostility, excitement, abnormal body movements and incontinence.

General physical examination was within normal limits except for mild pallor. A formal neurological examination could not be done due to his uncooperative behavior. Although, deep tendon reflexes were normal and plantar was flexor.

His mental state examination (MSE) revealed normal gait with slow pace, psychomotor activity was markedly reduced, though he was conscious and aware, could not be easily aroused, affect was flat, thought production was reduced and he was almost mute. The provisional diagnosis of unspecified dementia was made.

His routine blood investigations were within normal limits. Further on investigation, his EEG finding was an abnormal awake record showing mild diffuse encephalopathy (Figures 1 & 2). His NCCT brain revealed a large well defined hypodense mass in the right frontal region crossing the midline extending towards the left side measuring approximately 7.0 x 5.0 cm within HU (Hounsfield Unit) value of approximately 14. The frontal horn of right lateral ventricle was compressed by the mass effect of the lesion with hydrocephalus in rest of the ventricular system. There was evidence of perilesional edema. Small calcifications were seen adjacent to the mass in the frontal region and there was evidence of midline shift. Radiological diagnosis of oligodendroglioma was made by the consultant

Fig 1: EEG tracings of the subject suggestive of diffuse encephalopathy in right side of hemisphere.

Fig 2: EEG tracings of the subject suggestive of diffuse encephalopathy in center and left side of hemisphere.

radiologist and MRI was advised.

The case had been referred to neurosurgery department where he was diagnosed as a case of glioma and managed by surgical intervention. Later, the case turned up at psychiatry OPD after the surgery done and he showed marked improvement.

Discussion

Brain neoplasms often escape early detection because the classic clinical neurological signs and symptoms do not appear early because of a slow growth rate, this is true even for large tumors. Frontal neoplasms often go missed and they may lead to the mistaken diagnosis of dementia. This is partly due to the lack of obvious and highly specific neurological signs accompanying frontal tumors, and to some extent due to decreased frequency of appearance of mental disturbances with the onset of the tumor. Most frequent presentation is a picture of generalized dementia. The affective presentations most frequently accompanied with frontal lobe neoplasms appear to be irritability, depression, euphoria and apathy. In few instances, the symptoms of obsession and anxiety may co-occur.[7] Disturbance in consciousness level and intellectual declension were found to be more frequently associated with frontal lobe neoplasms than with tumors of any other site in brain.[8] Non-obstructive midline tumors around ventricles and tumors of medial frontal lobe may present with obscure non-focal abnormalities. Prior to the advent of CT and MRI, many such cases in psychiatric settings remained undiagnosed,[9] and even now a few go undetected if these modalities are not thought of. Being able to diagnose a surgically accessible brain neoplasm in an early stage is a boon to medical sciences and with the use of CT and particularly MRI, cost of these investigations are way outweighed by the benefits. Surgical therapy alone may prove curable for benign tumors such as meningiomas and pituitary adenomas. It is commoner to find a psychiatric disorder in patients with psychiatric presentations, but the possibility of such

presentation due to a structural brain lesion should not be overlooked. Brain tumors may be suspected in particular because of their typically slow onset, and they often present with neurobehavioral problems. It becomes difficult for a clinician to differentiate the patients with neoplastic brain lesions from those with primary psychiatric illnesses based on formal mental state examination. Nevertheless, traditional neurologic examination with detailed mental state testing will definitely arouse a suspicion for such occurrence in more cases of these potentially reversible lesions. Psychometric assessment can also contribute useful information. It often comes as a question to which patients should undergo a brain imaging study.[10]Although such testing could possibly be beneficial in any patient with a change in behavior, the cost limitation is always a concern. Motor, sensory, or neuro-behavioral problems are expected to occur if any lesion destroys or disturbs a region of the brain. Clinical-anatomic correlations are difficult to be established in neoplasms. Brain neoplasms may not be confined to definite areas of the brain, as is the case with cerebrovascular lesions, and therefore, a precise correlation of anatomical location and behavioral change is often not possible. Clinical-anatomic relationship may further complicate due to infiltrating neoplasms, mass effect, hydrocephalus, progressive growth of the neoplasm and possibility of associated edema. Neurobehavioral presentations and focal neurologic deficits can, however, be helpful in localizing the site of the neoplasm. Clinical-anatomic correlation is now backed up by CT and especially the more sensitive MRI as the localization of tumor can be done with extreme precision. This case had come in the contact of two physicians before psychiatric consultation and both the physicians missed to assess CNS pathology despite presence of indicator of organicity.

