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Editorial

Prevention of mental disorders– a big promise remained unfulfilled

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Health has been defined as a positive state of being physical, mental and social and not merely the absence of disease and infirmity.[1] The main emphasis of mental health delivery still remains the secondary level of prevention i.e. treatment only. The primary and tertiary levels of prevention have been grossly ignored. Even the standard textbooks of psychiatry[2] devote little space to prevention of mental health problems. The main objectives of our National Mental Health Programme (NMHP) i.e. to ensure application of mental health knowledge in general health care and in social development and to promote community participation in the mental health service development remained unfulfilled and so, are the aims of the programme. NMHP launched in 1982, needs a genuine audit.

The biggest shortcoming in the delivery of mental health services still remains the number of available trained mental health professionals. They cannot be increased in the same proportion as the population. In India, where a majority of mental health professionals are in private sector, it is an error to implement any programme through Government agencies only. There is an urgent need to break the barriers across all specialities dealing with mental health. The challenge can only be met by training other professionals (i.e. physicians, paediatricians, teachers etc) working at any level. This can be supplemented by educating students, parents, caregivers and patients.

Kaplan and Sadock's Comprehensive Textbook of Psychiatry[2] writes, "Application of traditional public health concepts of primary, secondary and tertiary psychiatry has been confusing in psychiatry". Is it really so?

Primary prevention involves addressing the root causes of illness with healthy individuals, with a goal of preventing illness before it occurs. Primary prevention involves health promotion and specific protection. *Mental health promotion* aims to protect, support and sustain the emotional and social wellbeing of the population, from the earliest years through adult life to oldage.[3] Health promotion is the cornerstone of prevention. It involves taking healthy balanced diet, doing regular exercise and getting adequate sleep. By following it, most of the physical and mental health problems can be prevented. Meditation, yoga, relaxation exercises are classical techniques.

Specific protection involves addressing to people who are currently well, those at risk of developing a mental health problem, and those experiencing mental health problems or mental illness[3,4]. Specific protection against mental health problems involves identifying the problems before they change into a disorder. The research in the fields of genetics, biomarkers, family dynamics, and factors related to schooling and psychosocial living can help in preventing primary mental health disorders and its comorbidity (both psychiatric and physical). Adequately treating a physical disorder with high psychiatric comorbidity (e.g. Diabetes, hypertension, HIV etc.) and avoiding psychotropics with severe side-effects in a high risk group (e.g. avoiding olanzapine in a person with strong history of Diabetes and Dyslipidemia) is also specific protection. Stress management is a classical example of specific protection. Many subspecialities of psychiatry e.g. Child and geriatric psychiatry and management of psychiatric disorders in pregnancy and lactation etc are dependent on this primary level of prevention. Mental health problems are a public

health issue affecting 20% of children in modern communities.[3] Public policies in sectors such as education, employment, health, housing, welfare, art, sport, media and rehabilitation also impact the mental health. Administrators, executives, professionals, judiciary, teachers and families should take responsibility to protect the population against contributors to mental health disorders right in the childhood.

Secondary prevention involves early diagnosis and treatment. All patients with psychological problems cannot be treated by the existing force of mental health professionals in the country. The training of professionals (e.g. teachers, counsellors, social workers, managers etc) and educating the public is essentially required for early diagnosis. Only those with severe mental health disorders, having complications or chronicity should be referred to a tertiary care professional. Early diagnosis and treatment is also a door to specific protection (against complications, chronicity or disability). One has to be cautious as proposers of new changes in classifications (with hidden instinct to promote books, journals and newer drugs), and promoters of investigations, drugs and new devices always take a lead in any profession. One can definitely wonder how many patients entering a psychiatrist's chamber come out without being labelled or prescribed a drug and also, in how many cases the psychiatrist himself (not the caregiver or patient) has stopped the treatment. Improving compliance and prescribing minimum medication for minimum period also needs urgent attention.

Tertiary level of prevention is an integral part of any health services. Disability limitation and rehabilitation now needs due attention. *Disability* can be limited by early diagnosis, adequate early patient care and regular family and social support. Half-way homes, day care centres also integral part of it. NGOs can play an important role in caring for the destitute, mentally ill and high risk groups. The rights of the patients and caregivers need to be protected. *Rehabilitation* is a big challenge in mental health care. Employment and social security, insurance, pension to disabled and incentives to caregivers will play an important role in rehabilitation. Training the patients in basic as well as professional skills, as done for jail inmates, can go a long way in rehabilitation.

There should be a united effort to *evolve programmes and policies* at prevention of mental disorders throughout the lifespan. These should be implemented at universal, selective and indicated levels and also, aimed at risk reduction and enhancement of protective factors.[4] There is need of evidence-based prevention (e.g. of those facing disasters (manmade and natural), children in disrupted families, high risk employment, stresses, unemployment, perinatal and postnatal period, child abuse, divorce and bereavement etc), promoting healthy lifestyle and reducing early risks (e.g. caring for ageing mentally healthy, prevention of different disorders and harm done by substance abuse and suicide prevention). Micropolicy intervention (e.g. improving nutrition, education, housing or by reducing economic insecurity etc) and macrolevel policy strategies (e.g. work legislation, taxation of alcohol and tobacco products and providing individual support to those with mental illness etc) can definitely help[8] Mental health professionals should work as community leaders, technical advisors, trainers, researchers and professional care providers. Prevention of mental health disorders must be taken as a public health priority.[5]

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Review Article

Psychosocial Aspects of Pain Disorders

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Introduction

Pain is defined as "a state of physical, emotional or mental lack of well-being or uneasiness that ranges from mild discomfort or dull distress to acute often unbearable agony, it may be generalized or localized, and is the consequence of being injured or hurt physically or mentally and that usually produces a reaction of wanting to avoid, escape, or destroy the causative factor and its effects."The DSM-IV-TR specifies three coded sub-diagnoses: pain disorder associated with psychological factors, pain disorder associated with both psychological factors and a general medical condition and pain disorder associated with a general medical condition. Conditions such as dyspareunia (302.76), somatization (300.81), conversion disorder (300.11), or mood disorders (293.83) can eliminate pain disorder as a diagnosis[1].Common symptoms of pain disorder are: negative or distorted cognition, such as feelings of despair or hopelessness; inactivity and passivity, in some cases disability; increased pain, sometimes requiring clinical treatment; sleep disturbance and fatigue; disruption of social relationships; depression and/or anxiety[2]. Acute conditions last less than six months while chronic pain disorder lasts six or more months.[3] Pain is reported as more distressing than it should be if there was a physical explanation. People who suffer from this disorder may begin to abuse medication.[4]

Historical Background

By the second half of the 19th Century, however, pain was considered sensorial and organic causes were offered to explain all pains, even those without an obvious basis in tissue damage or organic disease. The belief that all pain was a direct result of tissue damage was firmly entrenched. By the late 1950's it became increasingly evident that sensory explanations failed to account for certain puzzling pain phenomena. Around the mid-20th Century several different theories were developed from differing theoretical backgrounds to explain the observation that sensory input did not always correlate with pain.

Schools/Approaches

According to Psychoanalytic Formulations, pain was seen as a defence against unconscious conflict. Emotional pain is displaced onto the body where it is more bearable. Psychoanalytic thinking no longer forms a significant basis for research or source of current interventions. Critics have raised having serious methodological and conceptual concerns. Behaviorists tried to show that all behaviour could be shaped, altered, weakened or strengthened as a direct result of environmental manipulations. It was thought that there was a simple causal connection between pain and it's reinforce. Pain behavior may also be learned by observing "pain models" i.e., individuals who exhibit such behavior. Respondent (acute) pain was seen as a reflexive response to antecedent stimulus (tissue damage). It proposed that operant pain persists because the behaviour of others (family, friends and health care providers) during the acute pain stage reinforced that pain leading to returned secondary gains, such as permission to avoid chores, or obtain otherwise unobtainable attention and care. Cognitive Approaches-Cognitive theory examines intervening variables such as attributions, expecta-tions, beliefs, self-efficacy, personal control, attention to pain stimuli, problem solving, coping self-state-ments and imagery. Pain studies investigated the effects of these thought processes on the experience of pain and related problems. Cognitive theory has added an important dimension to psychological research into pain, but cognitive theorists themselves emphasize

that they do not provide the solution, in isolation from other aspects of the multidimensional problem of pain.

The cognitive-behavioural researchers in the late 20th century noted that acute pain was associated with a pattern of physiological responses seen in anxiety attacks, whilst chronic back pain was characterized more effectively by habituation of autonomic responses and by a pattern of vegetative signs similar to those seen in depressive disorders. In the acute pain situation, "avoidance" behaviours, such as resting, are effective in allowing the healing process to occur. In chronic pain patients, the pain and disability appear to persist beyond the expected healing time for such a complaint.

Theories

These are important theories related to pain disorder. Specific Theory: In late 19th century, medical professionals proposed a specific bodily system responsible for pain perception.[5] It was held that specialized skin receptors responded to particular stimuli and that specific routes of transmission in the CNS and special center in the brain were responsible for the registration and interpretation of pain. Pattern Theory: Pain results from the patterning, intensity and quality of stimulation from peripheral nerve endings.[6] This theory also holds that sensations can summate and that nerve impulses conducted to the spinal column reach the brain only after achieving a certain threshold. Affect Theory: Early theory of pain to allow for emotion to color the perception of all sensory events. Pain is negative quality that drives the individual into action focused on stopping the stimulus that is causing the pain. Gate Control theory: An anatomical basis for the view that sensory input could be modulated by certain physiological and psychological process.[7] Input from the peripheral nocieceptors was thought to pass though a neural gate in the spinal cord before being transmitted to the brain. This gate may be open or closed according to the relative activity in small and large afferent fibers. Gate control theory thus proposes processes that three factors are involved in determining how much pain is felt: Activity in the small pain fibers influence the strength of the pain message transmitted, the amount of activity in large diameter fibers closes the gate and inhibits the pain perception, and message that descend from the brain close the gate and inhibits the transmission of pain signals.

Types

There are two kinds of Pain: acute and chronic Acute pain: Results from a specific injury that produces tissue damage, such as a wound or broken limb. It is self-limiting and typically disappears when the tissue damage is repaired. Acute pain is relatively short in duration and is defined as pain goes on for 6 months or less. Chronic Pain: begins with an acute episodes, but unlike acute pain, it does not decrease with treatment and the passage of time. There are several different kinds of chronic pain: 1. Chronic benign pain: typically persists for 6 months or longer and is relatively intractable to treatment. The pain varies in severity and may involve any of a number of muscle groups. e.g. chronic low back pain, 2. Recurrent acute pain: involves a series of intermittent episodes of pain that are acute in character but chronic in as much as the condition persists for more than 6 months. e.g. migraine headaches, 3. Chronic progressive pain: persist longer than 6 months and increases in severity over time. Typically, it is associated with malignancies or degenerative disorders, such as cancer.

Psychosocial Factors

Psychosocial factors are also responsible for pain. ***Personality:***[8] The concept of a pain-prone personality suggested that certain personality types are more likely to have repeated episode of chronic pain. They characterized the pain-prone personality by some specific traits, including: "excessive guilt, a predisposition to use pain to atone for guilt, a strong unfulfilled aggressive drive, a history of suffering and defeat." ***Mood:*** The most common moods that have been associated with pain are anxious and sad. Where these moods are present pain appears to be increased. ***Cognitions:*** Cognitions influence and interact with our emotions and behaviour. Three aspects of cognition that have received attention in relation to pain are: (1) *Attention:* Pain may demand attention, reducing the ability to focus on other competing activities and therefore increasing pain perception. (2) *Dysfunctional thinking:* Attitudes and beliefs about pain are automatic patterns of thinking that block the attainment of an individual'

goals. It includes negative mental bias, discounting the positive, fortune telling and magnification. (3) *Coping styles:* These are techniques an individual uses to attempt to deal with their pain. They can be divided into active and passive coping. Both can be functional and dysfunctional. ***Active coping:*** Include keeping busy or taking recreational drugs, which could easily become dysfunctional. ***Passive coping:*** include resting, which would be useful in the early stage of pain but could become dysfunctional if continued for too long. ***Self-efficacy:*** It have been identified as a significant component of cognition and refer to an individual's beliefs about how well they can handle a given situation. Low self efficacy beliefs have been associated with higher pain-related disability levels, as well as with depression, although the association is insufficient to eliminate the strong influence of pain intensity. ***Perception of control:***[9] make a distinction between cognitive control, such as distraction or dissociation, and behavioural control where a subject is able to do something to reduce the pain or remove the pain stimulus.[10] Showed that person endure more pain when they are able to turn off the aversive stimulus, even though they often elected not to do so. ***Previous Experience and Conditioning:*** Classical conditioning theory "a particular situation or environmental may become associated with pain and therefore provoke increased anxiety and pain perception". Operant conditioning theory" pain stimuli are perceived as a sensation and an unpleasant affect that generally evokes responses like grimacing or limping demonstrating the person is in pain". ***Secondary Gains:*** These are related to social rewards accruing from the demonstration of pain behaviours. ***Social and Environmental factors:***[11] Demonstrated that the behaviour of other people can influence both subjective and behavioral components of pain. They showed that the presence of a pain-tolerant model significantly increased the pain tolerance of naive subjects exposed to experimentally induced pain.

Psychosocial Therapies and Techniques

There are some psychosocial techniques and therapies which are beneficial in pain disorders like, Somatoform Disorders, Migraine, Headache, Cancer, Arthritis etc. It's necessary to discuss briefly about these psychosocial intervention. ***Behavioral Therapy:*** Mostly based upon operant learning processes, like ignoring pain behaviour (negative reinforcement) and improved activity is praised (positive reinforcement) added exercise techniques involve setting a starting level of activity that the person can manage and then developing a schedule to gradually increase the length of time and intensity of the exercise. The schedule allows the person to gain the confidence to handle each new level before the next increment. ***Cognitive therapy:*** These work on the principle that our cognitions are responsible for the consequence of events, not the event itself and if the cognition can be changed the consequences can also be changed. The aim of cognitive techniques is to help the individuals to identify and understand their cognitions and their connection with their experience of pain and then change negative cognitions to improve it. These cognitive techniques are used most frequently: (a) ***Distraction:*** By focusing attention on an irrelevant and attention getting stimulus or by distracting oneself with a high level of activity, one can turn attention away from pain. There are two mental strategies for controlling discomfort: Distract oneself by focusing on another activity and Focus directly on the events but to reinterpret the experience. Distraction is most effective for coping with low level pain. (b) ***Positive Self talk:*** Teach the individual to use positive self- statements when thinking about their pain (e.g. I can cope well with my pain) The beneficial effrects of positive self-talk may be related to resultant boosts in self-esteem and self-efficacy. ***Cognitive coping methods:***[12] Identified 6 categories for this : (i) pleasant imaging e.g. pleasant day in country. (ii) Rhythmic cognitive activity e.g. counting backward 100-3. (iii) External focus of attention e.g. counting tiles. (iv) Pain acknowledging e.g. concentrating on numbness and dullness. (v) Dramatized coping e.g. imaging you are playing a heroic role in football game. (vi) Neutral imaginings such as watching a T.V. and attending the lecture. ***Cognitive Behavioural Therapy:*** utilizes the full range of cognitive and behavioral techniques. Stress management training is often included due to the significant levels of stress implicated in the genera-tion and exacerbation of pain. ***Biofeedback:*** It comprises a wide variety of techniques that provide bio-physiological feedback

to a patient about some bodily process of which the patient is usually unaware. It can be operant learning process: (1) A target body function to be brought under control, such as BP, heart rate. (2) This function is then traced by a machine and information about the function is passed on to the patient. (3) It is a method of achieving control over a bodily process, has been used to treat a variety of health problems, including stress, hypertension, and as a pain control techniques. (4) It is being used to treat several chronic illnesses including Reynaud's Disease. ***Relaxation Techniques:*** In relaxation, an individual shifts his or her body into a state of low arousal by progressively relaxing different parts of body. This technique has been employed with pain patients extensively, either alone or in concert with other techniques. Relaxation may also affect pain directly. An alternative method of inducing relaxation is through meditation. The most supported methods were progressive muscle relaxation for arthritis pain and a systematic relaxation technique for postoperative pain, little evidence was found for autogenic training, and no support for rhythmic breathing or other relaxation techniques.[13] People who suffer from migraine often have difficulty fully slowing down and relaxing. It's common for some people not to know or understand the feeling of relaxation, especially if they are commonly surrounded by stress or tension. Many forms of relaxation techniques can be learned in therapy, from basic breathing exercises to meditation, emotive imagery, and others. ***Hypnosis:*** One of the oldest techniques for managing pain. That hypnosis can help control pain has been noted for centuries. As an intervention hypnosis relies on several pain reduction techniques. Old medical textbooks and anthropological accounts of cultural healing rituals provide anecdotes of such extreme interventions as surgery conducted with no apparent pain while the patient was under a hypnotic trance. Hypnosis is itself a distraction from the pain experience, and distraction can reduce the experience of pain. The beneficial effect of hypnosis in reducing the pain are due at least in part to the composite effects of relaxation, reinterpretation, distraction and drugs. Hypnosis is "the deep physical relaxation state during which subconscious can be reached and important abilities are suspended". In this state, ability of people to be dominated increases.[14] Jensen Patterson stated that hypnotherapy/hypnosis is used for analgesia in various types of chronic pains and it has been stated that hypnosis has been effective for neck pain.[15] Liossiet al has made a study with pediatric cancer patients in which it has been determined that hypnosis application has decreased pain and anxiety level in patients.[16] ***Imagery:*** (1) ***Guided Imagery:*** In guided imagery, a patient is instructed to conjure up a picture that he or she holds in mind during the painful experience. Some practitioners of guided imagery use it primarily to induce relaxation. The use of guided imagery to induce relaxation can control slow-rising pains, which can be anticipated and prepared for, or it can be used to control the discomfort of a painful medical procedure. (2) ***Meditation:*** It also frequently forms part of relaxation training and involves the individual focusing their attention on a simple stimulus, to the exclusion of all other stimuli. Mindfulness meditation involves focusing attention on the moment to moment reality, including the self in each moment, in a non-reactive, non-judgmental way, attending way, attending to and accepting all aspects of the current experience. Carson et al stated that an 8-week meditation is useful for relieving the pain for patients with chronic lumbago.[17] Duration of the meditation can last from a few minutes to 30 minutes or take more.[18] Considering the fact that meditation helps relaxation, it is thought to be effective in relieving the pain.[19] (3) ***Prayer:*** Most of the individuals with chronic pains use the praying method. It is indicated that praying has positive results for decreasing the body pain in old people and relieving their physical functional disorders and it is suggested to use the praying method in order to reduce the depression and anxiety that is caused by chronic pain.[20]

Chronic headache is as much as a problem in India as elsewhere in the world with a rising trend in young adults which negatively affects the quality of life of the affected person. In current scenario of increasing prevalence of headache in students, most of them have been found to practice self medication leading to inappropriate management and sometimes analgesic overuse causing treatment refractoriness.[21] The World Health Organization (WHO) has identified migraine among the world's top 20 leading causes of disability. Migraine is estimated to account for 2.0% years of life lost due to a disability in women of all ages. In both sexes of all ages, migraine

is responsible for 1.4% of total years of life lost due to a disability.[21,22] Feiles,[21] has highlighted the benefits of psychotherapy to treat migraines and headaches. These are: **(i)** ***Trigger identification:*** A therapist can facilitate a cognitive process toward understanding the environmental elements that can trigger a headache such as meal content and sleep, habits to habitual emotional and coping processes. **(ii)** ***Trigger elimination:*** A therapist can help facilitate and monitor change toward a healthier environment. **(iii)** ***Stress reduction:*** Stress is known to be a significant trigger for headaches and migraines. Therapy generally is a good place to improve stress management, regardless of the presence of physiological symptoms. The reduction of stress on its own can yield positive results with migraines and headaches. **(iv)** ***Anger management:*** Stored anger (possibly from earlier life events), or a tendency toward bouts of anger also can lead to more migraines and headaches. **(v)** ***Rumination management:*** Excessive amounts of rumination and dwelling can result in headaches from emotional stress. **(vi)** ***Relaxation techniques*** (has mentioned previously). **(vii)** ***Processing the migraines:*** This component is one that deserves emphasis. Merely dealing with chronic migraines or headaches brings up issues of its own that need to be dealt with. For example, if there is anger or resentment about suffering from migraines, these emotions can possibly lead to a triggering cycle of migraines. There also could be emotions of fear, sadness, frustration, and others that result from having to deal with chronic pain.[23]

There is no doubt that chronic pain is recognized as a biopsychosocial phenomenon in which biological, psychological, and social factors dynamically interact with each other. Thus, the role of psychological factors and understanding chronic, persistent disabling pain has been well recognized, but poorly understood. Approximately 1/2 to 2/3 of all patients diagnosed with chronic pain manifest to various levels of psychological distress. Chronic pain and psychological disorders are the two most common elements in the United States. Statistics show that, approximately 22% of Americans suffer from a diagnosable mental disorder in a given year. In addition, 28% of the American population suffers with chronic pain. Depression in chronic pain is the most common condition, followed by generalized anxiety disorder, somatization disorder, and drug dependence. However, psychogenic pain appears to be the least prevalent of all psychopathological issues. Chronic pain disability is a complex psychosocial economic phenomenon.[24]

Conclusion

People with chronic pain frequently have psychopathology - most often depressive disorders, anxiety disorders, somatization disorders, drug dependence and occasionally personality disorders. The pain can be managed in a more effective manner with the combination of pharmacological and non-pharmacological therapies. Currently, the most successful approach appears to be programmes that combine cognitive behaviour therapies and traditional medical therapies. Both health personnel and caregivers need to have important responsibilities while following these developments.

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Review Article

Management of Female Sexual Dysfunction

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Introduction

Healthy sexual functioning is an important contributor to women's sense of well-being and quality of life. Female sexual dysfunction (FSD) is a highly prevalent and often underestimated problem in the general community. It is a multifactorial, age-related, progressive problem.[1] It is estimated that 40 to 45% of adult women suffer from some form of sexual dysfunction.[2]

Traditionally, female sexual dysfunction has been classified into four categories by the Diagnostic and Statistical Manual of Mental Disorders, 4th ed. (DSM-IV): hypoactive sexual desire disorder (HSDD), sexual arousal disorder, orgasmic disorder, or sexual pain disorders[3]. But in DSM-5 sexual desire and arousal disorders have been combined into one disorder i.e. female sexual interest/arousal disorder.[4] Genito-pelvic pain/penetration disorder is new in DSM-5 and represents a merging of the DSM-IV categories of vaginismus and dyspareunia. A systematic review of prevalence rates have found that hypoactive sexual desire disorder (64%) is most common followed by orgasmic disorder (35%), sexual arousal disorder (31%); and sexual pain disorder (26%).[5] An Indian study[6] recently reported FSD in 73.2% subjects of the sample. The complaints elicited were difficulties with desire in 77.2%, arousal in 91.3%, lubrication in 96.6%, orgasm in 86.6%, satisfaction in 81.2%, and pain in 64.4% of the subjects. Male sexual dysfunction has been extensively studied and effective therapies are available for men with this disorder. However, female sexual dysfunction is more complicated and significantly less understood in comparison to male sexual dysfunction. The medical management of FSD is one of the rapidly developing fields of medicine. The future of this field is interesting and encouraging.

Management

Management of female sexual dysfunction is complicated by the lack of a single causative factor, limited proven treatment options, physician unfamiliarity with available treatments, overlap of different types of dysfunction, and limited expertise in the treatment of female sexual dysfunction. Female sexual dysfunctions can be manifestations of biological (biogenic) problems or intrapsychic or interpersonal (psychogenic) conflicts or even a combination of these factors. Female sexual dysfunction management calls for a multipronged approach and should focus on the biological, psychological and the environmental factors relevant to a particular individual seeking help. A patient centered approach should be followed in individuals suffering from FSDs. Patient-centered care, in the context of FSD, implies understanding the patient's background, her attitudes, beliefs, knowledge and misconceptions about sexuality, fertility, physical environment of the patient, such as privacy and comfort available to her and her partner. It also requires an in-depth analysis of the biological status of the patient with FSD, viz. her medical, endocrine and urogynecological health. FSD counseling and management require the use of a couple-centered approach, also termed by use as couple-centered care (CCC). In this model, the couple may be taken as the basic unit for intervention. Assessment for sexual abuse, recurrent depression, substance abuse, self-harm and promiscuity is also very important for knowing the etiology of sexual dysfunction in

females. Available interventions include pharmacological treatment, psychotherapy, and targeted sexual therapy. Currently only two treatment options for female sexual complaints are approved by FDA (1) The Eros clitoral stimulator, approved in 2000 for female sexual arousal disorder and (2) conjugated equine estrogen, approved in 2008 for treatment of moderate to severe dyspareunia.

Hypoactive Sexual Desire Disorder

Hypoactive sexual desire disorder often has a psychological or physiological cause. Nonpharmacologic treatment is aimed at education, therapy, and treatment of contributing factors. As understanding about normal female sexual function develops, it is important to educate women about how desire may change with increasing age or relationship duration.[7] Therapy emphasizes lifestyle changes such as stress management, adequate rest, and regular exercise.[8] Pharmacologic treatment is limited. One of the most commonly studied medications is testosterone. Although decreased androgen levels do not correlate well with hypoactive sexual desire disorder,[9] testosterone (usually 300 mcg daily applied transdermally; transdermal application is not approved by the U.S. Food and Drug Administration [FDA] for use in women) has been shown to benefit sexual desire in postmenopausal women receiving hormone therapy.[10,11] Topical and systemic estrogen improves vaginal lubrication in postmenopausal women with vaginal atrophy, but the therapy has not been shown to consistently increase desire or arousal. Phosphodiesterase inhibitors have not been shown to improve diminished desire.

A large double-blind, 12-week randomized clinical trial examined the effects of Bupropion SR 150 mg/day in 232 nondepressed, premenopausal women with HSDD.[12] The bupropion group had a statistically significant improvement in all areas of sexual functioning. Bupropion SR 150 mg/day was well tolerated. A small randomized, controlled trial with 75 nondepressed, premenopausal women with HSDD assessed the effects of 150 mg/day to 400 mg/day of Bupropion SR on sexual functioning over 112 days. Improvement in all aspects of sexual functioning was noted, but the study was not sufficiently powered and was associated with high attrition in both arms.[13]

Sexual Arousal Disorder

It is very important to rule out comorbid desire disorders before treating arousal disorders. If there is comorbid desire disorder then it should be treated first before arousal disorders are treated. Because physiologic and subjective arousal may be unrelated, education is a key component in the treatment of female sexual arousal disorder.[8] Another treatment option is the Eros Clitoral Therapy Device. The device is FDA-approved and is designed to improve arousal by increasing blood flow to the clitoris with gentle suction.[14] Two small, short-term studies have shown that the device benefits women with sexual arousal disorder.[15]

Prostaglandins have displayed positive outcomes for certain women with genital sexual arousal disorder, most likely through increasing vaginal secretion and arterial smooth muscle relaxation.[16] Synthetic version of PGE1, alprostadil has displayed positive results for the treatment of FSAD. In a recent randomized, double blind, placebo-controlled study, 400 female patients (pre- and post-menopausal) with FSAD displayed an improved sexual arousal rate when topical alprostadil was applied prior to vaginal intercourse.[17] Although topical alprostadil is a potential new therapy for the treatment of FSAD, more conclusive results from ongoing clinical studies are needed to further validate the use of topical alprostadil in the treatment of FSAD.

Lubrication may decrease dyspareunia associated with diminished desire. Phosphodiesterase inhibitors have been shown to have limited benefit in subgroups of women with sexual arousal disorder;[18] however, most women do not appear to benefit from the treatment.

Estrogen therapy, systemic or local, is often an effective treatment for arousal disorder that is acquired after the menopause. Over-the-counter lubricants and/or long-acting vaginal moisturizers may also be helpful when lubrication has been diminished. Other topical pharmacologic treatments that are being studied include the use of androgens, alprostadil and L-arginine.

Female sexual arousal disorders can be effectively managed by psychotherapy. Psychotherapy in this group of women removes inhibitions and enhances interpersonal relations and motivation levels.

Orgasmic Disorder

Disorders of orgasm are often "situational". These women can achieve orgasm readily and reliably with some specific forms of stimulation. The most effective treatment is a cognitive-behavioural approach in which a woman learns to be comfortable with her body and then her own sexuality by altering negative attitudes and decreasing anxiety.[19] The behavioural treatments include directed masturbation, sensate focus exercises, and systematic desensitization. Sensate focus is a form of sexual therapy that guides a woman and her partner through a series of exercises, moving from non-sexual to sexual touching.

Though success of several PDE5 inhibitors (sildenafil, vardenafil and tadalafil) in males with sexual dysfunction did stimulate interest in treating FSD, the same effectiveness of this drug class has not been found across genders. Early clinical trials conducted by questionnaires in women with HSDD and FSAD showed some promise, revealing that Sildenafil improved the ability to achieve orgasm and state of arousal.[20,21] In addition, Cavalcanti et al[22] showed that sildenafil significantly improved clitoral blood flow in postmenopausal women with orgasmic dysfunction, measured by colour and pulse Doppler. Conversely however, an additional study investigating a broad spectrum of sexual dysfunction in women did not report beneficial effects of the PDE5 inhibitor.[23] Inconsistent reports on the effects of Sildenafil between male and females may be explained by the different definitions or states of arousal between the genders. PDE5 inhibitors increase genital engorgement[21] and blood flow[22] and recently, expression of numerous PDE isoforms were found in the human clitoris, vagina, and labia minora.[24] This further indicates that an increase in cGMP or cAMP could mediate vaginal and clitoral blood flow, and continued investigation into PDE inhibition is needed.

A pilot study of men and women showed that Bupropion is effective for orgasm achievement.[25]

Sexual Pain Disorders

Dyspareunia has many potential etiologies, including infection, vaginal atrophy, and endometriosis.[26] Addressing the underlying cause is the first step in treatment. If the cause is unknown or not easily treated, treatment is multidimensional and multidisciplinary and reflects the interplay of physiologic, emotional, and relational factors.[27,28]

Physiotherapy (e.g., hands-on techniques, biofeedback, pelvic floor electrical stimulation, use of vaginal dilators) is a treatment option for sexual pain disorders such as vulvar vestibulitis and vaginismus. Psychotherapy is tailored to the patient's individual issues, and inclusion of her sex partner should be encouraged.

In the treatment of vaginismus, psychotherapy addresses the patient's fears about vaginal penetration and allows her to gain increasing comfort with her genitals and, eventually, vaginal penetration.[27] Cognitive behavior therapy (provided in a group setting over six months) that focuses on pain's relationship to anxiety, muscle contractions relationship to pain perception, and general sexual education has been shown to decrease pain with intercourse and improve sexual satisfaction in women with vulvar vestibulitis.[29] With systematic desensitization, a woman is taught relaxation exercises and is gradually exposed to insertion of a finger or vaginal dilator.

Pharmacologic therapy of sexual pain disorders includes treatment of the underlying cause, such as estrogen for vaginal atrophy[7,11] or medication for vulvovaginal candidiasis. Vulvar vestibulitis is treated with tricyclic and other antidepressants, anticonvulsants, and topical agents; however, there are limited data to support pharmacologic treatment of sexual pain disorders.[30]

Treatment Options in the Pipeline

Apomorphine

Dopamine is involved in the mediation of sexual desire and arousal. Recent data suggests that dopamine is in fact involved in the regulation of sexual desire and arousal.[31,32] The physiologic effects of this drug are currently being tested in women with sexual dysfunction in the form of a nasal spray and preliminary results are promising.[33]

Flibanserin

Flibanserin is a 5-HT (1A) agonist/5-HT2 antagonist for treatment of HSDD. Phase 3 pivotal trials have shown it to be effective, with mild adverse effects including nausea, dizziness, fatigue, and sleeplessness.[34] In a trial of postmenopausal

women with HSDD, flibanserin 100 mg at bedtime also was associated with clinically meaningful and significant improvement.

L-arginine

This amino acid functions as a precursor to the formation of nitric oxide, which mediates the relaxation of vascular and nonvascular smooth muscle. L-arginine has not been used in clinical trials in women. However, preliminary studies in men appear promising.[35] A combination of L-arginine and Yohimbine (an alpha-2 blocker) is currently undergoing investigation in women.[36]

Conclusion

Due to the complexity of female sexual dysfunction, a multifaceted approach, addressing neurobiological, vasoactive, hormonal as well as psychosocial and cultural aspects would be more comprehensive and would address the needs and concerns of the women that suffer from this disorder. Further studies are essential for formulating effective treatment strategies.

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Review Article

Disability benefits for persons with mental illness in India: Challenges for implementation and utilization

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Introduction

There is an increasing recognition and emphasis on the needs and rights of people with disabilities. The constitution of India ensures equality, freedom, justice and dignity of all individuals and implicitly mandates an inclusive society for everyone including persons with disabilities. Persons with disabilities include those who have long term physical, mental, intellectual or sensory impairments which in interaction with various barriers may hinder their full and effective participation in society on an equal basis with others.[1] In India, disability essentially follows the medical model where individuals with certain physical, intellectual, psychological and mental impairments are taken as disabled. Recently this focus on the individual is shifting to the society where disability is taken to be the result of interaction of the individual with the environment and attitudes of the society.

The Government of India has introduced few legislations and policies for the welfare of persons with disabilities due to mental illnesses. But the implementation of these policies has been marred with many hurdles. There is also a dearth of research looking into the impediments in the access of these benefits by persons with disabilities.

Definitions of Disability: Shifting the focus from individual to the society

Disability is an umbrella term for impairments, activity limitations and participation restrictions. It denotes the negative aspects of the interaction between an individual (with a health condition) and that individual's contextual factors (environmental and personal factors). Impairment is a problem in body function or structure; an activity limitation is a difficulty encountered by an individual in executing a task or action; while a participation restriction is a problem experienced by an individual in involvement in life situations. Thus disability is a complex phenomenon, reflecting an interaction between features of a person's body and features of the society in which he or she lives.[2]

India ratified United Nation on the Rights of Persons with Disabilities (UNCRPD) on the 1st of October, 2007. India was the 7th country in the world and the first significant country to do so. The ratification of UNCRPD was a direct result of the advocacy by National Centre for promotion of Employment for Disabled People (NCPEDP) and Disabled Rights Group (DRG). UNCRPD is an international instrument that provides persons with disabilities the same human rights that everyone else enjoys. It marks a radical shift in defining and understanding disability - it moves from a medical/ social perspective to a human-rights based approach.[3]

The Preamble to the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) states that "Disability results from the interaction between persons with impairments and attitudinal and environmental barriers that hinder their full and effective participation in society on an equal basis with others."[1]

The policy makers have to adopt a social model

and the undue restrictions on behaviour of persons with impairment are to be highlighted. Following areas which may form barrier to the welfare of persons with disabilities are to recognized and altered- (a)dominant social, political, and economics ideologies; (b) cultural and religious perceptions regarding persons with disabilities; (c) paternalism in social welfare systems; (d) discriminations by society; (e) the inaccessibility of the environment and information; and (f) the lack of appropriate institutional and social arrangements. Thus it has to be realized that disability does not lie in individuals, but in the interactions between individuals and society. In the social model, persons with disabilities are right holders, and are entitled to advocate for the removal of institutional, physical, informational and attitudinal barriers in society.[4]

Disability statistics: Tip of the iceberg?

According to Global Burden of Disease Study, 2010, mental and substance use disorders were the fifth leading disorder category of global DALYs.[5] Mental and behavioural disorders accounted for 7·4% of DALYs; within this large grouping five different diseases caused more than 15 million DALYs each. In order of importance, the main causes were major depressive disorder (2·5%), anxiety disorders (1·1%), drug use disorders (0·8%), alcohol use disorders (0·7%), and schizophrenia (0·6%). From 1990 to 2010, mental and behavioural disorders increased from 5·4% to 7·4%.[6]

In any society estimation of the population suffering from physical or mental infirmities, with reasonable accuracy, is a challenging task. In the absence of a complete and perfect administrative statistics, recourse is taken through surveys and censuses in spite of their inherent limitations in netting rare personal characteristics. The Persons with Disabilities (Equal Opportunities, protection of Rights and Full Participation) Act which came into force in 1995, imposes specific obligation on the government to undertake surveys, investigation and research concerning causes of disability.[7] In India, the major sources of statistics on disability are the decadal Population Censuses and the regular large scale sample surveys on disability conducted by National Sample Survey Office (NSSO).[4]

As per population census 2001, the number of persons with mental disability was estimated to be 22.64 lakhs. Whereas the National Sample Survey Office (NSSO), 2002 reports the number of disabled persons in the country to be 1.85 crores during July to December 2002. They formed about 1.8 per cent of the total population. The number of persons with mental disability was 20.96 lakhs.[4]

The definition used under Population Census limits mental disability to as characterized by sub normality of intelligence and thus, covers only Mental Retardation category of the PWD Act. On the other hand, NSS definition covers sub-normality of intelligence (as difficulty in understanding routine instructions) and goes further in an attempt to cover mental disability other than Mental retardation by adding other characterization of the behaviours like talking to self, laughing/crying, staring, violence, fear and suspicion without reason. As NSS definition seems to be more comprehensive/inclusive, NSS 2002 figure of number of mentally disabled is expected to be more than the Census 2001 figure. But the figures tell the opposite which shows the shortcomings of these sources.[4] These deficits in the disability statistics means that the policy makers don't have reliable data which can be used to make welfare schemes and policies for the people with disabilities.

Disability assessment in persons with mental illness

Rehabilitation Committee of the Indian Psychiatric Society (IPS) introduced the Indian disability evaluation and assessment scale (IDEAS) in 2002. The Ministry of Social Justice and Empowerment, Government of India gazetted it in 2002 after certain modifications in the scale and is now the recommended instrument to measure psychiatric disability in India. The author originally had suggested months of illness during the last two years (MI 2Y) as the method to assess the duration of illness. But, the modified instrument makes it difficult to calculate total duration of illness in episodic illnesses with inter-episode residual symptoms.[8]

Some of the Indian studies have tried to quantify disability due to mental illness using IDEAS. Shihabudeen et al found that majority of persons with schizophrenia had moderate to severe disability in psychosocial role functioning whereas most of

the persons with bipolar mood disorder had mild to moderate disability.[9] Shihabudeen et al found in another study that most of the persons with schizophrenia having duration of illness between 2-5 years had moderate-severe disability. This represents the debilitating nature of the illness, despite availability of biological and psychosocial treatment modalities.[10]

Chaudhury et al, studied disability associated with 7 psychiatric disorders: schizo-phrenia, bipolar affective disorder, anxiety disorders, depression, obsessive–compulsive disorder, dementia, and mental and behavioural disorders due to the use of alcohol among 228 patients attending the OPD, Department of Psychiatry, Assam Medical College, Dibrugarh, between July 2003 and June 2004. 64.3% of patients with schizophrenia, 33.33% of patients with depression, 30% of patients with bipolar disorders, 16.7% of patients with Alcohol use disorders, 16.0% of patients with Obsessive Compulsive disorder and 16.7% of patients with Anxiety disorders had more than 40% disability on IDEAS. It was also seen that over a period of 12 months, disability due to depression, alcohol use disorder and anxiety disorders tend to remain significant.[11]

This is an important finding because most mental health professionals don't think of disability assessment in mental illnesses other than schizo-phrenia. Many mental health professionals refuse to provide disability certificate for people with substance dependence syndrome. It has to be understood that it is not the diagnosis but the amount of disability experienced which determines which disability benefits the person can rightfully avail.

Disability legislations

Mental illness can have significant impact on the socio-occupational functioning of a person and his family. Persons with mental illness have a downward slide economically and become vulnerable to abuse of their rights. In order to provide equal opportunities, protection of Rights and enable full participation, the Persons with Disability Act, (PWD Act 1995) was introduced.[7] Although it has positive aspects; many have brought out the shortcomings of it. The clause "the appropriate Governments and the local authorities shall, within the limits of their economic capacity and development will provide….." which appears in many chapters of the PWD act has been named as a disabling clause in the disability legislation. It gives a notion that disability benefits offered are "objects of charity", whereas it should be "the rights of the persons with disability", who are capable of claiming those rights.[8]

Right to health for people with disability means they should have access to quality healthcare services for ensuring physical and mental health. But there are no clear provisions in the PWD Act which mandates such healthcare services. Thus there is an urgent need to shift the focus from 'respect', 'promote', and 'protect', to focus more on 'fulfill'.[8] Stigmatization and discrimination are deterrents which have come in the way of utilization and implementation of these legislations. It is also necessary to introduce the concept of disability and disability legislations to young doctors at under-graduate and post-graduate levels to sensitize them to this burning issue.

Challenges in the certification of mental illnesses and access to benefits

The PWD Act of 1995 provides particular benefits if a person has 40% disability on IDEAS as certified by a government medical authority.[7] A certain percentage of government jobs, for example, is reserved for those with certified disabilities. Educational institutions that receive aid from the Government of India must reserve at least three per cent of their seats for persons with disabilities. Other benefits include disability pension/ unemployment pension, disabled person's scholarship, insurance scheme for the mentally challenged, adhara scheme helping to set up small shops, telephone booth, free education up to 18 years, free legal aid, concessional bus passes and railway concession.[12] The biggest hurdle to access these benefits is the lack of awareness of such benefits among people with disabilities and their caretakers.

Kashyap et al analysed 285 mentally ill who were certified as disabled in the 3-year period (2006-2008) at Government, Wenlock District Hospital, Mangalore, Karnataka. 99.4% of the persons with disabilities from rural areas had not availed any benefits other than disability pension. 47.6% of persons with a disability of more than 70% were not availing any benefits other than the disability

pension which shows poor awareness about these benefits. The authors suggest exclusive education and awareness counter at Disability Camps would aid in spreading awareness in the peripheral outreach areas. They also suggest a single window policy under the Ministry of Social Welfare where the persons with disabilities can get certified and avail all benefits rather than being made to run around various government offices.[13]

There is a trend of making the disability benefits contingent on the income of the person with disability. Income ceiling should not be a criterion while assessing persons with disabilities to uphold their rights.[8]

There is also a special challenge which impedes access to these benefits. Many persons with disability due to mental illness have negative symptoms like amotivation, alogia, anergia and apathy which make them incapable to avail benefits. Persons with long-standing mental illness also have progressive cognitive deficits which make it a taxing effort to go to various government offices for availing the benefits. Invariably such patients are dependent on their caretakers which stresses the role of raising awareness in the general public and caretakers of persons with disabilities.

Ethical issues surrounding disability certification

Persons with disability due to mental illness should get a disability certificate from a government medical authority to avail any benefits under various policies. It is a document which displays name of the person with full address, photograph, psychiatric diagnosis and percentage of disability. It is required to show this document at various government offices which means that the patient's private information is put at risk for breach of confidentiality and misuse. It also means that many patients who are dependent on their caretakers for getting the certificate are made to disclose their health related information to them, whether they are willing or not. It is even seen that few patients are secretive about their problems and may avoid applying for these benefits with the fear that their diagnosis would be disclosed to everyone.[14]

Concerned authorities should look into these ethical issues to preserve patient confidentiality and autonomy. There should be concerted effort to prevent fraudulent use of these certificates to avail benefits for a person who doesn't deserve them.

Attitudinal barriers to empowerment of persons with disabilities due to mental illness

Public and many healthcare professionals have a wrong notion that persons with disabilities are inferior to others. They generalize the disability in one domain to every aspect of a person's life. Many people are also of the view that people with disabilities are lazy people and that they are given unfair advantages at the workplace. Some people including healthcare professionals do not acknowledge disability experienced by persons with mental illness as it is not readily apparent as in other cases like visual or hearing impairment. There is an urgent need to increase awareness in the general public and medical community about the disabling nature of the mental illnesses which will break down these attitudinal barriers.

Conclusion

The right of persons with disabilities due to mental illnesses has been neglected by medical community as well as the policy makers. We may be looking at just the tip of the iceberg as persons with mental illness don't come forward to uphold their rights with fear of stigmatization and discrimination. Proper implementation of the legislations and welfare schemes is essential without compromising the autonomy and privacy of these people. Scott Hamilton once said that, "The only disability in life is a bad attitude";there is a need for a paradigm change in attitudes among the general public and the medical community.

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Original Article

Psychiatric manifestations among cardiac patients: A hospital based study

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ABSTRACT

***Background**: Chronic physical illnesses and depression have a bidirectional relationship. The deleterious effects of depressive and anxiety symptoms on cardiovascular functioning have gained much attention in recent times. Not only do depressed patients experience great difficulties in problem solving and coping with challenges, but depression adversely affects compliance with medical therapy, stress reduction and cardiac rehabilitation programmes. The prevalence rate of depression in coronary artery disease ranges from 16%-23% while that for anxiety disorder it is 38%. **Aims and Objectives**: To assess the prevalence of psychiatric morbidity among cardiac patients by using standardized rating scales for depression and anxiety. **Material and Methods**: 100 diagnosed patients of cardiac disease who were admitted in Hero DMC Heart Institute (Ludhiana)were assessed on HDRS and HARS. They were assessed on socio-demographic profile, duration of illness and then the data was analyzed on different domains. **Results**: Depressive symptoms were found in 64% of the patients. Moderate to severe level of depressive symptoms were found to be more in females (51.36%) as compared to males (38.45%).Mild level of anxiety was found more in males while moderate to severe level of anxiety was more in females. **Conclusion**: Anxiety and depression are independently associated with increased cardiovascular morbidity and mortality. Early evaluation and treatment of these will enhance quality of life through an improvement in biological and behavioural mechanisms related to deterioration of illnesses. **Limitations**: Psychological factors have been taken into consideration during the study.*

***Keywords:** Cardiac disease, Depression, Anxiety, Mortality*

Introduction

Depression in cardiac disease is common, persistent, under recognized and associated with worse health related quality of life, recurrent cardiac events and mortality. Both physiological and behavioural factors including endothelial dysfunction, platelet abnormalities (meditated by serotonin), increased inflammation(C-reactive protein and interleukin-6),[1,2] elevated catecholamines, low brain derived neurotrophic factor,[3,4] HPA axis dysfunction and reduced engagements in health promoting activities, may link depression with adverse outcome.[5-7]

Not only do depressed patients experience great difficulties in problem solving and coping with challenges, but depression adversely affects compliance with medical therapy, low fat diet, smoking cessation, stress reduction and cardiac rehabilitation programmes.[8-10] In a study of hospitalized patient with a variety of cardiac conditions, those who met the criteria for clinical depression during admission had improvement of adherence (diet, exercise and medication) if depression improved during hospitalization,[11] which suggests that reduced adherence to key secondary prevention

behaviours in depressed cardiac patients may be modifiable with treatment of the depressive symptoms.