Conclusion

In summary, we report this case of 48 year old male with a space occupying lesion in the right frontal region who presented psychiatrically. We advocated brain imaging and that clinched the diagnosis. This case highlights the importance of searching for possibly curable neoplasms that might otherwise go undetected. This case also emphasizes the importance of lesion of frontal lobe in the pathogenesis of neurobehavioral disorders. Hence, high index of suspicion should be the norm and organicity should be suspected when a patient presents with behavioural symptoms. This greatly helps in early diagnosis, treatment and improving the quality of life of the patient.

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Case Report

Craniosynostosis & Behavioural Problems – A Manifestation of Pfeiffer's Syndrome

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Introduction

Being mental health experts we come across various children with intellectual impairment, delayed milestones, congenital birth defects but there are few with peculiar set of features which could be in physical appearance, phonation, and inappropriate--ness in physical and social age, behavioural problems etc. Later on after further evaluation, few cases come out to be one of the very rare congenital anomaly, as in this case we present a child having features suggestive of a very rare congenital anomaly— Pfeiffer's syndrome. Pfeiffer syndrome is a rare congenital autosomal dominant anomaly characterised by premature fusion of skull bones i.e. craniosynostosis, preventing the further growth of the skull bones affecting the shape of the head and face. Pfeiffer syndrome is also known as Acrocephalosyndactyly-type V (ACSV), Cranio-facial-skeletal-dermatologic syndrome, Noack syndrome.[1] The bones of hand and feet are also affected in this syndrome.[2] Pfeiffer syndrome affects about 1 in 100000 births.[3] This syndrome is named after Rudolf Arthur, who was a German geneticist.

Three clinical subtypes, which have important diagnostic and prognostic implications, have been identified.[4] Type 1, the classic syndrome, is compatible with life and consists of craniosynostosis, midface deficiency, broad thumbs, broad great toes, brachydactyly, and variable syndactyly. Type 2 consists of cloverleaf skull with Pfeiffer hands and feet, together with ankyloses of the elbows. Type 3 is similar to type 2 but without cloverleaf skull. Ocular proptosis is severe, and the anterior cranial base is markedly short. Various visceral malformations have been found in association with type 3. Early demise is characteristic of types 2 and 3.[5]

Pfeiffer syndrome is caused by mutations in the fibroblast growth factor receptor genes (FGFR-1 or FGFR-2).[6,7] These genes are located on Chromosomes 8 and 10, respectively which are required for normal bone development. In most cases, these mutations arise randomly and sporadically. In practical terms, autosomal dominant inheritance means that there is a 50-50 chance of a parent with Pfeiffer syndrome having a baby that also has Pfeiffer syndrome.

Case Report

A14-year-old boy presented in the psychiatry outpatient department along with his mother with the chief complaints of not paying attention to his studies, having poor concentration, poor under-standing and episodes of anger outburst and easy irritability. But neither patient nor his mother were concerned about the looks except his silly smile.He also had some demanding behaviour and would show tantrums at times when his demands were not fulfilled. He had to be pushed forward in successive classes in his school as he could not pay attention to his studies. His scholastic performance was never satisfactory. He was shown to some private practi-tioners initially and parents were given assurance that he would become normal and his intelligence would come back to the normal expected with advancing age. But parents found no improvement. On the contrary, his performance was deteriorating only. After a detailed birth and developmental history

it was found that all milestones were achieved at the right age and there was no developmental delay except for poor understanding and less than average scholastic performance.Athorough general physical examination revealed a number of findings like popping out eyes, reduced intercanthal distance, small but prominent forehead, with deciduous teeth intact and overcrowding of jaw (Fig 1 & 2). Patient's hand and feet were abnormally broad in comparison

Fig 1: Broad and wide based fingers

Fig 2: Profile pic showing frontal bossing and small jaws.

to his age, comparatively large skull and inappropriate cheerfulness. On the clinical interview patient appeared to be intellectually impaired with a silly purposeless smile present for most of the time during the interview. He was very poor in calculations and had inadequate general fund of knowledge. He had poor, social, personal as well as test judgement and his insight was grade 0. Patient appeared to be cheerful and receptive to commands but most of his responses during the interview were inadequate.

His routine blood investigations did not show any abnormality. He was sent for radiological imaging (plain CT Head) which showed premature fusion of the sagittal suture and craniosynostosis (Fig 3). Rest other parameters like the ventricles, cerebral hemi-spheres and brain parenchyma appeared to

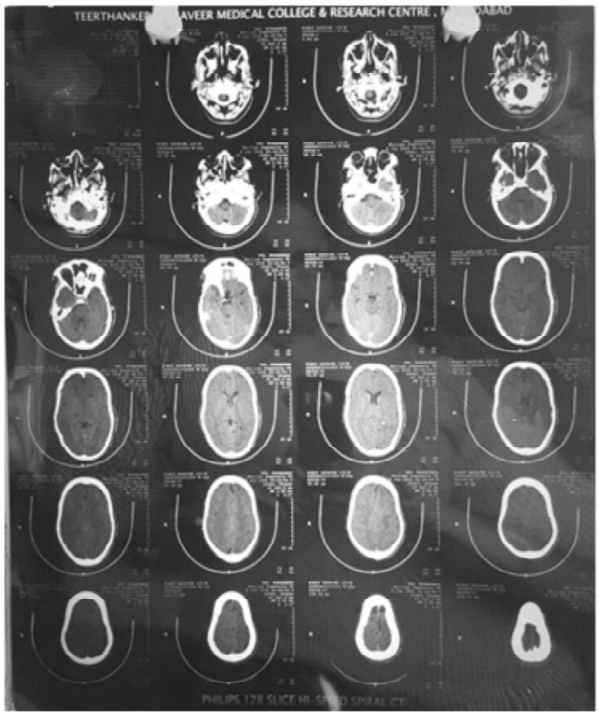

Fig 3: Magnetic Resonance Imaging showing premature fusion of sagittal suture with resultant scaphocephaly.

be normal.He was also referred to Paediatric and Dental departments for any required management. His complete psychological assessment was done including IQ assessment which showed an IQ of 64 (mild intellectual disability as per the current Classification for Intellectual Disability Disorders). A provisional diagnosis of Pfeiffer's Syndrome was made on consensus with the senior psychiatrist and the child was started on 300 mg Oxcarbamazepine in two divided dosage and 800 mg single dose of Piracetam from psychiatry OPD which was continued for around seven weeks. Later patientwas referred to higher center for further genetic studies and evaluation.