Depression is highly prevalent in cardiac patients. The prevalence of depression in such patients range from 16-23%.[12] Between 31-45% of patients with coronary artery disease, including those with stable CAD, unstable angina, or myocardial infarction, suffer from clinically significant depressive symptoms.[13] Furthermore, 15-20% of patients with CAD meet criteria at any given time for full syndrome of major depressive disorder.[14,15]

Anxiety disorders are frequently seen in cardiac patients and generalized anxiety disorder is the most common by far in the range of 38%.[16] Anxiety disorder especially generalised anxiety disorder may be associated with mortality and other adverse outcomes, independent of both additional risk factors and depression.[17,18] In another study social phobia and generalized anxiety disorder were the most common anxiety disorders observed, with current prevalence rate of 21.3% and 18.7% respectively and the lifestyle prevalence of 26%.Female cardiac patients evidenced significantly higher current (women 58.3% vs 25.55, p <.001) and lifetime (women 70.8% vs men 33.3%, p < 0.001) rate of anxiety disorder compared with male counterparts.[19]

Aims and objectives

To assess the prevalence of psychiatric manifestations among cardiac patients by using standardized rating scales for depression and anxiety.

Materials and method

100 diagnosed cardiac patients admitted in the indoor services of Hero DMC, Heart institute, Ludhiana Punjab, India were assessed on HDRS and HARS after complete history and mental status examination. They were assessed on socio demographic profile, duration of illness and then the data was analyzed on different domains.

Inclusion criteria

- Patients were above the age of 20 years at the time of study.
- Patient of both the sexes were taken for study.
- Patient should be a known case of cardiac illness.
- Patient not suffering from any depression/ anxiety symptoms before the diagnosis of cardiac illness.

Exclusion criteria

- Associated drug and alcohol dependence.
- Any other major psychiatric illness like schizophrenia, mental retardation.
- Patient with severe cognitive impairment.
- Patient already on any psychotropic drug.
- Any past history of psychiatric disorder.

Results and Discussion

1. Table I shows the socio demographic profile of the patients. Most of the patients were in the age group of 45-60 irrespective of the sex.

Table1. Socio Demographic Variables

Age (in years)	Male (n=65)	Female (n=35)
<45	10	8
45-60	30	17
>60	25	10
Education level		
Upto Matric	30	18
Matric-graduation	20	10
> graduation	15	7

2. Table 2 shows that depressive symptoms were found in 65% of the patients. This is in accordance with the findings of many researchers where prevalence of depression was found to be 31-45%.[12,13,20]
3. Table 3 shows that moderate to severe level of depression was found to be more in the females (51.36%) as compared to males (38.45%) which corroborate with the study done by other researchers.[21]
4. Mild level of anxiety symptoms were found to be more in the males (61.53%) as compared to females (42.85%) while moderate to severe level of anxiety was found more in females (57.13%) as compared to males (38.45%). This is in consistent with findings of other researchers where the current (women 58.3% versus men 25.5%) and lifetime (women 70.8% vs men 33.3%) rate of anxiety was more in

Table 2. Scores on Hamilton Depression Rating Scale

	Male n=65	Female n=35	Total
< 08 (no depression)	25 (38.46%)	10 (28.57%)	35%
8-13 (mild depression)	15 (23.08%)	7 (20%)	22%
14-18 (moderate depression)	10 (15.38%)	8 (22.8%)	18%
19-22 (severe depression)	10 (15.38%)	5 (14.28%)	15%
23 and above (very severe depression)	5 (7.69%)	5 (14.28%)	10%

Table 3. Scores on Hamilton Anxiety Rating Scale

	Male n=65	Female n=35	Total
< 17 (mild)	40 (61.53%)	15 (42.85%)	55%
18-24 (moderate)	18 (27.69%)	15 (42.85%)	33%
25 (severe)	7 (10.76%)	5 (14.28%)	12%
Total	44	56	

females as compared with male counterparts.[19]

5. On the symptom checklist of HDRS and HARS, (Fig. 1 and 2) the genital symptoms are usually reported by males (53.84%) as compared to females (20%). This might be due to difference in culture, education and awareness regarding sexual problems among patients coming from different regions.
6. Table 4 and 5 reflects that severity level of depressive symptoms were more in patients where duration of illness is less than one year as compared to group where duration is more than ten years irrespective of sex ($p < 0.01$). This might be due to factors like financial burden of illness, fear of disability, loss of self esteem, loss of life, stigma of the disease. This is consistent with findings of many researchers.[22,23]

Fig. 1. Distribution of positive rating on symptom check list of HDRS between males and females (%)

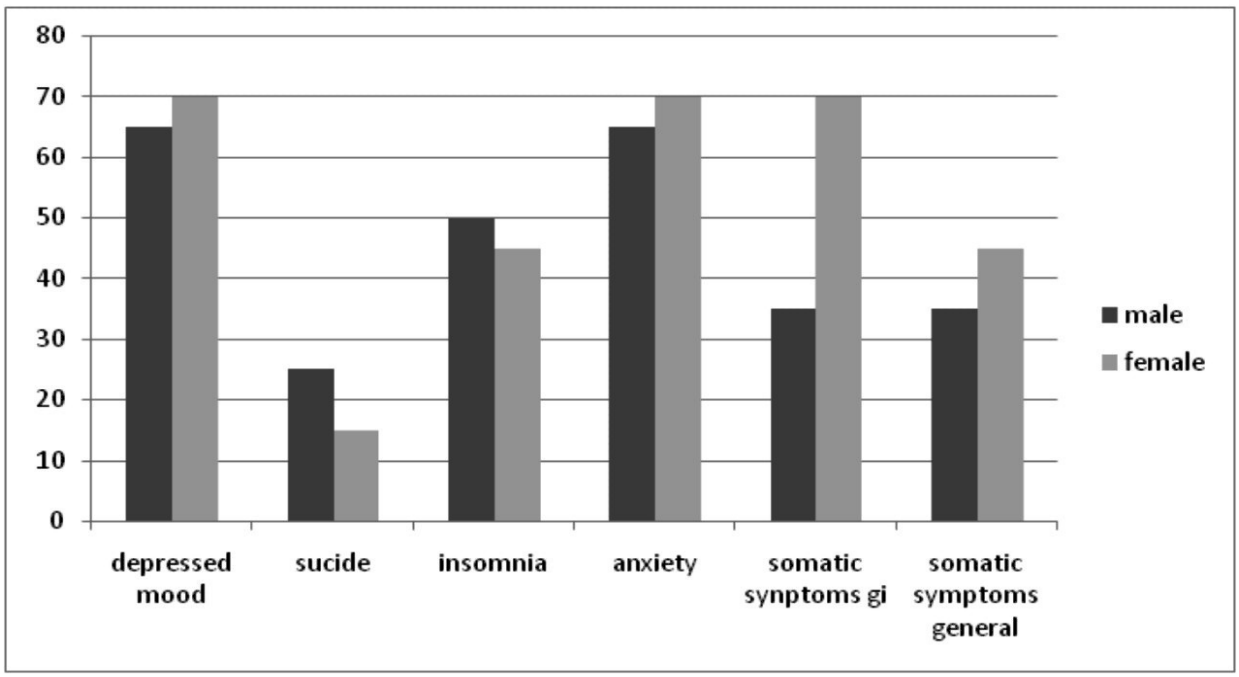

Fig. 2. Distribution of positive rating on symptom check list of HARS between males and females (%)

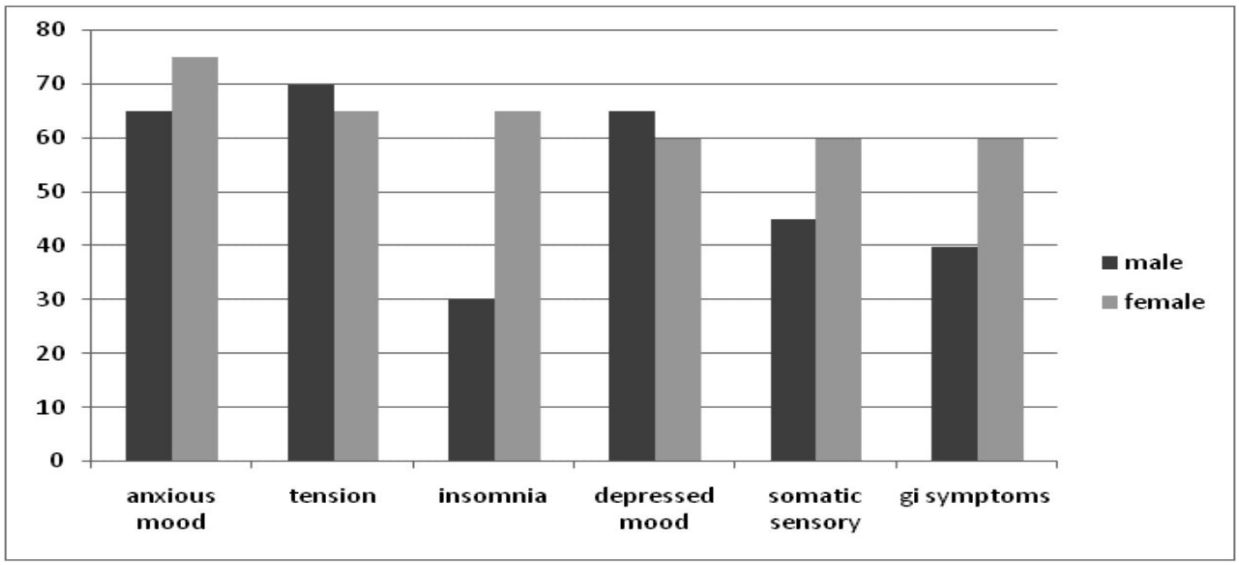

Table 4. Severity of depressive symptoms according to duration of illness in males (n=40)

HDRS duration	Less than one year (n=18)	More than one year (n=22)
Mean HDRS	20.8	16.5
Standard deviation	2.63	2.16

T=4.392; df = 24; p < 0.01 (highly significant)

Table 5. Severity of depressive symptoms according to duration of illness in females (n=25)

HDRS duration	Less than one year (n=12)	More than one year (n=13)
Mean HDRS	21.4	18.25
Standard deviation	2.22	2.13

T=5.899; df = 72; p < 0.01 (highly significant)

Conclusion

Depression and anxiety symptoms are common persistent, underrecognised and untreated in patients with cardio vascular diseases inspite of the availability of easy to use screening tools and effective treatment resulting in recurrent cardiac events and increase in health care cost. The present study has also highlighted the facts that the prevalence of depression and anxiety symptoms were very high in both females and males and severity of depressive symptoms were more in patients when the duration of illness was less than one year irrespective of sex. So early evaluation and treatment of these will enhance quality of life through an improvement in biological and behavioural mechanism related to deterioration of these illnesses.

Limitation

The present study has assessed only severity level of anxiety and depression and not in other psychiatric aspects .Other is that the correlation between duration of the illness and whether the patients has underwent any surgical procedure should have been taken into consideration.

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Original Article

Psychiatric morbidity in perpetrators of domestic violence in married women with gynaecological morbidity: A study from a tertiary care centre in Eastern Uttar Pradesh

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ABSTRACT

Background*: Most studies on domestic violence are population-based. There is a dearth of case-control studies. Domestic violence in women with medical morbidity has not received sufficient attention. Previous research in the country was impeded by the non-availability of a culture specific tool for assessing domestic violence. Factors relating to victimization, rather than perpetration, have received more attention. Psychiatric morbidity as a determinant of domestic violence has received little attention. Indian culture is unique and there is limited work on domestic violence from Eastern Uttar Pradesh.* ***Objective:*** *To study and compare married women with gynaecological morbidity and healthy women at a tertiary care centre with regard to 1) the nature and magnitude of domestic violence by husbands in the past year and 2) the nature of psychiatric morbidity in perpetrators of domestic violence.* ***Method:*** *50 women attending Obstetrics and Gynaecology OPD department of SSL Hospital with gynaecological morbidity (Group 1) and 50 healthy women (Group 2) were studied for the nature and magnitude of domestic violence by husbands in the past year by the Domestic Violence Questionnaire. Psychiatric diagnosis in perpetrators of domestic violence was based on pooled sources of information, the FIGs, SCID I and SCID II and medical records.* ***Results:*** *Significantly more women in Group 1 than in Group 2 reported domestic violence (total/ psychological and physical) by husbands in the past year (Group 1: 52% total/ psychological violence; 44% physical violence) than the healthy women (Group 2: 32% total/ psychological violence; 24% physical violence). Psychiatric morbidity was observed in 61.5% (Axis I 26.9; Axis II 34.6%) of Group 1. perpetrators and 56.2% (Axis I 31.2%; Axis II 25.6%) of Group 2 perpetrators.****Conclusion:*** *Women with gynaecological morbidity have a higher reporting of domestic violence by husbands during the past year. A significant proportion of perpetrators have psychiatric morbidity. Perpetrators should be screened for psychopathology and treated.*

Key words: *Domestic Violence, Psychiatric Morbidity, Perpetrators, Gynaecological*

Introduction

Violence against women is a universal phenomenon. Domestic violence continues to be frighteningly common and to be accepted as normal within too many communities. A growing body of research confirms the prevalence of physical

violence in all parts of the globe. As per the WHO multi-country study involving 10 countries, the proportion of ever-partnered women who ever experienced physical or sexual violence, or both, by their partners in their lifetime, ranged from 15-71%, with most sites falling between 29-62%.[1] Physical violence is often accompanied by psychological abuse and in many cases by sexual assault.[2]

Estimates of domestic violence within India vary widely from 18% to 70%. Up to 45% of married men acknowledged physically abusing their wives, according to a 1996 survey of 6902 men in the state of Uttar Pradesh.[2]

Most studies on domestic violence have been population-based. The relationship between domestic violence and medical / gynecological morbidity has not been sufficiently explored. From developed countries substantial data suggests a relationship between domestic violence and gynaecological morbidity.[3] A prevalence of 21% of domestic violence in women who attended an out-patient clinic in a North of England Hospital was reported.Women who were subjected to domestic violence tended to have more consultations and were more likely to complain of certain symptoms.[4]

There is limited data from developing countries regarding the link between domestic violence and gynaecological morbidity. Links between domestic violence and sexually transmitted diseases have been reported.[5] In a study from North India 37% men admitted abusing their wives in the past 12 months and 34% of the women reported at least one symptom of gynaecological morbibity.[6]

Gynaecological symptoms in women are common and result in distress and varying degrees of disability. The latter may adversely affect women's sexual behavior and ability to carry out the domestic chores. Husbands often do not always appreciate the genuineness of gynaecological symptoms in their wives. It would be interesting to see whether domestic violence by husbands in women with gynaecological symptoms differs from that in normal healthy women.

Apart from psychosocial factors, personality characteristics of both victims and perpetrators and psychiatric morbidity in husbands (alcoholism) have been mentioned as risk factors for domestic violence.[7] Perpetrators of domestic violence have been categorized into 3 major types: "cynically emotional volatile", "over-controlled" and "psychopathic".[8] In a recent study[9] from Eastern India comprising 4 states, Bihar, Jharkhand, Orissa and West Bengal, age, education, occupation, marital duration and husband's alcoholism emerged as significant predictors of victimization and perpetration of all types of domestic violence.A higher level of family income was found to be highly protective against the risk of violence. In another study[10] from a rural community from Northern India, an alcoholic husband emerged as the main cause for domestic violence. In a recent study,[11] from Tehran in Iran, of personality traits of 398 women who sought treatment at 4 hospitals, neuroticism was positively related to, while extraversion, agreeableness, and conscientiousness were negatively related to the severity of total wife abuse.

Previous studies have focussed largely on risk factors (mainly sociodemographic and family factors) for victimization, rather than for perpetration; with little attention to psychiatric morbidity as a risk factor for victimization and/ perpetration of domestic violence. Besides, previous research in the country was impeded by the non-availability of tools developed in India for quantifying domestic violence. Recently, the Domestic Violence Questionnaire has become available for use in India.[12]

Thus, the present study was carried[1] to study and compare married women with gynaecological morbidity and healthy women at a tertiary care centre in Eastern Uttar Pradesh,with regard to (1) the nature and magnitude of domestic violence by husbands in the past year and (2) the nature of psychiatric morbidity in perpetrators of domestic violence.

Material and Methods

Ethics clearance: The research proposal of the study was approved by the research committee of the Department and the Institute of Medical Sciences.

Study Design: Case-control study

Material:

Group 1 comprised 65 women selected from the Obstetrics and Gynaecology OPD of Sir Sunder Lal Hospital (SSL), Banaras Hindu University, Varanasi. The women were married, aged between

15-40 years, had gynaecological morbidity as per ICD 10, did not have a co-morbid major medical disorder and consented to participate in the study.

Group 2 comprised 50 healthy women selected from amongst the relatives of patients visiting SSL Hospital and matched with the patient group on age, years of education, domicile and socioeconomic status (SES). The Mental Health Item Sheet (MHIS) of Verghese et al[13] and the Indian modification General Health Questionnaire (GHQ)-12,[14,15] were used to screen out subjects with psychopathology. The MHIS has a list of 60 common symptoms for screening (42 for adults and 18 for children). In epidemiological research, it has been found useful in screening normal from psychiatric patients and is very sensitive for tapping neurotic illnesses, personality disorders, childhood problems and addictions. The Scale (SES) of Kuppuswamy[16,17] was used for assessing SE status.

Method

Assessment of subjects: All patients of Group 1 were assessed in detail on a structured proforma on which detailed psychiatric history and diagnosis were recorded. All patients / subjects of Group I and 2 were assessed for domestic violence by husband during the past year by the Domestic Violence Questionnaire (DVQ) of Inder et al.[12] The subjects were first introduced to the subject, rapport was established and confidentiality ensured. Consent for participation was taken on the prescribed proforma.Thereafter, the subjects were assessed on the DVQ.

Assessment of perpetrators: All husbands, who were reported by the subjects as perpetrating DV, were assessed by the MHIS and GHQ 12. The ones positive on either or both were assessed by Family Interview Guide for Genetic Studies (FIGS)[18] and interviewed by SCID-I[19] for diagnosis of Axis I disorders and by SCID-II[20] for diagnosis of Axis II disorders. FIGS is a guide for gathering diagnostic information about relatives in the pedigree being studied. Assessment by FIGS is based on information obtained by family members about the subject. In addition, records were retrieved wherever available. The diagnosis of sick husbands was made on the basis of pooled sources of information and confirmed by the consultant. The data was analysed by parametric and non-parametric tests.

Results

One hundred married women, 50 patients with a gynaecological disorder (Group 1) and 50 healthy women (Group 2) were recruited into the study from the SSL Hospital from March 2012 to December 2013.

1. The socio-demographic characteristics of the sample are given in tables 1 and 2.

The mean age of subjects of Group 1 was 30.6 ± 5.1 years, and of Group 2 was 31.7 ± 5.0 years. The mean years of education of Group 1 was 11.5 ± 5.8 years, and of Group 2 was 11.8 ± 5.4 years. The mean duration of marriage of Group 1 was 10.8 ± 6.8 years, and of Group 3 was 11.5 ±5.0 years. There was no significant difference between Group 1 and 2 with respect to age, years of education, and duration of marriage (Table 1). Nearly 3/5 (59%) of the subjects had rural domicile, the remaining subjects (41%) resided in semi-urban and urban areas. Majority of subjects (85%) were house wives (home-makers) by occupation. Only 15% were gainfully employed in different occupations (skilled workers, semi-professionals, professionals, unskilled workers and clerical/ shop-farm owners). The vast majority of patients were Hindus (98%). Only 2% were Muslims. About 3/5 (61%) of the subjects belonged to Upper Middle socioeconomic status (SES), nearly ¼ (24%) belonged to Lower Middle SES, the remaining hailed from Upper or Upper Lower SES. About 3/5 (65%)of the subjects hailed from joint families, the remaining (35%) were from nuclear families. The total family members (TFM) ranged from 2 to 22. Nearly ½ (46%) of the subjects

Table 1. Socio-demographic characteristics of the sample

Variable	Group 1 (N=50)		Group 2 (N=50)		F	df	p
	Mean	SD	Mean	SD			
Age	30.6	5.1	31.7	5.0	1.12	99	0.29
Education(years)	11.5	5.8	11.8	5.4	0.15	99	0.70
Duration of marriage (years)	10.8	6.8	11.5	5.0	0.37	99	0.55

had TFM 1-5, nearly 2/5 (39%) had TFM 6-9, and the remaining subjects had TFM >9. Marriages of all the patients were arranged.There was no significant difference between group 1 and 2 with respect to domicile, occupation (Home-makers versus non-home makers), SES, type of family, and TFM of the subjects (Table 2).

The mean age of husbands of Group 1 was 34.4 ± 4.8 years, and of Group 2 was 35.5 ± 5.8) p 0.93), of husbands.

2. The mean age of onset of disease in Group 1 was 30.3 ± 5.4 years. The mean duration of illness of Group 1 was 11.10 ± 22.2 months. The most common diagnostic categories in Group 1 were abnormal premenopausal bleeding and fibroid uterus (18% each); These were followed by vaginitis (16%); pelvic inflammatory disease (14%); ovarian cyst (8%); infertility (6% each); and vaginal cyst,

Table 2. Socio-demographic characteristics of the sample

Variable	Group 1 (N = 50)		Group 2 (N = 50)		X2	df	p
	N	%	N	%			
Domicile							
Rural	29	58.0	30	60.0	0.04	1	0.83
Urban #	19	36.0	17	34.0			
Semi urban #	2	4.0	3	6.0			
Occupation							
Home maker	44	88.0	41	82.0	0.71	1	0.30
Professional*	2	4.0	2	4.0			
Unskilled worker*	0	0.0	1	2.0			
Skilled worker*	2	4.0	3	6.0			
Clerk/ shop owner/ farmer*	0	0.0	2	4.0			
Semi-professional*	1	2.0	1	2.0			
Religion							
Hindu	50	100	48	96.0			
Muslim	0	0.0	2	4.0			
Socioeconomic Status							
Upper	5	10.0	4	8.0	0.00	1	0.00
Upper Middle	30	60.0	31	62.0			
Lower Middle	13	26.0	11	22.0			
Upper Lower Class	2	4.0	4	8.0			
Type of family							
Joint	32	64.0	33	66.0	0.04	2	0.83
Nuclear	18	36.0	17	34.0			
TFM							
1-5	23	46.0	23	46.0	0.09	2	0.71
6-9	19	38.0	20	40.0			
11-15	8	16.0	6	12.0			
>16	0	0.0	1	2.0			

NB: # pooled; *pooled for analysis

years. The mean years of education of husbands of Group 1 was 13.6 ± 3.6 years, and of Group 2 was 13.02 ± 3.6 years.The mean income per month of husbands of Group 1 was Rs 2066.0 ± 21316.50 and of Group 2 was Rs 2037.0 ± 12732.2. All husbands of subjects were Hindus. There was no significant difference between Groups 1 and 2 with respect to age (F = 0.99;df 99; p 0.32), education (F = 0.78; df 99; p 0.38), and income (F = 0.007; df 99;

dysmenorhea, dysfunctional uterine bleeding, repeated abortions and tubal pregnancy (4% each).

3. The distribution of subjects with respect to spousal violence on the DVQ is depicted in Tables 3 and 4. About 2/5 (42%) of the subjects reported violence by their husbands. All subjects reporting violence reported psychological violence. Violence (total / psychological) was reported significantly more by Group1 (52%, N = 26) than by Group 2

Table 3. Pattern of Domestic Violence in women

	Group 1 (N=50)		Group 2 (N=50)		Total (N=100)				
	N	%	N	%	N	%	X2	df	p
Psychological/ Total Violence	26	52.0	16	32.0	42	42.0	6.66	2	0.036
Physical	22	44.0	12	24.0	34	34.0			
Absent	24	48.0	34	68.0	58	58.0			

(32%, N = 16). Physical violence was reported by almost nearly ½ (46%) of the sample; significantly more in Group 1 (44%, N = 22) than in group 2 (24%, N = 12) (Table 3). There was a statistically significant difference in severity of spousal violence reported between the 2 Groups, more in Group 1 than in Group2, both for total / psychological and for physical violence (Table 4).

4. The distribution of subjects with respect to psychiatric morbidity is depicted in Table 5, 6 and 7. Psychiatric morbidity was found in 2/5 (59.5%) of the perpetrators; Axis I in 28.6% and Axis II in 30.9 %. It was more in Group 1 than in Group 2, but the difference was not statistically significant (Table 5). Persons having both Axis I and II were categorized only under Axis I.

Alcohol and drug abuse were most common (11.9%) followed by, impulse disorder NOS and

Table 4. Pattern and Severity of Domestic Violence in women

Domestic Violence	Group 1(N=50)		Group 2(N=50)		Total(N=100)		$\chi 2$	Df	P
	N	%	N	%	N	%			
Psychological									
Mild	6	12.0	10	20.0	16	16.0	13.91	2	0.01
Moderate	10	20.0	4	8.0	14	14.0			
Severe	8	16.0	2	4.0	10	10.0			
Very Severe	2	4.0	0	0.0	2	2.0			
Physical									
Mild	7	14.0	6	12.0	13	13.0	6.79	2	0.047
Moderate	10	20.0	5	10.0	15	15.0			
Severe	5	10.0	1	2.0	6	6.0			
None	24	48.0	34	68.0	58	58.0			

Table 5. Psychiatric morbidity in perpetrators of Domestic violence

Psychiatric morbidity	Group 1(N=26)		Group 2(N=16)		Total(N=42)		$\chi 2$	Df	P
	N	%	N	%	N	%			
Axis I Disorders	7	26.9	5	31.2	12	28.6			
Axis II Disorders	9	34.6	4	25.0	13	30.9			
Total Axis 1 and II	16	61.5	9	56.2	25	59.5	0.12	1	0.73
Absent	10	38.5	7	43.8	17	40.5			

Table 6. Axis I psychiatric morbidity in perpetrators of Domestic violence

Axis I Disorders	Group 1(N=26)		Group 2(N=16)		Total(N=42)	
	N	%	N	%	N	%
Alcohol and drug abuse	3	11.5	2	12.5	5	11.9
Impulse disorder NOS	2	7.7	1	6.2	3	7.1
Bipolar Disorder, Recent manic	1	3.8	1	0.0	2	4.7
Bipolar Disorder, Recent major Depression	1	3.8	0	6.2	1	2.4
Paranoid schizophrenia	0	0.0	1	6.2	1	2.4
Total Axis 1	7	43.8	5	31.2	12	28.5

Table 7. Axis II psychiatric morbidity in perpetrators of Domestic violence

Axis II Disorders	Group 1(N=26)		Group 2(N=16)		Total(N=42)	
	N	%	N	%	N	%
Passive Aggressive	2	7.7	1	6.2	3	7.1
Obsessive Compulsive	2	7.7	1	6.2	3	7.1
Histrionic	1	3.8	1	6.2	2	4.7
Narcissistic	1	3.8	1	6.2	2	4.7
Paranoid	2	7.7	0	0.0	2	4.7
Anti Social	1	3.8	0	0.0	1	2.4
Total	9	23.1	4	25.0	13	31.0

Bipolar disorder (7.1% each) then paranoid schizophrenia. Amongst the Axis II disorders, there were passive aggressive and obsessive-compulsive (7.1% each), histrionic, narcissistic and paranoid (4.7% each) and anti social (2.4%) personality disorders.

Discussion

The present study is from SSL Hospital which caters to a huge population from eastern Uttar Pradesh, Bihar, Madhya Pradesh and even Nepal. This region is densely populated with a relatively low level of literacy and psychological sophistication.

The frequency, pattern and magnitude of domestic violence by husbands during the past year in patients with gynaecological morbidity presenting at the gynaecology OPD of a tertiary care hospital was examined in comparison with healthy matched controls. Domestic violence was reported by 42% of the sample. It was reported significantly higher in the group of women with gynaecological morbidity (52%) than in the healthy group (32%). Domestic violence in 32% of the women of the healthy group compares well with the figures reported in population-based surveys from different parts of the country ranging from 18 to 70%.[2] It may be noted that women with gynaecological morbidity reported both a higher frequency as well as severity of domestic violence by their husbands. This finding suggests that women with gynaecological morbidity are at higher risk for experiencing domestic violence than normal healthy women, and is in keeping with reports from developed countries.[3] A recent Indian study also reported somewhat similar findings. Compared with women whose husbands reported no violence, those who had experienced both physical and sexual violence and those who experienced sexual violence only, had elevated odds of experiencing gynaecological symptoms.[6]

The 42 perpetrators, 26 of the Group 1 and 16 of Group 2, were studied in detail for presence of psychiatric morbidity. It is interesting to see that almost 3/5 (59.5%) of the perpetrators had a diagnosable mental disorder. This figure is much higher that the reported prevalence of psychiatric morbidity in general population studies ranging from 9.5 to 370/1000 in the country; and in Uttar Pradesh from 18 to 81.6/1000.[21]The list of Axis I disorders included alcohol and drug abuse, Impulse disorder SOS, bipolar disorder and paranoid schizophrenia. There is a wealth of literature[7,9,10] regarding an association between alcohol abuse and domestic violence. Among the Axis II disorders passive aggressive, obsessive compulsive, histrionic, narcissistic, paranoid and antisocial disorders were seen. The total psychiatric morbidity, though higher in the women with gynaecological morbidity, than healthy women,was not statistically significant. This needs further study.

The findings of this study have practical implications. First, there is little recognition amongst health planners that psychiatric morbidity could be a cause of domestic violence. Second, Domestic violence can be prevented by early detection and treatment of Axis I disorders. Some help can be also be offered to husbands with Axis II disorders. In addition,women can be taught to cope better with the maladaptive trait of their husbands. Surprisingly, the Protection of Women from Domestic Violence Act[22] (2005) does not recognize psychiatric morbidity in perpetrators as a cause of domestic violence. In the Act, there is provision for a special order "Not to consume alcohol or drugs which lead to DV in the past", but none for medical treatment of the same.

The strength of the study is the case-control

design and use standardized culturally appropriate instruments for evaluation.

The main limitation of the study is the exclusion of non-perpetrators in the assessment of psychiatric morbidity. Further studies should be mounted on larger samples.

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Original Article

Defense Mechanisms in Individuals with Brain Injury

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ABSTRACT

Introduction: *Traumatic brain injury can result in significant disruptions to the lives of individuals and their families. Traumatic brain injury prompts a period of acute survival and completion of hospital rehabilitation marks re-entry to the community.* ***Aim:*** *The present study aims to analyze differences in the use of ego-defense mechanisms in non-psychiatric patients with the mild traumatic brain injury, hypertension compared with healthy controls. It is the first study to assess the presence of specific ego-defense mechanisms in patients with mild traumatic brain injury.* ***Method****: Participants included fifty-one patients with mild traumatic brain injury (40 males, 11 females), fifty-one hypertension (40 males, 11 females) from hospitals in South Delhi and fifty-one healthy volunteers (40 males, 11 females) from the community matched for age, level of education and marital-status. Assessment was done by using the General Health Questionnaire (GHQ-5) to screen any psychiatric morbidity followed by the Life style index to assess defense mechanisms among participants.* ***Results & Conclusion :*** *All the three groups of participants that is, mild traumatic brain injury, hypertension and control group used primitive defenses (negation, regression, projection and displacement) and neurotic defense mechanisms (repression, compensation, intellectualization and reaction formation). However, the groups differed in the profile of defense mechanisms. The mild traumatic brain injury group less frequently used primitive defense mechanisms of regression and displacement compared to other two groups i.e. hypertension group and control group . On the other hand, the hypertension group more frequently used neurotic defense mechanisms of compensation (compared to the mild traumatic brain injury group) and intellectualization (compared to other two groups i.e. mild traumatic brain injury and control group). Other defense mechanisms like negation, repression, reaction formation and projection were equally used by all groups. The major clinical implications of these results would be in the use to apply a line of psychological intervention directed to the recognition of use, evaluation, factors related to the presence and modification of defense mechanisms with the purpose of equipping the mild traumatic brain injury patient with more adaptive options and improving life quality. In order to validate the conclusions, further studies are needed to use bigger sample size, use of other measures to yield rich information on defensive functioning and mild traumatic brain injury patients with a co-morbid psychiatric disorder in order to assess their use of ego-defense mechanisms.*

Keywords*: Mild traumatic brain injury, Hypertension, Defense mechanisms*

Introduction

Traumatic brain injury can result in significant disruptions to the lives of individuals and their families. A number of turning points arise following Traumatic brain injury (TBI), for example the injury prompts a period of acute survival and completion

of hospital rehabilitation marks re-entry to the community. Brain injury affects family functioning by the physical, cognitive and behavioral impairments, dependency, the consequential role change and contribute to long-term challenges with community re-integration including productivity, social integration and independence.

Ego-defense mechanisms protect the individual from the excessive anxiety deriving from stressful external events or intra-psychic conflicts.[1] Ego-defense mechanisms are different from coping skills, although both processes are thought in terms of adaptative functions protecting the individual from the emotional consequences of unfavorable life events. Coping skills require full awareness for effective resolution of problematic situation, whereas ego-defense mechanisms function at an unconscious level, producing a distortion of reality. Moreover, an individual's coping abilities depend on situations, while ego-defense mechanisms reflect relatively stable, enduring characteristics of individuals. Thus, to deal with a stressful situation, people use both coping and ego-defense mechanisms. Ego-defense styles can vary from primitive, mature, neurotic to immature defense styles. Defense mechanisms which are primitive, immature are formed during the oral stage of development (e.g. regression, displacement, projection).Neurotic defense mechanisms are more differentiated and are formed in later stages of development and mature defense mechanisms develop last.[2] An individual can use various defense mechanisms; nevertheless, some defense mechanisms usually dominate. For instance, denial of illness is frequently found among stroke victims. These patients may be less likely to seek treatment thus, leading to poor outcomes. The present study aims to analyze differences in the use of ego-defense mechanisms in non-psychiatric patients with the mild traumatic brain injury compared with hypertension and healthy controls. It is the first study to assess the presence of specific ego-defense mechanisms in patients with the mild traumatic brain injury.

Method

Participants

Participants included fifty-one recovering patients with mild TBI (40 males, 11 females) and fifty-one patients with hypertension (40 males, 11 females) and were taken from hospitals from South Delhi in the age group between 45 and 60 years old and fifty-one healthy volunteers (40 males, 11 females) from the community matched for age, level of education, socioeconomic status and marital-status. Exclusion criteria was the presence of any psychiatric disorder included in Axes I and/or II of the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV) at the time of examination and during a six-month period prior to the study.

Measures

General Health Questionnaire (GHQ-5)[3] was used to screen any psychiatric morbidity in participants. GHQ-5 is a short-version of the General Health Questionnaire (GHQ).The original GHQ contains 60 items and is used for detection of non-psychotic psychiatric illness. However it is lengthy and cumbersome to use it for a quick screening. The five items version contain items number 14, 39, 49 and 54 of original GHQ used for quick screening.

Life Style Index (LSI)[4] was used to identify defense mechanisms. LSI is a 97-item true–false, self-report questionnaire developed on the basis of Plutchik's theory of emotions holding that psychological defenses are related to specific affect states, and also, to diagnostic concepts. LSI assess eight ego defense mechanisms of compensation, denial, displacement, intellectualization, projection, reaction formation, regression, and repression.

Procedure

Sixty-one patients with mild TBI and hypertension of private hospitals were consecutively selected after an examination by a neurologist and a physician followed by the administration of GHQ-5 to screen for the presence of any psychiatric morbidity. Ten patients were excluded from the study because of the presence of a concurrent psychiatric disorder. The final sample thus included fifty-one patients with mild TBI and hypertension. The evaluation for defense mechanisms was done by the Life style index at the conclusion of the GHQ-5. The control group consisted of fifty-one healthy volunteers matched for age, level of education, socioeconomic status and marital status. All control subjects also were selected and screened for any psychiatric illness by GHQ-5. Ethical clearance was obtained

from Institutional Ethics Committee of hospitals contacted for the study. All participants gave consent prior to their participation in the study.

Statistical analyses

Statistical analyses were performed using the statistical package SPSS 16. Differences in the use of ego-defense mechanisms among three groups were analyzed by the one-way analysis of variance. Least significant difference test was used as a post-hoc test in order to verify which groups showed statistically significant differences.

Results

Table 1 indicates differences in the ego-defense mechanisms use among patients with mild TBI, hypertension and control group. Statistically significant difference among the three groups concerning their use of the mechanisms of regression (F=5.785; p=0.004), compensation (F=5.526; p=0.005), intellectualization (F=8.605; p<0.001) and displacement (F=4.473; p=0.013) were obtained. The least significant difference test was used as a post-hoc test in order to verify which groups showed statistically significant differences.

The least significant difference test demonstrated that the hypertension group of participants used regression statistically more frequently (M = 32.88 ± 13.16) than the mild TBI group (M = 23.00 ± 16.12; p = 0.001). There was not any statistically significant difference between the hypertension and the control group in the use of regression as a defense mechanism. Statistically significant difference were obtained between the mild TBI (M = 29.61 ± 17.43) and the hypertension group (M = 40.78 ± 17.65; p = 0.001) in mechanism of compensation. Statistically significant difference were also obtained between the mild TBI (M = 67.78 ± 18.06) and the hypertension group (M = 77.06 ± 15.00; p = 0.009) and between the hypertension group (M = 77.06 ± 15.00) and the Control group (M = 62.71 ± 19.77; p < 0.001) in the use of intellectualization. As for the mechanism of displacement, statistically significant difference between the mild TBI group (M = 16.47 ± 17.30) and the hypertension group (M = 24.31 ± 18.79; p = 0.030) and between the mild TBI group (M = 16.47 ± 17.30) and the control group (M = 26.67 ± 17.96; p = 0.005) were obtained.

Discussion

All the three groups of participants namely, mild traumatic brain injury, and hypertension and control group used both primitive defenses (negation, regression, projection and displacement) and neurotic defenses (repression, compensation, intellectualization and reaction formation). However, the groups differed in the profile of defense mechanisms. These groups were matched for age, level of education, socioeconomic status and marital-status. The mild traumatic brain injury group significantly less frequently used defense mechanisms of regression and displacement compared to other two groups i.e. hypertension group

Table 1. Mean, SD and Anova values of use of Ego-Defense Mechanisms among patients with mild traumatic brain injury, hypertension and control group (N=51)

Defense Mechanisms	Groups							
	Mild TBI		Hypertension		Control			
	$\bar{X}$	SD	$\bar{X}$	SD	$\bar{X}$	SD	F	P
Compensation	29.61	17.43	40.78	17.65	35.10	15.79	5.526	0.005
Intellectualization	67.78	18.06	77.06	15.00	62.71	19.77	8.605	<0.001
Displacement	16.47	17.30	24.31	18.79	26.67	17.96	4.473	0.013
Projection	60.75	21.65	68.43	18.88	62.14	29.06	1.537	0.218
Negation	53.75	12.94	48.94	17.46	47.20	17.35	2.276	0.106
Repression	28.24	13.37	33.73	24.00	29.41	19.01	1.145	0.321
Reaction formation	41.37	19.90	43.73	16.37	36.08	22.81	1.982	0.141
Regression	23.00	16.12	32.88	13.16	28.20	14.59	5.785	0.004

Mild TBI = Mild Traumatic Brain Injury

and control group. On the other hand, the hypertension group significantly more frequently used neurotic defense mechanisms of compensation (compared to the mild traumatic brain injury group) and intellectualization (compared to other two groups i.e. mild traumatic brain injury group and control group). Other defense mechanisms including negation, repression, reaction formation and projection were equally used by all the groups.

According to the findings, this research is the first of its kind to analyze the use of defense mechanisms in the patients of mild traumatic brain injury and hypertension. The hypertension group significantly, more frequently used neurotic defense mechanisms of intellectualization as compared to other two groups. Intellectualization involves a 'flight into reason' through which the person avoids unpleasant emotions by focusing on the facts and logic. In one study, the investigators reported many of the same coping responses as those observed in the Bahro et al.[4] along with generally positive and mature coping strategies, including use of humor, maintenance of a good social support, modeling, emotional management techniques such as pep talks or conscious attitude adjustments, and appreciation that one has successfully mastered prior life crises among the mild Alzheimer's patients.[5] The use of defense mechanism compensation among the mild traumatic brain injury patients may function to find substitutes for the losses and real or imaginary limitations like memory deficits, slowness in thinking, poor attention/concentration and visual disturbances. Traumatic brain injury is a significant risk factor of developing dementia even in the mild type. Cohen, Kennedy and Eisdorfer summarised that demented individuals perceive and react to their illness through various stages of (1) recognition and concern, (2) denial, (3) anger, guilt and sadness, (4) coping, (5) maturation and (6) separation from self. Thus, they move from use of less mature defense mechanisms to more mature forms of involuntary coping mechanisms.[6] The group of participants with mild traumatic brain injury group less frequently used defense mechanisms of regression and displacement. The use of regression in mild traumatic brain injury patients may involve dependence, passive receptive behavior and need for assistance from the family and the medical staff. Juni held that ''displacement is a basic defense mechanism where the ego substitutes a new object instead of a threatening object. The hallmark of displacement is the non-distortion of the original impulse with the defensive strategy originated solely at object substitution''.[7] Aggression also co-occurs with memory deficits, slowness in thinking, poor attention/ concentration and visual disturbances after brain injury.[8,9] Correlated terms such as agitation, anger and irritability are often used in this context.

Conclusion

In summary, the present findings suggest that the mild traumatic brain injury group less often used primitive defense mechanisms of regression and displacement than patients with hypertension group and control group. On the other hand, the hypertension group more often used neurotic defense mechanisms of compensation (compared to the mild traumatic brain injury group) and intellectualization than patients with mild traumatic brain injury group and control group. Other defense mechanisms including negation, repression, reaction formation, and projection were equally used by all groups.

The major clinical implications of these results would be in the use to understand the defensive presentation of mild traumatic brain injury group and to apply a line of psychological intervention directed to the evaluation, factors related to the presence and modification of defense mechanisms with the purpose of equipping the mild traumatic brain injury group patient with more adaptive options, improving life quality. In order to validate the conclusions, further studies are needed to use bigger sample size ,use of other measures to yield rich information on defensive functioning and mild traumatic brain injury group with a comorbid psychiatric disorder in order to assess their use of ego-defense mechanisms.

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Original Article

A study of phenomenology in patients suffering from post partum psychosis

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ABSTRACT

Background: *The mental health of women in the weeks and months following childbirth is of critical importance to the well being of the mothers, their children and their families. Our study is a single point noninvasive descriptive clinical study of new cases.* ***Materials and Methods:*** *Assessment of phenomenology was done on 100 patients suffering from post partum psychosis admitted in our IPD using the ICD-10 criteria for the diagnosis of post partum psychosis, self designed proforma consisting of sociodemographic data, symptomatology and indepth mental state examination and BPRS (Brief Psychiatric Rating Scale).* ***Results:*** *A significant proportion of patients were suffering from acute psychosis-like picture. Multiparous females were in higher proportion than primiparous among the patients. Noticeable number of women had not taken even a single ANC (Antenatal care) visit. Higher mental functions were deranged in a certain proportion of patients. A significant number of patients had past as well as family history positive for mental illness.* ***Conclusion:*** *Most women experience mood symptoms in the post partum period which are disruptive to life and impair functioning in all domains. Prenatal education and postpartum screening may significantly decrease the impact of postpartum psychosis.*

Key words: *Postpartum psychosis, Phenomenology, BPRS.*

Introduction

Post Partum (PP) disorders has been viewed as occurring on a continuum of mood disturbance with baby blues at one end, post partum depression in the middle, and Post Partum Psychosis (PPP) at the other end of the spectrum.[1] Post partum psychosis (PPP) is the most severe form of psychiatric illness in the post partum period. It is a psychiatric emergency. Inpatient psychiatric treatment is essential to ensure the safety of mother and the baby.[2] It occurs in 1-2 every 1000 new mothers.[3] Onset of symptoms can be as early as 48-72 hours after delivery or there can be a latent period of several weeks to months before the emergence of the symptoms (some studies say that it can extend upto 1 year).[4] Cognitive changes in the form of confusion, perplexity and disorientation are a common occurrence. Psychotic symptoms may involve delusions and hallucinations regarding the newborn being dead or deformed or inability to take care of it. The clinical presentation of puerperal psychosis is often consistent with an episode of mania.[5,6] No demographic factors have been consistently demonstrated to increase the risk of developing postpartum psychosis[7]. Limited research in this area has failed to demonstrate a significant association between PPP and levels of estrogen, prolactin, progesterone and adrenocorticoids.[8,9]

Aims and Objectives

The aim of the study was to study the phenomenology of patients suffering from post partum psychosis admitted in the Inpatient Department of Psychiatry, RNT Medical College, Udaipur.

Materials and Methods

The study consists of 100 patients suffering from post partum psychosis who were admitted in the IPD of Psychiatry department, M.B. Government Hospital, Udaipur. The diagnosis was made according to ICD-10.[10] The patients were enrolled after taking informed consent from them. To enter in the study, patients were to be suffering from a psychotic illness of any type and the onset of illness should be within one year of delivery. Patients suffering from postpartum blues, comorbid physical illnesses and who were actively ill in the antenatal period were excluded from the study. Those patients who satisfied the screening process will be recruited in the study. The details about the sociodemographic data (using Kuppuswamy's Socioeconomic Status Scale), symptomatology (using BPRS), were studied using a flexible semi-structured questionnaire. The results were drawn and discussed in light of various national and international literatures. The diagnosis was made according to ICD-10.[10]

Kuppuswamy's Socioeconomic Status Scale : It is an important tool in hospital and community based research in India. This scale takes account of education, occupation and income of the family to classify study groups in to high, middle and low socioeconomic status.