Discussion

Rare congenital anomalies need to be evaluated thoroughly. Many a times we come across such rare cases in the Outpatient department. Being autosomal dominant Pfeiffer syndrome has a 50% chance of being inherited to next generation. Some cases of Pfeiffer syndrome type 3 and rare cases of type 2 have shown gene mutations as well.[1,8] In a very rare case of Pfeiffer syndrome type 3, natal teeth in mandibular incisors and maxillary molar region have been reported. Natal teeth occurrence ranges from

1 in 2,000 to 3,500 births.[9] Advanced paternal age is a risk factor for Pfeiffer syndrome. Prenatal diagnosis through careful three dimensional USG can be done with means available. Management includes surgical reconstruction in staged procedures. Also early surgical treatment can reduce the risk of secondary complications like hydrocephaly. Behavioural problems can be taken care of with the help of psychotropics and behavioural psychotherapy. Pfeiffer syndrome types 2 and 3 have an increased risk for neuro-developmental difficulties. Timely, aggressive, medical and surgical intervention can lead to a favourable outcome. However, the neurodevelop-mental outcome and/or life expectancy for Pfeiffer syndrome types 2 and 3, remains guarded in most cases.[10]

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Case Report

Atypical Neuroleptic malignant syndrome in a young male

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Introduction

Neuroleptic malignant syndrome (NMS) clinical diagnosis is accomplished by exclusion criteria based heavily on clinical history and clinician judgment.[1,2]

Most notable symptoms of NMS are hyperthermia and muscular rigidity presenting with a combination of other minor symptoms and abnormal laboratory values (including autonomic instability, diaphoresis, altered consciousness, elevated creatine kinase [CK], and leukocytosis.[3]

Four major diagnostic criteria for diagnosing NMS are; hyperthermia, rigidity (or other forms of EPS), autonomic disturbances and mental status changes. Atypical NMS is defined as a presentation of three of the four signs.[4]

In spite of presence of established diagnostic criteria, atypical presentations pose a diagnostic dilemma, leading to impairment or a significant delay in diagnosis and treatment.[4]

In this paper, we are describing the case of a patient who developed features of atypical NMS after starting intramuscular antipsychotic drug Haloperidol in regard to both a lack of muscle rigidity despite of elevated CPK levels followed by a very rapid recovery on stopping the antipsychotic.

Case History

22 year old unmarried, educated till 9th standard, unemployed male visited Psychiatry OPD along with the relatives with chief complaints of odd behaviour, disturbed sleep, wandering tendency, irritability and self talk since 4 years. He was diagnosed as a case of schizophrenia and was admitted to Psychiatry ward due to a history of poor drug compliance. At the time of admission, patient's BP was 128/82 mm of Hg, Pulse rate of 80 beats/minute, Respiratory rate 16/min and temperature of 97.1F.

On Mental status examination, patient was oriented to time, place and person, mostly mute during the interview giving a vacant look and occasionally speaking in one or two words. His psychomotor activity was within normal limit with a restricted affect. At times it appears that he was talking to someone in the vicinity as evident by the hand gestures and lip movements.

Systemic examinations of the patient were normal.

All routine investigations along with E.C.G, serum electrolytes and CT-scan of head/brain were carried out which were found to be normal. Patient was put on injection Haloperidol 5 mg in combination with injection Promethazine intramuscularly thrice a day dosing along with intravenous fluid as patient was agitated, violent with a history of poor oral drug compliance and poor oral intake. For prompt symptom control, depot injection was not considered at the time of admission.

Day - 2

On second day of admission, the patient's pulse rate was found to be slightly increased to 112 beats /min and his BP was 142/94 mm of Hg. At 4pm in evening, the relative reported that patient is having a mild fever (100) with a pulse of 120/min and his BP was 120/78 mm of Hg.

6 hourly temperatures was advised and MP card and Widal investigations were carried out. Tablet Paracetamol was added and medicine referral was

done for tachycardia and increased B.P. Injection Ceftriaxone 1 mg. i.v B.D for 5 days and table Paracetamol 500 SOS was added by the physician attending the reference. Serum TSH, Malarial parasite and PBF investigation were also advised to rule out Malaria. Intra venous DNS was reduced to once a day basis suspecting that patient is having febrile reaction to i.v fluid therapy.