Brief Psychiatric Rating Scale (BPRS) : It was developed primarily to assess change in psychotic inpatients and covers a broad range of areas, including thought disturbance, emotional withdrawal and retardation, anxiety and depression, and hostility and suspiciousness. Its 24 items are rated on a seven-point item-specific Likert scale from 1 to 7, with the total score ranging from 1 to 168 (in some scoring systems, the lowest level for each item is 1, and the range is 24 to 168).

Results

— A perusal of sociodemographic data of the patients indicate that they are representative of the population attending the Obstetrics, Medicine and Psychiatry Department in the general Hospital setting. Their ages confirmed to the pattern of reproductive age. 73% patients belonged to the age group of 20-30 years, 7 patients were less than 20 years old and 20 patients were above 30 years old. Significantly 1/3rd (33%) of the population was illiterate. Majority of the patients (76%) belonged to lower socioeconomic status which caters to the freely available medical care in the General Hospital. As far as the referral system is concerned 54% of the patients were referred by the Obstetrics Department. (Table 1)

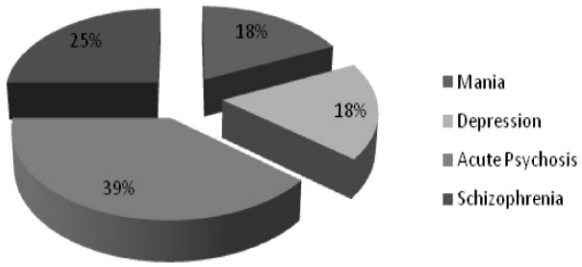
Table 1. Demographic Details

		Total	%
Age	< 20 years	7	7%
	20-30 years	73	73%
	> 30 years	20	20%
Education	Illiterate	33	33%
	Primary school	29	29%
	Middle school	27	27%
	High school	6	6%
	Intermediate	3	3%
	Grad./post G.	2	2%
Socioeconomic Status*	Class		
	Upper middle	5	5%
	Lower middle	19	19%
	Upper lower	72	72%
	Lower	4	4%
Referral	Obstetrics	54	54%
	Medicine	7	7%
	Family	36	36%
	Faith healer	3	3%

(SES was assessed using Kuppuswamy Scale)*

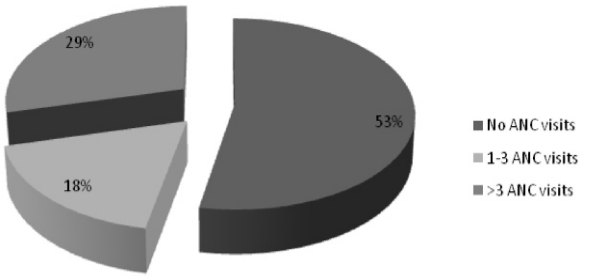
— About 1/3rd of the patients (39) were diagnosed with acute psychosis (Figure 1). All the schizophrenic patients were treated well and were in good remission with minimal maintenance dose prior to the present delivery. The data reflected that the stress during the delivery could explain the onset and pointed to the vulnerability of the patients during this period. 2/3rd (63) of the

•Pie Chart Distribution Of Diagnosis: (Figure 1)



patients had acute onset of illness. Those with manic episodes and acute psychosis were identified earlier i.e. within 42 days of delivery. Those with schizophrenia and depression were diagnosed between 42 days and 6 months of delivery and arrived late for consultation. More than 50% patients (53) had not taken even a single ANC visit (Figure 2). 2/3rd (62) of the patients were multiparous. 21% deliveries were conducted at home (Figure 3). 4 deliveries were still born. Out of the children

•Pie Chart Distribution Of Anc Visits: (Figure 2)



that were born alive; 6 expired-2 in the hospital and 4 at home because of lack of care and breast feeding provided by the mother. Complications in the form of antepartum haemorrhage, pregnancy induced hypertension, fever, urinary tract infection etc. for which the patient had to be admitted earlier (during pregnancy) were seen in 15 patients (Table 2).

Table 3 depicts the presence of various symptoms (as rated by BPRS) in the patients.

Among these patients, many could not be tested for certain functions during the patients' non co-operation during the interviewing. Thus attention/ concentration, memory, abstract, judgement could not be tested in 28 patients all of whom were suffering from acute psychosis. About 64% of the patients were unkempt unhygienic. This indicates the neglect towards self care and hence towards the newborn. The most common was delusion of persecution which was seen in 96 patients (Figure 4). Out of these 37 patients had delusion only against the newborn that 'it is not her baby and it is a curse to them and will go only when it has killed her'. 29 patients had delusions towards others that 'someone will take away my baby'. Majority of the patients

Table 2. Details of Present and Past Illness and Obstetric Details

Mode of Onset		**No. of Patient**	**%**
	Acute	63	63%
	Insidious	37	37%
Duration B/W Delivery	Upto 42 days	60	60%
and Onset of Symptoms	42 days-6 months	36	36%
	> 6 months	4	4%
Past History	Upto 1 episode in past	21	21%
	2-3 episodes	6	06%
	>3 episodes	4	04%
Family History	Present	16	16%
Diagnosis	Mania	18	18%
	Depression	18	18%
	Acute psychosis	39	39%
	Schizophrenia	25	25%
ANC Visits		No. of Patient	%
	None	53	53%
	1-3 visits	18	18%
	>3 visits	29	29%
Site of Delivery &	Home	21	21%
Mode of Delivery	Hospital/ Vaginal	51	51%
	LSCS	28	28%
Parity	Primipara	38	38%
	Multipara	62	62%
Sex of Newborn M/F	Male	63	63%
	Female	37	37%
Status at Birth	Alive	96	96%
Alive/Dead	Dead	4	4%
Complications	Present	15	15%

confessed (56) either the child was not born to them or it was dead. Owing to this there was child neglect placing a burden on the family members. One of the patients who were suffering from depression thought "she was suffering from cancer and if she breast fed the baby, the baby too would get 'infected' with cancer and would die" and so she stopped breastfeeding the baby. The mother child relationship was particularly inimical in 4 patients who had commanding hallucinations to kill the child. Both patients with similar hallucinations attempted infanticide which was detrimental to the child's life (Table 4).

Discussion

Not many studies have been reported on post partum psychiatric disorders as far as the Indian scenario is concerned. According to the studies by

Table 3. Symptomatology (As rated by BPRS)

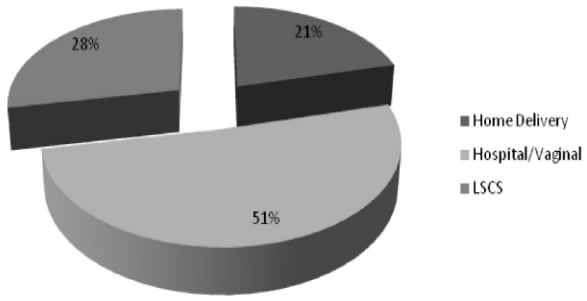
		No. of Patient	%
Somatic Complaints	Present	23	23%
Anxiety	Present	43	43%
Depression	Present	20	20%
Suicidalthoughts	Present	18	18%
Guilt	Present	20	20%
Hostility	Present	72	72%
Elevated Mood	Present	37	37%
Grandiosity	Present	18	18%
Suspiciousness	Present	70	70%
Hallucinations	Present	52	52%
Unusual Thought Content	Present	96	96%
Bizarre Behaviour	Present	24	24%
Self Neglect	Present	71	71%
Disorientation	Present	57	57%
Conceptual Disorganization	Present	75	75%
Blunted Affect	Present	12	12%
Emotional Withdrawal	Present	22	22%
Motor Retardation	Present	19	19%
Tension	Present	49	49%
Un-Cooperativeness	Present	80	80%
Excitement	Present	70	70%
Distractibility	Present	63	63%
Motor Hyperactivity	Present	69	69%
Mannerisms And Posturing	Present	10	10%

Table 4. Mental State Examination (MSE)

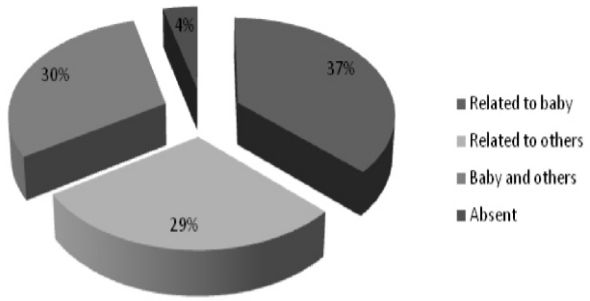
		No. of Patient	%
Possession Episodes	Present	35	35%
Psychomotor Activity	Increased	80	80%
Obsessions	Present	28	28%
Delusion of Persecution	Towards Baby	37	37%
	Towards others	29	29%
	Both	30	30%
	Absent	4	4%
Other Delusions	Grandiosity	18	18%
	Infidelity	36	36%
	Nihilism	11	11%
	Reference	31	31%
Hallucinations	Auditory	30	58%
(Out of 52)	Visual	20	38%
	Olfactory	1	2%
	Tactile	1	2%
Stream of Thought	Tangentiality	14	
	Loosening of Association	20	
	Flight of Ideas	22	

Kendell et al in 1987,[6] post partum psychosis is unlikely in multiparous women. One study conducted by Sabitha et a[11] in 1999 concluded that the occurrence of puerperal psychosis among the multiparous women seems to have been in high

•Pie Chart Distribution Of Site And Mode Of Delivery: (Fig 3)



•Presence Of Delusion Of Persecution: (Figure 4)



proportion. Whereas in this study we have observed that majority of the patients were multiparous. Studies conducted by Brockington et al[4] in 1981 and Chaudron et a[12] in 2000, post partum psychosis falls in bipolar spectrum. But in this study most of the patients suffered from acute psychosis and had a polymorphic picture.

Jones and Craddock et al[13] found that postpartum psychosis affected 74% of mothers with bipolar disorder and a first degree relative with postpartum psychosis, compared with only 30% of bipolar women without a family history of postpartum psychosis. 16% patients in this study had a positive family history.

Not much has been studied about the role of prenatal education in the form of ANC visits except that one study by Seyfried et a[14] in 2003 states that it is important in reducing the incidence of post partum depression. Whereas this study significantly points out the role of ANC visits in preparing the women for motherhood physically as well mentally.

Presence of disturbed primary mental functions among these patients has been observed in certain studies[2] whereas certain studies do not observe such

disturbances[15]. In this study also significant number of patients could not be tested for higher mental functions. Wrat et al[16] identified a "*cognitive disorganization psychosis*" in mothers with childbearing-onset affective psychosis that was not present in women with non child bearing affective psychosis. This study also reflects similar picture. According to Brandes et al,[17] women with postpartum depression commonly experience comorbid obsessive-compulsive thoughts (41%–57%), which include obsessional ego-dystonic images of harm to their infant, with preservation of rational judgment and reality testing. Similar results were reflected in the present study also. 37% patients had delusion of persecution towards their baby and hence were not feeding them. One of the patients thought herself to be suffering from cancer and hence was not feeding the baby as she thought that the cancer will be transmitted to the baby via the breast milk.

Limitations

The major limitations of the study include the paucity of the patients who satisfied the rigorous criteria of the study. But such criteria were needed to secure a relatively homogenous population of puerperal psychotics. Though limited in approach the study points to the need for further research in many areas such as the interaction of biological and sociocultural factors in the etiogenesis, the relevance of sociocultural context to the content of psychotic process, the relation between the phenomenological aspects of psychosis and the psychosocial outcome and the natural course of individual subtypes of what collectively constitutes puerperal psychosis.[11]

Conclusion

Inspite of the limitations certain prominent observations could be made out in the study. The occurrence of postpartum psychosis among the multiparous women seems to have been in high proportion, compared to many other studies. High incidence of psychopathology among the family members and previous occurrence of similar episodes among many patients point to a biological diathesis. Importance of ANC visits is also significant. Most of the illnesses occur during the first 7 weeks of delivery. So this is the time where the mother and the newborn need to be taken care of maximally and the family members should watch for ominous signs of psychosis.

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ERRATA

Jagawat T, Razdan R, Joshi SB, Sharma R. District Mental Health Programme in India – Shivpuri District, Madhya Pradesh. Delhi Psychiatry Journal, October 2009;12(2):202-205 had been wrongly titled as REVIEW ARTICLE instead of ORIGINAL ARTICLE.

Original Article

Birth outcomes following antenatal anxiety and depression

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ABSTRACT

Background: *Anxiety and depression during pregnancy have been reported to cause negative pregnancy outcomes, such as preterm delivery (PTD) and low birth weight (LBW) of infants. Present study was conducted to examine the relationship between anxiety, depression and pregnancy outcomes (gestational age, infant birth weight and Apgar scores of 1 & 5 minutes).* ***Aims and Objectives:*** *It was hypothesized that (i) anxiety and depression would be negatively related to gestational age and (ii) anxiety and depression would be negatively related to birth weight of infants (iii) anxiety and depression would be negatively related to Apgar scores of 1 and 5 minutes.* ***Methodology:*** *The study was conducted on a sample two hundred pregnant women (aged 20-30years) in III trimester of their pregnancy who were recruited in department of Obstetrics and Gynecology of Institute of Medical Sciences, Banaras Hindu University of Varanasi. The assessment of gestational age was based on last menstrual period. Depression and anxiety were assessed using self-administrated questionnaire i.e. Radloff's Epidemiological Studies Scale (CES-D) (1972) and State, Trait and Free Floating Anxiety Inventory by Rastogi and Tripathi (1986) respectively. Along with these questionnaires the personal data blank was also used for obtaining the information regarding delivery and health status of baby from the hospital record. The data was analyzed with correlation and hierarchical regression.* ***Results and Conclusions:*** *The results indicated that women experiencing high level of anxiety and depression were more likely to deliver an infant with less gestational age and low birth weight.*

Keywords: *Anxiety, Depression, Gestational age, Infant weight, Apgar Scores, Birth outcomes.*

Introduction

Pregnancy is a time of growth change and adaptation, both physiologically and psychologically. It brings a marvelous feeling of well-being as it is a new and unique situation that every pregnant women experience. For some women pregnancy involves no psychological risk but for some it can be a time when they are emotionally vulnerable.

The relationship between maternal well-being and pregnancy outcome has been of interest throughout the centuries.[1] However, the impact of psychological factors in human offspring has been examined in details, relatively more recently.

The prevalence of depression during this period has been estimated at 10% to 15% and prevalence of various anxiety disorders among pregnant women has been estimated at 10%.[2-5] Anxiety and stress during pregnancy have been reported to cause negative pregnancy outcomes, such as preterm delivery (PTD) and low birth weight (LBW) of infants.[3,6-11] Depression during pregnancy has been reported to be associated with preeclampsia.[12] Depression in first trimester of pregnancy has been

suggested to be associated with high risk of PTD and LBW of the infants[13]. High levels of depression are associated with more pregnancy complications, perinatal deaths and premature births, and poorer infant status scores.[14-17]

In general, higher measures of anxiety have been associated with poorer perinatal outcomes.[14,15,18-23] According to Spielberger and Krasner[24] anxiety can be divided into state anxiety and trait anxiety. Spielberger[25] had defined State anxiety as a person's current level of anxiety, which can be modulated by situational factors and consists of feelings of tension and worry. It is a constantly changing emotional state that varies in intensity and duration.

Trait anxiety, on the other hand, is an individual's general disposition to become anxious[25] or their "anxiety proneness".[24] Many studies have reported a link between level of state and/or trait anxiety and childbirth preparation, complications during pregnancy, labor and delivery, neonatal states measures and infant behavior.[26-31]

Littleton et al[32] had conducted a meta-analysis and found no significant association between anxiety symptoms and over all perinatal outcomes, though small statistically significant relationships were present for birth weight and 5 minute Apgar score.

Similarly, a study conducted by Anderson et al[33] suggest that neonatal outcome (such as preterm delivery and small for gestational age birth) does not deteriorate because of maternal antenatal depressive or anxiety disorders. Although anxiety and depression are common during pregnancy but research findings are inconsistent regarding the association between mood symptoms and pregnancy outcomes. Thus, the present study was conducted to study the relationship between anxiety, depression and birth outcomes.

Objectives

The present study was conducted to investigate the relationship between anxiety, depression and birth outcomes by addressing the following objectives -

(i) To examine the relationship between anxiety and birth outcomes i.e. gestational age, infant birth weight and apgar score of 1 and 5 minutes.

(ii) To examine the relationship between depression and birth outcomes i.e. gestational age, infant birth weight and apgar score of 1 and 5 minutes.

Hypotheses

(i) Anxiety would be negatively related to gestational age i.e. Delivery at $\geq$ 37 weeks, infant birth weight i.e. $\geq$ 2500 grams and apgar score of 1 and 5 minutes.

(ii) Depression would be negatively related to gestational age i.e. Delivery at $\geq$ 37 weeks, infant birth weight i.e. $\geq$ 2500 grams and Apgar score of 1 and 5 minutes.

Material and Methods:

Subjects:

The study was conducted on the sample of two hundred pregnant women aged (20-30 years) in third trimester of their pregnancy who were recruited in department of Obstetrics and Gynecology, Institute of Medical Sciences, Banaras Hindu University, Varanasi.

Procedure:

Subjects who were in the third trimester, their informed consent was obtained. Data was collected in one appointment that coincided with the subject's antenatal clinic appointment. Self-report data were collected by means of questionnaires. Information regarding birth outcomes was obtained from hospital record after delivery.

Measures: Questionnaires used were self-administered to obtain measures of anxiety and depression.

Anxiety

The self-evaluation scale was used to assess the levels of maternal state and trait anxiety. It was constructed by R.R. Tripathi and Ambar Rastogi on the basis of state-trait anxiety Inventory (Spielberger, 1970). The self-evaluation scale consists of 3 subscales in which Part-I is for Anxiety-State subscale, Part-II is for Anxiety- Trait subscale and Part –III is for Anxiety- Free-floating subscale. In the present study Part-I and part-II of scale were used for measuring the anxiety level in the pregnant women. The state anxiety scale consists of 20 items in which 10 are positive and 10 are negative items.

Similarly, Trait anxiety scale consists of 28 items in which there are 16 positive items. The response

category of state anxiety scale ranges from 1" nominally" to 5 "exceedingly" and response category of trait anxiety scale ranges 1 "seldom" to 5 "always". A total score is calculated by summing all the items. Higher scores obtained by subjects indicate greater degree of anxiety. The indices of internal consistency for both state and trait scale is .93 and .89 respectively.

Depression

Depression was measured by the Centre for Epidemiological Studies Depression Scale (CES-D). CES-D (Radloff, 1977) is a 20 items self-report scale designed to measure depression symptoms in the general population. The items include depressed mood, feelings of guilt, worthlessness, helplessness and hopelessness, loss of energy, and sleep and appetite disturbances. Respondents rate the frequency of 20 symptoms ranging from 0 "rarely or none of the time" to 3 "most or all of the time". A total score that ranges from 0 to 60 is calculated by summing all items. High values of internal consistency have been shown for original CES-D (Cronbach alpha between 0.85 and 0.91). Reliability and validity have been acceptable across a variety of demographic characteristics including age, education, geographical area, and racial ethnic and language groups.

Measures of Birth Outcomes

The present study includes three pregnancy outcomes i.e. gestational age, infant weight and apgar score of 1 and 5 minutes. All the three outcomes were treated as continuous variable.

- Gestational age was measured in weeks at delivery using "37 weeks" clinical criterion.
- Infant weight was measured in grams using "2500 grams" clinical criterion.
- Apgar score was determined by evaluating the newborn baby on five simple criteria on a scale from zero to 10. The five criteria included **A**ppearance, **P**ulse, **G**rimace, **A**ctivity, and **R**espiration. Scores $\leq$ 3 are generally regarded as critically low, 4 to 6 fairly low and 7 to 10 generally normal.

Gestational age was determined by last normal menstrual period.

Results

The Table-1 shows that all of the demographic variables are significantly related to birth outcomes. The age of the mother is significantly negatively correlated with the gestational age, birth weight, 1 minute and 5 minutes apgar score of the infants, indicating that mothers with higher age were more likely for having a infant with less gestational age, birth weight, and lower Apgar score of infant. But, education, income and parity was significantly

Table 1. Correlation matrix between demographic variables and birth outcomes viz., gestational age, infant weight and apgar score of 1 & 5 minutes

	Gestation age	Infant weight	Apgar score 1 minute	Apgar score 5 minute
Age	-.360**	-.374**	-.394**	-.393**
Education	.319**	.372**	.346**	.345**
Income	.328**	.362**	.409**	.435**
Parity	.153*	.148*	.181*	.185**
BMI 3rd trimester	.468**	.488**	.556**	.566**

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

Table 2. Correlations between anxiety and depression during 3rd trimester of pregnancy and birth outcomes

	Gestation age	Infant weight	Apgar score of 1 minute	Apgar score of 5 minute
State anxiety	-.648**	-.668**	-.784**	-.780**
Trait anxiety	-.594**	-.655**	-.703**	-.696**
Depression	-.604**	-.636**	-.771**	-.781**

** p<0.01

positively related to gestational age, infant birth weight, and Apgar score of 1 minute and Apgar score of 5 minutes. Similarly, Body mass index (BMI) of 3rd trimester was also significantly positively correlated to gestational age, infant birth weight, and Apgar score of 1 minute and apgar score of 5 minute revealing that BMI is an important factor in determining gestational age, infant weight, and Apgar score of newborn baby.

Correlation coefficient of Table 2 shows that state anxiety, trait anxiety and depression are significantly negatively correlated with gestational age ($p < 0.01$), infant weight ($p < 0.01$), Apgar score of 1 minute ($p < 0.01$), and Apgar score of 5 minutes ($p < 0.01$).

On the basis of these bivariate results, further multivariate analyses were performed to examine the relationship between anxiety and birth outcomes after controlling the effects of demographic variables.

The results of the hierarchical multiple regression analyses for state anxiety as predictor variable and birth outcomes as criterion variables along with demographic variables which were treated as control variables are presented in Table 3. As Table 1 represents the significant relationship between demographic variables and pregnancy outcomes so, demographic variables were entered at first step of the analyses to control their effects and state anxiety was entered at second step to determine its effect on gestational age, infant weight and Apgar score of 1 and 5 minutes.

Table 3 shows the results of hierarchical regression analyses (HRA) using state anxiety as predictor and gestational age, infant weight and apgar score of 1 and 5 minutes as criterion. It can be seen from the table that state anxiety is significantly negatively correlated with gestational age (â= -.53, $p<0.001$), infant weight ($\beta = -.52$, $p < 0.001$), apgar score of 1 minute ($\beta = -.69$, $p < 0.001$) and apgar score of 5 minutes ($\beta = -.67$, $p < 0.001$). The table also indicates that state anxiety explained 12.4 % of total amount of variance in gestational age, 12% of total variance in infant weight, 21% of total variance in apgar score of 1 minute and 19.5% of total variance in apgar score of 5 minutes. Thus, the results reveal that state anxiety of third trimester is a stronger predictor of birth outcomes.

Similarly, Table 4 also displays the results of hierarchical regression representing trait anxiety of 3rd trimester as the predictor and birth outcomes as the criterion. Results shows that trait anxiety of third trimester is negatively associated with the gestational age of the baby ($\beta = -.38$, $p < 0.001$) and the infant weight ($\beta = -.46$, $p < 0.001$), apgar score of 1 minute ($\beta = -.50$, $p < 0.001$), and apgar score of 5 minutes ($\beta = -.47$, $p < 0.001$). The total amount of variance explained by trait anxiety for gestational age is 8.3% and for infant weight is 11.2%, similarly 12.1% of total variance in apgar score 1 minute and 10.7% of total variance in apgar score of 5 minutes. Thus, from the table we can interpret that trait anxiety of

Table 3. Results of Multiple Linear Regression Analysis (Hierarchical) using state anxiety of 3rd trimester as predictor and pregnancy outcomes as criterion (N=200).

	Standardized Beta value							
Dependent variable	**Gestational age**		**Infant weight**		**Apgar score 1 minute**		**Apgar Score 5 miniutes**	
Control variable	Step 1	Step2	Step1	Step2	Step1	Step2	Step1	Step2
Age	-.196**	-.040	-.198**	-.044	-.193**	.011	-.187**	.009
Education	.164*	.084	.210**	.131*	.148*	.044	.135*	.034
Income	.116	.049	.130*	.064	.178**	.091	.209**	.125*
Parity	.085	.004	.075	-.005	.099	-.006	.102	.001
BMI	.290***	.063	.295***	.071	.358***	.062	.362***	.077
Independent variable								
State anxiety III		-.535***		-.527***		-.698***		-.671***
R	.557	.659	.595	.689	.646	.792	.659	.793
R2	.310	.434	.354	.474	.418	.628	.435	.629
R2 change	.310	.124	.354	.120	.418	.210	.435	.195
F α	17.41***	42.21***	21.27***	44.09***	27.81***	109.14***	29.82***	101.40***

Step 1= 5,194 **Step 2= 7,192** ***p<0.05** ****p<0.01** *****p<0.001**

Table 4. Results of Multiple Linear Regression Analysis (Hierarchical) using trait anxiety of 3rd trimester as predictor and neonatal outcomes as criterion (N=200)

	Standardized Beta value							
Dependent variable	**Gestational age**		**Infant weight**		**Apgar score 1min.**		**Apgar score 5min.**	
Control variableStep 1	Step2	Step1	Step1	Step1	Step2	Step1	Step2	
Age	-.196**	-.064	-.193**	-.193**	-.193**	-.030	-.187**	-.034
Education	.164*	.105	.148*	.148*	.148*	.076	.135*	.067
Income	.116	.031	.178**	.178**	.178**	.073	.209**	.110*
Parity	.085	.040	.099	.099	.099	.043	.102	.050
Nutrition	.290***	.158*	.358***	.358***	.358***	.145**	.362***	.209***
Independent variable								
trait anxiety III		-.409***		485***		-.504***		-.473***
R	.557	.624	.595	.683	.646	.734	.659	.736
R2	.310	.389	.354	.466	.418	.539	.435	.541
R2 change	.310	.080	.354	.112	.418	.121	.435	.107
Fα	17.41***	25.18**	21.24***	40.64***	27.81***	50.61***	29.82***	44.92***

Step 1= 5,194 Step 2= 6,192 *p<0.05 **p<0.01 ***p<0.001

Table 5. Results of Multiple Linear Regression Analysis (Hierarchical) using depression of 3rd trimester as predictor and pregnancy outcomes as criterion (N=200)

	Standardized Beta value							
Dependent variable	**Gestational age**		**Infant weight**		**Apgar score 1min.**		**Apgar score 5 min.**	
Control variable	Step 1	Step2	Step1	Step2	Step1	Step2	Step1	Step2
Age	-.196**	-.076	-.198**	-.075	-.193**	-.007	-.187**	-.001
Education	.164*	.097	.210**	.141*	.148*	.045	.135*	.031
Income	.116	.018	.130*	.029	.178**	.026	.209**	.057
Parity	.085	.022	.075	.010	.099	.002	.102	.005
Nutrition	.290***	.111	.295***	.111	.358***	.079	.362***	.083
Independent variable								
Depression III	-.440***		-.452***		-.684***		-.684***	
R	.557	.621	.595	.659	.646	.775	.659	.786
R2	.310	.385	.354	.434	.418	.600	.435	.617
R2 change	.310	.076	.354	.080	.418	.183	.435	.183
Fα	17.41***	23.76***	21.27***	27.22**	27.81***	88.34***	29.82***	92.20***

Step 1= 5,194 Step 2= 6,193 *p<0.05 **p<0.01 ***p<0.001

3rd trimester has its significant effect on gestational age, infant weight and Apagr score of 1 and 5 minutes.

In Table 5 also, demographic variables were entered first to control their effects on the dependent measures and at the second step, depression of third trimester was entered to determine its effect on each birth outcomes.

Depression is significantly negatively related to gestational age (β = -.53, $p < 0.001$), infant weight (β = -.50, $p < 0.001$), apgar score of 1 minute (β = -.61, $p < 0.001$) and apgar score of 5 minutes (β = -.58, $p < 0.001$). The result shows that depression significantly contributed on predicting birth outcomes. It accounted 11.6% of total variance on gestational age, 10.3% of total variance on infant weight, and 15.2% of total variance on apgar score of 1 minute and 14.1% of total variance on apgar score of 5 minutes. Thus, the result indicates that higher depression in 3rd trimester may adversely affects the pregnancy outcomes in terms of gestational age, infant weight, and apgar score of 1 and 5 minutes.

Discussion

The aim of the present study was to examine the relationship between anxiety, depression and birth

outcomes. Results from the present data indicates:

First, anxiety during pregnancy had its association with adverse birth outcomes. Contrary to previous studies,[7,34-36] we found an association between anxiety and poor birth outcomes. This finding is consistent with the study conducted by Mackey, William, and Tiller,[37] in which they have demonstrated that, higher anxiety is related with premature births and had low weight of infant at birth.

Second, depression during pregnancy is related to poor pregnancy outcomes. This finding is also consistent with study conducted by Chung et al[38] and Paalberg et al,[8] that depression during pregnancy has been associated with low birth weight and also. study conducted by Steer et al[13] that woman with depressive symptoms had more chances of delivering a low birth weight and preterm baby. In a recent study Chung et al[39] found high level of anxiety, depression and stress is associated with preterm birth, low birth weight and lower apgar scores.

Conclusion

Based on the findings of present study this paper confirms that women experiencing more anxiety and depression during pregnancy had more chances of delivering an infant of low birth weight, preterm gestation and apgar scores of 1 and 5 minutes. The existing literature examining the relationship between anxiety, depression and birth outcomes provides controversial results, as some studies didn't find any association between these variables. The present piece of work provides some information by clarifying the nature of the existing literature. As the present study focuses on the relationship between antenatal anxiety, depression and birth outcomes, so through a better knowledge of relationships between maternal mood states (stress, anxiety and depression) and foetal growth, different kinds of prenatal programmes could be carried out to modify the mother's psychological status in order to benefit her foetus. These programmes may include breathing exercises, relaxation training, stress reduction programmes, instructions as well as treatment to reduce anxiety and neuro-endocrinal reactions to the stress throughout pregnancy and even after conception. The benefit of implementing good mental health in antenatal care may have long lasting benefits for the mothers, infant, family and society.

However, there are some limitations of the present study; firstly this study was conducted on healthy group patients by leaving the high-risk patients. Secondly, the study was not conducted in all the three trimesters of pregnancy and thirdly, the present study had focused on ante partum anxiety and depression of pregnancy not on the postpartum mental states. Therefore, future research should be conducted by incorporating this points along with methodological sound procedure such that to clarify the nature between these variables.

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Original Article

Gender differences in clinical presentation of obsessive compulsive disorder: a hospital based study

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ABSTRACT

Introduction: *Gender has been shown to play a vital role in neurobiological aspects, psychosocial factors, and behavioral patterns in Obsessive Compulsive Disorder. Gender-related factors might influence the clinical expression of OCD phenomenon.* ***Objectives:*** *To identify gender related differences in patients of Obsessive Compulsive Disorder.* ***Method:*** *This study was conducted on subjects diagnosed with OCD according to ICD 10 diagnostic criteria. 30 consecutive cases from each gender i.e. male and female were taken. A detailed history was taken with special emphasis on socio demographic data, psychiatric history, level of insight, symptomatology. The data thus obtained was analyzed to identify gender related differences.* ***Results:*** *It was found that males have an earlier age of onset of OCD. Contamination obsessions are more prevalent amongst the females. Males on other hand show a higher prevalence of hoarding and sexual obsessions. Cleaning compulsions were found to be higher in females and hoarding compulsions were more in males.* ***Conclusion:*** *Males were found to have an earlier age at onset. They present with significantly more sexual and hoarding obsessions and hoarding compulsions while females had more contamination obsessions and cleaning compulsions. The fact that OCD starts earlier and probably has a worse impact in men can eventually lead to more specific and efficacious treatment approaches. These gender related differences probably reflect complex interactions between different environmental and biological factors, including cultural influences and life events and neurobiological components.*

Keywords: *Obsessive Compulsive Disorder, Gender related differences*

Introduction

Obsessive compulsive disorder (OCD) is a common, chronic and disabling disorder marked by obsessions or compulsions that are egodystonic and cause significant distress to patients and their families. Lifetime prevalence of OCD in general population is between 2 to 3 %.[1]

There are five dimensions of sexual differentiation (i) the genetic, (ii) the genital, (iii) the neuro-organisational, (iv) the non genital morphological and (v) the behavioural. Each of these dimensions can contribute to differences between men and women in the prevalence and severity of OCD.[2]

Gender is a relevant factor that should be taken into account when evaluating OCD patients.[3] Gender-based differences may emanate from a biomedical (genetic, hormonal, anatomical, physiological); psychosocial (personality, coping, symptom reporting); epidemiological (population-based risk factors); or even a more global perspective.[4]

It has also been proposed that males and females have different left and right cerebral hemisphere ratios. As a consequence of such differences in structural and functional central nervous system (CNS) organisation, women have been hypothesised as being more vulnerable to life stressors. On this basis, they could be expected to break down with lesser environmental precipitants and a less severe personality pathology at a later age than males. Males, on the other hand, suffer a greater incidence of perinatal trauma and this could conceivably alter the serotonergic and dopaminergic systems believed to be involved in OCD and thus induce an earlier onset of OCD. Gender may be a relevant factor to determine clinical presentation and course of OCD and may be considered to define more homogeneous subgroups.[5]

Among the biological factors, sex linked genetic features and hormonal differences may be cited. Considering psychosocial aspects, gender-related social roles may affect the content of obsessions and compulsions. While age of onset seems to be a more genetic characteristic influenced by family history of OCD, the occurrence of sexual and aggression symptoms may be influenced by hormonal characteristics, as well as by gender role.[3]

The role of gender in the manifestation of OCD is exemplified in the context of post-partum OCD[6]. According to a recent metaanalysis, pregnant and postpartum women are more likely to experience OCD compared to the general population.[7] Additionally, there appears to be some congruency between OCD symptom onset and exacerbation across the reproductive cycle in women owing to the relationship of OCD with menstruation and pregnancy.[8] Aggressive and contamination obsessions and washing and checking compulsions are more common in post-partum OCD.[9]

The interest in the aetiological understanding of OCD has increased during the last few years, but still much remains to be learned about the developmental background, co morbidity and pathophysiology; in this respect gender-related or gender-specific factors might influence the clinical expression of OCD phenomena.

Whereas sex is a concept focused on biological aspects, gender is a broader concept, including a range of psychosocial aspects (e.g. attitudes, feelings, values, behaviours, and activities) that, through a process of social construction, differentiate men and women.[3] Gender provides a useful window onto the clinical and biological heterogeneity of OCD.[10]

Gender has been found to contribute to the clinical and biological heterogeneity of OCD. A sexually dimorphic pattern of genetic susceptibility to OCD may be present. There is an increased recognition that OCD is not a homogenous entity and gender may provide a window into the heterogeneity of this disorder.

Methodology

Study was conducted in the department of psychiatry in a tertiary level institute in Punjab, on subjects diagnosed with OCD according to ICD 10 diagnostic criteria. The subjects were drawn from OPD and indoor of psychiatry department. 30 consecutive cases from each sex i.e. male (group 1) and female (group 2) were taken. Subjects included belonged to age group 18-60 (i.e. 30 males, 30 females). Informed consent was taken from the patients and only those consenting to participate in the study were included in the study. Patients having a diagnosis of co morbid Schizophrenia or any other psychotic illnesses were excluded from the study. Also those with a history of Substance use disorders except nicotine and caffeine were not taken for the study.

The two groups were then evaluated and a detailed history of the patient was taken with special emphasis on socio demographic data that included gender, index age; a detailed psychiatric history i.e. age of onset of OCD, type of onset (acute or insidious), course (episodic, chronic, deteriorative), level of insight, any previous treatment, delay in seeking treatment for the same; the symptomatology of the disease i.e. contents of obsessions, type of rituals; along with family history of any psychiatric disorders in family members. To assess the symptomatology, severity of the obsessive and compulsive symptoms, the types of obsessions and compulsions the Yale Brown Obsessive Compulsive Scale (YBOCS) and Yale Brown Obsessive Compulsive check list respectively was applied in all subjects.

The data thus obtained was analyzed to identify gender related differences using chi square test to compare the qualitative variables, whereas student's

t-test was used to compare the continuous variables between the two groups. Z – test was used to compare content of obsessions and compulsions. Statistical significance was set at $p < 0.05$.

Results

The present study was conducted to identify gender related differences in patients of Obsessive Compulsive Disorder in relation to socio demographic factors, precipitating factors, psychiatric history, symptomatology of the illness and family history. A detailed history of the patient was taken, YBOCS and YBOCS check list, were applied in all subjects. The data thus obtained will be analyzed to identify gender related differences.

It was found that the mean age of male patients in the study was 31.9 + 9.48 years while in case of females it was 34.80 + 7.81 years. A difference in mean age of onset was found between the two groups (Table 1). Mean age of onset among men was 22 + 5.72, while in case of women it was 27.47 + 7.33 years. Thus, concluding that males have an earlier age of onset of OCD as compared to females (p-value 0.008). A significant difference was found between the two sexes with regard to previous treatment sought for OCD (table 2). More males than females had taken treatment for OCD earlier than females (p-value 0.009). The delay in seeking treatment for OCD was found to be more in females (5.80 + 3.35 years) as compared to males where it was 4.17 + 1.66 years (p-value 0.041), thus concluding that males seek treatment earlier as compared to females (table 3). On comparing the level of insight between the two groups females were however found to have a better insight as compared to males (p-value 0.048).

Table 1. Age of Onset

Age of Onset	Males		Females	
(years)	No.	%age	No.	%age
<21	13	43.33	4	13.33
21- 30	14	46.67	17	56.67
31-40	2	6.67	7	23.33
41-50	1	3.33	2	6.67
51-60	0	0.00	0	0.00
Mean	22.00	27.47		
SD	5.72	7.33		
p-value	0.008*			

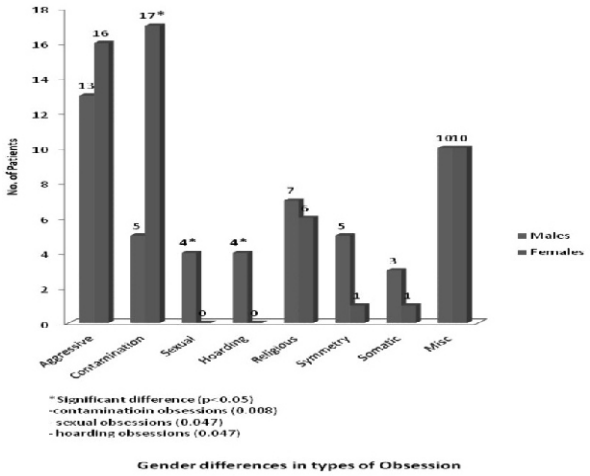

Fig 1 – Gender differences in types of Obsessions

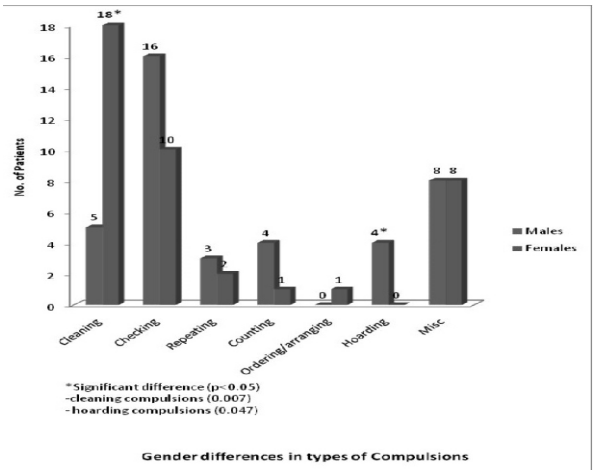

Fig 2 – Gender differences in types of Compulsions

Table 2. Previous Treatment sought by the patients

Previous treatment	Males		Females	
	No.	%age	No.	%age
Yes	20	66.67	9	30.00
No	10	33.33	21	70.00
p-value		0.009*		

Table 3. Delay in seeking treatment

Delay in treatment (in years)	Males		Females	
	No.	%age	No.	%age
<= 5	23	76.67	13	43.33
> 5	7	23.33	13	43.33
> 10	0	0.00	4	13.33
Mean	4.17		5.80	
SD	1.66		3.35	
p-value	0.041*			

On comparing the symptoms of OCD (Fig 1 and 2) we found that contamination obsessions are more prevalent amongst the females (p-value 0.008). Males on other hand show a higher prevalence of hoarding and sexual obsessions (p-value 0.047). Similarly, cleaning compulsions were found to be higher in females (p-value 0.007) and hoarding compulsions were more in males (p-value 0.047). No difference in the level of severity of illness was found between the two sexes.

Discussion

Gender has been shown to play a vital role in neurobiological aspects, psychosocial factors, and behavioral patterns in several psychiatric disorders. Though studies have shown sex differences in demographics, symptom profile, and co-morbidity in OCD, there are inconsistencies. In addition, there are only few studies from outside Western settings, limiting the generalization of these findings across cultures. In this study, we investigated the sex related differences in subjects with OCD with respect to demographics, psychiatric history and symptom profile.

Various studies quote a finding of a roughly equal distribution of males and females with OCD.[10] The male: female ratio has been observed to be around 1:1.67 (range: 1.25:1 to 1:3.8). There have been other studies, which have found greater prevalence in males.[11] The authors have explained that this excess may be due to the socio-cultural taboos, in which women feel hesitant to consult a doctor. To rule out such socio cultural bias equal number of male and female patients were taken in our study (30 in each group).

The age of onset of the symptoms in the study was found to be earlier in males. The observations were similar to the earlier findings of younger age in males as compared to females.[11] But, one study from India found Mean age of males and females to be 33 years and 35 years respectively. This could probably be due to the prevailing social taboos and stigma faced by patients at that time. The finding of earlier age of OCD onset in males is also consistent with previous work.[12-14]

The aetiology of OCD is likely to involve several factors which can have varying impact across patients and gender. Some literature suggests that early onset is a bad prognostic factor[15] and associated with greater severity of the disorder.[16] The early-onset cases might reflect the influence of brain damage or some other constitutional deficiency to which men are more vulnerable than women.[5] An early onset among males can lead to a higher impact on several areas of daily life, including social adjustment and interpersonal relationships, which may be indirectly indicated by the lower rates of marriage in this population.[3] The results may suggest a phenotypic difference between the two groups, suggesting a hypothesis that early-onset OCD is a distinct subtype of the disorder.[17]

Most persons with OCD are not in contact with a mental health professional, and apparently very few receive appropriate treatments. Individuals with OCD who are in treatment may not be disclosing their obsessions and compulsions and may be discussing other emotional symptoms, leading to inappropriate treatment strategies. The average interval between the onset of the illness and the first psychiatric help was about two years.[5] Patients who develop OCD spent a mean of 8.9 years of life with the disorder. In another study 50% of the patients were suffering for 4-5 years .[16] The delay in seeking treatment for OCD in our study was found to be 4.17 years in males and 5.80 years in females. The results observed were similar to those found in the earlier studies.[10,11] This could have been due to social and cultural taboos and certain rituals like washing and cleaning which are deeply ingrained in their societies, so that lesser number of women feel them to be absurd or irrelevant.[18] The interesting finding in another study was that females had a significantly longer duration of illness than males, indicating that they came later for psychiatric consultation compared to males.[19] It has been found that greater severity of OCD and poor insight were associated with poor adherence to drug therapy. In our study 66.67 % males had earlier sought treatment for OCD. As per another study also, most OCD patients had previous medical or mental health consultations. There were no gender differences in this respect in that study.[5]

Those with poor insight are found to have an early age of onset, more severe illness, and higher comorbidity. Studies also suggest that OCD with poor insight could be a distinct subtype. Level of insight was assessed and found to be poor in 20 % of males as compared to 3.33 % females.

The obsessive-compulsive phenomenology in our sample of patients with OCD is broadly consistent with the results from other studies. Our study revealed a higher percentage of males 13.33 % having sexual obsessions. An Indian study done also reported higher prevalence of sexual obsessions in males as compared to females.[20] Lower prevalence in females could be because of the taboo related to discuss these obsessions. The higher frequency of sexual worries in males could derive from different social as well as ethological considerations.[5]

Females had significantly higher rates of contamination obsessions 56.67 % which is in concordance with previous literature. However, a recent Indian study again did not report any significant gender differences with regards to these obsessions.[21] Studies have found that obsessive compulsive washers are more often female and those with checking rituals more often male.[22] It was suggested that the socio-cultural background was significant in this respect as 'Indians in general are preoccupied with matters of purity and cleanliness'. However, the sex differences in the incidences of contamination, phobia and cleaning compulsions in the various studies may be partly due to differences between the roles of men and women. Housework is predominantly a female activity which may affect the nature of the phenomenology in a woman.[23] "Suchi-bai" syndrome, which is characterized by women having exaggerated concern with cleanliness, is culturally accepted in certain parts of India.[24] However, various other western studies have shown no significant gender differences with regards to the cleaning compulsions. There are some data from India to suggest preponderance of themes of dirt and contamination in Hindus.[25]

Certain other cultural factors may also play a role in the symptom expression. For instance, sex is still a taboo in many societies including the Indian society and religion still occupies a central role. Hence, it is understandable that obsessions related to religion, God, sex and blasphemy might be under reported by women due to social restrictions in a conservative society, such as India.[6]

Hoarding obsessions were found in 13.33 % males and compulsions again in 13.33 % males and were significantly higher as compared to females. In another study, the need for symmetry and exactness in association with checking and counting rituals was significantly more common in men and early-onset cases.[26] Obsessions about numbers are more common among boys and adult men with OCD.[27]

Our study did not find any significant differences with respect to other symptoms, though it has been reported in the literature that aggressive obsessions have been associated with females, whereas males have concern with numbers. The fear of losing control may be due to an association with panic disorder, which is significantly more prevalent in women; it might also be related to motherhood and the fear of harming the newborn infant.[5] Males had higher prevalence of religious, somatic obsessions and obsessions related to symmetry. Compulsions related to checking, repeating and counting were more common amongst males in our study. These differences however were not found to be statistically significant in our study.

The explanation for this varying symptom patterns across studies is currently speculative. It could possibly represent a cross-cultural variation in the phenotypic expression of OCD. Differing sample characteristics may also account for the variations across studies. Whether cultural factors could determine sex differences in the phenomenology of obsessional symptoms is unclear. However, studies that report on the phenomenology of OCD in Indian patients support the view that symptom profile is similar to that described in the Western population.[28] Our study did not find any gender differences in the YBOCS total score, score on obsessive or compulsive scale.

Gender has been found to contribute to the clinical and biological heterogeneity of OCD. A sexually dimorphic pattern of genetic susceptibility to OCD may be present. There is an increased recognition that OCD is not a homogenous entity and gender may provide a window into the heterogeneity of this disorder.

Conclusions

The present study confirms the presence of sex-related differences described in other countries and cultures. The fact that the OCD starts earlier and probably have a worse impact in men can eventually lead to more specific and efficacious

treatment approaches for these patients.

This probably reflects complex interactions between different environmental and biological etiologic factors, including cultural influences and life events, genetic, perinatal, endocrine, and neurobiological components. The answers to these questions lie in a more interdisciplinary approach.

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Original Article

Clinical profile and co-morbidity pattern in patients with Intellectual Disability

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ABSTRACT

Background. *Intellectual disability is a revised diagnosis which involves impairment in multiple spheres including general mental abilities and adaptive functioning and is associated with many neuropsychiatric problems contributing to disability.* ***Material and Methods****. 76 patients approaching for disability certification were assessed clinically and diagnosis was made based on ICD-10 quotient. Patients were referred for intelligence assessment. Socio demographic data was collected and disability and co morbidity were assessed.* ***Results and Discussion.*** *Most of the patients were in age group 0 -12 and were unmarried males from urban areas. Most of the patients had mild retardation and there were multiple co morbidities associated with intellectual disability.*

Keywords. *Intellectual disability, Clinical profile, Co morbidities.*

Introduction

In Diagnostic and Statistical Manual of Mental Disorder (DSM 5), the diagnosis of mental retardation is revised from the DSM IV, now called as intellectual disability. The significant changes address what the disorder is called, its impact on a person's functioning, and criteria improvements to encourage more comprehensive patient assessment. Intellectual disability involves impairments of general mental abilities that impact adaptive functioning in three domains, or areas that are conceptual, social and practical. These domains determine how well an individual copes with everyday tasks. [1] Intellectual disability is highly prevalent and highly disabling condition. It is generally considered that 2 % of the Indian population constitutes persons with mental retardation and its prevalence varies from 0.22 to 32.7 per thousand populations.[2,3]

The disorder is considered chronic and often co-occurs with other mental conditions like depression, attention-deficit/hyperactivity disorder, and autism spectrum disorder. They can develop any neuropsychiatric disorder present in persons of normal intellect. The frequency and type of psychiatric or behavioral disorder varies according to the severity of intellectual disability, as well as a variety of other conditions, including medical problems, environmental changes and life circumstances.[4,5]

Intellectual disability is a stress for the family and caregiver and disability assessment studies have shown that mental retardation and other disorders lead to significant socio-occupational dysfunction. Studies have shown that disability benefits are still elusive to the vast majority of the disabled. There also exist many barriers for the disabled to access the due benefits including stigma, poor knowledge, time constraints, legal issues, denial, and discomfort to approach government. Proper awareness and education will go a long way in reducing the stigma and help in the effective utilization of benefits.[6,7,8]

Certification guidelines for intellectually disabled in India

The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Rules, 1996 provide the broad guidelines for issue of the disability certificates. The Rules lay down that a Medical Board, duly constituted by the Central and the State Government shall issue a Disability Certificate. The certificate issued by the Medical Board makes a person eligible to apply for facilities, concessions and benefits admissible under schemes of the Governments or Non-Governmental organizations. The minimum degree of disability should be 40% in order to be eligible for any concession/ benefit.[9,10]

In order to simplify and streamline the procedure for issuing disability certificates to the persons with disabilities, the Central Government in December, 2009 amended rules and simplified the procedure for issuance of Disability Certificate. The amended rules replaced "medical board" by "medical authorities", to be notified by the appropriate government. The state governments were asked to take out notification in this regard. In the revised guidelines, in respect of obvious disabilities, the disability certificate can be issued at the level of Primary Health Centers, Community Health Centers, and hospitals at the subdivisional level and the disability certificates can be issued by a single specialist instead of three and only in case of multiple disabilities, a multi-member board would be required to issue the certificate. In addition, provisions have been made for taking services of nongovernment specialists in case these are not available in government hospitals.[11]

Aim of the present study

1. To assess socio demographic characteristics of the persons with intellectual disability presenting for certification.
2. To assess the severity of disability in the persons with Intellectual disability.
3. To assess the pattern of co morbidity occurring in intellectually disabled persons.

Material and Methods

This is an observational study carried out in a newly started disability certification clinic of a tertiary care general hospital psychiatric unit on outpatient basis in Delhi. This study was carried out for a period from 1 August 2014 to 11 September 2014. All patients who approached for the certifications were assessed and those who satisfied the ICD-10 criteria for intellectual disability were taken. Socio demographic variables were recorded using a semi-structured Performa. Patients were referred to a clinical psychologist for assessment using appropriate tests of assessment. In case where assessment was not possible by tests of intelligence, instruments of social and adaptive abilities were used. Disability recorded as per the disability guidelines, office of the chief commissioner for persons with Disabilities.[10] Co morbidity was recorded on the basis of clinical evaluation and laboratory assessment.

Results

A total of 76 patients were assessed and 75 were certified during the period. The socio-demographic profile presented in Table 1 revealed that the majority of the patients 33 (43.4%) were between ages of 0 to 12. Most of the study population were males 50 (65.8%) and 26 (34.2%) patients were females. 73 (96.05%) patients were unmarried, 44 (57.9%) patients were Hindus and belong to the urban area 64 (84.2%).

Table 2 shows Intelligence and disability assessment in which majority out of total 76, 33 (43. 4%) patients were mildly retarded and had 50% disability. 26 (34.2%) were moderately retarded with 75 % disability score. 14 (18.4%) were severely retarded having 90% disability while only 2 (2.6%) were having profound retardation with 100 % disability scores. 1 (1.3%) patient had borderline intelligence and was not certified for disability benefits.

Table 3 shows the co morbidities seen in patients with intellectual disability. Most common were the seizure disorder seen in 12 (15.8%) and sensory deficits in 12 (15.8%) patients followed by behavioral problems of conduct found in 9 (11.84%) patients and attention deficit hyperkinetic disorder (ADHD) seen in 7 (9.2%) patients and enuresis in 4 (5.3%). Locomotor difficulties were present in 5 (6.6%) patients and other neurological illness like ischemic brain injuries, cerebral palsy were also seen.

Table 1. Sociodemographic characteristics of the patients

Characteristic	N	%
Age in years		
0-12	33	43.4
13-18	18	23.7
19-30	18	23.7
31-45	5	6.6
46-50	2	2.6
Sex		
Male	50	65.8
Female	26	34.2
Marital Status		
Unmarried	73	96.05
Married	3	3.9
Area		
Rural	64	84.2
Urban	12	15.8
Religion		
Hindu	44	57.9
Muslim	27	35.5
Jain	2	2.6
Sikh	2	2.6
Christian	1	1.3

Table 2. Category of Intellectual disabilty and Disability scores

Category of intellectual disability (IQ/SQ)	Disability score in %	Number of patients = N	%
Borderline (70-79)	25	1	1.3
Mild (50-69)	50	33	43.4
Moderate (35-49)	75	26	34.2
Severe (20-39)	90	14	18. 4
Profound (19 & below)	100	2	2.6

Table 3 shows co morbidities in patients of intellectual disability

Disorder	N	%
Behavioral problems of Conduct	9	11.8
ADHD	7	9.2
Enuresis	4	5.3
Seizure disorder	12	15.8
Sensory Deficits	12	15.8
Visual	2	2.6
Hearing	2	2.6
Speech difficulty	8	10.5
Locomotor difficulties	5	6.6
Others	5	6.6

Discussion

Disability evaluation and assessment in mental retardation, given in the guidelines is based upon Indian disability evaluation and assessment scale (IDEAS), gives a clear method to evaluate disability in such population.[12] Studies have shown that IQ correlates negatively and very significantly with the disability scores.[7]

In the current study, among intellectually disabled it was seen that most of the patients were below age 12 and were males. This finding is very similar to earlier studies done in this area in India and abroad**.** It has also been observed that males outnumber females in population approaching government sector for disability certification in mental disorders.[13-16] Most of the subjects were unmarried reflecting the poor support system and need for rehabilitation in such individuals. Majority belong to urban area, finding that can be very well confounded by the fact that region for certification has been divided by the state government.

Most of the patients were mildly retarded followed by moderate mental retardation which is again consistent with earlier studies.[15- 18] It shows that either the mortality in severely or profoundly retarded children is very high or the rate of institutionalization is much higher.[19]

Intellectual disability is a condition in which psychiatric and other co morbidities are highly prevalent and around 60% patients have dual diagnosis.[20] In this study it was seen that behavioral problems of conduct was the most common problem and this finding is also very consistent with other studies.[17,18,21-23] Among psychiatric problems behavioral problems of conduct are also generally associated with attention deficit and hyperactivity as thought of sharing similar genetic etiology.[22] There are several other problems prevalent in this population like seizure disorder, sensory deficits and locomotor difficulties. All this co morbidities reflect presence of brain damage in antenatal or early neonatal period of life and contribute to the high disability in persons with intellectual disability Clinicians need to assess a patient of intellectual subnormality in a more detailed and comprehensive manner and there is need of multidisciplinary team to involve for better management of this population.

Conclusion

Intellectual disability leads to significant distress and disability for patients and caregiver. This study reflects some clinical characteristics of patients with intellectual disability who are approaching

government sector for certification. Simplified procedure for certification has gone a long way in helping people with disabilities but still presence of co morbidities and multiple disabilities require more comprehensive efforts to deal with this population.

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Original Article

Mental Health and Coping among Youth in Kashmir: Implications for Psychological Intervention

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ABSTRACT

Background: *Exposure to armed conflicts can create lasting detrimental effects on physical and mental health of young population. This study attempted to construe the current status of mental health and coping among youth in Kashmir.* ***Aims:*** *The main objectives of the study were: (1) to assess the mental health and coping among male and female youth in Kashmir and examine the gender differences related to these; (2) to explore the relationship between mental health and various coping mechanisms; and (3) to provide a blueprint of the feasible psychological intervention programs based on the findings of the study.* ***Material and Methods:*** *A convenience sample of 100 (50 male and 50 female) youth was selected from the northern, central, and south districts in Kashmir. The mental health and coping were assessed by administering the Mental Health Inventory (MHI-38) and Brief COPE Inventory, respectively, on the sample. A majority of participants exhibited a medium range of mental health index.* ***Results:*** *Results also revealed a significant gender differences in mental health; no such difference was found for coping between the male and female participants. A significant correlation was also found between the mental health index and various coping mechanisms among the sample. The possible psychological interventions based on these results have been discussed.*

Keywords: *Youth, Mental health, Coping, Psychological intervention*

Introduction

Youth are the cornerstones of any society envisioning progress and advancement. Their personal growth and development, inevitably, is the need of the hour. The stakeholders, who play a vital role in this process,such as family members, policy makers, teachers, and researchers have consistently expressed concerns about young people's wellbeing.[1] Such concerns mostly include their mental health, social support, participation and inclusion, financial wellbeing and health[2]. Hence, it is imperative to generate knowledge about the dynamics of these concerns in order to design and improvise programs aimed at achieving the wellbeing of youth worldwide. Such programs hold special significance for areas tormented by armed conflicts, wherein youth face political violence leading to chaos and confusion in their vision for a prosperous future. The impact of armed conflicts especially in developing countries is salient. Exposure to these events can create lasting detrimental effects on physical and mental health of young population.[3] International studies report high prevalence of mental disorders among youth exposed to armed conflicts.[3-5] Research worldwide has reiterated the role of political violence in precipitating mental health problems among youth, which barricades them from a meaningful participation in their society.

Kashmiri Youth: Background

For decades now, Kashmiris have been bearing the brunt of a long standing armed political conflict. Kashmiri "youth are at the forefront of violent conflict, often fighting without a choice. Youth of Kashmir University consistently reported that they continued to have serious psychological and social difficulties as a result of the ongoing violence and deprivation they had experienced during the last few years, such as feelings of hopelessness and profound social alienation".[5] The political conflict has affected every strand of the society and has become a roadblock in the holistic development of Kashmiri youth. The "security concerns are amongst the dominant themes in the minds of young people living in Kashmir. This owes to the fact that death, injury, destruction of property is the notable features of life here due to conflict, disturbances and turmoil for the last eighteen years. Many people have suffered tragic incidents of a war-like situation, which by their nature are beyond the endurance of common man[6]. Researchers have asserted that Kashmiri youth exhibit frustration because of the armed conflict which has choked their voice, whereas suicide rates are increasing at an alarming rate among young men and women.[7] In a study conducted on the impact of violence on student population in Kashmir by Oxfam in 2003, 98% respondents were found to endure bottled-up anger, whereas around 64% were directly affected by violence as demonstrated through their paintings, writings, and conversations.[8] Similarly, in a survey on social and economic impact of conflict on youth between the age group of 15-30 years, it was found that 64.4% of respondents expressed difficulty to sustain and live a productive life due to conflict whereas 53.8% of respondents revealed that they face identity crises because of the conflict. In addition, a total of 81.4% respondents revealed that conflict has greater negative impact on youth, with 86.9% asserting that conflict has led to an increased incidence of psychological problems among youth. Also, 79.5% respondents mentioned that state faced huge economic problems due to conflict.[9] Although this impact has been documented to a greater extent, there is a dearth of studies on the coping mechanisms, whether adaptive or maladaptive, adopted by youth in Kashmir to deal with such an impact, improves their lives, and make a meaningful contribution to their society. Also, the assessment tools used to gauge this impact have failed to study multiple factors comprising mental health, which include both positive and negative aspects concerning an individual's perception of his or her wellbeing. Thus, the current study was designed to assess the current status of mental health among youth in Kashmir. It also attempted to decipher coping mechanisms adapted by them and, accordingly, discusses implications of the results obtained in order to design appropriate psychological intervention programs from which youth can benefit for their better future.

Mental Health

Currently mental health (MH), as proposed by the World Health Organization (WHO), includes an individual's ability to understand and utilize his/her potential, effectively adapt and handle every stress, and make a positive contribution to the society[10]. This outline reinforces the idea of MH as a positive state of wellbeing and not just mere absence of mental health problems. Thus, MH is conceptualized as "not merely absence of psychopathology but the presence of sufficient levels of social, psychological, and emotional wellbeing". In the current study, the construct of MH has been conceptualized and assessed in sync with this definition.

Coping

Coping encompasses an individual's means and resources to deal with everyday stressors and handle life situations. It includes resources such as social and personal characteristics upon which people may draw when dealing with stressors.[11] Coping reflects the behavioral and/or cognitive attempts made by an individual to manage specific situational demands. Such demands are appraised as taxing or exceeding the general ability of an individual to adapt. Researchers have bifurcated such mechanisms into two strategies-adaptive coping and maladaptive coping mechanisms. In the current study, coping among youth has been assessed in line with this dualism. Following objectives and hypotheses were formulated for the study.

- To assess the current status of mental health and coping among male and female youth in Kashmir.

- To provide a blue print of the psychological intervention programs based on the results of the study.

H1: There would be a significant difference in mental health and coping between male and female youth in Kashmir.

H2: There would be significant relationship between mental health and coping mechanisms among youth in Kashmir.

Material and Methods

Sample

A convenience sample of hundred undergraduate students living and studying in Kashmir valley was approached for the study. Following are the demographic details of the sample.

Table-1: Showing the demographic details of the sample

Sample Size (N)	Gender Composition	Age Range	Residence	Occupation and Education	Religion	Socio-Economic Status
100	50 Male 50 Female	19-23 Years	Kashmir	Student (Undergraduate)	Islam	Lower Middle Class

Tools

The mental health was assessed using the Mental Health Inventory-38.[12] This 38-item inventory consists of six subscales (a) Anxiety (A)- which involving an assessment of an out of proportion emotional reaction, or irrational fear, usually associated with the anticipation of 'yet-to-occur' events or threats; (b) Depression (D)- which assess the level of prolonged despair, disappointment, and hopelessness; (c) Emotional Control (EC)- which is a measurement of an ability to exert control over one's behavior, thoughts, and emotions; (d) General Positive Affect (GPA)- which assesses the level of a consistent and happy attitude towards life; (e) Emotional Ties (ET)- which demonstrates an individual's contentment with his/her relationships; and (f) Life Satisfaction (LS)- which is a measure of general satisfaction with one's life. The inventory also consists of two global scales - Psychological Distress (PD) and Psychological Well-being (PWB), assessing the extent of above mentioned positive and negative dimensions, respectively. Finally, this measure also provides a global Mental Health Index score (MHI) based on all 38 items, this score represents an individual's overall mental health status depicting the frequent occurrence of desired mental health symptoms such as greater life satisfaction and less frequent occurrence of negative mental health symptoms such as loss of behavioral control. The Cronbach's Alpha value of this tool as demonstrated on the current sample is 0.71. To assess coping, Brief COPE[13] was administered on the sample. This 28-item inventory consists of both adaptive and maladaptive coping strategies which include; (a) Self-Distraction (SD)- which assesses the level of distraction as used by the individual as a coping mechanism; (b) Active Coping (AC)- which gauges the level of adaptive and planned steps to face the stressor; (c) Religion (R) - assesses the level of individual's comfort-seeking in religious beliefs and behaviors; (d) Acceptance (A)- demonstrates the level of coming to terms with the stressor and its impact; (e) Emotional Support (ES)- assesses the level of support provided by family and friends; (f) Instrumental Support (IS)- measures the level of support in helping the individual to overcome the situation; (g) Behavioral Disengagement (BD), (h) Substance Use (SU) - assesses the use and abuse of psychoactive substance; (i) Denial (D)- demonstrates the level of an individual's non-acknowledgement and non-acceptance of the situation; (j) Humor (H)- depicts the use of humor as a distraction from the stressor; (k) Planning (P)- measures the level of actions formulated by the individual to deal with the stressor; (l) Positive Reframing (PR)- assess the level of positive attitude towards the situation; (m) Venting (V)- gauges the level of 'catharsis'; and (n) Self Blame (SB)- illustrates the level of criticism directed at self. The Cronbach's Alpha value of this inventory on the current sample was 0.76.

Procedure

Through convenience sampling, the cooperation and consent of undergraduate students enrolled in

various colleges in Kashmir valley were obtained after explaining the purpose of the study. This followed the completion of the demographic details and survey questionnaires by the sample. Data was then statistically analyzed using the statistical package for social sciences (SPSS 16.0).

Statistical Analysis

Descriptive as well as inferential statistics were used to analyze the data. Firstly, mean and standard deviation of both the dependent variables of MH and Coping were calculated followed by t-test to find out the gender differences among male and female participants in the study. Also Pearson's Product Moment Correlation was calculated to examine the relationship between mental health and various coping mechanisms in the sample.

Results and Discussion

Table 2: Mental Health Index (MHI) score range of the sample

Dimension	Range		No. of Cases	Percentage of Cases
	38-100	L	7	7%
MHI (N=100)	**101-164**	**M**	**71**	**71%**
	165-226	H	22	22%

From Table 2, it can be inferred that majority of the participants (71%) exhibited a medium level of mental health followed by a 22 % scoring a high level, whereas 7% exhibiting a low level. MH is determined and influenced by a range of individual as well as other socio-cultural and environmental factors. In a conflict zone, the two such significant factors that impact MH are a direct exposure to the violence and destruction of war, and the stressful social and material conditions that are often heightened by the armed conflict.[14]

Such impact on the civilian population is one of the most significant consequences of a war. Previous research has validated this assertion and shown an increase in the incidence and prevalence of mental disorders in conflict areas.[15,16] Youth are also an equally vulnerable group in these zones including Kashmir, struggling to deal with such consequences on the one hand whileattempting to work towards prospering their own lives on the other. While analyzing the impact of conflict on youth in Kashmir, Hassan and Shafi[17] found that 90.5 percent respondents were experiencing insecurity while being unsure whether they would return home alive as they leave their homes in the morning to go about their everyday lives. Also, 86 percent participants had reported enduring stress. Although such negative emotions, resulting from exposure to the long-lasting armed conflict, may not get translated into full-fledged psychiatric morbidity for many among these youth, these prove as hassles in the attainment of a high level of mental health. The conflict is in its 'low-intensity' mode in Kashmir currently, henceit can be considered as a plausible explanation for the exhibition of medium level on MHI among majority of participants in the current study. In such conflicts, individuals show a level of distress and lowered sense of security; they do not necessarily develop severe psychiatric disorders.[18] Also, resilience and adaptive coping mechanisms act as protective barriers. Hence, it can be concluded that conflict and other psycho-social stressors have a low to moderate impact on the MH of youth in Kashmir.

Table 3*:* Anxiety, Depression, Loss of Behavioral Control, and Psychological Distress (Negative Dimensions) score range of the sample (N=100)

Dimension	Range		No. of Cases (N=100)	Percentage of Cases
	9-24	L	35	35%
Anxiety	**25-39**	**M**	**60**	**60%**
	40-54	H	5	5%
	4-10	L	42	42%
Depression	**11-16**	**M**	**47**	**47%**
	17-23	H	11	11%
Loss of	9-22	L	34	34%
Behavioral	**23-38**	**M**	**60**	**60%**
Control	39-53	H	6	6%
Psychological	**24—60**	**L**	**50**	**50%**
Distress	61-100	M	46	46%
	105-142	H	4	4%

The above Table 3 shows the percentage of participants scoring the low, medium, and high levels on the negative dimensions of MHI. As can be inferred from the table, majority of the participants exhibited a medium level of all the negative dimensions of mental health. A total of 60%

participants exhibited a medium level of anxiety and loss of behavioral control, whereas for depression, the percentage of participants scoring a medium level was 47%. A total of 50% participants exhibited a low level of psychological distress where as 46% exhibited a medium level of this dimension.

In Kashmir, the general public and particularly youth face psychological and social dejection because of the feeling of living under incessant siege in their homeland, where in the situation is characterized by military repression, indiscriminate violence, and loss of life in the on-going violence.[8] Youth in Kashmir have expressed feelings of hopelessness that are chronicled as medium level of depression reported by the majority of participants in the current study. Also, other significant factors such as lack of education, food, clothing, shelter, health care and jobs have increased their vulnerability. Because of these factors, the youth experience moderate levels of anxiety as exhibited by the majority of participants in the current study[19].

Table 4: General Positive Affect, Emotional Ties, Life Satisfaction, and Psychological Wellbeing (positive dimensions) score range of the sample (N=100)

Dimension	Range		No. of Cases (N=100)	Percentage of Cases
	9-24	L	35	35%
General	10-19	L	2	2%
Positive	**20-39**	**M**	**64**	**64%**
Affect	40-60	H	34	34%
Emotional	2-5	L	32	32%
Ties	**6-9**	**M**	**48**	**48%**
	10-12	H	20	20%
Life	1-2	L	17	17%
Satisfaction	**3-4**	**M**	**55**	**55%**
	5-6	H	28	28%
Psychological	**24-64**	**L**	**50**	**50%**
Wellbeing	65-104	M	46	46%
	105-142	H	4	4%

Similarly, for the positive dimensions of mental health, majority of the cases scored a medium level. The percentage of participants scoring medium levels on general positive affect and emotional ties was 64% and 48% respectively. Also, a total of 55% exhibited a medium level of life satisfaction, whereas 50% of the cases demonstrated a low level of psychological wellbeing and 46% showed a medium level. In a similar study by Bleich et al,[18] around 60% participants, who were exposed to terrorism and violence in Israel, had expressed feelings of optimism about their future despite the debilitating consequences of such exposure. Participants in this study stand on the verge between vulnerability to psychiatric illnesses and feelings of positive affect and life satisfaction. Since majority of participants reported medium level of emotional ties which corresponds to meaningful and supportive family environment, and social bonding. These relationships can also act as stress buffers and lead to a certain level of life satisfaction as demonstrated in this study. In another study, Powell et al[19] found that Bosnian refugees and displaced youth—although struggling with psychological and medical symptoms—reported positive changes in them after the war. This duality of negative and positive impact in a conflict situation is in agreement with the theoretical and in part empirical underpinnings of post-traumatic growth.[20]

Table 5: Gender Differences in Mental Health Index

MHI	Male (n=50) M ± S.D.	Female (n=50) M ± S.D.	*t* value	*p* value
	148.46± 23.69	137.60± 29.24	2.04	0.04

Hypothesis 1 partially stated that there would be a significant difference between male and female participants in mental health. As can be inferred from Table 5, male and female participants differed significantly on mental health, $t(98) = 2.04$, $p=0.04$, with male participants exhibiting a higher level of mental health than the female participants. Hence, this hypothesis is partially accepted. Generally, females are believed to possess lower levels of MH than males because the prevalence and incidence of psychiatric disorders is higher among women than men[21]. Such gender-based differences may result from biological, psychosocial, and epidemiological variances pertaining to both the genders[21]. These large-scale cultural, social, economic, and political processes produce differential health risks for women and men.[21] Although gender roles are reaching an overlap in Kashmir, women are still vulnerable to a variety of socio-cultural and

environmental factors predisposing them to lower level of mental health as compared to their male counterparts.

Table 6: Gender Differences in Maladaptive Dimensions of Coping

Coping	Malen n = 50 M ± S.D.	Female n=50 M ± S.D.	*t* value	*p* value
D	4.50 ± 1.46	4.32 ± 1.73	0.56	0.57
SU	2.04 ± 0.19	2.04 ± 0.28	0.00	1.00
SB	**4.80 ± 1.69**	**4.78 ± 1.76**	**0.058**	**0.95**
V	4.42 ± 1.61	4.30 ± 1.72	0.35	0.72

From the Table 6, it can be inferred that no significant gender difference existed between male and female participants on the maladaptive dimensions of coping. Hence hypothesis 1 partially stating that there would be a significant gender difference in coping between the two genders stands rejected. Previous studies have reported significant gender differences in coping mechanisms among youth.[22-24] The results of the current study were in contrast to these findings. Given the homogenous socio-cultural environment, age group, and changing gender roles of the sample, it would be safe to assume that both male and female participants adapted more or less similar coping mechanisms to deal with events and situations in their lives. Crocker and Graham[23] also found that self-blame was one of the widely used coping mechanism by young people, as demonstrated in this study as well.

Table 6*:* Gender Differences among adaptive dimensions of Coping

Coping	Male n=50 M ± S.D.	Female n=50 M ± S.D.	*t* value	*p* value
SD	4.80 ± 1.48	5.22 ± 1.55	-1.38	0.17
AC	5.12 ± 2.39	5.18 ± 1.93	-0.13	0.89
ES	5.00 ± 1.67	4.64 ± 1.50	1.12	0.26
IS	5.54 ± 1.88	5.30 ± 1.85	0.64	0.52
BD	4.34 ± 1.69	4.28 ± 1.82	0.17	0.86
PR	5.36 ± 1.79	5.80 ± 1.73	-1.24	0.21
P	5.66 ± 1.76	5.98 ± 1.67	0.93	0.35
H	4.06 ± 1.67	4.10 ± 2.04	-0.10	0.91
A	5.50 ± 1.65	5.56 ± 1.61	0.18	0.85
R	**6.44 ± 2.07**	**6.36 ± 1.74**	**0.20**	**0.83**

The second part of hypothesis 1 stated that there would be a significant gender difference in various coping mechanisms. As can be inferred from Table 6, no such difference was found between male and female participants on any adaptive dimension of coping. Thus, this hypothesis stands partially rejected. Females have been found to use more internalizing defenses than men, such as behavioral disengagement in the current study, and also adapt an integrated intra- and interpersonal approach about the situation in their coping strategies.[25] The current study revealed no such significant differences between the two genders. The homogenous familial and other socio-cultural aspects with respect to male and female youth in the valley might be responsible for this insignificant discrepancy in their coping styles. Among all the dimensions, religion was found to be the predominant coping strategy as exhibited by the mean scores on this dimension of both male and female participants. Religion is considered as a protective factor for life stressors.[26]

Table 8: Coefficient of Correlation between Coping Strategies (Self-Distraction, Denial, Venting, and Self- Blame and Mental Health Index (MHI)

	Coping		
	SD	**D**	**SB**
MHI	-.325**	-.343**	-.308**

***p=0.01,*

From the Table 8, it can be seen that there was a significant negative correlation between various maladaptive coping mechanisms and mental health index among the participants. MHI was significantly and negatively correlated with Self-Distraction, Denial, and Self-Blame, *p=0.01.*The use of these maladaptive coping strategies might help the individual to gain a certain level of immediate relief from the stressor. However, these do not guarantee any long-term benefits and might prove counter-productive and thus affect the wellbeing of the individual. Previous research has shown that individuals who use adaptive coping strategies have a higher quality of life.[27]

Implications for Psychological Intervention

Psychological intervention encompasses programs that are aimed at enhancing the mental health and wellbeing of the participants under

consideration. Earlier, medical intervention in conflict zones primarily focused on the physical health of the civilian population. In the last two decades, however, there has been a significant increase in psychosocial intervention and aid programs for populations living under the siege of armed conflicts.[16] The youth in these zones need equal attention when it comes to designing and implementing such programs. From the results of this study, it can be concluded that Kashmiri youth are debilitated by the burden of the conflict and various other psycho-social stressors, which is obstructing their own personal development and, also, hindering their positive contribution to the society. Although the protective factors among these youth, such as social support, resilience, and adaptive coping strategies, are keeping the incidence of severe psychopathology at bay, there is an urgent need to devise and implement other intervention programs to help them acquire useful skills and, thereby, enrich their lives and contribute to their surroundings as well. Numerous steps can be taken to meet these goals. Counseling programs, for example, must be institutionalized especially in educational settings, wherein experienced and professional counselors can provide services to the students through individual and group methods. At the policy level, efforts should be made to address and minimize the psycho-social stressors that youth face such as insecurity and unemployment.

Conclusion

This study assessed the current status of mental health and coping among youth in Kashmir. A total of hundred students, both male and female, enrolled in undergraduate programs, were selected for the study; their mental health and coping were assessed through MHI-38 and Brief COPE. The results revealed that a majority of youth scored in the medium range on the mental health index. Similarly, on the individual positive and negative dimensions of MHI, majority of the participants mostly scored in the medium range. A significant gender difference existed on MHI whereas no such difference was found on coping. Due to the armed conflict, youth in Kashmir face the challenge of living under constant threat and siege. This challenge is exacerbated by other significant stressors, for example unemployment. This study has important implications for policy makers and civil society in general. There is a need to formulate appropriate intervention programs for youth and implement these in educational institutions and otherwise. Through these programs, youth can freely seek help to deal with these challenges and build necessary skills to achieve a higher level of mental health and, thus, make a positive contribution to the society.

The socio-economic status and other variables, which may influence the participant's MH, were not taken into consideration in this study. Also, the sample size of the study was small. In future studies, these factors can be controlled to achieve better results.

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Original Article

Emotional intelligence and coping strategies in late adolescence presenting with deliberate self harm

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ABSTRACT

Introduction: *Deliberate Self harm (DSH) is highly prevalent in adolescents and the incidence is increasing by the day. It is a behavioral problem with significant clinical public health importance. Emotional intelligence (EI) is the ability of an individual to understand one's own and others' emotions and feelings, distinguish between them and use this knowledge in decision making process and actions. El might be linked to DSH through maladaptive coping strategies.* ***Objectives:*** *To study EI and coping strategies in the adolescents in age group of 16 - 19 years who present with DSH.* ***Methods:*** *The patients coming with DSH in the age group of 16-19 years were taken up for study. Self-injurious behavior was assessed with self-harm inventory and socio demographic data was taken. EI was measured and its role in DSH was assessed by means of central tendency and dispersion. Relative importance of different coping strategies was assessed. Association between EI and coping strategies was determined.* ***Results:*** *EI and four areas defining EI for 30 subjects in our study falls in the description of poor EI. Maladaptive coping styles were more commonly used. It was found that as total EI and intra-personal management component of EI increase, there was significant increase in use of adaptive coping strategies.* ***Conclusions:*** *Study concludes the role of low Emotional Intelligence in adolescents who self-harm and maladaptive coping styles seem to mediate the role between low emotional intelligence and self-harm.*

Keywords*: Emotional Intelligence, Coping, Deliberate Self Harm, Adolescence,*

Introduction

Deliberate Self-Harm (DSH) includes self-injury (SI) and self-poisoning and is defined as the intentional, direct injuring of body tissue most often done without suicidal intentions. DSH as defined by W. H. O/Euro multi-center study (1992) is "An act with non-fatal outcome, in which individual deliberately initiate a non-habitual behavior that without intervention from others, will cause self-harm or deliberately ingests a substance in excess of the prescribed or generally recognized therapeutic dosage, and which is aimed at realizing changes which the subject desired via the actual or expected physical consequences.[1]

Deliberate Self-Harm is highly prevalent in adolescents and the incidence is increasing by the day. Although suicide is not the intention of self-harm, the relationship between self-harm and suicide is complex, as self-harming behavior may be potentially life-threatening. There is also an increased risk of suicide in individuals who self-harm to the extent that self-harm is found in 40–60% of suicides. Deliberate self-harm is a significant predictor of completed suicide.[2]

Emotional intelligence (EI) is the ability of an individual to understand one's own and others' emotions and feelings, distinguish between them and use this knowledge in decision making process and

actions. EI is also defined in 4 factors, "self-awareness", "self-management", "social awareness", and "social skills". *Self-awareness* is defined as "to know what we feel, to be able to evaluate our skills in a realistic way and to have self-confidence", *self-management* is defined as "to manage our feelings in a way that it would ease our job and to conserve our positive mood for completing our object", *social awareness* is defined as "behave empathic towards other people, to be able to accept their point of views and to adapt to these various kinds of people", and lastly *social skills* are defined as "to be able to regulate the feelings in relationships and to understand the network correctly, to interact properly".[3,4]

Various studies have been undertaken to find the etiology of deliberate self-harm. Deliberate self-harm is seen as a highly maladaptive coping strategy undertaken by people with low emotional intelligence, which helps to regulate negative emotions but at the cost of physical injury and long term physical and psychological consequences.[5-7] Other studies contradict the role of emotional intelligence, coping strategies and attributes deliberate self-harm to other factors.[8-13] Relationship between EI and DSH is not firmly established.

The present study seeks to extend the understanding of the role of EI in DSH. Knowing a relationship between emotional intelligence and deliberate self-harm can help the individual with deliberate self-harm. Patients with deliberate self-harm can be made to learn functional coping strategies and acquire emotional intelligence which can go a long way to prevent future DSH attempts and completed suicides.

Methodology

The current study was conducted on 30 patients of deliberate self-harm in the age group of 16 – 19 yrs. coming to Dayanand Medical College and Hospital, Ludhiana (Punjab). A detailed history of the patient was taken with special emphasis on Socio demographic data and predisposition factors leading to DSH.

Once patient was out of acute phase and physiologically and psychologically stable, he was evaluated on the scale of Self-Harm Inventory[14], Mangal Emotional Intelligence Inventory (MEII) by Mangal and Mangal[15] and Ways of Coping Questionnaire.[16]

Measure of central tendency and dispersion was used to study emotional intelligence in patients with Deliberate self-harm. Relative importance (by the help of relative score) of different coping strategies (adaptive or maladaptive) was assessed. Chi square test was used to compare qualitative variables. Student 't' test was applied to compare the continuous variables. ANOVA was used to determine association between qualitative and quantitative variables.

Results

The emotional intelligence of subjects range from very poor (53.33%) to average (6.67%). Intrapersonal awareness was very poor in 20% subjects, poor in 56.67% subjects and average in 23.33% subjects. Interpersonal awareness was very poor in 10% subjects, poor in 66.67% subjects and average in 23.33% subjects. Intrapersonal management was very poor in 30% subjects, poor in 50% subjects and average in 16.67% subjects. Interpersonal management was very poor in 43.33% subjects, poor in 33.33% subjects and average in 20% subjects. The Mean value for intra-personal awareness was 11.87 ± 2.66, for inter-personal awareness was 11.87 ± 2.43, for intra-personal

Table 1: Distribution of subjects according to their emotional intelligence level

Emotional Intelligence Level	Intra-personal awareness		Inter-personal awareness		Intra-personal management		Inter-personal management		Total Score	
	No.	%age	No.	%age	No.	%age	No.	%age	No.	%age
Very Poor	6	20.00	3	10.00	9	30.00	13	43.33	12	40.00
Poor	17	56.67	20	66.67	15	50.00	10	33.33	16	53.33
Average	7	23.33	7	23.33	5	16.67	6	20.00	2	6.67
Good	0	0.00	0	0.00	1	3.33	1	3.33	0	0.00
Very Good	0	0.00	0	0.00	0	0.00	0	0.00	0	0.00

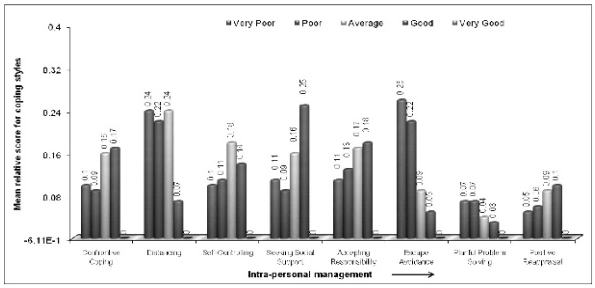
Table 2: Central tendency of emotional intelligence

Emotional Intelligence	Mean	SD	Mode	Median
Intra-personal awareness	11.87	2.66	12.00	12.00
Inter-personal awareness	11.87	2.43	11.00	12.00
Intra-personal management	12.87	3.53	12.00	12.00
Inter-personal Management	12.63	3.47	15.00	12.50
Total	49.23	8.13	51.00	49.50

Table 3: Ranking order of coping style

Coping Style	Mean	SD	Rank
Distancing	0.23	0.14	1
Escape Avoidance	0.20	0.11	2
Accepting Responsibility	0.13	0.07	3
Confrontive Coping	0.11	0.06	4.5
Seeking Social Support	0.11	0.06	4.5
Self-Controlling	0.12	0.06	6
Planful Problem Solving	0.07	0.05	7
Positive Reappraisal	0.06	0.06	8

Fig. 1: Relationship between intra-personal management and coping styles

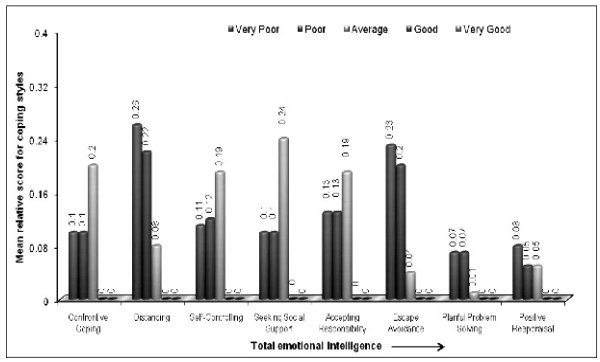


management was 12.87 ± 3.53, mean value for inter-personal management was 12.63 ± 3.47. Overall mean value of emotional intelligence was 49.23 ± 8.13.

Distancing and escape avoidance are most commonly used coping styles ranked 1 and 2 respectively. Accepting responsibility was 3rd commonly used coping style. Confrontive coping and seeking social support were both equally used so both are ranked 4 and 5. At 6th and 7th number were self—controlling and planful problem solving respectively. Positive reappraisal was least commonly used among the 8 coping styles.

Significant relationship was found between intrapersonal management aspect of Emotional Intelligence and coping styles like self-controlling (p value - 0.041), seeking social support (p value – 0.007), and escape avoidance (p value – 0.011). It was found that as intra-personal management increase from very poor to average, there was

Fig 2. Relationship between total emotional intelligence and coping styles



significant increase in use of adaptive coping strategies like self-controlling and seeking social support. Also that as intra-personal management increase there was significant decline in use of maladaptive coping strategy escape avoidance. Significant relationship between overall emotional intelligence and seeking social support (p value – 0.012) was found. It was found that as total emotional intelligence increases from very poor to average, there was significant increase is use of adaptive coping strategy 'seeking social support'.

Discussion

The average score of EI and four areas defining EI (intra-personal and inter-personal awareness and intra-personal & inter-personal management) for 30 subjects in our study falls in the description of poor EI . This is in concordance with the studies done in Britain on high school students in age group of 16 to 19 years[5] and in USA[6,7] which emphasize the role of low Emotional intelligence in the prevalence of DSH in subjects.

Maladaptive coping styles (Distancing and escape avoidance) were more prevalently used than adaptive coping styles. This is in concordance with the study done in Britain on high school students which concluded that EI was related positively with adaptive coping styles and negatively with

maladaptive coping styles.[5] In another study, self-harm appears to be a way of coping rather than an attempt at destroying life: it is usually intended to inflict harm rather than kill.[9] In review study, the proposed model suggested that some people possess intra-personal and/or inter-personal vulnerability factors that limit their ability to respond to challenging and stressful events in an adaptive way and thus increase the odds of self-injury, or some other maladaptive behaviour, to regulate their affective/ cognitive or social experience.[10] Maladaptive Coping Strategies mediated the relationship between EI and self-harm.

Significant relationship between total Emotional Intelligence and intra-personal management aspect of EI and coping styles was found. It was found that as total Emotional Intelligence and intra-personal management increase from very poor to average, there was significant increase in use of adaptive coping strategies and decline in use of maladaptive coping strategies In a study done in Australia, it was found that higher EI would be related to decreased levels of psychological distress and to use of adaptive coping skills when faced with stressful situations.[13]

Primary reason for self-harming in the study was to regulate one's emotions. This study confirms the view that adolescents who deliberately harmed did so in an attempt to regulate unpleasant emotions. The self-injuring adolescents usually represented a style of coping with stress, which was concentrated on emotions. This style was clearly dominating over both task and avoidance-oriented styles.[11] Self-injuring adolescents possess intra-personal and/or inter-personal vulnerability factors that limit their ability to respond to challenging and stressful events in an adaptive way and thus increase the odds of self-injury.

The study provides support to the fact that individuals with high EI regulate their emotions in a flexible way and had lower likelihood to resort to self-injurious behavior. The study emphasizes the protective role of trait EI in adolescents choosing self-harm as an emotion regulation strategy. The findings corroborate the study done in Spain in which it was found that high EI levels are associated with coping strategies based on reflection and problem solving, while low levels are associated with coping strategies based on avoidance, rumination and superstition.[12] Therefore, EI plays an important role in the emotional self-control and the individual's adaptive capacity to cope with stressful situations.

The findings of the study bear practical implications both for treatment and prevention of deliberate self-harm. Patients with DSH can be made to learn functional coping strategies and acquire emotional intelligence which can go a long way to prevent future DSH attempts and completed suicides. There are few limitations which need to be acknowledged. First that this is a hospital based study and results of this could vary from population based study. Second this study includes small sample size, a selective recruitment from hospital setting and may not be generalized.

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Original Article

A Clinico-Epidemiological profile of Suicide Attempters in an Urban Tertiary General Hospital

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ABSTRACT

Background : *Suicide is a common psychiatric problem with suicide attempts being seen across various psychiatric disorders. A longitudinal prospective naturalistic study was carried out at a general tertiary care hospital with the aim of establishing a clinic-epidemiological profile of suicide attempters.* ***Methodology:*** *100 consecutive patients indulging in suicidal behavior presenting to the hospital were included as cases and 100 consecutive patients with any psychiatry diagnosis without a history of indulging in suicidal behavior were the controls. They were assessed using a semi-structured proforma and clinical interview.* ***Results:*** *Most of the patients who indulged in suicidal behavior have borderline personality disorder and alcohol use disorder followed by adjustment disorder followed by major depressive disorder or anxiety disorders. There were no schizophrenia or bipolar mood disorder patients who attempted suicide in our present study group which is against the popular belief that major psychotic disorders are disorders with a high risk of suicide. Suicide attempt was higher in younger, single, unmarried patients with a family history of suicide and alcohol use disorder. With all five factors in place the probability of a person to attempt suicide becomes 80%.Higher number of patients with borderline personality disorder and alcohol use disorder reattempt suicide (11%) followed by major depressive disorder or anxiety disorders (8%).* ***Conclusion:*** *This study adds to the epidemiological data on suicide related psychiatric problems in a tertiary general hospital.*

Keywords: *Epidemiology, Suicide, Borderline personality, Psychopathology.*

Introduction

It is estimated that over 100,000 people die by suicide in India every year. India alone contributes to more than 10% of suicides in the world.[1] According to National Crime Records Bureau (NCRB) report for the year 2011, the suicide rate in India has been increasing steadily and has reached 11.2 per 100,000 of population in 2011 registering 78% increase over the value of 1980, 6.3 per 100,000 of population.[1]

Suicide is among the top 20 leading causes of death globally for all ages. Every year, almost one million people die from suicide; a "global" mortality rate of 16 per 100,000, or one death every 40 seconds,[2] 86% of whom are in low/middle-income countries.[3] However, it is widely recognized that official mortality figures underestimate the true number of completed suicides.[4] Furthermore, the prevalence of non-fatal suicidal behavior may be up to 20 times higher than fatal suicidal behavior.[5] Suicidal behavior, both fatal and non-fatal, has substantial emotional effects on family, friends, and peers. From an economic point of view, suicidal behavior places a considerable drain on the resources of the health care system.[5]

Suicide is not only a social but a global problem. It is not an illness. It is a symptom of an underlying psychiatric disorder. It is most commonly regarded and responded to as a psychiatric emergency. They form a heterogeneous group among patients evaluated daily in the psychiatry outpatient department. At one end there are patients who indulge in mild and isolated/single attempts like consuming sedative/hypnotic pills etc. There are other patients with moderately severe and repetitive attempts like repetitive wrist slashing. At the other end there are patients who indulge in very severe/extreme forms of self injurious behavior in form of hanging where they might lose their life.[6]

More than 1,35,585 people committed suicide in India in 2011. This indicates an increase of 0.7% over the previous year's figure, which was 1,34,599. The number of suicides in the country during the decade (2001-2011) has recorded an increase of 25.0% (from 1,08,506 in 2001 to 1,35,585 in 2010). West Bengal, Tamil Nadu, Maharashtra, Andhra Pradesh and Karnataka together accounted for 56.2% of the total suicides reported in the country and have registered consistently higher number of suicidal deaths during the last few years. Bangalore became the suicide capital of India in October 2013.[7]

Majority of the published studies on suicide have dealt with identifying the socio-demographic and psychosocial aspects of suicide attempters and those who have completed suicide. Some of these have also attempted to identify the characteristic differences between the two groups. Most of these were hospital based studies. The study methods used varied, from use of psychological autopsies to interviews to perusal of records.[9-10]

The World Health Organization's (WHO's) suicide prevention multisite intervention study on suicidal behaviors (SUPRE-MISS), an intervention study, has revealed that it is possible to reduce suicide mortality through brief, low-cost intervention in developing countries.[11] There is an urgent need to develop a national plan for suicide prevention in India. The priority areas are reducing the availability of and access to pesticide, reducing alcohol availability and consumption, promoting responsible media reporting of suicide and related issues, promoting and supporting NGOs, improving the capacity of primary care workers and specialist mental health services and providing support to those bereaved by suicide and training gatekeepers like teachers, police officers and practitioners of alternative system of medicine and faith healers. Above all, decriminalizing attempted suicide is an urgent need if any suicide prevention strategy is to succeed in the prevailing system in India.[11]

Aims

(1) To study the socio-demographic profile of the patients who indulge in self injurious or suicidal behavior attending general hospital psychiatry outpatient department. (cases) (2) To compare the cases on socio-demographic profile with patients who have not indulged in self injurious or suicidal behavior attending general hospital psychiatry outpatient department (controls). (3) It also looked at the phenomenology of patients indulging in self injurious or suicidal behavior and tried to study the response to treatment and outcome in these patients.