Day - 3

On day 3, during morning round patient was found to be lethargic with a low grade fever and disturbed sleep. On arousal patient was slightly disoriented and showed a characteristic symptom of picking at bed sheet**.** His pulse rate was 121 beats/ min and a BP was 140/82 mm of Hg. Injection Haloperidol was stopped and patient was put on Tablet Olanzapine 5 mg twice a day with continuation of Tablet Paracetamol and Tablet Trihexyphenidyl 2 mg once a day in evening.

Later in evening, sudden shivering was noted in patient along with lethargy and confusion. Serum CPK investigation was ordered suspecting Neuroleptic Malignant syndrome and Tablet Olanzapine was stopped till further instructions at night. Patient was kept on Tablet Lorazepam 4mg/ day, injection Ceftriaxone and tablet Parcetamol 500 mg SOS.

Day - 4

On day 4, Serum CPK report showed elevated titre of 8342 IU/L (30.0-170.0 U/L) for which Medicine reference was done, and repeat Serum CPK was ordered by the physician. Serum TSH, Serum electrolyte and MP test ordered on day second were negative leading to suspicion of atypical NMS.

Day - 5

On day 5, the patient was still having tachycardia, mild grade fever with disorientation to time place and person as evident on mental status examination, but the blood pressure was within normal limits. Serum LFT and Serum RFT were found to be normal. Patient was only kept on Lorazepam 4mg/day and Tablet Paracetamol on as and when needed basis. His serum CPK level was 1543 IU/L on that day. Urgent medicine reference was repeated on day 5 repeat CPK was ordered by the attending physician.

Day 6

On day 6, there was a further decline seen in the Serum CPK level to 966 IU/L. Clinically the patient's condition was improving, disorientation resolved with no fever or tachycardia noted.

Day 7

On day7, the patient's Serum CPK level came down to 517 U/L. the patient's vitals was stable. On day 8th the CPK level returned to base line level 20 U/L.

This patient was discharged on the next day on relatives request after explaining about the NMS symptoms and the treatment provided and was called back after two weeks for initiation of proper treatment for his disease. Unfortunately patient never reported back for further treatment.

Discussion

The Neuroleptic Malignant Syndrome (NMS) has a low incidence (0.5 to 3%) in patients with use of antipsychotics having an increased risk with typical antipsychotic drugs versus atypical antipsychotics, with mortality reaching 10%[1].

NMS symptoms include findings of hyperthermia, muscular rigidity, autonomic instability, elevated CK, and mental status changes in the setting of antipsychotic therapy[3].

Although NMS in its full-blown classic form is comparatively easy to diagnose, the atypical forms of the disease may be variable in presentation and clinical course and difficult to diagnose[2].

In our patient, the diagnosis of Atypical NMS was mainly made on the basis of presence of high serum levels of CPK, disorientation, confusion, mild grade fever and the returning of serum CPK level to normal level after stopping the antipsychotics.

According to literature, NMS has an insidious onset over a period of days and virtually all cases occur within 30 days. The time of recovery in uncomplicated NMS cases is usually between seven to 10 days [2]. The present case is unusual because of rapidity of onset, followed by a very rapid recovery in symptoms and which was also well corroborated by the increased and then declining CPK levels which returned to normal levels (1380 IU/L to 20 IU/L) after stopping the drug.

Patients taking antipsychotics should be carefully evaluated for presence of any symptom suggestive of NMS and clinician should not prematurely exclude a diagnosis of NMS if all symptoms are not met. Prompt diagnosis followed by discontinuation of the antipsychotic should be the first-line treatment, followed by supportive care and pharmacotherapy[6].