Methodology

This was a longitudinal prospective naturalistic study carried out at a general tertiary care hospital after Institutional Ethics Committee approval for the study. 100 consecutive patients indulging in self injurious or suicidal behavior coming on their own or referred, fulfilling inclusion and exclusion criteria and furnishing their well informed consent during study period were included in the study as cases. 100 consecutive patients with any psychiatry diagnosis with no history of indulging in self injurious or suicidal behavior coming on their own or referred, fulfilling inclusion and exclusion criteria and furnishing their well informed consent were included in the study as controls.

Inclusion Criteria:

Cases:

1. Male and female patients of any age.
2. Patients indulging in self injurious or suicidal behavior coming on their own or referred to psychiatric outpatient department.
3. Patients giving well informed consent for participating in the study.

Controls:

1. Male and female patients of any age.
2. Any psychiatric disorder.
3. No history of self injurious or suicidal behavior coming on their own or referred to psychiatric outpatient department.

Exclusion Criteria:

1. Patients lacking objective data.
2. Patients who are not fit to participate in the study at the investigator's discretion.
3. Patients unable to follow up.

Patients fulfilling the inclusion and exclusion criteria were assessed in detail according to specially prepared proforma and details of their demographic profile and phenomenological profile were collected in a one-to-one interview session. Additional objective data was obtained from their close relatives.

Patients were started on required medications as per regular outpatient department protocol along with psychiatric social worker reference.

Patients were followed up with their relative over a period of three months at a fortnightly interval and all necessary psychological assistance and pharmacological assistance were provided to them as needed. Any further re-attempts were also noted and intervention was done accordingly.

100 consecutive new patients coming to the outpatient department with no history of suicide attempts were assessed on the socio-demographic parameters, family history and diagnosis in a single interview. No follow up was arranged for them.

All patients who attempted suicide were grouped into three broad categories:

1. Substance use and borderline personality disorder
2. Adjustment disorder
3. Mood and anxiety disorder

All patients who did not attempt suicide were grouped into three broad categories:

1. Substance use and borderline personality disorder
2. Mood and anxiety disorder
3. Schizophrenia and other psychotic disorders; includes bipolar mood disorder (BMD)

In total we had four groups. These groups were compared across various parameters. Socio-demographic parameters for both cases and controls and phenomenological parameters for cases. The data collected was tabulated and analyzed using appropriate statistical methods/tests. The scale variables were analyzed using analysis of variance (ANOVA). The categorical or nominal variables were analyzed using the chi square test. Yates correction was applied in case values were less than five. The five significant results obtained by the chi square test were analyzed separately using discriminate analysis.

Results

Socio-demographic parameters for both cases and controls and phenomenological parameters for cases (Table 1). Majority of the cases who attempted suicide belonged to borderline personality disorders/substance use disorders (44%) group. Interestingly not a single case of schizophrenia or other psychotic illness was seen in the cases group. Majority of the controls who had not attempted suicide belonged to the major depressive disorder/ anxiety disorders (54%) group. Not a single case of adjustment disorder appeared in the control group. The difference was statistically significant.

Among suicide attempters, more than half of them were employed (63%), housewives where (16%) and students were (14%) and only (7%) were unemployed or retired. (Table 2). In the borderline personality disorder/substance use disorder group (93.18%) were employed and (6.81%) were housewives. There were no students and unemployed in this group. In the adjustment disorder group (29.03%) were employed and (16.12%) were housewives, (41.93%) were students and (12.9%) were unemployed. In the MDD/anxiety disorder group (52%) were employed and (32%) were housewives, (4%) were students and (12 %) were unemployed. This difference was statistically highly significant. Thus, a significant number of students had adjustment disorder (41.93%) in comparison to other groups (0 and 4%). There were more housewives in the MDD/anxiety disorder (32%) group followed

Table 1. Diagnosis wise distribution of cases and controls

Diagnosis	BPD/Substance	Adjustment	MDD/Anxiety	Schiz/BMD
Cases (attempters)	44	31	25	0
Controls (non attempters)	20	0	54	26

Yates Chi-square=71.26; df=3; Yates p-value=0 p <0.01; Highly Significant

by adjustment disorder (16.12%) and BPD/ substance use (6.81%). Only 7% were unemployed (Table 2).

Among non attempters, nearly half of them were employed (45%), housewives (31%), and students and 45), housewives (20, 31), students (20, 8) and only unemployed or retired (11, 16) respectively. This difference was statistically significant. More students in the cases group attempted suicide as compared to the control group.

Table 2. Occupational Parameters Occupation of cases

CasesOccupation	BPD/Substance	Adjustment	MDD/Anxiety	Total
Employed	41 (93.18%)	9 (29.03%)	13 (52%)	63
Housewife	3 (6.81%)	5 (16.12%)	8 (32%)	16
Student	0	13 (41.93%)	1 (4%)	14
Unemployed	0	4 (12.9%)	3 (12%)	7
Total	**44**	**31**	**25**	**100**

Yates Chi-square=41.233; df=6; Yates p-value=2.6× 10^{-7} p <0.01; Highly Significant

ControlsOccupation	BPD/Substance	MDD/Anxiety	Schizophrenia/BMD	Total
Employed	17 (85%)	19 (35.18%)	9 (34.61%)	45
Housewife	0	22 (40.74%)	9 (34.61%)	31
Student	0	7 (12.96%)	1 (3.84%)	8
Unemployed	3 (15%)	6 (11.11%)	7 (26.92%)	16
Total	**20**	**54**	**26**	**100**

Yates Chi-square=18.122; df=6; Yates p-value=0.005 p <0.01; Highly Significant

Occupation	Cases	Controls	Total
Employed	49	45	94
Housewife	20	31	51
Student	20	8	28
Unemployed	11	16	27
Total	**100**	**100**	**200**

Chi-square=8.61; df=3; p-value=0.03 p <0.05; Significant

(8%) and unemployed or retired (16%). (Table 2.2.)In the borderline personality disorder/substance use disorder group (85%) were employed and (15%) were unemployed. There were no housewives and students in this group. In the MDD/anxiety disorder group (35.18%) were employed and (40.74%) were housewives, (12.96%) were students and (11.11%) were unemployed. In the schizophrenia group (34.61%) were employed and (34.61%) were housewives, (3.84%) were students and (26.92 %) were unemployed.This difference was statistically highly significant.Thus, the high level of unemployment seen in the control group was probably due to chronic psychiatric illnesses. Majority of the housewives (40.74%) were depressed.

On comparison between attempters and non attempters, nearly half of them were employed (49

Thus, in our study, unemployment was more in the control group (16%) than in the cases group (11%). (Table 2.3.)

Almost equal number of married (51) and unmarried (45) attempted suicide. Majority of cases with MDD/anxiety disorder group (72%) were married and majority of the cases with adjustment disorder (67.74%) were unmarried. This difference was statistically highly significant. (Table 3.1.). Thus, in our study, adjustment disorders were more among unmarried (67.74%) than married (32.25) and depressive and anxiety disorders were more among married (72%) than unmarried (12%). BPD/ substance use was almost equal among married (52.27%) and unmarried (47.72%). This difference was statistically highly significant.In the control group, (51%) of the cases were married, (45%) were unmarried and (4%) were either divorced or

Table 3. Marital Status Parameter

CasesMarriage	BPD/Substance	Adjustment	MDD/Anxiety	Total
Married	23 (52.27%)	10 (32.25%)	18 (72%)	51
Unmarried	21 (47.72%)	21 (67.74%)	3 (12%)	45
Others	0	0	4 (16%)	4
Total	**44**	**31**	**25**	**100**

Yates Chi-square=19.586; df=4; Yates p-value=0.0006 p <0.01; Highly Significant

Marriage	Cases	Controls	Total
Married	51	73	124
Unmarried	45	25	70
Others	4	2	6
Total	**100**	**100**	**200**

Yates Chi-square=8.88; df=2; Yates p-value=0.011 p <0.01; Highly Significant

Marriage	Cases	Controls	Total
Married males	26	38	64
Unmarried males	25	20	45
Married females	25	35	60
Unmarried females	24	7	31
Total	**100**	**100**	**200**

Chi-square=13.975; df=3; p-value=0.003 p >0.01; Highly Significant

widow. Also (73%) of controls were married, (25%) were unmarried and (2%) were either divorced or widow. This difference was highly statistically significant. (Table 3.2.).On comparison with the control group, married males and married females attempt suicide less than unmarried males and unmarried females. This difference was highly statistically significant. No gender differences exist. (Table 3.3.).

Majority of BPD/substance use disorders attempts were preceded by interpersonal stressors which were absent in MDD/anxiety disorders group. The MDD/anxiety disorder group had predominantly mood changes prior to attempt. This difference was statistically significant. (Table 4).It was observed that in all the three groups, about (56%) of the patients had both interpersonal stressors and mood changes together preceding their suicide attempt. (25%) had only mood changes and remaining (19%) had only interpersonal stressors in form of quarrel with family members and/or rejection in love. Majority of the BPD/substance use disorder (47.72%), adjustment disorder group (58.06%) and MDD/anxiety disorders group (68%) had both interpersonal stressors along with mood changes preceding their attempt. BPD/substance use disorder group had the highest incidence of interpersonal stressors (34.09%) in comparison to the other two groups (12.90%).

12% of cases and 3% of controls had positive

Table 4. Preceding events prior to the attempt

Preceding Events	BPD/Substance	Adjustment	MDD/Anxiety	Total
Interpersonal Stressors	15 (34.09%)	4 (12.90%)	0	19
Mood Changes	8 (18.18%)	9 (29.03%)	8 (32%)	25
Both	21(47.72%)	18 (58.06%)	17 (68%)	56
Total	**44**	**31**	**25**	**100**

Yates Chi-square=10.379; df=4; p-value=0.034 p<0.05; Significant

family history of suicide. This difference was statistically significant (Table 5). 32% of cases and 16% of controls had positive family history of substance use disorders. This difference was statistically highly significant.

adjustment disorders re-attempted suicide. However this difference was not statistically significant. Patients with borderline personality disorders and substance use disorders re-attempted suicide more (11.36%), followed by depressive/ anxiety disorders

Table 5. Family History of Psychiatric Morbidity

Family history of suicide	Cases	Controls	Total
Present	12	3	15
Absent	88	97	185
Total	**100**	**100**	**200**
Yates Chi-square=4.613; df=1; Yates p-value=0.031			p <0.05; Significant
Family history of substance use	**Cases**	**Controls**	**Total**
Present	32	16	48
Absent	68	84	152
Total	**100**	**100**	**200**
Chi-square=7.018; df=1; p-value=0.008			p <0.01; Highly Significant

In our study, the incidence of re-occurrence of suicide attempt in the first two months was 8%. It was observed that, patients re-attempt most commonly within one- two months of previous suicide attempt.

(8%). Patients with adjustment disorders re-attempted the least (3.33%). This difference is not statistically significant, probably due to small sample size.

On the chi square test, we found five variables

Table 6. Follow up for occurrence of re-attempts in cases

Follow Up	BPD/Substance	Adjustment	MDD/Anxiety	Total
15 Days	0	0	0	0
1 Month	3	0	1	4
2 Months	2	1	1	4
3 Months	0	0	0	0
Total	**5**	**1**	**2**	**8**

Incidence of re-occurrence of suicide attempt in the first two months was 8% in the total study population. (Table 7)

11.36% patients of borderline personality disorders and substance use disorders re-attempted suicide while 8% patients of depressive/ anxiety disorders re-attempted and 3.33% patients of

(marriage, occupation, family history of suicide, family history of alcohol use and the underlying psychiatric diagnosis) to be statistically significant.

On applying the statistical test of discriminate analysis for these five variables, we found that 79% of original grouped cases were correctly classified. (Table 8). Thus we can say that, if a patient is

Table 7. Follow up for patients who re-attempt versus those who don't re-attempt

Followup	BPD/Substance	Adjustment	MDD/Anxiety	Total
Attempted	5 (11.36%)	1 (3.33%)	2 (8%)	8
Not attempted	39 (88.63%)	30 (96.77%)	23 (92%)	92
Total	**44**	**31**	**25**	**100**
Yates Chi-square= 0.853; df=2; Yates p-value= 0.65			p >0.01; Not Significant	

Table 8. Discriminate Analysis

Original	Predicted Group Membership		Total
	Suicide	No Suicide	
Suicide	79	21	100
No Suicide	21	79	100

unmarried, unemployed/ student, has a family history of suicide and a positive family history of substance use disorder with an underlying psychiatric diagnosis, then the predictive valve that he/she will attempt suicide is 79%. On the other hand, if a patient was married, employed, no family history of suicide and substance use disorder with no psychiatric diagnosis, then the predictive valve that he will not attempt suicide is 79%. Overall predictive value after taking these five factors together was 79%.

Discussion

In our study borderline personality disorders/ substance use disorders ranked first followed by adjustment disorder followed by major depressive disorder/ anxiety disorders. This finding is not in keeping with Satyavati[12] who reported that patients with schizophrenia accounted for 64% of the attempted suicides. Srinivasan and Thara[13] reported that 8% of suicides in India were committed by persons suffering from schizophrenia. There are three possibilities for such results.First, as compared to BPD/substance and MDD/anxiety, it is likely that schizophrenia and bipolar mood disorder patients are less likely to commit suicide.Second, if schizophrenia and bipolar mood disorder patients attempt suicide, they attempt more seriously, were they die and hence are not referred to the outpatient department.Third, because the study was carried out in psychiatry unit in a general hospital, many patients who got admitted for suicide attempt in medicine ward and referred for psychiatric evaluation were diagnosed as adjustment disorder.

In our study almost (44%) belonged to the borderline personality disorders/substance use disorders group which is more than the study[14] in which there was a strong association with alcohol in 10.42% of the sample. In a study by Gururaj[15] and Vijayakumar[16] alcohol dependence and abuse were found in 35% of suicides. This difference may be because we grouped the borderline personality disorders and substance use disorders together for the convenience of interpretation since they clinically overlap each other.In a study conducted by Bagadia and others[17]the most common psychiatric diagnosis made were Depression (39.73%), schizophrenia (24.4%) and hysteria (14%) which is not in keeping with the findings of our study.

In our study, students were at a high risk for adjustment disorder rather than BPD/substance use and MDD/anxiety disorders due to possibly problems with peers, rejection in love, interpersonal problems with parents and educational difficulties. Also it can be observed that having depression and being a housewife increase the chances of suicide attempt. Bagadia[18] concluded that unemployment may be an important factor in suicide, this finding is not in consensus with our study.Our study is in consensus with Lal and Sethi[19] who reported that women who attempted suicide were housewives or domestic help. In our study, students were at risk for suicide, which is similar to the study results of another research[20] who found the prevalence of suicide risk behavior quite high with almost 16% having suicide ideation and 5% having attempted suicide in adolescent students.

Depression is more common in females worldwide due to chronic interpersonal stressors with spouses and in-laws, financial and occupational difficulties, and considering this, our study is in consensus with Lal and Sethi[19] and Narang[21] where women who attempted suicide more often were married.Sethi and others[23] studied 75 patients admitted for self destructive behavior and found that were unmarried males were at risk for suicide. In our study young unmarried patients with adjustment disorder were at increased risk of suicide probably due educational and personal difficulties.Thus, our study revealed that married people with depression and unmarried people with adjustment disorders were at increased risk of suicide attempt. The gender differences were not calculated. From the above observation, marriage seems to be a risk factor for developing depression although all patients with

depression do not attempt suicide. These results are in keeping with the results of the study of Das[24] on subjects with intentional self harm attempts, which reported that the majority of the subjects were married and Srivastava and Kulshreshtha[25] who reported a positive correlation between severity of depression and being married.

In our study 68% patients had chronic stress due to strained relationships or financial or other problems with significant mood changes which ended in suicide attempt. This means that in patients with depression underlying mood changes were responsible for them to act impulsively in a situation. Also if they were not depressed or were treated for depression on time, they could handle the crisis situation well and not succumb to it.Our findings are in keeping with, Shukla[26] that domestic strife and mental illness were the most common causative factors for suicide. Badrinarayana[27] identified mental illness and disturbed interpersonal relationships as the primary cause for suicide.Gupta and others[28] in their two-year follow-up study of patients who had attempted suicide with schizophrenia and depression found that 17.1% of the schizophrenia patients had attempted suicide again with one completing suicide, compared to 19% of the depressed patients. Our study duration was very short as compared to the above mentioned study and also there were no patients with schizophrenia in our study sample (cases) to comment on this result.

This was a longitudinal prospective naturalistic study designed to study the socio-demographic profile of 100 patients indulging in self injurious or suicidal behavior compared to 100 controls with other psychiatric diagnosis who lack self injurious or suicidal behavior. We evaluated the phenomenological parameters and also the response to treatment and outcome in patients indulging in self injurious or suicidal behavior. The current study has certain limitations. This study was conducted at a tertiary hospital, which may not be representative of the general population. A longer follow up (only 3 months in this study) would have been better to throw more light on the phenomena of re-attempts.

Clinical Implications

1. High levels of stress in students and younger population has to be tackled before they manifest clinically. This requires a concerted effort on the part of students themselves, their parents, teachers and other relevant authorities. Focus should be on problem solving and stress management in this group of population.
2. Our study also showed that unmarried individuals were more vulnerable to psychiatric disturbances. They require better social support and intense psychosocial intervention in order to build up their coping resources.
3. Substance use has to be tackled at a very early stage as our study found high association of substance use and suicide.
4. Poison consumption was the most common method of suicide attempt, which shows that accessibility to means of suicide is an important determinant in likelihood of suicide attempt; since poisonous substances are common household items. So, restricted availability of poisons may play a role in decreasing the use of poison for self harm.
5. Even though small percentage of our study population had communicated suicidal ideas prior to the actual event, it highlights the importance of taking such statements seriously and acting before the harm is done.
6. Considering that a large number of individuals had already attempted suicide, it is important not to overlook any attempt of a person to harm self, however mild the attempt itself may be.
7. If a patient is unmarried, unemployed/ student, has a family history of suicide and a positive family history of substance use disorder with an underlying psychiatric diagnosis, then the predictive valve that he/she will attempt suicide is 79%. Therefore all patients with the above risk factors should be assessed at regular intervals and the involved risk should be communicated to the family members.

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Original Article

Psychological distress and quality of life amongst Medical Students of Assam Medical College, Dibrugarh, Assam

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ABSTRACT

Background: *Information on psychological distress in medical students is sparse in India. A significant numbers of students of our college were observed to seek psychiatric consultations; reasons found were mainly related to the medical curriculum. This vulnerability of our students to psychological distress has generated an increased concern on us.* ***Aims:*** *To assess the psychological distress and quality of life amongst medical Students of Assam Medical College, Dibrugarh.* ***Materials and methods:*** *310 samples were collected by serial sample method and administered General health questionnaire - 12 (GHQ-12), Quality of life scales (QOL) and a semi structured stress check list and result were analyzed by SPSS-16.* ***Results:*** *23.54% students were found to be distressed(GHQe"15), their correlation with quality of life scores showed statistically significant result and study was the top reason for distress followed by lack of recreational activity and disturbed love affair.* ***Conclusion:*** *Medical students are significantly distressed due to various reasons. This study will definitely guide us to help those morbid students and prevent psychological consequences who otherwise would not seek psychiatric help due to the stigma and misconception associated with psychiatric disorders.*

Key words: *Medical curriculum, Psychological distress, Quality of life*

Introduction

Nothing is universal than stress, and it is commonly seen in students of professional curriculum. The endless syllabus, day tight schedule of academic programs, repeated examinations, lack of time for recreational activities are some of the obvious reasons causing distress to the students. Hence medical students are also not immune to it and are subjected to lots of stress. Various studies showing psychological distress in medical students have been reviewed and it was found that 21% to 57% of medical students were psychologically distressed.[1-3]

In last few years we have been getting quite a significant numbers of medical students seeking psychiatric consultation; on enquiry problems were found to be mainly centering medical curriculum and especially to the professional ending examinations; although other factors like a campus life, lack of recreational activities were enumerated by the students. Also it was observed that psychological distress and their quality of life go in an inverse way. In view of this observation department of psychiatry, Assam Medical College had decided to assess whether medical students are really exposed to distress related to medical curriculum or any other

factors which may be playing a role in psychological distress in them. Study as a sole reason of distress was shown by few studies.[3-6] Our study also intended to assess whether the psychological distress has any influence in quality of life amongst the students of Assam Medical College. The aims of our study are to asses the psychological distress and quality of life amongst medical student's and correlation between amount of psychological distress and quality of life in the study group.

Materials and Methods

The study was conducted in medical students and Samples were collected from 2nd, 3rd, 4th and 5th year excluding 1st year students (1st semester was just joined and 2nd semester was appearing examination). After taking permission from the Head of the institution and our department and consent from the study group students from all semesters, participants were explained about the study and discussed about the self-rating interview scales-General health questionnaire-12 (GHQ-12) and Quality of Life (QOL) scale which took 2 sessions.

General health questionnaire-12 is a proforma of 12 items questionnaire which is a subset of GHQ-28 originally devised by Goldberg (1972).[7] It is a self report screening questionnaire for measurement of health in general along with detection of current independently variable forms of psychiatric illness including, depression, anxiety, social isolation and hypochondriasis over the last few weeks. A score of $\geq$ 15 was considered to be psychologically distressed.

Quality of life scale is a quantitative measurement scale of quality of life, which comprises of 16 questions originally designated by Flanagan in 1978, later on modified by Burckhardt.[17] Item No. 4, 10, and 15 were discarded for the purpose of the study as these items were not applicable for students' population. The 13 items we took enquire level of satisfaction in 13 dimensions of daily life ranging from terrible to delight.

In third session students were administered GHQ-12 and QOL and it was a self rating procedure. In those students with GHQ score $\geq$ 15, QOL scores were calculated and thereafter a semi structured scale of various stressors was administered to know the cause of stress The data obtained were analyzed by using computerized package of SSPS-12.0

Results

The sample size was of 310 under graduate students of four professional levels with an age range of 20-26 with a mean age of 23 ± 2 (mean ± standard deviation), amongst which 222 (71.61%) were boys and 88(28.38%) were girls (Table 1).

Table 1: Distribution of samples according to professional level and gender

Professional level	Number of students		Total
	Male (71.61%)	Female (28.38%)	
2nd	85	42	127
3rd	33	9	42
4th	41	15	56
5th	64	21	85
Total	222	88	310

Psychological distress was assessed in relation to gender and male were found to have significant distress at 5% level of significance (Table 2).

Table 2: Psychological distress according to gender X2=8.932 at 5% probability level

GHQ	Male	Female	Total
GHQ>=15	62	11	73
GHQ<=15	160	77	237
Total	222	88	310

Students were surveyed using the General Health Questionnaire (GHQ) to measure psychological distress and 23.54% students scored the cut-off of 15 points and above it (Table 3, Figure 1)

Table 3: Distribution of students according to GHQ

Professional levels	No. of students	GHQ ≥15	GHQ	
			Mean	SD
2nd	127	27	17.37	5.13
3rd	42	12	17.50	5.25
4th	56	16	17.20	5.08
5th	85	18	16.77	4.92

Distressed students (GHQ e"15) were calculated on QOL scale scores and the following

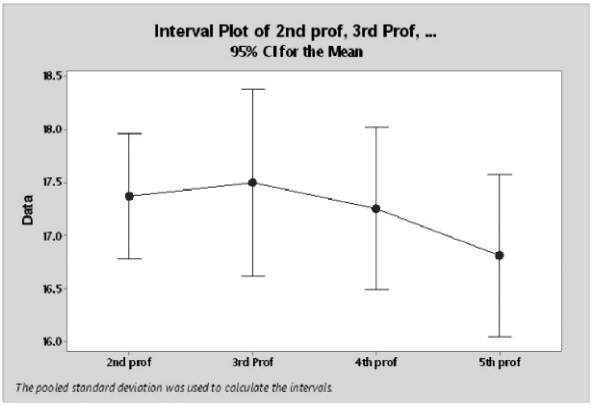

Figure 1: ANNOVA of means of GHQ of all four professional levels.

findings were noted (Table 4, Figure 2)

Table: 4: Distribution of students according to QOL scale

Professional levels	No. of students (GHQ ≥ 15)	QOL	
		Mean	Standard deviation
2nd	27	63.87	20.12
3rd	12	64.63	21.32
4th	16	61.30	18.15
5th	18	62.57	19.24

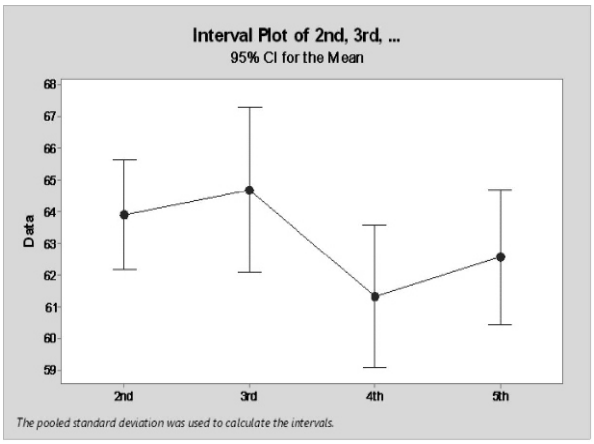

Figure 2: ANNOVA of means of QOL of all professional level

Correlation between level of distress and quality of life in different professional levels was assessed and found that a strong correlation exits between them. P value were significant in all cases except in 5th year (p=0.0014) which is almost acceptable since it is closer to 0.001.This establishes an inverse relation between GHQ and QOL i.e. more the score in GHQ, worst is the quality of life (Table 5 and Fig 3, 4, 5, 6

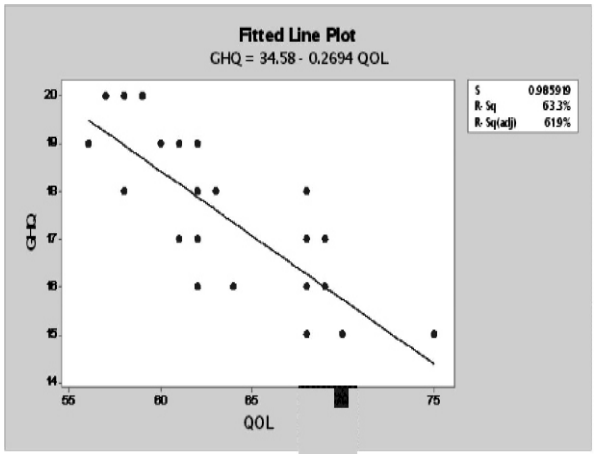

Figure 3: Correlation between GHQ score and QOL of 2nd profession

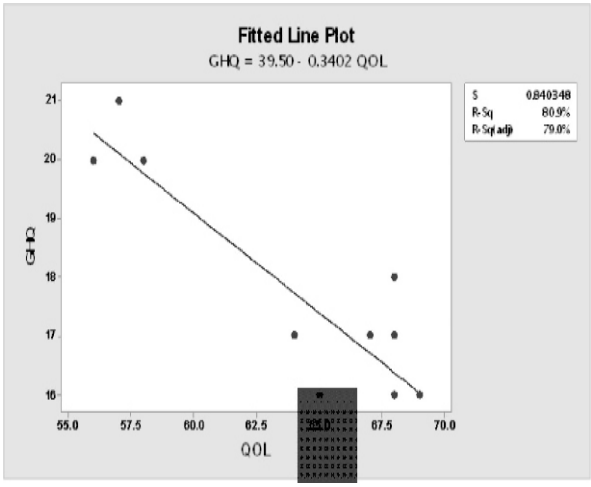

Figure 4: Correlation between GHQ score and QOL of 3rd profession

Table 5: Correlation between GHQ score and QOL

Professional level	Total no. of students	Students GHQ	GHQ		QOL		r	p
			Mean	SD	Mean	SD		
2nd	127	27	17.30	5.13	63.87	20.12	0.9593	0.00050
3rd	42	12	17.50	5.25	64.63	21.32	0.9935	0.00032
4th	56	16	17.20	5.08	61.30	18.15	0.9816	0.00067
5th	85	18	16.79	4.92	62.57	19.24	0.8832	0.0014

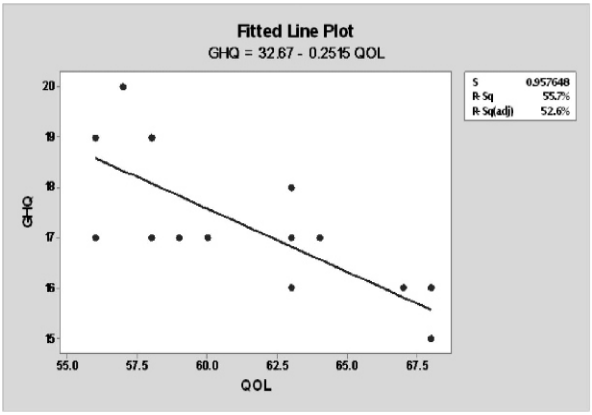

Figure 5: Correlation between GHQ score and QOL of 4th profession

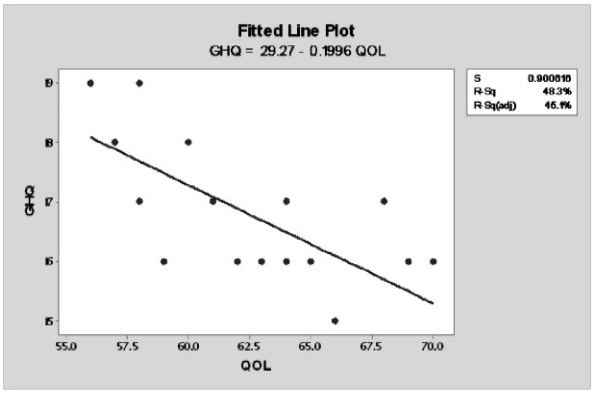

Figure 6: Correlation between GHQ score and QOL of 5th profession

Students' population was assessed for the reasons of their psychological distress by a semi structured stress scale and the most significant reason was found to be study followed by lack of recreational activities and problems related to disturbed love affair (Table 6).

Table 6: Reasons of distress perceived by students

Reasons of distress	No. of students	Mean	SD	P
Study	27	15.17	7.0513	0.00057*
Friends	18	8	4.2112	0.5762
Lack of recreational activity	17	11.5	5.3701	0.00029*
Family matters/ food/lodging	10	7.5	3.9792	0.1381
Affairs	14	9.67	6.1312	0.00018*
Financial reason	05	3.23	1.0312	0.0987

(* significant)

Discussion

The present study attempts to assess the prevalence of psychological distress and its correlation with quality of life amongst the undergraduate students of Assam Medical College, Dibrugarh, which is the pioneer medical institute in North East region with highest number of medical students amongst the all medical colleges of this region. This study has a representative sample of 310 to describe the psychological distress at different professional levels and to find out the reasons of the distress. This study also tries to correlate the level of satisfaction in other important areas of life through Quality Of Life Scale with psychological distress. The study group was selected from under graduate students of different professional levels of Assam Medical College & Hospital. Psychological distresses were studied by using GHQ-12 and their qualities of life were rated in QOL scale. Causes of distress were identified by using a semi structured stress check list specially designed for students by our department.

A total of 310 students were studied, out of which 222 (71.61%) were male and 88 (28.38%) were female. Out of the 310 student, 73 (23 %) showed psychological distress (GHQ ≥15) which in accordance with the finding of Sreeramareddy CT et al (2007)[8] who found a prevalence of 20.9%; Pitts et al[9] who showed 21% of stress in their study. Eller T et al (2006)[2] who also got 21% of distressed in their study group. But our finding was less in comparison to Ko et al[3] found much higher prevalence of 57%, Alem a et al[1] who found a prevalence of 32.6% mental distress in their study on mental distress in medical students. This difference may be possibly because of the difference in environment in hostel which is more cordial and keeping with the social system in this part of the country where people are more religious and strictly sticking to the social norms. In our study male students were found to experience more psychological distress compared to female students, which is replicated by the finding of Shaikh et al[10] in which they also found 95% of male students being distressed; In a study by Bramness et al[11] males were found to have more nervous breakdown. However most of the studies in medical students like Alem et al[1] Showed more stress level in female

which is in contrast to our findings, this is probably because of male dominance of our study group.

The study shows a significant correlation between GHQ-12 and QOL in all the professional levels. There have been studies on QOL scales in medical students [11] but studies are lacking in correlation between GHQ and QOL scale. Our study found that more is the score in GHQ worse is the quality of life i.e. distressed students reported their declining function not only in academic but in other aspects of life also. Reasons of psychological distress were mainly related to study, which replicates finding with Srivastava et al[4], Chrzanowska et al,[5] Ko et al,[2] Radcliffe et al,[6] Mosley et al in,[14] Eriæ[13] in fact almost all reviewed studies showed 'study' as the prime reason of psychological distress. Level of distress before examination especially of professional ending examinations was very striking in our study, which is supported by scoring higher in stress checklist. Their creativity was reportedly reduced greatly due to round the clock day tight academic schedule. Distress associated with Lack of recreational activities was the reason of psychological distress next to study which is supported by S M Ko et al,[3] Sreeramareddy et al,[8] Omigbodun et al,[14] Niemi et al,[15] Eriæ[16] who mentioned lack of time for personal works as a major cause of distress. In our study group males were distressed, was possibly due to less accessibility to those recreational activities due to lack of time, whereas in female group facilities for those were very limited. Disturbed love affair was the third prevalent cause of distress, which is a unique finding of our study; reasons being a solely campus life, a tradition amongst boys to have a company of opposite sex by final year or being ridiculed if can't manage one. Hence boys are seen to take chance and propose every other girl and failure in love transforms them to psychologically distress.

Limitation of the study

Though we had a large sample size it was lacking in equal distribution of sample across different professional levels. This limited us to compare the level of distress in different professional levels.

Conclusion

In this study we attempted to look for psychological distress and quality of life amongst medical students along with correlation between the two. Results showed that 21% medical students were psychologically distressed and being distressed affected their quality of life which was supported by the finding of strong positive correlation between psychological distressed and quality of life.

We have been able to identify the morbid students who probably did not consider it as a state to seek help or those who recognized also were behind the screen due to the misconception and stigma associated with it which is still much prevalent in this part of the country.

We would like to emphasis that it is of utmost important to conduct such studies so that we have a conclusive report about the scenario in India. As our institution has a different setup than other institution in regards to an entirely campus life, lack of recreational activities and a different social system, it is difficult to generalize that medical curriculum is really a cause of distress. So more studies in different medical institutions are in need to support this finding and to know the correlation between psychological distress and medical curriculum. It would be worthwhile to study the students few weeks before examination which will give an assumption of distressed imparted by the endless syllabus of medical curriculum.

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Original Article

A community study on violence among wives of alcoholics

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ABSTRACT

Introduction: *Effect of alcohol use is multifaceted in nature. Once the person is addicted it will affect the entire family. The wife is the most affected in the family. Under the influence of alcohol, husband may induce violence against wife. In the process, the relationship and quality of life is affected.* ***Objectives:*** *The objectives of the study were to study the socio-demographic details and different kinds of violence among wives of alcoholics.* ***Method:*** *The study followed descriptive research design and total of 50 respondents were recruited using cluster sampling technique.* ***Results:*** *The mean age of the respondents was 33.4 years, majority of the respondents (92%) educated up to 10th standard, 74% were house wives, 88% of them were currently living with husband and children, majority (90%) of the respondent were from nuclear family, the mean marital years of the respondent was 12.9 years, 36% of the respondents belong to 31-40 age group. Violence experienced by the respondent show that 88%, 92%, 86% and 74% has moderate level of physical, emotional, intellectual and economic violence respectively.* ***Conclusion:*** *It is necessary to understand the relationship between substance abuse and family violence, so as to create safety and support for the people affected by these problems.*

Key words: *Violence, Wives of alcoholics, Alcoholics*

Introduction

Alcohol related problems are one of the oldest problems in the world. The use and the abuse of alcohol are well documented in the earliest writings in all over the world. Today, alcohol abuse is seen as the world's serious concern not confined to any group, culture or country. Disruptive influences of the problem, its nature, causes are concern among social work professionals, both in developed as well as in the developing countries.

Once the person is addicted to alcohol, if not only affects the person but also affects the entire family, especially the spouse. Compared to others, the families with persons with alcohol abuse have more conflict between parents, spouses and with children. As a result of this, it is likely to affect spouse who may be on the receiving end of violence and sexual abuse.[1,2]

Though alcoholics may feel alone in their struggles, the wives of alcoholics are affected by their drinking and this put strains on marriage. The effects of alcohol abuse can cause more damage and pain than any other internal or external influence on the family unit. The impact of the drinker's abuse or addiction is usually manifested differently with each member of the family and has long term implications.[2-4]

Violence

Violence is defined as the intentional use of physical force, power, threatened or actual against a group or community, that either result in or has a high likelihood of resulting in injury, death, psychological harm, maldevelopment or deprivation.[5]

Violence against women is the manifestation of a historically unequal power, relationship between men and women. It is a conditioned response and is not natural or born of biological determinism. In the olden days violence against women was a result of the prevalent atmosphere of ignorance and feudalism. Today, violence against woman is an uncontrollable phenomenon, which is a direct result of the rapid urbanization, industrialization and structural adjustment problems, which are changing the socio-economic scenario of our country and excessive alcohol consumption and alcohol problems are robust correlates of men's violence towards women.[6-8]

Effects of alcohol abuse are multifaceted in nature. Many times under the influence of alcohol, the husband may induce violence against wife. In the process, the relationship will be affected. The researcher was interested to know the different types of violence among wives of alcoholics in the community.

Methods

The aim of the study was to study the violence among wives of alcoholics. The objectives were to study the socio-demographic details and different kinds of violence among wives of alcoholics. The universe of the study had consisted wives of alcoholics who were living in Kootgal Hobli, Ramanagara Taluk and District in Karnataka. Under the Kootgal Hobli, around 15 villages were there. Each village had been considered one cluster and from this list, one village had been selected using simple random sampling. The researcher included all the women whose husband's consume alcohol. There were fifty eight households who were reported to have a person with alcohol use and 50 consented to participate in the study. The researcher developed socio demographic schedule and domestic violence schedule. The developed instruments were face validated from five Mental Health Experts. The respondents were contacted, explained about the study and after obtaining their consent interviews were scheduled. Each interview took about an hour. The researcher collected qualitative data also, for the better comparison. The obtained data was analyzed using descriptive and inferential statistics.

Results

I. *Socio-demographic details*

The mean age of the respondents is 33.4 years and majority of them (44%) belong to 20-30 years age group (Table 1). Majority of the respondents (92%) are educated up to Secondary School Living Certificate (SSLC). 88% the respondents are living with husband and children and 90% respondents are belong to nuclear family. About 74% respondents are house wives and about half of them are married for about 15-20 years (Table 2).

Table 1. Age of the respondents

Classification of age	N	%	Mid-value	fx
20-30	22	44	25	1550
30-40	16	32	35	560
40-50	10	20	45	450
51-60	02	04	55	110
Total	50	100		Σfx=1670

Table 2: Socio-demographic details of the respondents

Variable	Category	N= 50	%
Religion	Hindu	50	100
Education	SSLC	46	92
	Pre-University Course (PUC)	3	6
	Degree	1	2
Current living Status	Living with family of origin	6	12
	Living with husband and children	44	88
	Living alone	0	0
Type of family	Nuclear	45	90
	Joint	5	10
Employment Status	House wife	37	74
	Employed	12	24
	Self employed	1	2
How long Respondents are Married (in years)	1-5	5	10
	5-10	14	28
	10-15	5	10
	15-20	26	52

Table 3 depicts the details of the husbands of the respondents. One third of the respondents husband's (36%) belong to 31-40 years age group,

Table 3: Details about respondents' husbands

Variable	Category	N= 50	%
Age	21-30	6	12
	31-40	18	36
	41-50	12	24
	51-60	14	28
Education	Bellow SSLC	45	90
	PUC	3	6
	Degree	2	4
Occupation	Agriculture	27	54
	Business	9	18
	Driver	10	20
	Garments or factory worker	4	8
Year's Alcohol is Being Consumed	1-5	16	32
	6-10	28	56
	11-15	4	8
	16-30	2	4
Quantity of alcohol consumption daily	30-60ml	21	42
	60-90 ml	9	18
	100 -120 ml	1	2
	120-180 ml	19	38

Table 4: Correlation between education, violence and number of years of marital life

		Education	Violence	No. of years of marital life
Education	r	1	-.313(**)	.104
	P Value		.008	.393
	N	50	50	50
Violence	r	-.313(**)	1	.583(**)
	P Value		.008	.000
	N	50	50	50
No of years of marital life	r	.104	.583(**)	1
	P Value	.393	.000	
	N	50	50	50

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

90% of them are educated upto SSLC and about half of them are (54%) involved in agricultural activities. About 56% are consuming alcohol for about 6-10 years and 38% consume 6 units of alcohol every day.

II. Violence experienced by the respondents

The charts (1-4) depict the various kinds of violence experienced by the respondents. Violence experienced by the respondent's shows that 88%, 92%, 86% and 74% reported moderate level of physical, emotional, intellectual and economic violence respectively.

Chart 1: Physical violence experienced by the respondents

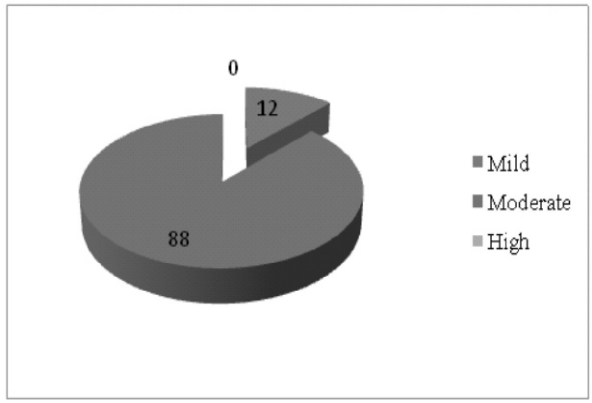


Chart 2: Emotional violence experienced by the respondents

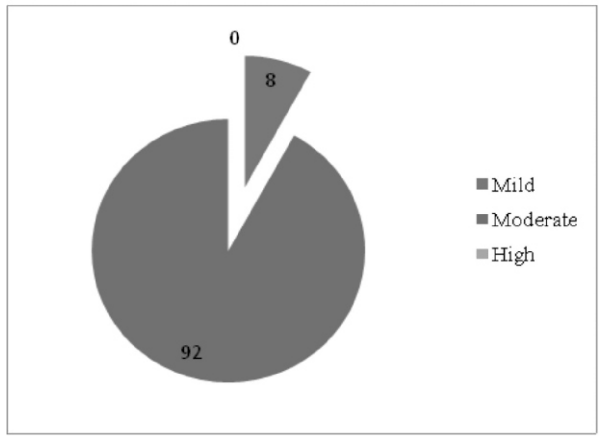


Chart 3: Intellectual violence experienced by the respondents

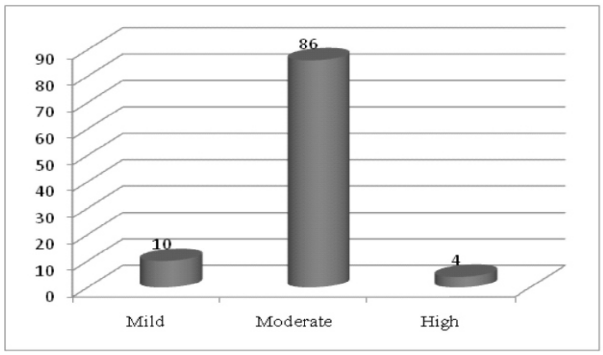
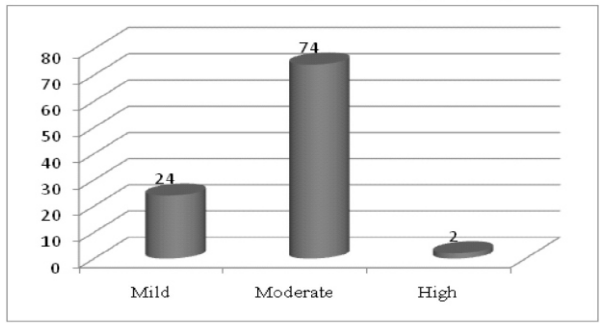


Chart 4: Economic violence experienced by the respondents



The Chi-square test results revealed that the violence did not significantly differ with the socio demographic variables like age, education, type of family, living status, employment status and marital years ($p > 0.05$). This perhaps indicates that the violence and these factors are not related to each other.

Correlation shows that there is a significant negative correlation ($p < 0.01$) between education and violence indicating education reduces the violence in the family. Here it was observed that education empowers the wife in various aspects of the life. Compared to less educated women educated women will have more empowerment. There is a correlation between violence and number of years of marital life indicating over the years violence increases in the family. It is observed that gradually husbands may be addicted.

Discussion

The present study finding show that majority of the respondents is educated upto tenth standard and are housewives. The researcher observed that the study was conducted in the rural area and agriculture is the main occupation. In the rural areas, the women assist their husbands in agricultural work but it is not considered as an occupation.

Respondents' husbands profile show that majority of them are educated upto 10th standard and are involved in agricultural activities. Since the study was conducted in the rural area, this is well understood. Majority (38%) of the respondents' husbands consume about 6 units of alcohol per day indicating probably they are addicted. It needs further investigation.

Violence experienced by the respondent's shows that the moderate levels of physical, emotional, intellectual and economic violence are present among wives of alcoholics. Studies report that women whose partners had alcohol problems were more likely to experience victimization, injury, mood disorders, anxiety disorders and being in fair or poor health than women whose partners did not have alcohol problems. They also experience more life stressors and had lower psychological quality of life. Partner alcohol problems pose diverse health threats for women that go beyond their well-documented association with domestic violence.[1-4,6]

Research suggests that some violent behaviour may be amenable to treatment and some may be preventable. Creating awareness, application of appropriate interventions such as behavioural, empowering the wife to handle violence will bring change in marital violence.[1,3,4] The community model has to be developed to empower women by providing them information, resources and support which will significantly decrease the violence in victims' lives over time. We need to empower the wives of alcoholics to use legal resources as a means of keeping women safe and giving consequences to male batterers. If the husband is addicted, then there is a need to motivate him for treatment. These problems should be addressed by groups that provide couples' treatment or counseling to female partners of alcoholics.[2,7,8]

Correlation shows that there is a significant negative correlation ($P<0.01$) between education and violence indicating education reduces the violence in the family. Here it was observed that education empowers the wife in various aspects of the life. Compared to less educated women, educated women will have more empowerment. There is a correlation between violence and number of years of marital life indicating over the year's violence increases in the family. It is observed that gradually husbands may be addicted.

Limitations of the study

The study was conducted in the community and those who were willing to participate in the study were included. Hence, subjective bias may be there. The sample size is small, hence generalization cannot be done.

Conclusion

Overall the findings of the study implicate that there is violence in the families of alcoholics and wives having violence in the family. The terms family or wives violence and substance abuse have different meanings for different people. It is necessary to understand the relationship between substance abuse and family violence so as to create safety and support for the people affected by these problems in the community.

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Original Article

Personality and Achievement— A Predictive Outlook

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ABSTRACT

Background: *"Profession of dental sciences is highly demanding and stressing when youngsters undergo their training they need to be supported by many behavioral factors and suitable personality traits could be one of them". The use of personality measures as part of the dental student selection process is not a recent consideration. Barkley (1979)[1] suggested that rather than selecting top performing science students will be better for attempting to make them value interpersonal relationships with patients and staff. To succeed in institute of dental studies, dental students need both academic and behavioral skills.* ***Methodology: Aim:*** *Keeping these said ideas in mind we have tried to identify personality variables and their correlations with their academic performance.* ***Material & Methods:*** *The total number of female and male (34 +16 = 50) respectively were taken for study. These students were assessed on various psychological measures and these measures were tried to correlate with their academic performances till date.* ***Results:*** *As far as their intelligence is concerned they are average and certainly in future they will find hard to cope up with study stress therefore, they will be in the need of regular support from their teachers, and counselors. Some of the personality characteristics are definitely going to support as it is found in this work. As far as their achievement is concerned they are capable as they have crossed +2 through CBSE / UP/ ICSE board on their own but in profession it is advisable that one has to have a compromising attitude between his / her potential and achievement. Very high expectations without realizing own potential make a person to meet with false expectation, which could be harmful and disappointing in terms of career pursuance. Moderate extraverted tendency is the representative of high motivation, which is positive towards doing something good at any platform but high neuroticism is not desirable for achievement.* ***Suggestions:*** *A dentist must carry such qualities like; warmth, emotional stability, rule bound attitude, social boldness, sensitiveness, openness to accept the challenges, self-reliant and attitude wise perfectionism in their approach.*

Key words: *Personality, Performance, Dental Science*

Introduction

Dental Science is the branch of medicine that is involved in the study of diagnosis, prevention, and treatment of diseases, disorders and conditions of the oral cavity, maxillofacial area and the adjacent and associated structures and their impact on the human body.[1,2] Dentistry is widely considered necessary for complete overall oral health. As students progress through dental institutes, the curriculum begins to include clinical interactions with

patients specially the medical clerkship, behavioral-cognitive skills such as visuo-spatial ability, manual dexterity, time management, task organization, reading comprehension, memorization, test taking and concentration verbal communication and empathy become more valuable. It is a fact that medical education is perceived as being stressful. It is characterized by many psychological changes in students. Medical students encounter multiple anxieties in transformation from insecure student to young knowledgeable doctor. There is a growing concern about stress in medical training. Studies have observed that medical students experience a high incidence of personal distress during their undergraduate course. High levels of stress may have a negative effect on mastery of the academic curriculum by influencing their cognitive functioning and learning.

Here in this work an effort is made to know the personality of future dentists which is essential aspect as a caretaker of the public health.

Students react to college in a variety of ways. For some, separation from home is a source of stress. Besides an abrupt change from school to professional colleges, loss of personal attention from the teachers, fear of academic failure, drop-outs and unwillingness towards the use of mental health services either due to ignorance / stigma, are also marked. Fenlon et al[3] found the personality scores of students from the Irish dental school were significantly different from normal scores. Same authors have also reported female and male students from the United Kingdom school scored higher than would be expected on extraversion and male students from the same school scored lower than would be expected on neuroticism. In a study by Belsi and Gallagher,[4] the main objective was to investigate the personality profile of dental students. Results have revealed significant differences; the medical graduate entrants to dentistry appeared to have a more extraverted and open up. Gershen and McCreary[5] reported very interesting findings: The major purpose of these studies was to describe psychological stress in dental students and relate it to their personality traits. It was found that females had significantly higher score on stress than did males. It was also noted that the "average" male dental student differed from the male norms on orderliness versus lack of compulsion, social conformity versus rebelliousness and emotional stability versus neuroticism.

Chamberlain et al[6] examined the use of personality measures to predict the success of dental students in clinical and academic courses and to compare their personality profiles to those of dental practitioners. Results from the personality measure indicated that conscientiousness and neuroticism and to a lesser extent agreeableness, were significant predictors of both first-year academic performance and professional behavior. A study by Green et al[7] examines whether personality profiles, using personality factors, or clusters of personality factors, are associated with academic success. One hundred and forty medical students of the University of Wales, College of Medicine were invited to complete a personality questionnaire (Cattell 16 PF). Academic success was associated with any of Cattell's personality factors: A, C, M, and N and Anxiety. In another study by Hoad-Reddick et al[8] aimed to relate personality measures of Year 1 undergraduate dental students to their performance at admissions interview and during the first year of their course. Correlations were positive in this regards. Reeve and Watson,[9] (Cardiff Dental School investigated and found relations with (1) the behavioural patterns, performance and attitudes to dentistry (2) the personality traits, in male and female dental students (n=219) studying as interests in various fields of dentistry, the level of frustration, anxiety and fatigue were felt to be assessed. The overall feelings of satisfaction and dissatisfaction produced in their dental course. Kelvin et al[10] aimed to evaluate the association of neurotic personality traits and coping styles with depression amongst first year medical and dental students. After controlling for socio-demographics and coping styles, this study has clearly indicated that overall neurotic personality traits and in particular the depression facet of neuroticism is significantly associated with depression amongst first year medical and dental students in USM. They have also noticed in this study that dental students were significantly more depressed than other medical students. A possible reason was that dental students had additional academic burden when compared to medical students. It is well known that the neurotic personality trait is a premorbid risk factor for developing a depressive disorder. People who score

high in neuroticism are emotionally reactive and susceptible to stress. They are more likely to interpret normal events as threatening, and trivial frustrations as hopelessly unmanageable. There is a significant association between neuroticism and depression. Saroja Bai[11] has been intended to examine Anxiety Proneness and Emotional Intelligence in relation to Academic Achievement of Pre-University students. Very interesting findings are noticed. It is scientifically proved that the success of individuals' work is 80% dependent on emotional intelligence and only 20% on intelligent quotient. It helps students to choose educational and vocational career. It helps students to overcome anxiety proneness and adjust for emotional, educational and social situations. Also helps in promoting students mental health and to get success in student's life as well as in personal life. It helps psychologists, parents, college, guidance workers and counselors and also for educational administrators. Schools and colleges should be adequately equipped with necessary learning environment in college atmosphere. It helps in promoting students mental health and to get success in student's life as well in personal life. Singh and Jha[12] "Anxiety, Optimism and Academic Achievement among Students of Private Medical and Engineering Colleges: A Comparative Study. This study reveals that 46 % students of total participants had high level of anxiety in case of medical students. The researchers acknowledge with sincere gratitude the support and cooperation extended by the following institutes: - Subharti Medical College, Meerut, UP, Shri Ram Murti Smarak Institute of Medical Sciences, Bareilly, UP, Hind Medical College, Lucknow Metro, Barabanki, UP, Vidya College of Engineering and Technology, Meerut, UP, Shri Ram Murti Smarak College of Engineering and Technology, Bareilly, UP, Bharat Institute of Technology, Meerut, Uttar Pradesh, Northern India Engineering College, Lucknow, Uttar Pradesh.

Hamza Mohammad Abdulghani[13] studied the prevalence of stress among undergraduate medical students and observed an association between stress and academic year, grades, regularity and physical problems. A high level of psychosocial distress was found in their students during the initial three years of their course. It posses additional challenges for students' support services delivery which may require to address mental health problems along with common health strategies for our students. Dahlin et al[14] tried to assess the effect of exposure to different stressors and the prevalence of depression among medical students at different levels of education, taking gender differences into account. The results have shown indicating 1st year students indicated highest degree of pressure and depression rates from studies. A gender difference regarding stress levels was also seen, where females reported higher levels of stress than males. Lievens, Filip et al[15] found personality traits were typical in medical students as compared to other students and these traits had predictability for their performance in pre-clinical years. Bhumija et al[16] concluded about stress is one of the major growing mental problems among medical professional and they have suggested professionals not to ignore it as it can cause many other health issues.

Material and Methods

Statement of Problem

In this particular investigation an effort has been made to study the personality aspects of dental undergraduates who are doing BDS (first year) course at Santosh Dental College (Santosh Deemed University), Ghaziabad (UP) as it was a query about the nature of personality style of dental students and are there any correlation of personality characteristics with their academic performance also keep trying to predict their success for profession in their future. The later part of this problem will be answered in future.

Aims and Objectives

The purpose of this study is as follows:

(1) To examine the intelligence, personality dimensions, level of anxiety and stress and the personality traits of dental students.

(2) To correlate their various personality variables with their academic achievement.

Sample

All the students of first year of BDS, which were 100 in number (irrespective of their gender-wise discrimination) in numbers, are assessed. A 50% of total students have been taken for this study and sex-wise matching is not done because number of male and female is not manageable as the whole

batch comprise 30 males and 70 females in number. The total number of female and male (34 + 16 = 50) respectively was taken for study.

Sampling Procedure

As far as sampling procedure is concerned we have gone for purposive sampling where we have drawn the sample by randomization procedure.

Inclusion and Exclusion Criteria

BDS first year students were included and those students who ever had/have any regular psychological disturbance or not willing to participate were excluded. All included students were required to fill up the consent form.

Measures

1. Raven's Standard Progressive Matrices (RSPM)
2. Eysenck Personality Questionnaire (EPQ)
3. Sinha Anxiety Scale (SAS)
4. 16-Personality Factors (16-PF)
5. Stress Reaction Check-list (SRC)[17]

Analysis and Interpretation

Means, Standard Deviation, correlations by Karl Pearson's method to relate the data of academic performance with the psychological variables of BDS 1st and 2nd year students are calculated. T-test for calculating the difference between means of different group and gender is also applied.

Results

Table 1. Intellectual Profile (RSPM)

RSPM*	Mean with Standard Deviation
Group	44 ± 9.34
Male	45 ± 8.87
Female	41 ± 10.14

*T-Test on RSPM does not Reveal Significant Difference

Performance on RSPM (Table 1) indicates that they have adequate ability to think clearly and are able to understand the sense of complexity (i.e. educative ability and the ability to store and reproduce information i.e. reproductive ability are intact). It also reflects that their general intelligence, problem-solving ability and competences are within normal limit. Gender wise no significant difference was found on t-test.

Group as a whole (Table 2) does not score any typical dimensions but the tendencies towards EXTRAVERSION (E), NEUROTICISM (N) and adherence to LIE- SCALE (L) are well noticed. Elevated lie scores are properly indicative of faking good, social desirability and manipulations. Gender wise analysis reveals that females are a bit extraverted with neurotic tendencies, Gershen and McCreary[5] found them associated with slightly higher scores towards Lie scale. Males are reflecting almost same profile along mild inclinations towards the dimensions of Psychoticism (P), but this difference between means of both male and females is not significant.

Table 3 Level of Anxiety (SAS) and Stress Reaction Check List (SRC)

Other Personality Variables	Means with SD
SAS	
(Group as a Whole)	62.56 ± 17.16
Female	61.09 ± 16.50
Male	65.69 ± 18.69
SRC	
(Group as a Whole)	39.00 ± 7.72
Female	40.89 ± 5.67
Male	37.00 ± 7.72

Findings have reflected that these people are highly anxious (Table 3). Again no significant gender difference is reported. Pursuing higher education is considered to be stressful, especially for medical education. Studies by Indoo Singh and Ajeya Jha (2013)[12] have revealed that stress levels of medical

Table 2. Dimensions of Personality (EPQ)

Group Distribution	EPQ			
	P	E	N	L
Group as Whole (Mean with SD)	4.32 ± 3.38	13.26 ± 3.79	12.82 ± 3.92	11.12 ± 4.35
Female	3.82 ± 2.32	13.35 ± 3.85	12.53 ± 3.78	11.23 ± 4.42
Male	5.38 ± 4.88	13.06 ± 3.78	11.75 ± 4.30	10.88 ± 4.33

Table 4. Personality Traits (16-PF)

Factors (RS & SS)*** (M & SD)	Group as a Whole	Female	Male
A	13.73 ± 4.03 (8)	10.91 ± 2.25 (5)	13.25 ± 1.84 (7)
C	14.21 ± 3.54 (6)	13.65 ± 3.76 (5)	15.50 ± 2.42 (6)
E	12.39 ± 2.67 (6)	12.24 ± 2.60 (6)	12.69 ± 2.70 (5)
F	11.06 ± 3.24 (3)	13.29 ± 3.40 (4)	13.94 ± 2.70 (5)
G	11.06 ± 1.94 (5)	10.82 ± 1.69 (5)	11.56 ± 2.25 (6)
H	11.06 ± 3.08 (5)	10.62 ± 2.57 (5)	12.24 ± 3.74 (5)
I	11.70 ± 2.42 (6)	11.65 ± 2.47 (4)	11.81 ± 2.23 (7)
L	10.46 ± 2.65 (6)	10.38 ± 2.69 (8)	10.63 ± 2.47 (7)
M	9.56 ± 3.00 (5)	9.25 ± 2.70 (3)	10.19 ± 3.41 (4)
N	10.46 ± 2.41 (6)	10.24 ± 2.32 (6)	10.88 ± 2.45 (8)
O	13.19 ± 2.82 (6)	13.06 ± 3.12(7)	13.44 ± 1.75 (7)
Q1	8.27 ± 2.82 (5)	8.27 ± 1.38 (6)	8.25 ± 1.92 (4)
Q2	10.50 ± 2.06 (6)	10.56 ± 2.30 (6)	10.38 ± 1.31 (6)
Q3	10.50 ± 2.50 (5)	10.50 ± 2.54 (5)	10.50 ± 2.33 (5)
Q4	8.73 ± 2.06 (3)	8.59 ± 2.20 (3)	9.06 ± 1.57 (4)
Exvia	10.67 ± 2.16	10.48 ± 2.00	11.10 ± 2.35
Anxiety	7.14 ± 1.58	7.31 ± 1.71	6.78 ± 1.12
Tough Poise	7.00 ± 5.54	10.38 ± 2.37	.32 ± 1.81
Independence	9.74 ± 2.19	9.07 ± 1.82	11.19 ± 2.15

*** RS-Raw Score and SS- Standard Score

students are genuinely high[18-20] and as compared to other students, medical students have more distress, anxiety and depression.[21] The study also revealed that there were no gender differences with regard to optimism, anxiety and academics.

Level of Stress (Table 3)

Entire group is moderately stressed. Moderate stress with frequent bodily complaints is showing that psychologically they are in discomfort zone and burdened. Gender difference shows females are a bit more stressed but no significant difference is revealed between male and females statistically.

Trait Wise Analysis of Personality

Trait wise analysis (Table 4) of personality variables on 16 PF (Table 4) reveals that entire group is out going and warm (A), emotionally stable (C), sober and serious (F), and relaxed (Q4). Females are more tough minded and realistic (I), more suspicious (L), workable, careful and conventional (M). They are also apprehensive (O) but relaxed (Q4). Male students are more outgoing (A), more sensitive (I), suspicious (L), work oriented (M), shrewd (N), apprehensive (O) and a bit critical (Q1) while males are more outgoing, over protected, sensitive and more rule bound. No significant difference is noticed between the traits of males and females on t-test. The analysis of second order factor shows that they are extraverted, anxious, moderately tough minded and independent. Gender wise no significant difference is found on t-test.

Table 5. Academic Performance (% of marks) Mean & SD

BDS First Year	55.96% (56%)	± 9.31
BDS Second Year	57.64% (58%)	± 4.34
Female		
BDS 1st Year	55.29 % (55%)	± 10.62
BDS 2nd Year	54.29 % (54%)	± 14.52
Male		
BDS 1st Year	51.33 % (52%)	± 5.83
BDS 2nd Year	52.79 % (53%)	± 3.62

Group wise (Table 5) academic performance reflects a little above average performance and group wise result has gone up in 2nd year. Gender wise female have performed better in both years though this difference is not significant statistically.

Correlations Between Academic Performance and Different Psychological Variables

Academic results of the latest two academic sessions (BDS 1st year and BDS 2nd year) (Table 6) were considered as of the students' performance/ achievement. At present they are in 3rd year. A correlation between academic performance and

different psychological variables was calculated and findings show that there is a negative correlation between performance and psychoticism (P) (one of the factors of EPQ), it means more the psychoticism in the personality, less will be the performance, which seems to be true also because psychoticism in personality encourages thinking distortions, perceptual deception and confusions which hinders study achievement. This is what is noticed in 1st and 2nd year (group as a whole) and gender wise in 1st year female are negatively correlated and in 2nd year performance of both sexes is correlated negatively with P.

emotionally over-responsive and to have difficulties in returning to a normal state after emotional experiences. Such individuals frequently complain of somatic upsets also such as headaches, digestive troubles, insomnia, backache etc. These individuals also report many worries, anxieties and other disagreeable emotional feelings. Such individuals are predisposed to neurotic disorders under stress, but such predispositions should not be confused with actual neurotic breakdown; a person may have high scores on Neuroticism while yet functioning adequately in work, sex, family and social spheres. In our study negative correlation with performance

Table 6: Showing the Correlations between Academic Performance and Different Psychological Variables

	Group		Female		Male	
	1ST Year	2ND Year	1ST Year	2ND Year	1ST Year	2ND Year
EPQ-P	-.34	-.76	-.37	-.49	-.41	
E	-.18	-.21				
N	-.18	-.75				
SAS	+.24	-.50	- .40	–		
SRC	-.57	-.22				-33
16-PF						
A	-.33	-.32				
F					-0.31	-.36
G			-0.42			
H	-.29	-.31			-.29	-.30
Q1						
Q2				-0.45	-0.33	-.30
Anxiety	+.21	+.31				
T Poise						
Independence	+.23	+.45			+.82	+.55

Besides there are further negative correlations between academic performance and dimensions of extraversion (E) and neuroticism (N) of EPQ. It means if a person is a typical extravert will be sociable, like parties, have many friends, need to have people around him and will not like reading or studying by himself for substantial hours rather a bit fickle minded. He craves for excitement, takes chances, often sticks his neck out, acts on the spur of the moment and is generally impulsive individual. If such traits are in increased rate definitely they will lower down the performance. This is what can be assumed by above findings.

High scores on neuroticism are indicative of emotional disturbance and over reactivity. High score on it shows that these individuals tend to be

reflects that if extraversion and neuroticism will be increased the performance will be deteriorated.

Anxiety has positive co-relations with performance of 1st year students as a whole but in second year it has negative correlation which means to a certain extent anxiety is advisable but for successful coping anxiety has to be lowered down and it should not persist for longer time. It is further confirmed by the level of stress which is also negatively correlated with performance of 1st year and 2nd year students. Its interpretation is as the level of stress will be increased their performance will be decreased.

If we correlate personality factor of A, a negative correlations clarifies that more outgoing behviour is a reason for distraction from studies and

it will deteriorate the performance. Further it is confirmed by a negative correlation of factor F and H with performance among males of 1st year & 2nd year. Besides factor G has reflected negative correlation with performance, means weaker the super ego strength, lesser will be the performance. On second order factor group has +vé corrélations of performance with anxiety and tough-mindedness. As far as scores of Anxiety are concerned, are little higher on a positive side, which means moderate level of anxiety is désirable. Regarding tough mindedness there has been positive correlation both in 1st year and 2nd year. This is indicative of emotional maturity, if it will be increased one will definitely achieve better. In addition male will do better when their level of Independence will be increased.

Discussion

In this study the interpretation of data is based on Mean, SD, t-test and Correlations (r) scores. As far as their intelligence is concerned they are average and certainly in future they will find hard to cope up with study stress therefore, they will be in the need of regular support from their teachers, and counselors. As far as their achievement is concerned they are capable as they have crossed +2 through CBSE / UP/ ICSE board on their own but in profession it is advisable that one has to have a compromising attitude between his/ her potential and achievement. Very high expectations without realizing own potential make a person meet with false expectation, which could be harmful and disappointing in terms of career pursuance. Moderate extraverted tendency is the representative of high motivation, which is positive towards doing something good at any platform. The same profile is noticed in this study. Such type of people have better capacity to meet with their challenges in life, so we can expect better future possibilities for these students in terms of their profession in future. Intensions towards neurotic tendencies shows they are anxious, moody, very sensitive and to some extent vulnerable to tension. Another fact must be known here, as mildly neurotic extraverts are good at ignoring and forgetting the things that overwhelm them. On the other hand, they can conveniently forget a painful experience provided they are aware in advance. Here their extraverted-neuroticism is not very high so they can be made to handle their problems provided they are prepared in advance to such delicacies. In this investigation score on level of anxiety is pretty high which means these people are anxious, worrying and feel apprehensive about things to the extent of reality. They tend to be insecure when approaching problems to life's challenges, but being under training for such a highly specialized discipline to some extent anxiety is must otherwise they will remain relaxed, dull and de-motivated and ultimately will not achieve any more. At any cost achievement should not be affected this is what for this study has been conducted. L-Scale of EPQ is showing the concern that if they do the wrong things, people will not like them i.e. social desirability, which means level of ethics, is maintained. On level of stress these students were found to be mildly high. It is very natural because many of the conditions make them stressed, for example, getting exposed to entirely a new study atmosphere which is obviously a hard strive towards becoming a professional in future, facing complexities in study contents, how much they are able to grasp in their general classes, how they are doing in their tests and terminals, how they are coping with competitive attitudes among their fellows/ batch mates. Since intelligence-wise this group is average therefore it is certain that they are in the demand of knowing different ways of copings otherwise it will definitely make them anxious and stressed. Personality analysis for trait reveals that these students are serious, restrained, grounded, practical, solution oriented, steady, conventional, relaxed and tranquil and off course tension free. A doctor should be like this. On the contrary they are vigilant, suspicious, skeptical, distrustful, oppositional, confidential, shrewd, polished, worldly and diplomatic and clever but under stress they may turn to be apprehensive, non confident, self doubting, worried, guilt prone, insecure, worrying and self blaming. One more important aspect of their trait which may be gifted or contributory are as a whole they are warm, emotionally stable, rule bound, socially adequately bold, sensitive, open to accept the change, self-reliant and attitude wise perfectionist and a dentist must carry such qualities in their approach. Chamberlain et. al. (2005)[6] suggest that the best dental students are those who are persistent, organized, goal-directed, calm, emotionally stable, and compa-

ssionate. To some extent we could get these behvioural characteristics in our students.

Suggestions

The major finding is that psychological distress in students is more common than population so our students should be in touch with psychology professionals. Hamza[13] suggested that when students are taken into colleges, special care has to be taken to find out obvious psychological problems or just psychological distress in them.

Limitations of This Study

This study is a simple try out work, since number of psychological tests were included and it was time consuming also therefore it was becoming difficult to collect the data in group simultaneously. Another difficulty was sex wise matching of the data as number of sex wise students is not identical, moreover in drawing the sample for 50% matching became more restricted to comment upon sex wise complexities.

Another problem is of drop outs, as out of 50% sample one (1 student has dropped out) and 5 were failed-therefore 44 students were left in BDS 2nd year out of 44 students 2 were again drop-outs and 4 were failed-by now 38 are there. All the dropouts are females and rate of failure in exam from male side is more.

In this investigation measurement of Emotional Intelligence (Emotional Quotient-EQ) is not investigated because evaluation of our feelings, wishes, communications, expressions, understanding own emotions, understanding others emotions.

Conclusions and Future Directions

This study also provides additional evidence on the worth of using personality measures as part of the dental student selection process. I feel myself assured that in future the results of this study will certainly be fruitful. Professionalism among our graduates, means e.g. altruism, knowledge wise excellence, accountability, dutifulness, good communication skills, attitudinal maturity, respecting others, reliability, honesty, and integrity in approach.

In 1974, the Canadian Dental Association has introduced a personality measure into the Dental Admissions Testing Programme. In the same direction something can be introduced to the selection process. Since this batch is presently in 3rd year so their performance will again be correlated in next 2 years continuously. Certainly findings based on their academic results will bring some more significant impressions.

During their 1st year just after 1st terminal exams a feedback was taken about their performance in terminals, most of them said they were not serious that is why they didn't do well . This needs to be taken seriously. At least in starting if they are made aware of their study wise responsibilities then the performance can be better.

As a result this year (AUG-2013) we could include orientation programme on **Stress Management** for our beginners (1st year of all medical faculties-MBBS, BDS, BOT, BPT, BSc (N), RDIT and BMLT) and after sometime many of them came forward to share their problems in studies. Probably in future we may get better results. Management of our own emotions and others' emotions are needed to be assessed also.

One of the studies by Singh and Jha[12] have revealed that stress levels of medical students are genuinely high[18-20] as compared to other students, medical students have more distress, anxiety and depression.[21] These studies have also revealed that there were no gender differences with regard to optimism, anxiety and academics.

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Original Article

Caregiving burden and social support among caregivers of schizophrenic patients

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ABSTRACT

Background: *Schizophrenia is a dark shadow in an individual's life. The number of people with schizophrenia in the world, particularly in developing countries, is increasing. The patients with schizophrenia are frequently hospitalized and usually need long term care and treatment in order to reduce negative impacts. Families in India are involved in most aspects of care for persons with several mental illnesses. Families not only provide practical help and personal care but also provide emotional support to their relatives.* ***Material and Methods:*** *Quantitative research approach and correlational research design was used. The sample of 100 caregivers of schizophrenia was taken with purposive sampling technique. The structured self-report tools including a rating scale to assess caregiving burden & a rating scale to assess social support were administered to the caregivers of schizophrenic patients to collect the data.* ***Results:*** *It was found that the caregiving burden and social support are negatively correlated (r = -0.45) and majority of caregivers (50%) of schizophrenic patients suffer from severe and moderate level of caregiving burden. However, most of the caregivers (62%) of schizophrenic patients have low acuity of social support where as no one has been found with high acuity of social support. The level of burden experienced was significantly associated with duration of illness and gender.*

Key words*: caregiving burden, social support, caregiving burden*

Introduction

"They say when you talk to God it's prayer, but when God talks to you, it's schizophrenia" Fox Mulder

For long popularly mental illness was regarded as resulting from sin or curse and the social stigma was associated with it, did not permit family members to actively seek appropriate psychiatric treatment. Today a gradual reversal of this trend is beginning to appear. However due to the nature of mental illness caring for a family member with mental illness can cause immense burden on other family members.[1]

A severe mental illness like schizophrenia has a devastating impact on the patient as well as his/her family members. Thus is due to chronic nature of the illness and the long term treatment it often involves. Patient extensive problems related to both positive symptoms such as aggressive behaviour, delusions, hallucinations and negative symptoms such as poor motivation and inadequate self care. In addition, the disease may relapse during treatment and recovery. Therefore, patients with schizophrenia are frequently hospitalized and usually need long term care and treatment in order to reduce negative impacts.[2]

Schizophrenia is found in all societies and geographical areas and is a major cause of death of patients. About 15 % of new admissions in mental hospitals are schizophrenic patients. It has been estimated that patients diagnosed as having schizophrenia occupy 50% of all mental hospital beds. About 3-4 per 1000 in every community suffer from schizophrenia.[2] About 1% of the general

population stands the risk of developing this disease in their life time. India rank at the upper stages as per the prevalence rate of schizophrenia is concerned. Amongst the epidemiological studies in India, SOFPUC (study of functional psychosis in urban community) in Madras is the most confounding one. It was a multistage census survey. The prevalence rate of schizophrenia was estimated at 2.62/1000.[3]

Burden of family caregivers leads to negative consequences not only for themselves but also for patients, other family members, and health care system. For caregivers, burden negatively affects caregiver's physical, emotional, and economic status. Furthermore, their negative quality of life have impacted on poor caring, mistreatment or behaving violently to the patients which can cause patients relapse. Therefore, this review paper will include theoretical foundation of burden, in particular when caring for persons with schizophrenia, and its related factors.[4]

Social support is the perception and actuality that one is cared for, has assistance available from other people, and that one is part of a supportive social network. These supportive resources can be emotional (e.g., nurturance), tangible (e.g., financial assistance), informational (e.g., advice), or companionship (e.g., sense of belonging). Social support can be measured as the perception that one has assistance available, the actual received assistance, or the degree to which a person is integrated in a social network.[5]

In comparison to families of patients with other chronic diseases, families of patients with schizophrenia report higher subjective and objective burden in conjunction with lower support from the social network and professionals. Both subjective and objective aspects of individual quality of life and perceived family burden are substantially affected by access to evidence- based treatments, quality of available social supports, financial circumstances and close relationships.[6]

Aim of the study

The aim of the study is to find out the correlation between caregiving burden and social support among caregivers of schizophrenic patients.

Assumption

There is increase in caregiving burden with decrease in social support or increase in caregiving burden leads to decreased social support.

Methodology

Research design: A non-experimental i.e. correlational research design was used.

Research setting: New Saini Psychiatric Hospital, Hoshiarpur, Punjab.

Sample & sampling technique: Sample for the study consisted of 100 caregivers and selection was on the basis of purposive sampling technique.

Inclusion criteria

- Caregivers who are in age range of 20-60 Years.
- Caregivers who are closely related and directly involved in care of schizophrenic patients.

Exclusion criteria

- Caregivers who are not willing to participate.
- Caregivers of schizophrenic patients with co-morbid conditions.

Brief description of tool

- Socio-demographic profile and clinical data
- Structured rating scales to assess Caregiving burden and social support among caregivers of schizophrenic patients.

Section-1: ***Socio Demographic Profile and clinical data***: It comprised of items for obtaining personal information of the caregivers of schizophrenic patients i.e. age, gender, education, occupation, marital status, family income (in rupees/month), duration of illness (in years), relationship to care recipient.

Section 2: It was consisted of structured self report rating scales to assess caregiving burden and social support among caregivers of schizophrenic patients. It consists of 2 parts:

Part 1: ***Rating Scale to assess Caregiving Burden among Caregivers of Schizophrenic Patients:*** The tool was constructed after reviewing standardized tools such as burden assessment schedule (WHO), caregiver burden inventory (Novak and Guest), caregiver burden assessment and caregiver burden scale. It was a structured 5 point self report rating scale including 34 items with

dimensions as caregiving responsibilities/time dependency burden (1- 4 items), physical health burden (5-10 items), social relationship burden (11-16 items), emotional burden (17-30 items) and financial burden (31-34 items).

Part 2: ***Rating Scale to assess Social Support among Caregivers of Schizophrenic Patients :*** The tool was constructed after thorough review of standardized tools such as social support questionnaire (PGI) and multidimensional scale of perceived social assessment It consisted of structured 5 point self report rating scale to assess social support among caregivers of ' schizophrenic patients including 20 items composed of dimensions related to emotional support (1-13 items), tangible support (14-17 items) and appraisal social support (18-20 items).

Reliability of tool

Reliability of structured self report tools were computed by test- retest method. The reliability of rating scale to assess caregiving burden was 0.98 and reliability of rating scale to assess social support was 0.96. Thus the tools were reliable.

Results

Table 1: Percentage Distribution, Mean score, Mean score percentage and Rank order of caregiving burden among caregivers of schizophrenic patients

N= 100

	Caregivers of Schizophrenic Patients	
Levels of Caregiving Burden	**n**	**%**
No burden (0-34)	0	0
Mild level of burden (35-68)	01	01
Moderate level of burden (69-102)	50	50
Severe level of burden (103-136)	49	49

Table 1 shows the Percentage Distribution, Mean score, Mean score percentage and Rank order of caregiving burden among caregivers of schizophrenic patients. It was concluded that majority of caregivers of schizophrenic patients suffer from severe (50%) and moderate (49%) level of caregiving burden. Besides, no one is out of burden due to caregiving. It was also found that caregivers of schizophrenic patients have high caregiving burden with very least difference in areas of physical health burden and time dependency burden with mean score percentage 82.29 and 80.31.

Table 2: Percentage Distribution, Mean score, Mean score percentage & Rank order of social support among caregivers of schizophrenic patients

N= 100

	Caregivers of Schizophrenic Patients	
Acuity of Social Support	**n**	**%**
No acuity (0-20)	23	23
Low acuity (21-40)	62	62
Moderate acuity (41-60)	15	15
High acuity (61-80)	0	0

Maximum score = 80
Minimum score = 0

It can be concluded that most (52%) of the caregivers of schizophrenic patients have low acuity of social support where as no one has been found with high acuity of social support. It was also inferred that caregivers of schizophrenic patients has little high emotional social support (mean score percentage 46.35) as compared to appraisal support and the least acuity was with tangible social support (mean score percentage 07.81).

This indicated that caregiving burden and social support were moderately negatively correlated (r =

Table 3. Caregiving Burden Score

Subcategories of Caregiving Burden	MaximumScore	MeanScore	MeanScore %	Rank order
Time dependency burden	16	12.85	80.31	2
Physical health burden	24	19.75	82.29	1
Social relationship burden	24	16.13	67.20	4
Emotional burden	56	43.30	77.32	3
Financial burden	16	8.11	50.68	5

Maximum score = 136
Minimum score = 0

Table 4. Social Support Score

Dimensions of Social Support	MaximumScore	MeanScore	MeanScore %	Rank order
Emotional Social Support	52	24.10	46.35	1
Tangible Social Support	16	1.25	07.81	3
Appraisal Social Support	12	3.21	26.75	2

Maximum score = 136
Minimum score = 0

Table 5: Correlation between caregiving burden and social support among caregivers of schizophrenic patients

N= 100

	Caregiving Burden and Social Support Score		
Variables	**Mean Score**	**Mean Score %**	**r**
Caregiving Burden	100.14	73.63	-0.45
Social Support	28.56	35.7	

Maximum score for caregiving burden = 136
Maximum score for social support = 80

-0.45) with each other which means that with the increase in caregiving burden there is decrease in social support.

Discussion

In the present study, it was concluded that majority of caregivers of schizophrenic patients had moderate and severe level of burden. In this regard a study conducted by Caqueo-Urízar[7] gave similar findings that caregivers show a very high degree of burden.

In the present study it was concluded that age has no statistical significant impact on caregiving burden (p=0.334). Similar findings are given by other studies[8-13] that age has no statistical significant impact on caregiver burden. On the other hand gender has statistical significant impact on caregiving burden (p=0.0165). In this regard, the findings of Schneider[10] and Yusuf et al[11] as (p=0.024), supports the present study's findings of statistical significant impact of gender in term of caregiver's burden.

In the present study it was concluded that family income has no statistical significant impact on caregiving burden (p=0.490). In the same context Andren and Elmstahl[12] and Yusuf et al[11] stated that family income had no statistical significant impact on caregiving burden.

According to Marital status, in the present study it was found that marital status has no statistical significant impact on caregiving burden (p=0.1978). In the similar context Srivastava[8] and Kar et al[14] revealed that marital status had no impact. Similarly, occupation has no statistical significant impact on caregiving burden (p=0.8057). Similarly Yusuf et al[11] stated that there is no statistical significant impact of employment on caregiving burden.

According to Duration of illness (in years), in the present study it was found that it has statistical significant impact on caregiving burden (p=0.0149). In the same manner Kar et al[14] also reported that duration of illness has statistical significant impact on caregiving burden. On the other hand, some studies[8,15] found that patient's 'duration of illness was not statistically significantly correlated with caregiver's GHQ-12 and IEQ subscale scores.

The present study revealed that most of the caregivers of schizophrenic patients had low acuity of social support. Similar findings were given by Magliano et al[16] and Snow-Spracklin.[13] According to age, in the present study it was concluded that age, gender has no statistical significant impact on social support (p=0.139). Similar findings are given by Okamoto and Tanaka[17] that age and gender has no significant impact on social support. In the present study it was concluded that family income and education has no statistical significant impact on social support (p=0.199), (p=0.194). In the same context Lueboonthavatchai and Lueboonthavatchai[8] stated that family income and education had no statistical significant impact on social support. Duration of illness (in years), in the present study it was found that it has significant impact on social support (p=0.0006). In the same manner, studies by Lueboonthavatchai and Lueboonthavatchai[18] and Snow-Spracklin,[13] the duration of illness has significant impact on social support. According to Relationship to care recipient, in the present study it was found that it has no statistical significant impact on social support (p=0.9154). Similar findings were

given by Okamoto and Tanaka[17] that the relationship to care recipient has no impact on social support.

It was concluded that there is moderate negative correlartion between caregiving burden and social support (r = -0.46). Similar findings were given by Bhatia and Jena[19] that satisfaction with support network was inversely related to objective and subjective measures of burden. Similarly Caregiver physical and emotional dimension of burden depicted significant, negative correlations with total network support (r = -.26)

Conclusion

The data suggests that caregiving burden has negative correlation with social support which means that caregivers who have high level of caregiving burden have low acuity of social support. It was found that majority of caregivers of schizophrenic patients have moderate and severe levels of caregiving burden. Besides, no one is out of burden due to caregiving. Although caregivers of schizophrenic patients have high caregiving burden with very least difference in areas of physical health burden and time dependency burden. The least level of burden as compared to other areas is found in financial area. However, most of the caregivers of schizophrenic patients have low acuity of social support where as no one has been found with high acuity of social support.

Limitations

1. The study was restricted to caregivers of schizophrenic patients in New Saini Psychiatric, Hospital, Hoshiarpur.
2. Size of sample was 100; therefore it was difficult to make broad generalizations.

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Original Article

Primary caregivers of schizophrenia outpatients: burden and its correlates

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ABSTRACT

Objective: *The purpose of this study was to investigate the various correlates of burden among caregivers of patients of schizophrenia.* ***Methods:*** *Thirty schizophrenia patients and their caregivers were included. Patient symptom severity and functioning were assessed by Brief Psychiatric Rating Scale (BPRS) and Global Assessment of Functioning (GAF) respectively and caregiver burden was evaluated using the Burden Assessment Schedule (BAS).* ***Results****: Mean age of the caregivers was 44.7(±14.6) years and mean age of patients was 7.6(± 3.5) years. Male caregivers suffered significantly more burden than female caregivers (p<0.05). Patients' functionalities exhibited a significant reverse correlation with caregiver burden. Other socio-demographic or illness related variables did not show any statistically significant association with any domain of caregiving (p>0.05).* ***Conclusion:*** *In conclusion, decreased functionality stands out to be the most important factor for caregiver burden. Hence interventions should focus on improving functionality.*

Key words*: primary caregiver, burden, schizophrenia*

Introduction

Severe mental disorders such as schizophrenia have far reaching consequences in all domains of life of the patients as well as their family members. Schizophrenia heads the list of the mental disorders that impose the greatest burden on family members.[1] Studies have investigated and revealed various factors leading to burdens in caregivers of schizophrenia patients. Some of these are associated with the patient and disease (age, gender, severity and type of symptoms, number of episodes etc.), some are associated with the caregiver (gender, proximity to patient, personality characteristics, socioeconomic and cultural characteristics etc.), while others involve external factors (social support, degree of social labelling, and quality, accessibility of mental health services, etc.).[2-5] The effects of some of these on caregiver burden have been consistently shown in studies, while results regarding the effects of others are still controversial.[6]

Previous studies generally agree that a severe level of symptoms affects the caregiver burden.[1,7,8] On the other hand, results concerning which symptom group is more correlated with burden are inconsistent.[2] There are studies reporting that both positive and negative symptoms are indepen-dently correlated with caregiver burden[9,10] as well as studies reporting that positive[1,11-12] or negative[5,13-14] symptoms led to caregiver burden. The other factor which has gained attention as an important factor for caregiver burden is decreased functionality. Magliano et al[15] reported that the family burden decreased in proportion to improvement in the patient's social functionality. Another study concluded that patients' daily hours of work was a predictor of caregiver burden.[16]

In a study showing correlation between compromise in social functionality (particularly the

dimensions of independence-competence and interpersonal functionality) and family burden, this result was interpreted by the authors as impairment of social functionality leading to family members assuming greater responsibility and spending more time with patients, thus increasing their burden.[1]

Caregiver burden can also reflect regional differences in patients' socio-economic situations and family support in European countries and in the provision of rehabilitative interventions for patients.[17] Roick and colleagues reported that the burden placed on family members of people with schizophrenia may be influenced not only by patient and caregiver characteristics but also by national differences in the provision of mental health care services.[18] Schene et al. proposed that the caregiver burden is multidimensional. Caring for a patient may lead to burden directly or indirectly.[19]

This study is undertaken to find out, burden of caregiving and their correlates in a sample out-patient attendents of a tertiary care general hospital psychiatry care.

Methods

Participants

The study was conducted in a tertiary care general hospital in North India. The study was approved by institutional ethical committee. The sample was selected from consecutive outpatients attending the psychiatry out-patient facility of the hospital. Patients of either gender, ranging between 18 and 55 years of age, fulfilling ICD-10[20] diagnosis of schizophrenia with a minimum of 1 year of illness were included. Those patients with chronic, physical and other comorbid axis I psychiatric illness, staying away from the family for a period of more than 3 months for any reason during the last 1 year, and families with other family members having psychiatric or chronic physical illness were excluded from the study. The ''primary caregiver'' was defined as any healthy caregiver of the patient, aged 18 years and above, and staying with the patient and takes care of the patient for most of the time.

Measures

A sociodemographic Performa specially designed for the study was used to collect the demographic and clinical details. To measure caregiver burden, Burden Assessment Schedule (BAS)[21] was used. It is a 40 item structured instrument in English, which assess both the objective and subjective burden experienced by the caregiver of chronic mentally ill patients. BAS is reported to have good inter-rater reliability (k 0.80) and satisfactory face value in terms of relevance of the items in measuring the caregiver burden. Scores range from 40 to 120 with higher scores indicating greater burden.

To measure global functional level, Global Assessment of Functioning scale,[22] a 100 point single item scale with values ranging from 1 to 100, was used. Mini International Neuropsychiatric Interview (MINI),[23] a short, structured diagnostic interview, designed to diagnose DSM–IV and ICD –10 psychiatric disorders was used to confirm the diagnosis and detect any comorbid conditions in both patients and caregivers. It is a relatively brief instrument and has good validity and reliability. Psychopathology in schizophrenia patients measured using Brief Psychiatric Rating Scale (BPRS).[24]

Procedure

After obtaining informed consent from both the patients and the caregivers, sociodemographic and disease variables were recorded. Later, MINI was administered to patients for confirmation of the clinical diagnosis and to rule out other comorbid psychiatric illnesses. Later, schizophrenia patients were assessed using BPRS,[24] Global Assessment of Functioning scale (GAF).[22] Following this, caregivers were interviewed on Burden Assessment Schedule (BAS).[21]

Statistical analysis

Statistical analysis was done using SPSS version 20. The total burden score was calculated excluding spouse related domain. The level of significance was set at $P < 0.05$ (two tailed).

Results

Mean age of the caregivers was 44.7 (±14.6) years. Mean duration for which they were taking care of the patients was 7.6 (± 3.5) years. Table 1 and Table 2 depict the structure of the study sample of primary caregivers and patients with schizophrenia respectively. Mean age of the patients was 31 (±9.3) years. Mean duration of illness was 8 (±3.9) years. Mean BPRS score was 32 (±11)

Table 1. Structure of the study sample of primary caregivers of patients with schizophrenia (n=30)

Variable		
Sex	Male	12(40%)
	Female	18(60%)
Marital status	Married	22 (73.3)
	Unmarried	8 (26.7)
Relation with the patient	Father	8 (26.7)
	Mother	9 (30)
	Husband	2(6.7)
	Wife	4(13.3)
	Son/daughter	5 (16.6)
	Sibling	2 (6.7)
Education	Primary school	1(3.3)
	Middle school	5 (16.7)
	High school	7 (23.3)
	Graduate and above	17(56.7)
Employment(Current) status	Employed	14(47.2)
	Unemployed	6 (19.8)
	Housewife	8(26.4)
	Student	2 (6.6)
Family income/month	≤ Rs.5000	1(3.3)
	Rs. 5000-10000	5 (16.70)
	≥ Rs.10000	24 (80)
Family type	Joint	2 (6.7)
	Nuclear	24(80)
	Extended nuclear	4(13.3)
Background	Urban	23 (76.7)
	Rural	1 (3.3)
	Semi-Urban	6 (20)

Table 2: Structure of the study sample of patients with schizophrenia (n=30)

Variable		
Sex	Male	11 (36.7%)
	Female	19 (63.3%)
Marital status	Married	11 (36.7)
	Unmarried	19 (63.3)
Education	Primary school	1 (3.3)
	Middle school	8 (26.4)
	High school	7 (23.1)
	Graduate and above	14 (47.2)
Employment (Current) status	Employed	5 (16.7)
	Unemployed	16 (53.3)
	Housewife	9 (30)

and mean GAF score was 44.8 (±16).