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Royal Australian and New Zealand College of Psychiatrists' Faculty of Child and Adolescent Psychiatry Conference 2018, **17 Oct 2018 - 20 Oct 2018** • Perth, Australia: https://www.child2018.com/

Brazilian Congress of Psychiatry 36th Congress 2018, **17 Oct 2018 - 20 Oct 2018** • Brasília, Brazil, http://www.cbpabp.org.br/hotsite/

2018 Institute and Conference for the American Academy of Psychotherapists, **17 Oct 2018 - 21 Oct 2018** • Atlanta, Ga, United States, http://www.thetherapeuticrelationship.org

Kongress der Deutschen Alzheimer Gesellschaft, **18 Oct 2018 - 20 Oct 2018** • Weimar, Germany, http://www.alzheimer-kongress.de

19th International Forum of Psychoanalysis 2018, **18 Oct 2018 - 21 Oct 2018** • Florence, Italy, http://www.ifps-forum2018.com/

European Association for Psychotherapy Congress 2018, **18 Oct 2018 - 21 Oct 2018** • Belgrade, Serbia, http://www.23eapcongress2018belgrade.eu/

Abu Dhabi International Mental Health Conference 2018, **19 Oct 2018 - 20 Oct 2018** • Abu Dhabi, United Arab Emirates, http://go.evvnt.com/219604-2?pid=4596

Psychopharmacology Update 2018, **20 Oct 2018** • Cincinnati, United States, https://www.globalacademycme.com/conferences/psych-pharm/home

American Academy of Child and Adolescent Psychiatry 65th Annual Meeting 2018, **22 Oct 2018 - 27 Oct 2018** • Seattle, United States, https://www.aacap.org

The Herbert Benson, MD Course in Mind Body Medicine, **25 Oct 2018 - 27 Oct 2018** • Boston, United States, https://mindbody.hmscme.com/

Canadian Society of Addiction Medicine Congress 2018, **25 Oct 2018 - 28 Oct 2018** • Vancouver, Canada Event listing ID:1063831 Event website: https://www.csam-smca.org/events/2018-csam-annual-meeting-scientific-conference/

11th International Congress of Clinical Psychology, **25 Oct 2018 - 28 Oct 2018** • Granada, Spain, http://www.aepc.es/PsClinicaXI/ProgramaCientifico_en.html

31st Annual Psych Congress 2018, **25 Oct 2018 - 28 Oct 2018** • Orlando, United States, https://www.psychcongress.com/psychcongress/

Royal College of Psychiatrists Faculty of Eating Disorders Conference 2018, **02 Nov 2018** • London, United Kingdom, https://www.rcpsych.ac.uk/traininpsychiatry/conferencestraining/conferencesandcourses/nov02_eatingdisorders2018.aspx

Mayo Clinic Frontiers in Addiction Treatment 2018, **02 Nov 2018** • Rochester, United States, https://ce.mayo.edu/psychiatry-and-psychology/content/frontiers-addiction-treatment-2018

Psychiatrie und Psychotherapie Update Refresher - 16 DFP-Punkte, **05 Nov 2018 - 06 Nov 2018** • Vienna, Austria, http://www.fomf.at

RANZCP Faculty of Psychiatry of Old Age and the Asian Society Against Dementia Conference 2018, **07 Nov 2018 - 10 Nov 2018** • Melbourne, Australia, https://www.fpoaasad.com.au/

32nd ECNP Congress 2019, **07 Sep 2019 - 10 Sep 2019** • Copenhagen, Denmark, EVENT https://2019.ecnp.eu/.aspx

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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.

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Start each of following section on a separate page.

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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.
  2. Bremner JD, Shearer KD, McCaffery PJ. Retinoic acid and affective disorders: The evidence for an association. J Clin Psychiatry 2012; 73 : 37–50.
- **Book**
  1. Stahl SM. The Prescriber's Guide (Stahl's Essential Psychopharmacology, 4th ed. Cambridge, U.K.: Cambridge University Press, 2011.
- **Chapter of a book**
  1. Blacker D. Psychiatric Rating Scales In: Sadock BJ, Sadock VA, editors. Kaplan and Sadock's Comprehensive Text Book of Psychiatry. Vol. I. Philadelphia: Lippincott Williams and Williams; 2000. pp 755-782.

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