Mean score on BAS was 78 (±8) indicating a moderate to high score with 40 % of the caregivers perceiving high burden and rest 60 % perceiving moderate burden. Age of the caregiver, their educational or employment status, total family income,duration of taking care did not have a bearing on the total score of burden. However, the male caregivers were suffering from more burden than the female caregivers ($p < 0.05$). The patient related variables like their age, sex, employment status and BPRS score did not have any bearing on the total burden score. The functioning score has a significant negative correlation with total burden score ($r = -0.564$, $p<0.01$). Majority (82%) of the caregivers were adequately satisfied with the medical service being provided from the treatment facility.

Discussion

Our sample was largely restricted to the urban population of higher income group. Majority of them belong to nuclear family. From socio-demographic aspect this sample is similar to population from developed country, where public and professional services are adequate to take care of patients of chronic mental illnesses. Although every possible social obstacles of rapid urbanization are being faced in the developing countries like India, unfortunately, the professional services both in public and private sectors are not still adequately developed to provide due care of the chronic mental illnesses. Hence, the family support system still plays a major role in caring for people with mental illnesses. Though this study fails to find out difference in burden between different traditional joint family and nuclear family, the positive role of joint family system in coping with stress has been described in the literature.[25] In a review of current literature demographic factors such as employment and time devoted to patient care were found to be directly related to caregiver's burden, [26]however, our study findings do not match with it.

In Indian societies, the role of caregiving traditionally goes to female members of the family. This partially explains the higher burden score among male caregivers who had to play the role of caregiver in the context of nuclear families, in the current study.

Our study matches the results of previous studies in the distribution of caregivers who take care of mentally ill persons including one study from India.[27]

Several studies have reported positive symptoms, more common in short-duration schizophrenia, to cause greater burden on the caregiver. Apathy has been found to be not related to caregiver's tension, supervision and worrying.[28] The current study did not find any such association. Disturbed functioning of the patient was a significant concern and burden on the caregivers as found in previous studies.[29] It has been suggested that measures aimed at increasing patients' functionality will have a positive impact on caregivers, and studies testing these measures have shown that increasing levels of patient functionality reduces the caregiver burden.[15,27] One of these studies found that patients' general functionality was the strongest predictor of family burden among the various factors assessed (severity and type of disease symptoms, executive function, quality of life and degree of stress).[29] Another recent study, which has specifically measured the various functional domain in patients of schizophrenia and its relation to caregiver burden, concluded that a small number of negative symptoms and a good level of functionality are associated with less caregiver burden, and this correlation is more pronounced in certain burden dimensions, such as dependency, economic burden, psychological tension and impairment of private life.[27]

The current study has certain limitations. As the study sample only represented an urban population, it limits generalizability of the findings. Also, the cross sectional nature of our study does not allow causal inferences. Furthermore, the caregivers' beliefs about the patients' illness, satisfaction with other aspects of life, personality profile of caregivers, and supporting systems may influence the level of burden, which has not been specifically addressed in our study. Issues like expressed emotion still remains significant in Indian context and that was not addressed in the study. Longitudinal data might give further insight into the extent of burden among caregivers of schizophrenia. Future interventional studies aiming at reducing the burden of caregivers are very much needed.

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Original Article

Motivational enhancement therapy for substance abusers: a quasi experimental study

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ABSTRACT

***Background**: Substance abuse is a growing problem in India as well as globally. Among the various treatment modalities, motivational enhancement therapy (MET) is the most notable current advance in the area of psycho social treatment of substance abuse. **Aim**: To assess the effectiveness of MET on desire to quit substance.**Materials and Methods**: A quasi experimental approach with two groups pre test post test design was used for the study. Seventy patients who satisfied DSM-IV criteria for substance abuse were conveniently selected for the study. Thirty five patients who fulfilled the criteria were given the motivational enhancement therapy along with the standard treatment. Thirty five patients who satisfied the same criteria were given only the standard treatment. Patients were assessed using stages of change and treatment eagerness scale (SOCRATES), socio-demographic and clinical profile sheet. **Results**: After receiving MET, out of the three domains i.e recognition, ambivalence and taking steps, there was an increase in score of recognition and taking steps, whereas, there was a decrease in score of ambivalence among experimental group. No change was seen in control group during study. **Conclusion**: MET significantly increases the desire to quit substance use. Combining pharmacological treatment with appropriate psychosocial therapies focusing on specific problems of patients provide better outcome.*

***Keywords**: Substance abuse, Psychotherapy, Desire to quit, Motivational enhancement therapy.*

Introduction

Substance abuse is defined as use of a drug or any other substance for a non-medical purpose with the aim of producing some type of "mind altering "effect in the users. This includes both the legal and illegal drugs.[1] Psychoactive substance use poses a threat to the health, social and economic fabric of families, communities and nations.[2] Consequences of drug dependence not only affects health, education and occupational career, but it also incurs a huge financial and social burden on the community and society.[3,4]

According to world drug report 2013, use of opiates (heroin and opium) is around 16.5 million or 0.4% of population aged 15-64 around the world. In Asia the prevelance of drug has increased from 167million to 315 million among people aged 15-64 year.[5]

According to 2011, report on drug abuse and alcoholism in Punjab by ministry of youth affairs and sports, 40% of Punjabi youth of 15-25 years of age group have fallen prey to drugs i.e 1.5 to 2 million young Punjabis addicted to drugs.[6]

Globally, it is estimated that drug-related deaths account for 0.5 to 1.3 per cent of all-cause mortality for people aged 15-64 years in 2011. United Nation Office on Drug and Crime (UNODC) estimates that the global prevalence of hepatitis C virus (HCV)

among people who inject drugs is 51.0 per cent, meaning that 7.2 million people who inject drugs were living with HCV in 2011. 8.4 per cent or 1.2 million people substance users had hepatitis B virus (HBV) in 2011. The abuse of drugs affects perception, attention, cognition, coordination and reaction time and other neurological functions. The illicit manufacture and disposal of drugs and pharmaceuticals cause significant environmental contamination. As a result, wildlife and humans can be chronically exposed to very low doses of drugs and the chemicals used in their illicit manufacture. Illicit cultivation of both coca bush and opium poppy has often resulted in the clearance of forests which leads to deforestation. Crime committed under the influence of drugs is also a major problem world-wide.[7]

Many studies conducted in the field of substance abuse have concluded that better outcome is possible when substance users receive non-pharmacological therapy along with pharmacological treatment. Research studies on addiction treatment typically have classified many treatment programs. Treatment approaches and individual programs continue to evolve and diversify, and many programs today, do not fit into traditional drug addiction treatment classification. The newer treatment approach includes using pharmacological treatment along with the psychological treatments like cognitive behaviour therapy, group therapy, social network therapy, compliance enhancement therapy, motivational enhancement therapy (MET) and many more.

However, very less research studies are available related to MET in India. Among the various treatment modalities, motivational enhancement therapy is the most notable current advance in the area of psychosocial treatment of substance abuse.

MET is a long term follow up to an initial brief intervention strategy. It consists of four treatment sessions over 12 weeks preceded by an extensive assessment. It is an empathetic, directive counseling process to help articulate their motivation to change behavior. Miller and Rollnick (1991) identified 5 basic principles[A mnemonic (DARES) was developed].[8]

D- Develop discrepancy
A- Avoid arguments
R- Roll with resistance
E- Express Empathy
S- Support self-efficacy

MET may be particularly useful in situations where contact with clients is limited to one or a few sessions. Although MET was originally developed for use with clients who were struggling with alcohol-related problems, it has since been used effectively in alleviating behavioral and chemical addictions like gambling, eating, smoking, and drug use and in promoting positive behaviors such as exercise and healthy eating.

Objectives of the study were to assess desire to quit substance use among substance users and to assess the effectiveness of MET on desire to quit substance use in experimental group.

Materials and Methods

This study was conducted at the de-addiction centre of Guru Gobind Singh Medical Hospital, Faridkot, Punjab. Seventy patients satisfying DSM-IV criteriafor drug dependence and those admitted in the de- addiction centre were conveniently selected for this study. Only male inpatients in the age group of 15-45 years who stayed atleast for 1 week in de-addiction centre were selected for the study, after getting informed consent. The study group consisted of 35 inpatients for the control group, who received the standard treatment and 35 patients who received MET in addition to standard treatment. Control group was individually matched with the study group on socio demographic variables and clinical profile variables.

Out of 35 patients selected for motivational enhancement therapy all the patients completed the study. There were no dropouts. Permission for the study was taken from the Medical Superintendent of GGSMCH and Head of psychiatric department, GGSMCH, Faridkot. Ethical approval for the study was taken from a nursing college and its university. Informed written consents from the patients were taken and they were informed about the purpose of the study. Anonymity of study subjects and confidentiality were maintained.

Intervention

Extensive review of literature related to substance abuse research studies was done and majority of the research studies had used motivational enhancement therapy (MET) to motivate the substance abusers for treatment. So

this intervention was selected for the present study. 5 sessions of MET, each of 40-45 min duration was delivered to the experimental group. 1st session included pretest Stage of Change readiness and Eagerness Scale i.e SOCRATES. In the 2nd session rationale for the intervention was presented to the patients. In 3rd session, the commitment to leave the substance was strengthened, in 4th session, information related to craving was given and in 5th session, behavioral self monitoring was taught to the patient.

Clinical assessments

Tool 1: Socio demographic data sheet

It is a self administered tool prepared by the investigator to measure the socio demographic characteristics of the subjects. It consist of 9 items which are age, educational status, religion, marital status, occupational status, type of family, type of community, income of family and individual. Total administration time for this tool was approx. 3-5 mins. Content validity of tool was determined by experts in the field of psychiatry, psychology and nursing. Content appropriateness, clarity and relevance was ascertained by language expert. Reliability was done by test retest method and was found to be 1.

Tool 2 :Clinical Profile Data Sheet

It is a self administered tool developed by researcher and is mostly based on Drug Abuse Monitoring System (DAMS). It is used in the present study to measure the clinical profile variables. It consists of 12 items related to drug use of the patients of de-addiction ward. Total administration time for this tool was approx. 5-10 minutes. Content validity of tool was determined by experts in the field of psychiatry, psychology and nursing respectively. Content appropriateness, clarity and relevance was ascertained by language expert. Reliability was done by test retest method and was found to be 1.

Tool 3: The Stages of Change Readiness and Treatment Eagerness Scale (SOCRATES)

SOCRATES is a standardized 19 items questionnaire developed by Prochaska and Di Clemente[9]and used in present study to assess the desire to quit the substance use among the substance users. The instrument yields three factorially-derived scale scores: Recognition (Re), Ambivalence (Am), and Taking Steps (Ts). It is a public domain instrument and may be used without special permission. Content appropriateness, clarity and relevance was ascertained by language expert. The tool is found to be highly reliable for present study (r = 0.97). The alpha cronbach value of ambivalence, recognition and taking steps was between 0.60 to 0.96.

Results

Table 1 shows the socio demographic characteristics of the variables. Both the groups were comparable at the baseline and found to be homogenous. Majority of the subjects belonged to age group 18-24yrs with education upto secondary level belonging to sikh religion, married, employed living within joint family in rural community with family income above 10,001 and individual income less than 5000.

The mean age of ever drug use in experimental group was 22.05 years and in control group was 21.82 years. The mean duration of regular use was 5.11 years (6 years for experimental group and 4.42 for control group). Heroin (62.85%) was the most commonly consumed substance in both the groups followed by alcohol (44.28%). 31.4% were I.V. drug users out of which 10% had shared needles atleast once in their lifetime. The average expenditure on drugs is 1,779.9/day. Only 5.7% were ever apprehended by police. 62.9% patients had a previous treatment history. 81.4% had history of family violence and 32.9% had a family history of substance use.

Table 3 shows significant increase in the desire to quit substance use in experimental group. It also shows that patients who received motivational enhancement therapy had more recognition and high motivation for taking steps with low ambivalence than the control group, who had low recognition and motivation for taking steps with high ambivalence.

Discussion

The rapid growth of this enigmatic substance use problem across the world, as well as the heterogeneity of the clients, involved the ramifications of the medical and social consequences and the development of treatment facilities - all these

Table 1: Socio demographic characteristics of the subjects

N=70

Variables under study	Total N=70	Exp group n=35	Control group n=35	χ2	df	p-value
	f (%)	f (%)	f (%)			
Age (in years)						
18-24	27 (38.6)	15 (42.9)	12 (34.3)	2.00	3	.572 (NS)
25-31	25 (35.7)	10 (28.6)	15 (42.9)			
32-37	12 (17.1)	6 (17.1)	6 (17.1)			
38-45	6 (8.6)	4 (11.4)	2 (5.7)			
Educational status						
a) Upto Primary	13 (18.6)	5 (14.3)	8 (22.9)	.878	3	.645 (NS)
b) Upto secondary	31 (44.3)	16 (45.7)	15 (42.9)			
c) Upto Senior secondary or above	26 (37.1)	14 (40.0)	12 (34.3)			
Religion						
a) Hindu	6 (8.57)	1 (2.85)	5 (14.3)	2.917	3	0.088 (NS)
b) Sikh	64 (91.42)	34 (97.14)	30 (85.7)			
Marital status						
a) Married	37 (52.9)	20 (57.1)	17 (48.6)	1.368	2	0.505 (NS)
b) Single/ unmarried	32 (45.7)	15 (42.9)	17 (48.6)			
c) Divorced/separated	1 (1.4)	0	1 (2.9)			
Occupational status						
a) Employed	34 (48.6)	15 (42.9)	19 (54.3)	3.446	2	0.179 (NS)
b) Unemployed	7 (10.0)	2 (5.7)	5 (14.3)			
c) Agriculture	29 (41.4)	18 (51.4)	11 (31.4)			
Type of family						
a) Joint	58 (82.9)	30 (85.7)	28 (80.0)	0.402	2	0.526 (NS)
b) Nuclear	12 (17.1)	5 (14.3)	7 (20.0)			
Type of community						
a) Urban	23 (32.9)	8 (22.9)	15 (42.9)	3.173	1	0.075 (NS)
b) Rural	47 (67.1)	27 (77.1)	20 (57.1)			
Income of family (per month)						
a) Less than 10,000	34 (48.6)	14 (40.0)	20 (57.1)	2.059	1	0.151 (NS)
b) Above 10,001	36(51.42)	21 (60.0)	15 (42.9)			
Income of individual (per month)						
a) Less than 5,000	25 (35.7)	10 (28.6)	15 (42.9)	6.632	2	0.036*
b) 5,001 – 10,000	23 (32.9)	9 (25.7)	14 (40.0)			
c) Above 10,001	22 (31.4)	16 (45.7)	6 (17.1)			

*Significant at p value 0.05

Table 2.1- Comparison of clinical profile variables

Variables under study		Total (n=70)	Exp group (n=35)	Control (n=35)
		f(%)	f(%)	f (%)
Alcohol	Ever use	31 (44.28)	12 (34.3)	19 (54.3)
	Use in last 1 month	16 (22.85)	7 (20.0)	9 (25.7)
	Daily use in last 1 month	14 (20)	6 (17.1)	8 (22.9)
Cannabis	Ever use	2 (2.9)	1 (2.9)	1 (2.9)
	Use in last 1 month	2 (2.9)	1 (2.9)	1 (2.9)
	Daily use in last 1 month	2 (2.9)	1 (2.9)	1 (2.9)
Heroin	Ever use	44 (62.85)	23 (65.7)	21 (60.0)
	Use in last 1 month	43 (61.42)	23 (65.7)	20 (57.1)
	Daily use in last 1 month	41 (58.57)	23 (65.7)	18 (51.4)

Variables under study		Total (n=70)	Exp group (n=35)	Control (n=35)
		f(%)	f(%)	f(%)
Opium	Ever use	14 (20)	5 (14.3)	9 (25.7)
	Use in last 1 month	5 (7.14)	2 (5.7)	3 (8.6)
	Daily use in last 1 month	4 (5.7)	2 (5.7)	2 (5.7)
Propoxylene	Ever use	0	0	0
	Use in last 1 month	0	0	0
	Daily use in last 1 month	0	0	0
Other opiates	Ever use	11 (15.71)	5 (14.3)	6 (17.1)
	Use in last 1 month	7 (10)	3 (8.6)	4 (11.4)
	Daily use in last 1 month	7 (10)	3 (8.6)	4 (11.4)
Morphine	Ever use	0	0	0
	Use in last 1 month	0	0	0
	Daily use in last 1 month	0	0	0
Buprenorphine	Ever use	0	0	0
	Use in last 1 month	0	0	0
	Daily use in last 1 month	0	0	0
Barbiturates	Ever use	0	0	0
	Use in last 1 month	0	0	0
	Daily use in last 1 month	0	0	0
Minor tranqulizers	Ever use	0	0	0
	Use in last 1 month	0	0	0
	Daily use in last 1 month	0	0	0
Other sedatives	Ever use	18 (25.71)	12 (34.28)	6 (17.1)
	Use in last 1 month	13 (18.57)	9 (25.71)	4 (11.4)
	Daily use in last 1 month	12 (17.14)	9 (25.71)	3 (8.6)
Cocaine	Ever use	1 (1.42)	0	1 (2.9)
	Use in last 1 month	1 (1.42)	0	1 (2.9)
	Daily use in last 1 month	1 (1.42)	0	1 (2.9)
Amphetamine	Ever use	0	0	0
	Use in last 1 month	0	0	0
	Daily use in last 1 month	0	0	0
Cough syrup	Ever use	11 (15.71)	6 (17.1)	5 (14.3)
	Use in last 1 month	5 (7.14)	3 (8.6)	2 (5.7)
	Daily use in last 1 month	5 (7.14)	3 (8.6)	2 (5.7)

Table 2.2. Comparison of clinical profile variables

Variables under study		Total (N=70)	Exp group (n=35)	Control (n=35)
		f(%)	f(%)	f(%)
Others	Ever use	17 (24.28)	5 (14.3)	12 (34.3)
	Use in last 1 month	17 (24.28)	5 (14.3)	12 (34.3)
	Daily use in last 1 month	17 (24.28)	5 (14.3)	12 (34.3)
I.V. drug use	Ever use	22 (31.4)	11 (31.4)	11 (31.4)
	Last 1 month	22 (31.4)	11 (31.4)	11 (31.4)
Sharing of needles	Ever use	7 (10)	0	7 (20.0)
	Last 1 month	7 (10)	0	7 (20.0)
Average expenditure	Last year	1,962.48/day	1,146.2/day	816.28/day
	Current	1,779.9/day	1,065.7/day	714.2/day
Ever apprehended by police	Yes	4 (5.7)	1 (2.9)	3 (8.6)
	No	66 (94.28)	34 (97.14)	32 (91.42)
Any previous attempt for treatment	Yes	44 (62.9)	21 (60)	23 (65.7)
	No	26 (37.14)	14 (40)	12 (34.28)

Variables under study		Total (N=70)	Exp group (n=35)	Control (n=35)
		f(%)	f(%)	f (%)
Family violence	Yes	57 (81.4)	34 (97.1)	23(65.7)
	No	13 (37.14)	1 (2.9)	12 (34.28)
Sexual practices	Not applicable	24 (34.3)	12 (34.3)	13 (37.1)
	Multi partners	3 (4.28)	0	3 (8.6)
	Multi partners including casual partners	1 (1.4)	1 (2.9)	0
	Multi partners including CSWs	2 (2.9)	0	2 (5.7)
	Single partner	39 (55.7)	22 (62.9)	17 (48.6)
Practicing safe sex in last 6 months	Not applicable	24 (34.3)	12 (34.3)	12 (34.3)
	Always	10 (14.3)	4 (11.4)	6 (17.1)
	Never	20 (28.6)	13 (37.1)	7 (20)
	No response	1 (1.4)	1 (2.9)	0
	Sometimes	15 (21.4)	5 (14.3)	10 (28.6)
Family history	Yes	23 (32.9)	7 (20)	16 (45.7)
	No	47 (67.1)	28 (80)	19 (54.3)
Mean Age of ever use of drug		22.05	21.82	21.94
Duration of regular use		6yr	4.42 yr	5.11yr

Table 3. Comparison of pretest and post test scores of control and experimental group

Group	Variable	Mean ± SD Pretest	t value Posttest	p value	
Control group	Recognition	28.74 ± 4.610	28.43 ± 4.374	.383	.704
	Ambivalence	15.80 + 3.22	17.43 + 2.684	-2.201	.035*
	Taking steps	35.69 + 4.276	34.63 + 3.964	1.330	.192
	Total	80.23 + 6.589	80.49 + 6.839	1.413	.167
Experimental group	Recognition	28.06 + 5.269	31.20 + 4.438	-3.740	.001***
	Ambivalence	17.17 + 2.146	16.37 + 2.961	1.891	.067
	Taking steps	33.34 + 5.599	37.49 + 3.450	-5.231	.000***
	Total	78.57 + 12.208	85.06 + 8.018	-4.688	.000***

*** highly significant at p value 0.05

make definitions of an ideal treatment approach difficult.

Present study shows high level of recognition and taking steps for treatment with low ambivalence in patients who received a combination of pharmacotherapy and motivational enhancement therapy. Advantage of combining psychosocial management in the treatment of drug abuse is in line with the previous reports.[10]However, most of these studies have used selective psychosocial management techniques, leaving the comprehensive psychosocial treatment to be an unexplored area.

In the beginning of the study both the groups scored low on two out of three factors of SOCRATES i.e recognition and taking steps whereas both scored high on ambivalence. But after the therapy, the experimental group showed a rise in recognition and taking steps along with a fall in ambivalence whereas the recognition and taking steps of the control group remained almost at the same level with an increase in the ambivalence.

Increasing recognition among the substance users is an important step of MET. Awareness raising is a process linked with movement from precontemplation to contemplation stages of change, according to the Transtheoretical Model (Prochaska, DiClemente, and Norcross, 1992).[11] According to self regulation theory (Brown, 1998)[12] problem recognition occurs when one becomes aware that current behavior deviates from a desired standard. The increased recognition or self awareness among those receiving MET may have provoked processes of self-correction for some participants.

Project MATCH (Matching Alcoholism

Treatments to Client Heterogeneity) Research Group, 1997; UKATT (United Kingdom alcohol treatment trial) Research Team, 2005[13,14] found that several sessions of MET when delivered, were more efficacious as compared to other therapies and intensive approaches. Ball SA et al[15] conducted a multisite randomized trial to see the effectiveness of motivational enhancement therapy (MET) in comparison with counseling as usual (CAU) for increase in retention and reducing substance use. There were no retention differences between the 2 brief intervention conditions. Although both 3-session interventions resulted in reductions in substance use during the 4-week therapy phase, MET resulted in sustained reductions during the subsequent 12 weeks, whereas CAU was associated with significant increases in substance use over this follow-up period. A study conducted by Dahl M. Helene[16] on drug abuse and change readiness in prisoners concluded that motivational interviewing was effective among prisoners as measured by SOCRATES. In another study, a single Motivational interview (MI)-oriented session was compared with a standard intake assessment in 431 outpatients[17] and MI resulted in significantly better 1-month retention.

Some of the methodological limitations of this study need to be considered before concluding. The sample size was small to detect minor differences in the outcome between the two groups. Only male patients were included in the study. The therapist who assessed the progress of therapy was not blind to the treatment provided. Future studies with larger sample size, randomization and with longer duration of follow-ups would provide more information on the efficacy of motivational enhancement therapy in the management of drug abuse problems.

Conclusion and Recommendations

The present study suggests that comprehensive patient-friendly treatments are more effective in increasing the desire to quit substance use than the standard treatment. Hence, combining pharmacological treatment with appropriate psychosocial therapies focusing on the specific problem of the patient may provide better outcome than either of these therapies given alone. Clinical instructors can arrange the clinical teaching regarding MET for nurses and nursing students. Findings of the study will act as a catalyst to carry out more extensive research on a large sample and in other settings.

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Original Article

Life satisfaction among inhabitants of selected old age homes at Chandigarh – A Cross sectional survey

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ABSTRACT

Life satisfaction among the aged is an important construct in the psycho-social study of aging. The idea of institutionalization of the aged has been emerged to improve the caring of those aged people who are neither able to manage their own affairs nor any person to look after them. However there is a limited literature available about the psychological wellbeing among the inhabitants of old age homes in the Indian settings. This prompted the investigators to explore this area. ***Materials and Methods:*** *This cross-sectional study used convenient sampling and psychological wellbeing was assessed based on the criteria of satisfaction with life questionnaireand geriatric depression scale.* ***Results:*** *Fifty subjects participated in the study andmajority of them were residents of old age homes undertaken by U.T. Chandigarh. More than half of the participants expressed a moderate psychological wellbeing as per test scores.* ***Conclusion:*** *The results of the study further corroborates the findings of previous studies i.e. social support is essential for ensuring psychological wellbeing among older adults irrespective of area of caring.*

Key words: *Life satisfaction, Psychological wellbeing, Old age home*

Introduction

There is a substantial increase in the number of elderly persons across the globe in the past three decades and at present 7.6% of the total population in India constitute of older adults.[1-3] Though, a universal phenomenon, aging is not a uniform experience among senior citizens. Elderly people are highly prone to mental morbidities due to ageing of the brain, problems associated with physical health, cerebral pathology, socio-economic factors.[4] Many surveys have shown that retired elderly people are confronted with the problems of financial insecurity and loneliness.[5-6] Studies of household size during the 20th century show that older persons of developed countries are increasingly likely to live alone. This is presumably due to the increasing shift in cultural values that lend toward privacy and independence.[7-8] Urbanization, modernization, industrialization, and globalization have brought major transformations in the family resulting the shift of this vulnerable segment of the population from their own place to some institutions or old age homes.[9-12]

Life satisfaction among the aged is an important construct in the psycho-social study of aging. In gerontology, life satisfaction is a concept frequently used to assess subjective well-being.[13-14] A substantial body of research has, indeed, considered life satisfaction as subjective evaluation of the quality of life in general,[15] an important factor in successful ageing,[16-18] and an indicator of efficacy in old age.[19] Happy aging is characterized by satisfaction with ones present life and psychological

state of happiness and content with existing condition.[20] The most important factor that contributes to life satisfaction are health, adequate income to meetliving expenses, good social support, participation in social activitiesand low depressive symptom score.[21] The idea of institutionalization of the aged has been largely borrowed from the west to improve the caring of those aged people who are neither able to manage their own affairs nor any person to look afterthem. Unfortunately much of the current research indicates that depression is a common occurrence in the elderly, particularly those in the more structured nursing home facilities.[22-23] However there is a limited literature available about the psychological wellbeing among the inhabitants of old age homes in the Indian settings.[24-28] This prompted the investigators to explore this area.

Materials and Methods

The study was conducted among inhabitants of four urban based old age homes of Chandigarh-a union territory in Northern India. This cross-sectional study used a structured interview and data were collected by 3 researchers in July 2013. Convenient sampling was used and persons aged 60 years and more were included in the study. Ethical approval and written permission were taken from the concerned authorities and study participants prior to the interview. Satisfaction with life was assessed with aid of a 5 item scale (Diener et al., 1985)[29]. The criterion for identification of moderate and high life satisfaction was based on the score of 18-30. Clients scoring between 5 and 17 are considered as having low satisfaction with life. The affective components of psychological wellbeing were assessed by geriatric depression scale (GDS). It is a 30-item scale that uses dichotomous response for a possible score of 0 to 30.

Analysis was done using the SPSS version 16.0 for windows (Chicago, Illinois, USA) by using descriptive and inferential statistics. Means, standard deviations and percentages were used for descriptive statistics. Chi square test was used for inferential statistics.

Results

Demographic characteristics

Fifty subjects participated in this study. Of these, thirty five subjects were the inhabitants of oldhome undertaken by U.T. Chandigarh and remaining (n=15) were residents of old age home run by private NGOs. Most of them were literate (99%), married (80%) and having urban background (86%). More than half of the participants were employed in the private sector (56%) and the total subjects were equally representative on the basis of gender with a mean age of 78.08 (SD = 8.04). (Table 1)

Table 1. Socio demographic characteristics of subjects

Demographic variable		N (50)	Percentage (%)
Age (years)	65 - 74	25	50
	75 – 84	18	36
	Above 80	7	14
Mean ± SD 78.08 ± 8.04			
Sex	Male	25	50
	Female	25	50
Education	Illiterate	1	2
	Primary	9	18
	Metric	19	38
	Graduation and above	21	42
Occupation	Private sector	28	56
	Government employee	22	44
Marital status	Single	10	20
	Married	40	80
Religion	Hindu	37	74
	Sikh	11	22
	Christian	02	4
Residence	Urban	43	86
	Rural	07	14

Life satisfaction

The mean satisfaction with life score was 19.12 with a standard deviation of 8.32. More than half of the participants (n= 26) expressed that their life was not close to their ideal and scored low satisfaction with life. Also a small number of participants (n= 7) expressed that their conditions of life was excellent and satisfied with the present living environment. There was no association in satisfaction with life as per gender (Table 2).The mean score of the geriatric depression scale was 15.04 with as standard deviation of 7.29 and most of the participants scored in the mild depression category as per geriatric depression score (n=40).

Table 2. satisfaction with life with gender

Satisfaction with life score	Gender Male n(%)	Female n(%)	χ^2dfp value
Low life satisfaction	10(40%)	15(60%)	0.03 1
Moderate and high life satisfaction	16(64%)	9(36%)	0.863

Discussion

This study explored the psychological well being of the inhabitants of selected old age homes at Chandigarh. A total of four old age homes were accessible in the present study and 90% of inhabitants had given consent to participate in the study. Majority of the older adults in the present study were the residents of old age homes undertaken by U.T. Chandigarh (70%). All of the old age homes were residential and having the provision to help and accommodate both male and female older adults.

Majority of the inhabitants were literate (99 %), married (80%) and having urban background (86%). More than half of the participants were employed in the private sector (56%) and subjects were equally representative on the basis of gender. Previous studies reflecta conflicting notion on satisfaction with life as per gender.[26,30-32] In a cross sectional study on life satisfaction among 133 institutionalized elderly residents found a non significant relation among life satisfaction scores and socio-demographiccharacteristics with an except in income status. However the current study did not found any significant association in life satisfaction with respect to any socio-demographic variable.[33]

The present study found that most of the inhabitants of the selected old age homes were having low to moderate satisfaction with life as per test scores. Also most of the participants were identified as having mild to moderate depression as per geriatric depression scores. The prevailing literature shows that it is affected by various physical, emotional, social and mental conditions.[34-35] One recent Indian cross sectional study found depression as the major mental health problem among the inhabitants of old age homes.[36] Previous studies reported that life satisfaction was high in non-institutionalized elderly subjects as compared to institutionalized.[24,28] On the contrary there is also contradictory evidence on the same.[25,37] Therefore there is a difficulty in arriving at a conclusion on the association of life satisfaction and institutionalization.

The study was carried out in a limited time period on a small sample of old age home and did not use any measurements to identify the physical as well as major mental health problems among the study subjects. Thus its results may not be generalized on general population.

Conclusion

This study has revealed that majority of the inhabitants in this old age home settings were literate, married with urban background. More than half of the participants expressed a moderate psychological wellbeing as per test scores. Furthermore it corroborates the findings of previous studies–social support is essential for ensuring psychological wellbeing among older adults than the area of caring.

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Original Article

Assessment of Immediate, Recent and Remote Memory of Patients with Depression and Anxiety Disorder

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ABSTRACT

Introduction*: Memory is a complex ability that involves the recall and recognition of previous experience.* ***The formation of new memory involves recognition and registration of the initial sensory input, retention and storage of information and recall or retrieval of stored information. Memory functions have traditionally been divided into 3 areas: immediate, recent and remote memory. Immediate memory can be checked by asking patient to repeat 6 digits forward and backward. Recent memory can be checked by asking patient about his appetite and then about what they had for their breakfast or for dinner the previous evening. In the end Remote memory can be tested by asking patient for the information about their childhood that can be later verified.*** ***Aims:*** *This study aims to assess immediate, recent and remote memory of patients with depression and anxiety.* ***Material and methods****: Purposive sampling method was used. 15 patients with depression and 15 patients with anxiety were selected from outpatient unit of JNMC. The severity level of patients was from mild to moderate. Depressive patients were assessed by Hamilton Depression rating scale and Anxiety patients were assessed using Hamilton Anxiety rating scale. PGI memory scale was used to assess memory of the both patients.* ***Result and Conclusion****: Depression and anxiety patient shows not only an adverse effect on immediate memory but also on the retrieval of recent memory. On the other hand Remote memory was found to be intact. There was no significant difference found between anxiety and depression disorder patients.*

Keywords*: Memory, Depression, Anxiety*

Introduction

"*Memory is the process of maintaining information over time.*"[1]

"***Memory*** *is the means by which we draw on our past experiences in order to use this information in the present*"[2].

Memory is the term given to the structures and processes involved in the storage and subsequent retrieval of information. Memory is essential for all of lives. Without memory of the past, we cannot operate in the present or think about the future. We would not be able to remember what we did yesterday, what we have done today or what we plan to do tomorrow. Without memory we cannot learn anything. Memory is involved in processing vast amount of information. This information takes many different forms, e.g. images, sounds or meaning. Memory functions have traditionally been divided into 3 areas: immediate, recent and remote memory. Immediate memory can be checked by

asking patient to repeat 6 digits forward and backward. Recent memory can be checked by asking patient about his appetite and then about what they had for their breakfast or for dinner the previous evening. In the end Remote memory can be tested by asking the information about their childhood that can be later verified.

Depression and anxiety disorders are most common psychiatric disorder in the adult population. These disorders are also associated with various disabilities and suffering that not only harm the effected person alone but also have consequences for ones close to that person like family and friends. It is estimated by the World Health Organization (WHO) that unipolar depression will continue to be one of the leading causes of suffering by the year 2020.[3] Further, a strong body of evidence demonstrate the coexistence of depression in many medical illness (e.g., cardiovascular disease, stroke, cancer, epilepsy) and presence of depression is reported to considerably worsen medical prognosis.[4] In addition suicide is a serious consequence of depression and in the year 2000, approximately one million people died from suicide (WHO). For these reasons depression and anxiety disorders are considered as having huge negative impact on public health.

It is also important to note that depression and anxiety disorders are often unrecognized and untreated in the population. Though effective treatment of mental disorders are available in our society, but only 20% to 30% of the people identified in epidemiological surveys as meeting the criteria for a mental disorder, have met need.[5-8]

Impaired memory function is presumably the most consistent finding in studies examining cognitive functioning in depression. However, not all form of memory is affected by depression. Some studies have reported impairment in working memory or immediate memory.[9,10] Depression causes an increased amount of cortisol in the bloodstream, which shrinks certain areas of the brain. One of the main areas in the brain affected by cortisol is the hippocampus, which is responsible for short-term memory. Therefore, a depressed person has difficulty remembering new information. In addition, neurological studies have shown that depressed people can only remember negative memories, causing them to remain depressed even longer.

Memory loss in anxiety is very common, but keep in mind that this is generally relegated to difficulty concentrating or remembering short-term items. The description often used is a feeling of a "brain fog." It is important to note that a substantial body of research has focused on memory bias in anxiety disorder.[11] Neurobiological anxiety research suggests that the medial temporal and frontal lobe structures are affected in anxiety disorder. For example, research suggests dysfunctions of pre-frontal cortical and striatal regions in OCD patients.[12,13] In addition, PET studies demonstrate an involvement of the hippocampal and parahippo-campal areas in phobia disorder,[14] and an abnormal blood flow in medial temporal lobe including the amygdala and hippocampus among symptoms-provoked GAD patients.[15] Also anxiety disorder are strongly associated with depressive illness,[16] and research suggests that an anxiety disorder may precede and increase the risk for developing depression.[16-19]

The present paper aims to assess immediate recent and remote memory among depressive and anxiety patients.

Aims and Objectives

- To assess Immediate, Recent and Remote memory of patients with Depression and Anxiety disorders.
- To compare immediate, recent and remote memory of patients with depression and anxiety disorder.

Material and Method

Participants: The study included 15 patients of depression and 15 patients of anxiety disorder who were randomly selected from OPD, Department of Psychiatry of Jawaharlal Nehru Medical College AMU, Aligarh. DSM IV TR criteria was used for diagnosis.

Inclusion criteria

1. Patients with age range between 18–60 were considered for the study
2. Patients who were having mild to moderate level of severity were included in the study.
3. Patient who gave their consent for the study were included in the study.

Exclusion criteria

1. Patients who had presence of psychotic symptoms, bipolar depression or dysthymia were excluded.
2. Mental retardation, significant medical illness, head injury, epilepsy or recent (past 6 months) history of electroconvulsive therapy was excluded.

Tools Used

Hamilton Depression Rating Scale (HAM-D) – HAM-D developed by Max Hamilton in 1960 is a multiple item questionnaire used to provide an indication of depression, and as a guide to evaluate recovery. The questionnaire is designed for adults and is used to rate the severity of their depression.

Hamilton Anxiety Rating Scale (HAM-A) – HAM-A developed by Max Hamilton in 1959 is a psychological questionnaire used by clinician to rate severity of a patient's anxiety. The scale consists of 14 items designed to assess severity of patient's anxiety.

PGI Memory Scale – PGI Memory scale[20,21] is included in the Battery of Brain Dysfunction. It consists of 10 subtests i.e. Remote Memory, Recent Memory, Mental Balance, Attention-concentration, Delayed Recall, Immediate Recall, Verbal retention for similar pairs and Verbal Retention for dissimilar pairs, Visual Retention and Recognition. We only considered remote, recent and immediate memory area in our study.

Procedure

This study was planned for assessing immediate, recent and remote memory of depressive and anxiety patients all patients who gave written informed consent and full confidentiality were ensured in presentation of results. After the informed consent socio demographic details were collected. Depression subjects were rated on Hamilton depression rating scale (HAM-D) and anxiety subjects were rated on Hamilton anxiety rating scale (HAM-A). Subjects ranging in mild to moderate level were included in the study. Followed by selection of subjects assessment of immediate, recent and remote memory was done by using PGI memory scale. Assessments were carried out in a single session.

Statistical analysis

Descriptive analysis of the sample population was done. The SPSS version 17.0 was used for statistical analysis of the data collected.

Results

Table-1. Showing Socio Demographic Features

Variables		Depression n%	Anxiety n%
Age	16-38	6 (40)	7 (46.6)
	38-60	9 (60)	8 (53.5)
Sex	Male	5 (33.33)	8 (53.3)
	Female	10 (66.67)	7 (46.7)
Education	Illiterate	5 (33.33)	8 (53.33)
	<10th	0 (0)	2 (13.33)
	10th & above	10 (66.66)	5 (33.33)
Occupation	Employed	6 (40)	5 (33.33)
	Unemployed	9 (60)	10 (66.67)
Marital status	Married	7 (46.7)	7 (46.6)
	Unmarried	8 (53.3)	5 (33.3)
	Divorce	0	3 (2.21)
Religion	Hindu	7 (46.7)	6 (40)
	Muslim	8 (53.3)	9 (60)
Domicile	Urban	12 (80)	11 (73.3)
	Rural	3 (20)	4 (26.7)

In the present study, out of 30 patients who were included 15 were of depression and 15 were of anxiety. Out of 15 depressive patients 6 (40%) were in age range of 18-38 and 9 (60%) were in age range of 39-60 on the other hand out of 15 anxiety patients 7 (46.6%) were in the age range of 18-38 and 8 (53.5%) were in age range of 39-60. There were 5 (33.33%) males and 10 (66.67%) females among depressive patients and 8 (53.3%) males and 7 (46.7%) females among anxiety patients. Educational level of depression and anxiety patients were; 5 (33.33%) illiterate and 10th and above (6.66%) respectively. 6 (40%) were employed and 9 (60%) were unemployed among depression group and 5 (33.33%) were employed, 10 (66.67%) were unemployed in anxiety group. There were 7 (46.7%) married, 8 (53.3%) unmarried depressive patients and 7 (46.6%) married, 5 (33.3%) unmarried and 3 (2.21%) divorce anxiety patient. 7 (46.6%) were Hindu, 8 (53.3%) were Muslims in depression group and 6 (40%) Hindus and 9 (60%) Muslims in anxiety group. 12 (80%) depressive patients belonged to urban area and 3 (20%) belonged to rural area on the other hand 11 (73.3%) anxiety patients belonged to urban area and 4 (26.7%) belonged to rural area.

Table-2. Showing Immediate Memory of Depressive and Anxiety Patients

Depression	*DR	Anxiety	DR	t-test	df	P (0.05)
5	0	4	0	0.17	28	NS
8	2	6	2	0.20	28	NS
2	3	5	3	0.58	28	NS

*DR means Dysfunction Rating.

Table 2 shows immediate memory of depressive and anxiety patients according to PGI memory scale. Table indicates impairment in immediate memory among depressive and anxiety patients but no significant difference was found.

Table-3. Showing Recent Memory of Depressive and Anxiety Patients

Depression	DR	Anxiety	DR	t- test	df	P (0.05)
1	0	0	0	1.08	28	NS
3	2	6	2	0.47	28	NS
11	3	9	3	0.74	28	NS

*DR means Dysfunction Rating.

Table 3 shows recent memory of depressive and anxiety patients according to PGI memory scale. Table indicates impairment in recent memory among depressive and anxiety patients but no significant difference was found.

Table-4. Showing Remote Memory of Depressive and Anxiety Patients.

Depression	DR	Anxiety	DR	t- test	df	P(0.05)
15	0	15	0	0	28	NS
0	2	0	2	0	28	NS
0	3	0	3	0	28	NS

*DR means Dysfunction Rating.

Table 4 shows remote memory of depressive and anxiety patients according to PGI memory scale. Table indicates impairment in remote memory among depressive and anxiety patients.

Hence the present study shows that immediate memory and recent memory of depressive and anxiety patients were impaired and remote memory was found to be intact. There was maximum impairment in remote memory followed by immediate memory and no impairment in remote memory was found. No difference was found in memory of depressive and anxiety patients

Discussion

The results of the study throw light on the immediate, recent and remote memory of the patients with depression and anxiety. It revealed that depression and anxiety have adverse effect on immediate and recent memory but not on remote memory. Various meta-analytic reviews have suggested a significant relationship between depression and memory impairment[22-24] Meta-analytic studies by Kindermann and Brown[23] and Veiel[24] provide support to significant association between depression and poor memory performance. It should be noted that a number of individual studies focusing on neurologically unimpaired individuals with major depressive disorder have resulted in equivocal findings regarding the negative effects of depression on memory[25-28].

The empirical evidence for deleterious effects of anxiety, as compared to depression, on memory is less well established. However, a theoretically based review by Eysenck and Calvo[18] suggests that anxiety hinders memory performance under certain circumstances. For example, anxious individuals have less attention capacity for task performance and, therefore, perform less well than non anxious individuals on tasks that make substantial demands on working memory. Humphreys and Revelle[29] examined short-term memory (STM) for three- and four-letter problems and their results suggested that anxiety reduces STM capacity. Similarly, a study by Darke[30] found that the digit-span performance of low test-anxious subjects was approximately 20% higher than that of high test-anxious subjects.

A number of studies have been done previously which focuses on relationship between memory, depression and anxiety but few of them have specified about immediate recent or remote memory. The present study tried to assess immediate, recent and remote memory among depressive and anxiety patients and concludes that immediate, recent memory are impaired in depression and anxiety patients but remote memory remains intact.

Limitation

Prior to concluding, several possible limitations

of the present study should be acknowledged. In particular sample size taken for the study was too small a future study should be planned with large sample size. On the other hand only one parameter was used for assessing memory of patients. Other limitation of this study was that there was no normal control group and comparison was simply done between depression and anxiety patients. Normal control group would have made this study more efficient.

Conclusion

Despite these shortcomings, the current study suggests that depression and anxiety both affects memory negatively. These effects may have a large negative impact, not only for the working and social lives of the affected person, but also for society as a whole. Mental health is an individual resource that is of outermost importance for the society, it is for example a key input to human productivity. This stresses the importance of improving early recognition and adequate treatment of these disorders.

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Original Article

Correlating body image issues and Alcohol usage in Macho India

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ABSTRACT

Objective: *This research aimed to find a relationship between body image disturbance and schematic investment in appearance with alcohol usage among urban Indian men in Delhi.* ***Methods:*** *One hundred twenty male alcohol users and 123 male non-users were compared on levels of body image disturbance and schematic investment in appearance.* ***Results:*** *Alcohol users had increased mean averages in both body image disturbance and schematic investment in appearance than non-users. Alcohol usage was significantly correlated with body image disturbance and schematic investment in appearance.* ***Conclusion:*** *The study revealed an increased presence of body image disturbance and schematic investment in appearance among urban Indian men who used alcohol. It highlights the importance of identifying risk-groups and conducting further research in the area of body image across India.*

Keywords: *Body Image, Body Dysmorphic Disorder, Alcoholism, Body Image Disturbance, Schematic Investment in Appearance.*

Introduction

India is a deeply patriarchal country with rigid gender roles, especially in the northern part of the republic where the capital New Delhi is located.[1] A general observation of mental health professionals in New Delhi, India reveals that most erroneously believe that negative body image among males is related to the concept of 'metro-sexual men'. According to those who wrongly believe that body image issues among men are a recent 'metro-sexual' fad, men with negative body image visit beauty salon and take care of their grooming more than men 'normally do'. This assumption reflects a patriarchal notion that men in general do not worry about their appearance and are not motivated to change it (personal interaction of the first author with mental health professionals in India).

The assumption among mental health professionals in India that men in general do not care about their appearance could also be a reason why there is not much interest in research that study body image issues among men. Consequently, research in India concerning body image is related to eating disorders such as Anorexia Nervosa and Bulimia among young girls and women.[2] Body image issues are complex, not limited to eating disorders and not restricted to women alone.[3] Negative body image is known to lead to serious psychiatric disorders such as Body Dysmorphic Disorder[4] and substance abuse issues, such as alcoholism.[5]

A study at the Aligarh Muslim University found that non-obese females had a better perception of body esteem when compared with obese females. The study also noted that perceived sexual attractiveness and physical fitness were higher among non-obese females. Obese females on the other hand were less concerned about their body

weight than non-obese females, which corroborates with motivational salience being a healthy and adaptive way of approaching one's body image issues.[6] Another study[7] found that among adolescents, body image has a significant effect on one's psychological well-being and self confidence, with those who have a better body image reporting increased self-confidence and better psychological well being.

Correlating alcohol usage with men experiencing body image issues in India is necessary because both the issues are linked to each other as evidenced by Levinthal's study. Alcoholism is a serious problem in India which is increasingly rapidly.[8] While negative body image and eating disorders like Anorexia Nervosa and Bulimia have already been studied in India. Studies that correlate alcohol usage with negative body image among Indian men could not be found except one study by Chaudhury, Das and Ukil[9] that showed significantly low self-esteem in alcohol-dependent individuals.

Issues Connecting the Dots: Alcoholism among Males with Body Image

A simplistic definition of 'negative body image' is not possible in an academic setting.[4] It includes various factors such as body image-related dissatisfaction, distress, dysfunction, motivation to engage in appearance management activities and the extent to which a person lets his body image affect his personal or social self. Body image is closely related to self-esteem, and men with a negative body image suffer from low self-esteem.[10] Low self-esteem is known to be one of the reasons why people choose to use alcohol, and eventually become alcoholics.[11] Chaudhury, Das and Ukil[9] found that alcohol-dependent individuals in India showed significantly low self-esteem when compared with normal subjects.

Understanding the Complexity of Negative Body Image

Negative body image could be better understood as 'body image disturbance' which entails body image dissatisfaction, distress, and dysfunction.[4] Cash and Pruzinsky[12] also pointed out that one's psychological investment in one's physical appearance was an important factor of the body image construct. This concerns certain beliefs or schemas about one's appearance, and how 'invested' a person is towards one's appearance. This importance, meaning, and influence of appearance could be studied under Self-Evaluative Salience (of Appearance) and Motivational Salience (of Appearance).

Schematic Investment in Appearance includes self-evaluative salience which is the extent to which a person's beliefs about their looks influence their personal or social sense of self and motivational salience. They may attend to their appearance and engage in appearance-management behaviors to an extent. Self-evaluative salience could result in dysfunctional states, and lead to body image disturbance which is a hallmark of Body Dysmorphic Disorder. Motivational salience or the extent to which one engages in appearance management need not be consistently maladaptive.[13]

What Do Men Worry about Their Bodies?

Male body image is an area that has not been studied much, and has been limited to muscle dysmorphia, a condition in which a male feels he is underweight and needs to gain more lean mass, leading to excessive consumption of proteins and possibly anabolic steroids.[14] However, negative body image among men is not limited to just lean muscle mass but also thinning of hair, size of the genitals, acne scars, shape of the nose and many other appearance-related attributes that are culturally accepted as sexually attractive male characteristics.[15,16] Another study by Tiggemann, Martins and Churchett[17] concluded that men's body image was both multi-faceted and complex.

Alcoholism and Body Image

Studies link negative body image among men to excessive alcohol usage[5] (Levinthal, 1983). Negative body image and usage of alcohol puts men under the risk of Body Dysmorphic Disorder and/or Alcohol Dependence/Abuse.[18] Aubry et al[11] concluded that alcoholics generally saw themselves as inadequate and unworthy of respect.

Sayette[19] found that intoxicated subjects disclosed fewer negative items than sober subjects did. In addition, intoxicated subjects were more likely to present negative attributes in a manner that was isolated from their self-concept than sober subjects, when asked about their physical appearance. This

indicates that under the influence of alcohol, people report fewer negative body image issues than when they are sober. Thus, alcohol may provide a coping mechanism to those with body image issues.

Need for Body Image Studies in India

While studies outside India have connected negative body image among men to increased risk of alcohol abuse/dependency, there have been no such studies in India. Therefore, present study was envisaged. It would be helpful to correlate factors of negative body image among men in India to alcoholism, as that may help in identifying risk groups, diagnosing and finding treatment methods for both body image issues and alcohol abuse. It would also encourage academic discussions about body image issues among men and why research in this area is still lacking in India and question patriarchal attitudes about body image itself among Indian academicians and researchers.

Material and Methods

Participants

The sample consisted of 243 Indian hetero-sexual urban men from New Delhi (120 alcohol users and 123 alcohol non-users). Participants ranged in age from 20 to 40 years (M = 29.49 ± 5.65 and M = 30.43 ± 5.77 respectively for alcohol users and alcohol non-users). Groups were comparable as they did not differ significantly on the age variable. Participants were recruited from commercial locations, colleges, workplaces, parks, community organizations and other public spaces in the South Delhi region of the National Capital Territory. Participants were classified into two groups, those who used alcohol in the last one year in varying quantities and those who did not use alcohol at all. Those who were diagnosed with any psychiatric or medical illnesses and those with criminal history were excluded.

Measures

The Alcohol Use Disorders Identification Test - Self-Report Version

Alcohol Use Disorders Identifications Test (AUDIT) by WHO[20] is a simple method to screen people for excessive drinking and to identify alcohol users who require intervention. AUDIT is a brief assessment tool that can be used in the general population, clinical settings and at out-patient locations. The self-report version contains 10 items and a Likert scale is used to score the items, where 0 (zero) is the lowest level and 4 (four) is the highest that a person can score for an item. AUDIT's reliability and validity have been studied internationally. On a cut-off value of 8 points, various indices of problematic drinking were generally in the mid 0.90's and across countries and across criteria, it averaged in the 0.80's.

The Body Image Disturbance Questionnaire (BIDQ)

The Body Image Disturbance Questionnaire[21] was derived from modifications of Phillip's Body Dysmorphic Disorder Questionnaire and measures body image disturbance which entails body image dissatisfaction, distress and dysfunction commonly referred to as negative body image. The normative data for college men was a mean score of 1.57 (SD = 0.60) with an average Cronbach's alphas of 0.88. For college women, the mean score was 1.81 (SD = 0.67) with an average Cronbach's alphas of 0.90. The BIDQ contains seven scaled items which are scored between 0 and 4. The mean of the 7 (seven) items is used as a signifier of the severity of body image disturbance. Five of the seven items also provide space to write subjective and qualitative responses which were not used in the present study.

The Beliefs about Appearance Questionnaire [Appearance Schema Inventory - Revised (ASI-R Short Form)]

The ASI-R is a 20 item self-report questionnaire[22] that measures the level of appearance investment of an individual. It also provides two subscales of Self-Evaluative Salience and Motivational Salience. Self-Evaluative Salience refers to the cognitive overload that a person experience, and beliefs regarding their own appearance which they internalize. Motivational Salience refers to appearance management behaviours and the level of motivation therein. The ASO-R and the original 14-item scale correlated significantly with $r = 0.76$ ($p < .001$) for both women and men. Cronbach's alphas were quite satisfactory. Of the 20 items, 6 (six) are scored in reverse order and a composite ASI-R score is derived from the

mean of 20 items. Self-Evaluative Salience is calculated by checking the mean of 12 items where as Motivational Salience is calculated by calculating the mean of the other eight items. In the present study, Self-Evaluative Salience and Motivational Salience were not considered, and only the composite ASI-R score was considered, which measures total appearance investment.

Procedure

The participants were briefed about the survey and copies of the questionnaires were given to the recruits. Every participant signed the informed consent form before taking the tests. Their personal details such as age, occupation, marital status and education were collected (please see sections on participants and results). Those who drink alcohol were given an AUDIT questionnaire to fill up and later on, men in both groups were asked to fill Body Image Disturbance Questionnaire and the Beliefs about Appearance Questionnaire (ASI-R Short Form). All the three questionnaires were presented in their original, non-translated versions, in English.

Participants were given the option of filling up the questionnaires immediately or use stamped envelopes to return their completed questionnaires. In all instances, the participants were required to fill in the consent form detailing the purpose of the study. The anonymous, confidential and voluntary nature of their participation through the study was emphasized and the questionnaires took approximately 15 minutes to complete.

Results

A total of 123 men who participated in the study were teetotalers, having never drank alcohol to warrant a score more than zero on AUDIT, and formed part of the control group (Alcohol Non-users Group). A total of 120 men were classified under alcohol user group, and their AUDIT scores ranged between 1 and 37 on AUDIT. Forty six decimal three percent (46.3%) reported to have completed graduation, 22% to some college education, 19.5% to post-graduate degrees and 12.2% reported to have studied up to or less than 12th grade. Forty eight percent (48%) of the sample reported to be married, 43.1 % to be unmarried and 8.9% to be divorced. Forty seven decimal two percent (47.2%) reported to be salaried employees, 32.5% reported to be self-employed, and 20.3% were not employed at the time of taking the tests. Both the groups (Alcohol users and Alcohol non-users) did not differ on age variable (t = 1.28, p = 0.201). Thus, these groups were comparable. For analyzing the data, mean, standard deviation, independent sample t-test and correlation were used. An alpha level of 0.05 was used for all statistical tests to arrive at statistical decision-making.

Results showed that Alcohol Users experienced a higher level of Body Image Disturbance than the Control Group (Alcohol Non-users) (t= 3.08, p=0.002). The results also revealed that the men in Alcohol Users Group experience a higher level of Schematic Investment in Appearance than the Control Group (Alcohol Non-users) (t=5.83, p=0.001). Please see Table 1.

The findings indicated that there was a significant correlation between the level of body image disturbance and alcohol usage in the Alcohol Users Group (r = 0.49***). Also there was a significant correlation between the level of Schematic Investment in Appearance and alcohol usage in the Alcohol Users Group (r = 0.45***).

The study's results showed a significant correlation between the level of body image disturbance and alcohol usage in the total sample (r = 0.45***). They also reveal a statistically significant correlation between the level of Schematic

Table 1 showing differences between alcohol users and the control group on Body Image Disturbance and Schematic Investment in Appearance scores (N=243)

Groups	n	Body Image Correlates					
		Body Image Disturbance			Schematic Investment in Appearance		
		Mean	t	p	Mean	t	p
Alcohol Users	120	2.51 ± 1.27			3.18 ± 0.9		
Control Group	123	2.09 ± 0.85	3.08	0.002	2.50 ± 0.9	5.83	0.001
Total	243	2.30 ± 1.09			2.83 ± 0.97		

Investment in Appearance and alcohol usage in the total sample ($r = 0.46$***). Please refer to following Table 2.

Table 2 showing correlation of alcohol consumption (on AUDIT) with Body Image Disturbance and Schematic Investment in Appearance among alcohol users and the total sample

Measures	Alcohol Users n=120			Total Sample N=243		
	Mean score	*r*	*P*	Mean score	*r*	*P*
AUDIT Body Image Disturbance	15.7 ± 9.45 2.51 ± 1.26	0.49	0.001	7.75 ± 10.28 2.51 ± 1.09	0.45	0.001
AUDIT Schematic Investment in Appearance	15.7 ± 9.45 3.18 ± 0.9	0.45	0.001	7.75 ± 10.28 2.51 ± 0.97	0.46	0.001

Discussion

In this study, we evaluated the relationship between negative body image and alcohol usage among urban Indian men in Delhi. We chose Body image disturbance and Schematic Investment in Appearance as two factors of negative body image and studied their relationship with alcohol usage among men. Most Indian studies related to body image have concentrated on women, and specifically to weight related concerns.[2] However, body image concerns are not limited to one's weight alone and have a lot to do with how people perceive their skin texture, facial features, bodily contours and shapes and hair texture.[16]

We compared Body Image Disturbance among subjects who were alcohol-users and those who were not. Alcohol-users showed a higher mean score than those who never consumed alcohol. The comparison of mean scores showed that those who consumed alcohol displayed a higher level of Body Image Disturbance in accordance to their scores on AUDIT.

We also compared the levels of Schematic Investment in Appearance among alcohol-users and non-users. Those who consumed alcohol showed a higher mean score than those who never consumed alcohol. The comparison of mean scores showed that those who consumed alcohol displayed a higher level of Schematic Investment in Appearance in accordance to their scores on AUDIT.

We found that body image disturbance and schematic investment in appearance are found prevalent among men regardless of their social, marital, occupational status. Both the correlates of negative body image were higher among those who used alcohol.

While there have been significant research in the field of alcohol usage in India, there are not many studies that explore body image related disorders among men in India. The results in the present study revealed the presence of body image disturbance among Indian men, especially those who used alcohol. This leads us to believe that identifying men with negative body image would help in identifying males who might be at risk of alcohol abuse and body image issues.

Identifying those with negative body image (High levels of Schematic Investment in Appearance or Body Image Disturbance) at primary health care centers, cosmetic clinics, fitness centers and other places where men may visit to improve their outward appearances, may help in identifying risk groups that may exhibit symptoms of Body Dysmorphic Disorder or substance abuse. Those with negative body image may benefit from positive self-image building, confidence-building measures, counseling and even motivating one to groom oneself. Further intervention plans could be formulated if individuals with negative body image are found to be at risk of developing Body Dysmorphic Disorder or Alcoholism, or if they already meet the criteria for the same diagnoses.

Furthermore, we found the existence of body image issues among urban Indian men and observed that there was a correlation between body image issues and alcoholism. This calls for increased academic and clinical attention toward body image disorders among men, contrary to existing beliefs in India, which tend to either ignore the importance of body image issues among men or confuse it with eating disorders. In the same breath, we propose to psychologists and mental health professionals to

establish body image issues among men in different regions of the country. Such studies will encourage academic and clinical discussions related to Body Dysmorphic Disorder and Alcoholism among Indian men.

Implications

Body image problems in youths may be more serious tomorrow. Findings of present study would be useful in clinical settings such as psychiatry, dermatology, plastic surgery and dental health to spot those who may be at risk of developing Body Dysmorphic Disorder and/or alcoholism. These findings can also be used to spot those who are at risk of developing body Dysmorphic disorder and/or alcoholism in non-clinical settings such as health clubs, gymnasiums, salons, skin care retailers, and physical education classes. Future studies can focus on finding relative contribution of various factors of negative body image on Alcohol use and other substance usage.

Conclusion

This piece of research work has shown a significant relationship between negative body image and alcohol usage among urban youths. There is need to validate these findings on diverse samples and find relative contribution of other variables to establish negative body image as a predictive variable to boost any prevention or rehabilitation program related to alcohol and substance overuse. Further more, it would be helpful to encourage academic discussions and research related to body image issues among men, especially in a patriarchal society like India.

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Original Article

Perceived Social Support and Coping among Alcohol/Cannabis Dependents and Non-Dependents

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ABSTRACT

Background: *Substance dependence is impaired control over the use of a psychoactive substance; often characterized by physiological dependence resulting in significant impairment or distress. Perceived social support and coping capabilities are important factors which give an insight into how different individuals deal with stressful situations in life.* ***Aim****: Therefore the aim of present research was to assess perceived social support and coping strategies among alcohol/cannabis dependents and non-dependents.* ***Material & Methods****: For this purpose a sample of 60 participants, 30 dependents from Rehabilitation Centre, Delhi and 30 non-dependents were selected for the present study. General Health Questionnaire was used as a screening tool for non-dependent group to over-rule any distress level. Perceived Social Support Scale and The Cope Scale were administered to assess social support and coping in both the groups. The data was analyzed using t-test and product moment correlation.* ***Results****: revealed that a group difference on perceived social support was not significant but the mean score was found to be higher for the dependent group. On the measure of coping, no significant difference was obtained between the dependent and the non-dependent group. Perceived social support showed significantly negative correlation with emotional focussed coping in the total sample.* ***Conclusions:*** *Thus, an area with enormous implications for public health, it has generated a substantial amount of research. The result of the present study contributes in understanding the significance of perceived social support and specific coping strategies adopted by alcohol/cannabis dependents. It has a great implication for their rehabilitation too.*

Key words: *Perceived Social Support, Coping, Substance Dependents.*

Introduction

Substance dependence, commonly called drug addiction, is a compulsive need to use drugs in order to function normally. When such substances are unobtainable, the user suffers from withdrawal. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV TR), substance dependence is defined as: When an individual persists in use of alcohol or other drugs despite problems related to use of the substance, substance dependence may be diagnosed. Compulsive and repetitive use may result in tolerance to the effect of the drug and withdrawal symptoms when use is reduced or stopped.

Substance dependence affects a large number of people. They may use alcohol or drugs to cope with certain (or, in some cases, most of the) problems in their lives. Through repeated

experience of the apparent short term benefits of drinking or drug use, they may become the preferred way of coping, especially in the absence of other coping skills. If alcohol or drugs are the only way a person has to cope with certain things, then he/she is psychologically dependent upon them. It is largely influenced by multiple factors, a major part of which is contributed by psychosocial risk factors. Substance-dependent patients tend to become socially isolated, but involvement of other people in their recovery efforts bodes well for desirable outcomes. Social support is very important in the lives of drug dependent individuals.

Dobkin, Paraherakis and Gill[1] reported that patients' level of social support measured at baseline predicted severity of drug use at 6-month follow-up; patients with greater social support when beginning treatment exhibited better substance outcomes and were more likely to be retained in treatment. Also, substance-dependent individuals struggle to maintain abstinence because they lack the coping skills necessary to negotiate stressful life circumstances and substance cues. Social networks and familial support have thus, found to be an important predictor in providing support to cope in the treatment process. As cited in Baron and Byrne[2], family and friends may help in solving problems. People sometime seek support and sometime advice[3]. The physical and psychological support provided by other people is beneficial in the times of stress and it is effective regardless of the kind of coping strategies that are used[4].

Perceived social support is the support that a person believes they are receiving; received social support is the support that a person is actually acquiring from others[5]. The most common type of social support described in the literature is perceived social support. Researchers have found a strong positive correlation between perceived emotional support and mental health[6]; whereas, the relationship between actual received emotional support and mental health were significantly weaker[5].

When individuals perceive that social support is available to them, they are more able to cope with negative life stressors and perception of available support is more significant than the actual support received. High perceived family support has been found to be negatively correlated with a concurrent substance use[7]. Marlatt and Gordon[8] have developed a widely accepted model of relapse prevention that includes social factors and support. Valdir et al[9] assessed the relationship between the family support perception and the intensity of helplessness, depression and anxiety symptoms in 60 alcohol or drug dependents (AOD) patients and 65 non-AOD dependents, control group. The results revealed that AOD dependence and low scores of family support perception presented high scores of depression, anxiety and hopelessness suggesting that family support perception could be useful as a social marker and helpful in treatment planning. Nebhaiani et al[10] conducted a study on reasons for help seeking and associated fears about treatment in subjects with subject dependence, their social support and locus of control and relationship among these variables. Results about social support reported by substance users in the study were higher which could be contributed to the fact that most of the patients who presented for the treatment were accompanied by their families.

Perceived social support has its implication in treatment process as Munaf et al[11] in a comparative study of perceived social support in treatment between recovery and relapse cases reported a marked difference in terms of perceived social support among two groups. It was interpreted that higher perception of family and social support is associated with recovery addicts than the relapse group who perceive their families and societies and societies as less supportive. It is evident from the literature that social support enables one to cope with stress better. Deficits in skills for coping with the antecedents and consequences of drinking/drug use are considered to be a major contributor to the development and maintenance of addictive behavior[12]. Support sources may increase the likelihood that individual will rely on active problem solving. It may facilitate better coping and adjustment. Perception of social support is intertwined with coping, which refers to adaptively changing cognitive and behavioral efforts to manage psychological stress[13]. It identifies the ways in which people handle and manage stressful situations.

Coping has been defined as the way in which people respond and behave to stressful events[14]. It has been stated that coping has two important functions including the handling of the problematic issue (problem-focused strategies) and arrangement

of emotions (emotion-focused strategies)[15]. Within each of these coping styles, there are a variety of coping tactics. For example, problem-focused coping includes tactics such as coming up with a strategy, concentrating on fixing the problem, and getting advice. Emotion-focused tactics include getting emotional support, venting, and making fun of the situation. Avoidant tactics include using alcohol to feel better, denying the problem, and giving up[16]. In addition, the coping strategies are frequently studied by their efficacy. Effective active coping alleviates the problem and reduces emotional distress. Ineffective passive coping, however, exacerbates and intensifies the problem[14]. The appraisal of a chronic disease as threatening or challenging leads to the initiation of coping efforts.

Williams and Clark[17] have found substance use as a coping strategy to be predictive of frequency of alcohol use. Use of substances may sometimes function as an avoidant coping strategy, along with denial and behavioral disengagement. Likewise, MacLean, Lecci and Croteau[18] reported that substance use, denial, and partying were strongly predictive of alcohol-related problems. Emotion-focused and avoidance coping strategies have been found to predict alcohol use.[19,20] In some studies,[21-23] avoidance coping was associated with alcohol related problems but not with quantity or frequency of alcohol consumption. Protective strategies include religious coping by females and males,[18] religious coping by females and suppression of competing activities by males,[24] and problem-solving coping.[20]

Skalski et al[25] conducted a study on coping style and illicit drug use in older adults with HIV/AIDS among 301 HIV positive adults. Self-destructive avoidance was positively associated and spiritual coping was negatively associated with drug use. Also, Dorard et al[26] conducted a study on self esteem, coping strategies, perceived social support and substance use in young adults with cannabis dependence. Results revealed that patients groups scored significantly low on global and social self esteem, task oriented coping/active coping and both availability and satisfaction regarding perceived social support. Patient group reported to use more emotion focused coping.

Rationale of Study

Researches imply a close association between perceived social support network and coping ability. The interactions people have with others will greatly influence how they view themselves and the world around them. To escape, addiction will require positive social support to increase their chances of success. Without such support, it will be difficult for these individuals to make the necessary life changes required for lasting sobriety. The availability of a good social network is particularly vital during the early months of recovery. The appraisal of a chronic disease as threatening or challenging leads to the initiation of coping efforts and social support can play an essential role in executing such efforts. Thus, the notion of social support incorporates positive factors and provides a person with psychological support and well being. Unfortunately, the role of social support in improving the well being and coping strategies has been largely neglected by psychologists. It is an area with enormous implications for public health. The result of the present study will contribute in understanding the significance of perceived social support and specific coping strategies adopted by alcohol/cannabis dependents. It has a great implication for their rehabilitation too.

To improve the lives of adolescents and adults, researchers and practitioners have mainly found a psychopathology developing treatment strategies and risk based prevention programs. It is also important to examine the role of positive factors such as, perceived social support and consequent coping among substance dependents.

Aim

The aim of the present study was to examine perceived social support and coping strategies among alcohol/cannabis dependents and non-dependents.

Objectives

1. To see the difference on the measure of perceived social support among alcohol/cannabis dependent and non-dependents.
2. To see the difference on the measure of coping among alcohol/cannabis dependent and non-dependents.
3. To see the relation between perceived social support and coping alcohol/cannabis dependent and non-dependents.

Methodology

Sample

A total sample of 60 male participants, 30 who where fulfilling International Statistical Classification of Diseases and Related Health Problems 10th Revision (ICD-10) criteria for alcohol/cannabis dependence and were under rehabilitation treatment at Tulasi Psychiatric and Rehabilitation Centre, Delhi and 30 non-dependents from colleges and other places of Delhi were selected for the present study.

Tools Used

1. ***Socio-demographic Data Sheet:*** A self made semi structured socio-demographic variable performa was designed for this study to collect the information regarding participant's age, gender, marital status and religion affiliation, education, occupation etc and also clinical details such as duration of illness and abstinence period.
2. ***General Health Questionnaire[27]:*** The 12-item (GHQ-12), a self-reported screening tool which was used to identify the severity of psychological distress experienced by an individual within the past few weeks on 4 point likert-type scale with validity ranging from 0.77 to 0.93.
3. ***Perceived Social Support Scale[28]:*** The 12-item, tool to measure how one perceives their social support system, including an individual's sources of social support (i.e. family, friends, and significant other) rated on 7 point scale with the reliability of .97 was used.
4. ***The Cope Scale[29]***: containing 60 items self reported inventory that measures 15 dispositional coping strategies rated on a 4 point scale, assessing problem focused coping, emotional focused coping and dysfunctional coping with reliability (.96) was also used.

Procedure

After seeking approval from the authorities of Tulasi Psychiatric and Rehabilitation Centre, a good rapport was established before collecting personal data followed by Perceived Social Support Scale and The Cope Scale. Non- dependent data was collected through personal contact and screening was done to overrule the psychological distress using GHQ-12 before completing the research tools on the participants.

Scores thus obtained were analyzed with Statistical Package for Social Sciences (SPSS-21). Descriptive as well as inferential statistics was used to analyse the results and t-test was done to see the difference where as product moment correlation was done to see the relationship between the two groups.

Results and Discussion

Table 1: Mean and SD of age of participants (N=60)

Characteristics	Groups				Total (N=60)	
	Dependents (n=30)		Non-Dependents(n=30)			
	Mean	SD	Mean	SD	Mean	SD
Age	33.43	9.06	30.53	4.91	31.98	8.56

60 participants (30 dependents and 30 non-dependents) were included in the study. Average age of the dependent group (n=30) was found to be 33.43 years and non-dependent group (n=30) was 30.53 years, whereas for the total sample (N=60) mean age was found to be 31.98 years.

The maximum participants were Hindu (68.33%). Most of the participants (73.34%) were educated above graduation and executive (45%) by profession. Participants belonging to nuclear family were (55%) and joint family were (45%). Participants (81.7%) had family monthly income above Rs. 30,000.

Mean duration of the use of substance in dependent group was 3.92 years and mean duration of abstinence period was 1.25 months.

Results revealed that a group difference on perceived social support was not found to be significant but the mean score was found to be higher for the dependent group. Higher perceived social

Table 2: Frequency and percentage for demographic characteristics of participant (N=60)

Characteristics	*Groups*					
	Dependents(n=30)		*Non-Dependents(n=30)*		*Total(N=60)*	
	F	*%*	*f*	*%*	*f*	*%*
Gender						
Male	30	50%	30	50%	60	100%
Marital Status						
Un-married	15	25.00%	14	23.40%	29	48.40%
Married	14	23.40%	16	26.60%	30	50.00%
Divorced	1	1.67%	0	0	1	1.60%
Religion Affiliation						
Hindu	23	38.33%	18	30.00%	41	68.33%
Muslim	1	1.67%	9	15.00%	10	16.67%
Sikh	4	6.67%	0	0	4	6.67%
Others	2	3.33%	3	5.00%	5	8.33%
Education Qualification						
High School	5	8.33%	0	0	5	8.33%
Intermediate	8	13.33%	3	5.00%	11	18.33%
Graduate	17	28.34%	27	45.00%	44	73.34%
Occupation						
Student	8	13.40%	9	15.00%	17	28.40%
Executive	8	13.33%	19	31.60%	27	45.00%
Business	14	23.40%	2	3.33%	16	26.60%
Family Type						
Nuclear	16	26.60%	17	28.30%	33	55.00%
Joint	14	23.40%	13	21.70%	27	45.00%
Family monthly Income						
Below 20,000	00	00	5	8.30%	5	8.30%
20,000 to 30,000	2	3.30%	4	6.70%	6	10.00%
Above 30,000	28	46.70%	21	35.00%	49	81.70%

Table 3: Mean and SD for clinical characteristics of dependent group (n=30)

Characteristics	Mean	SD
Duration of use (years)	3.92	6.35
Abstinence Period (months)	1.25	1.75

Table 4: Mean, SD and t-value for the dimension of perceived social support

Characteristics	Groups				t-value	P-value
	Dependents		Non-Dependents			
	Mean	*SD*	*Mean*	*SD*		
Perceived Social Support	1.90	.61	1.67	.61	1.49	.23

df=58

support in substance user group, as reported by Nebhinani et al[10] could be contributed to the fact that most of the patients who presented for the treatment were accompanied by their families. In contrary to this, Valdir et al[9] found significantly low perceived social support in alcohol and drug dependents than control group in their study. Dorard et al[26] also reported low perceived social support in cannabis dependents than controls.

Since the dependents were under treatment at the rehabilitation centre which provides an appropriate family intervention during the rehabilitation, may be the cause of non-significant difference in perceived social support among dependents and non-dependents. Families play a very important role in the treatment; they frequently visit the patients who are admitted in rehabilitation centre providing them a support and confidence to cope up with the disease. Also, dependents in our study were in recovery for about 1.25 months as

Munaf et al[11] reported higher perception of family and social support in recovery addicts than the relapse group who perceive their families and societies as less supportive.

Table 5: Mean, SD and t-value of dependents and non-dependents on subscales of coping (N=60)

Characteristics	Groups				t-value	P-value
	Dependents		Non-Dependents			
	Mean	SD	Mean	SD		
Problem Solving Coping	55.43	7.09	55.90	10.22	.205	.094
Emotional Focused Coping	54.00	9.49	51.77	7.78	.997	.260
Dysfunctional Coping	27.86	5.44	25.75	5.48	1.51	.987

df=58

Dependent group had a higher score on emotional focussed coping and dysfunctional coping than non-dependents but the difference was not significant. In contrary, Dorard et al[26], reported significantly higher emotional focused coping among cannabis dependents than control group. Hassan et al[30] in their study concluded that the alcohol and cannabis addicts showed significantly more dysfunctional coping styles than control group. Emotion-focused and avoidance/dysfunctional coping strategies have been found to predict alcohol use[19,20]. Several studies have reported significant difference for emotional focussed coping and dysfunctional coping among dependent and non-dependent group however participants of dependent group for our study were highly supported with counselling and psychotherapy to boost their coping.

Table 6: Correlation between Perceived Social Support and subscales of coping of participants (N=60).

Characteristics	Perceived social support	
	r-value	P-value
Problem Solving Coping	.112	.39
Emotional Focused Coping	-.26	.04
Dysfunctional Coping	-.023	.86

df=58

Emotional focused coping showed significantly negative correlation with perceived social support (r=-.26, P=.04). The studies[11,18] had reported that, for heroin addicted, the absence of social support is associated with the use of non-social, potentially dysfunctional coping strategies.

Conclusions

Social support and coping are being recognized as a positive influence on health. It may influence motivation, treatment compliance and outcome in drug dependent patients. The current study was undertaken to assess and compare the social support and coping amongst treatment seeking alcohol/ cannabis dependent patients and non dependents. Overall, no significant difference was found for perceived social support and coping among dependents and non dependents. Also, perceived social support was negatively correlated with emotional focussed coping. Perceived social support is of great implication during the treatment of dependence which may boost the positive coping of the dependents. The study provides some understanding about the perceived social support and coping amongst treatment seeking drug dependent individuals and also indicates the need to address the issues of social support and coping in substance dependents.

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Original Article

Awareness and Public Knowledge about Causes of Depression: A Community based Study in Adult Population of Aligarh

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ABSTRACT

Introduction: *Depression is a debilitating condition with considerable emotional, physical, and socioeconomic consequences, but often goes unrecognized and untreated.One reason for this is that there is a lack of mental health literacy on the part of the public, specifically a lack of knowledge about psychiatric illnesses and the best treatment options for those illnesses.* ***Aim:*** *The aim of this study was to assess the knowledge and awareness about depression in the general public.* ***Methods:*** *The present study was conducted in the field practice areas of the department of community medicine, Jawaharlal Nehru Medical College, Aligarh.It was a Community based Cross sectional study. The study period was one year i.e. from July 2012 to June 2013.* ***Results:*** *The majority of the respondents (88.3%, n=636) were of the opinion that financial and familial obligations are the major cause of depression and only 32.4% (n= 233) responded that biological changes in brain causes depression while 63.8% said depression is caused due to punishment of God for the past sins.* ***Conclusion:*** *The overall knowledge regarding the causes of depression in rural area were significantly poor as compared to the urban area.*

Keywords: *Depression, Public Knowledge, Awareness*

Introduction

World Health Organization (WHO, 2001) statistics concluded that mental disorders influence at least 25% of adults once in their lives. Depression is the most prevalent of all mental disorders. It was ranked as the fourth leading cause of global disease burden in 1990. It is expected to be second only to ischemic heart disease by the year 2020.[1,2]

Depression is a debilitating condition with considerable emotional, physical, and socioeconomic consequences, but often goes unrecognized and untreated.[3] One reason for this is that there is a lack of mental health literacy on the part of the public, specifically a lack of knowledge about psychiatric illnesses and the best treatment options for those illnesses.[4,5] Moreover, negative attitudes and beliefs about depression hamper help-seeking behaviour among lay individuals.[6,7] This study was intended to evaluate the awareness and public knowledge about causes of depression among adult inhabitants of certain rural and urban areas of Aligarh.

Aim: The aim of this study was to assess the awareness and public knowledge about causes of depression among general public.

Material and Methods

The present study was conducted in the field practice areas of Urban Health Training Centre (UHTC) and Rural Health Training Centre (RHTC), Department of Community Medicine, Jawaharlal

Nehru Medical College, Aligarh Muslim University, Aligarh, Uttar Pradesh. It was a Community based Cross sectional study. The study period was one year i.e. from July 2012 to June 2013.

Inclusion and exclusion criteria: All adults (≥19 years) in the registered areas under R.H.T.C. and U.H.T.C or all individual who gave consent were included in the study.

The exclusion criteria constituted of adults (≥19 years) who do not give consent to participate, moribund and severely ill individuals, individuals who were deaf or dumb, household found to be locked or eligible subjects not present.

Sample size: This study is a part of larger study which also intended to evaluate the prevalence of depression in the community. So a sample size was calculated on the basis of the estimated prevalence obtained after performing a pilot study. It was calculated to include 360 adults from the rural area and 360 from the urban area. Thus the total sample size came out to be 720.

Study Tools: A pre-designed, pre-tested, semi structured proforma was used for data collection.

Ethical issues: A prior permission for conducting the study was taken from the Ethical Committee of the institution**.** Informed consent was taken from each subject before interview and confidentiality was maintained.

Collection of data: After obtaining the sample sizes to be drawn from each area under UHTC and RHTC by Probability Proportional to size, households were chosen from these areas. Since we performed systematic random sampling for selecting households in this study, sampling interval (k) was calculated as:

Sampling interval = total number no. of sampling units in that area/sample required from that area.

Since the sampling unit was a household we divided the number of households in each area by the sample to be drawn from that particular area in order to calculate the sampling interval.

Questions assessing the awareness and public knowledge about causes of depression were asked to the subjects in the last using a semi structured questionnaire and their responses were marked as per their replies. Most question had a single response out of "Yes", "No", or "Don't Know"

Data Analysis: Data entry and analysis was done using statistical software. Appropriate test of significance were applied.

Results

Table 1 describes the sociodemographic distribution of our study population. Maximum number of respondents belongs to the age 30-44 years age group but there was no significant

Table 1: Sociodemographic profile of the study population

Socio-Demographic Variables	Rural n (%) n= 360	Urban n (%) n= 360	Total n (%) n = 720	Significance
AGE GROUP				
19-29	66 (18.3)	79 (21.9)	145 (20.1)	
30-44	147 (40.8)	140 (38.9)	287 (39.9)	χ^2 = 3.569
45-59	88 924.4)	96 (26.7)	184 (25.6)	p = 0.312
60 and above	59 (16.4)	45 (12.5)	104 (14.4)	
SEX				
Male	158 (43.9)	196 (54.4)	354 (49.2)	χ^2 = 8.024
Female	202 (56.1)	164 (45.6)	366 (50.8)	p = 0.005
RELIGION				
Hindu	237 (65.8)	47 (13.1)	284 (39.4)	^{2} = 209.911
Muslim	123 (34.2)	313 (86.9)	436 (60.6)	p = 0 .000
TYPE OF FAMILY				
Nuclear	203 (56.4)	221 (61.4)	424 (58.9)	χ^2 = 8.478
Joint	155 (43.1)	129 (35.8)	284 (39.4)	p = 0.014
Living alone	2 (0.6)	10 (2.8)	12 (1.7)	

difference in the age distribution in rural and urban area, although the number of respondents in the age group > 60 years was 16.4% in the rural area as compared to 12.5% in the urban area.

In our study population 93.9% subjects from the urban area and slightly lesser number of subjects from the rural area said "yes", when they were asked if they have "ever heard of depression" and this difference was found to be statistically significant (p=0.002) (Table 2.)

that depression is caused by changes in the brain. Overall the knowledge about the causes of depression was significantly poor in the rural area as compared to the urban area in our study.

Apart from these causes 66.7% of the rural and 60.8% of the urban subjects believe that depression is cause as a result of God's Punishment for the past sins and this difference was found to be statistically significant (p=0.047). Similarly 36.9 % of the rural as compared to 35.0% of the urban were

Table 2: Public awareness about depression

Public Awareness	Rural n = 360		Urban n = 360		Total n=720	
	Yes	No	Yes	No	Yes	No
Ever heard of depression ?	314 (87.2)	46 (12.8)	338 (93.9)	22(6.1)	652(90.6)	652(90.6)

^{2} = 9.354 p value= 0.002

Table 3. Shows the response assessing the knowledge of the study population regarding the cause of depression. In responding to the questions on the potential causes of depression, respondents cited social (88.3%) (Emotional stress due to home/ family relationship breakup) and financial issues (88.3%) as the major causes of depression to a greater extent than other causes, followed by work related problems and achievements (83.5%). 80.1% thought that physical illness was a course of depression. 66-69% of the subjects considered loneliness, lack of friends, death of loved ones and less sleep or rest as causes of depression. 41.3% thought weak or nervous personality as a cause of depression whereas only 39.8% were of the view

of the view that depression is a caused by witchcraft and 36.4% of the rural subjects as compared to 33.3% of urban residents thought that depression is caused by polluted air. But these results were found to be statistically non-significant. Knowledge regarding the genetic occurrence of depression was quite low in the rural area than the urban area (28.6% vs 38.3%) and this difference was found to be statistically significant (p = 0.015).Our results conclude that even though the overall knowledge regarding the causes of depression in rural area were significantly poor as compared to the urban area in our study, still causes like punishment for past sins , witchcraft and polluted air were thought to be related to causation of depression in both the rural and urban

Table 3: Public knowledge about causes of depression

Causes of Depression	Rural n = 360	Urban n = 360	Total n=720	?2	p-value
Emotional stress due to home/ family relationship breakup	304(84.4)	332(92.2)	636(88.3)	15.760	<0.001
Financial or familial obligation	315(87.5)	321(89.2)	636(88.3)	0.787	0.675
Work related problems	284(78.9)	317(88.1)	601(83.5)	15.258	<0.001
Physical illness	276(76.7)	301(83.6)	577(80.1)	5.464	0.065
Loneliness / lack of friends /antisocial	224(62.2)	274(76.1)	498(69.2)	17.385	<0.001
Death of loved ones	229(63.3)	255(70.8)	484(67.2)	7.525	0.023
Less sleep or rest	220(61.1)	259(71.9)	479(66.5)	10.381	0.006
God punishing for past sins	240(66.7)	219(60.8)	459(63.8)	5.046	0.047
Old age	165(45.8)	174(48.3)	339(47.1)	4.638	0.098
Weak or nervous personality	131(36.4)	166(46.1)	297(41.3)	9.976	0.021
Witchcraft	133(36.9)	126(35.0)	259(36.0)	0.459	0.795
Polluted air	131(36.4)	120(33.3)	251(34.9%)	0.853	0.653
Genetic	103(28.6)	138(38.3)	241(33.5)	8.362	0.015
Biological changes in brain	122(33.9)	158(43.9)	280(38.9)	7.929	.019

areas of society in our community.

Discussion0

In a study overall awareness was found to be similar to our study where approximately 80.4% (n=924) out of 1149 of the respondents claimed that they were familiar with depression[8] Comparing the results of Carmine et al 2013 about the awareness of depression, we found that results in our Indian community was comparable to those found in their community (98%).[9] Khan TM et al[8] showed that responding to the questions on the potential causes of depression, respondents of the Indian community cited social and educational issues. Among the Indian community 61.07% (149) prioritized failures in work / achievement as one of the potential causes as compared to 83.5% subjects in our study, who believed that work related problems can give rise to depression. Carmine et al (2013) in his study showed that 90% of the respondents believed that recent job loss can lead to depression. Swami et al reported that in terms of causes of depression, rural participants were more likely to endorse Destiny and God and Supernatural causes, whereas urban participants were more likely to endorse Biological causes of depression.[10]

Conclusions

Overall 90.6% study subjects responded that they were aware of depression. Even though the overall knowledge regarding the causes of depression in rural area were significantly poor as compared to the urban area in our study, still causes like punishment for past sins, witchcraft and polluted air were thought to be related to causation of depression in both the rural and urban areas of our community.

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Original Article

Internet Addiction and Psychosomatic Symptoms in Engineering Students

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ABSTRACT

Introduction: *Internet has become a very popular means of communication in present days. Students are too much dependant on internet for entertainment, education, fun, and information. The present study was conducted to find association of internet addiction and psychosomatic symptoms among engineering students.* ***Method and Materials****: A descriptive survey was conducted by enrolling 99 engineering students studying Bachelor of Technology. The selected setting was convenient in the study. The students enrollment were done by using simple random sampling. Internet Addiction Test (IAT) was used to assess level of internet addiction and Depression, Anxiety, Stress scale (DASS) and Somatic symptoms checklist was used to assess psychosomatic symptoms among students.* ***Results****: Of the 99 students, 62 (62.6%) were males and 64.6% belong to 20-22 years of age group. 6.1% students reported severe internet addiction. Internet addiction was found significant with mostly used website/search engine (χ^2 = 8.84, p < .03) purpose of internet use (χ^2 = 8.55, p < .03), medium of use (χ^2 = 7.97, p < .04) and internet use per day (χ^2 = 21.19, p < .00) and somatic symptoms was statistically associates with gender (χ^2=10.58, p value 0.00), average duration of internet use per day (χ^2=7.57, p value 0.05) and medium of internet use (χ^2=9.89, p value 0.02).* ***Discussion:*** *The study reveals that internet addiction tendency is associated with many psychosomatic symptoms among students and psychologists and psychiatrists must be aware to suggest the appropriate therapeutic interventions timely.*

Key words*- Internet addiction, Psychosomatic symptoms, Students*

Introduction

'All addictions are progressive in nature'.
Anonymous

Computer and internet usage has the potential to develop and change the existing social structure of the nation. Internet has become an integral part of daily life all over the world. The internet is a network that consists of millions of private, public, academic, government networks and business. It represents a global platform to share and distribute information at very little cost. The internet provides a wide range of information, interaction functions including: communication, accessing information and supplying information.[1]

Computer and internet is a source of unlimited information and provide a developmentally accepted environment for students in personal and professional life. Although, the basic purpose of internet is to access and attain information easy, cheap, fast and secure to make the communication fast and confidential.[2] With the increasing importance of internet and online usage dramatically, pathological internet use (internet addiction) is becoming more common in society. The term 'internet addiction' was given by Dr. Ivan Goldberg

for pathological compulsive use of internet. Still, there is no standardized definition available for term 'internet addiction' and there is acknowledgment among researcher that this phenomena does exists.

Although the diagnosis of internet addiction is very difficult as there is no accepted criteria for diagnosing internet addiction listed in DSM-IV.[3]

Young also define 'Pathological internet use' for increasing investment of resources on internet access and related activities, increasing tolerance to use and feeling uneasiness when offline.[4]

The essentiality of internet in certain courses of study has increased the use of computer among students and make them more susceptible to pathological use of internet. The computer driven society also demands that students develop proficiency in technology and technology environment.[5] So, students appear to be more vulnerable to develop habit of pathological use of internet.The review shows that excessive internet use may not be problematic but only small number of studies evidence excessive internet use as a real addiction and of genuine concern.[6]

Adverse effects are also common among excessive internet users. Study reported that 80% of nearly 600 subjects reported at least five use related problems i.e. failure to mange time, missed sleep, missed meals, interference in academic, professional and social lives etc.[7] Studies also reported serious consequences like poor grades, academic probation, expulsion from universities, disrupted marriage life, financial problem, and relationship problems (sexual/romantic, parent-child, and friendship problems).[8]

It is also reported that internet addicted adolescents more likely suffer from depression, anxiety, loneliness, social isolation, impulsive, feeling of self-effacement[9] and also associated with habits of smoking, drinking alcohol or coffee and taking drugs.[10]

Hence, the investigators selected the study to find out internet addiction and psychosomatic symptoms in students.

Material and Methods

In December 2012, a college based descriptive survey was conducted in a selected engineering college in Amritsar, India. A total of 100 Engineering students studying Bachelor of Technology (B.Tech.) were recruited by using simple random sampling technique (lottery method) to participate in the study. The target setting was convenience sample. Inclusion criteria of participants in this study included being older than 17 years of age but younger than 25 year of age, and correct responses for internet usages. All 100 students agreed to participate in study. Finally 99 study subjects data were used in the study and one study subject excluded due to incomplete response for internet usage.

Ethical Consideration

After gaining the approval from the college authority, researcher visited the college and explained the purpose of the study to the students and teachers as well. Written informed consent was obtained from principle authority, teachers and students. Ethical permission was also obtained from Sri Guru Ram Dass Medical College and Research Center, (SGRDISMR) Amritsar, India. Anonymity and confidentiality was maintained during and after data collection. Subjects were given full autonomy to withdraw from the study anytime without assigning any reason. The data were coded and tabulated. The final data transformed to SPSS 15.0 Evaluation version and analyzed by using appropriate descriptive and inferential statistics.

Instruments

A self administered questionnaire containing information on socio-demographic indicators, internet usage, and psychosomatic symptoms was filled in 30-45 minutes session in the class room in the presence of the teachers, in order to minimize potential information bias. The following socio-demographic information was obtained; age, gender, graduation year, family income, residential area, mostly used website, place of using internet, internet cost, duration of use/day, purpose of use, and medium of internet use.

(1) ***Internet Addiction Test (IAT)*:** Internet addiction was measured by using the Internet Addiction Test (IAT) developed by Dr. Kimberly Young[7] (1983). The scale measures self-reported compulsive use of internet. It covers the degree to which internet use effect daily routine, social life, productivity, sleep pattern and feelings. The IAT consisted 20 items questionnaire on 5 point scale, describing "1 = rarely" to "5 = always" (given a

total score ranging from 20 to 100). Young defined 20 – 49 points as average users, 50 – 79 points as moderate users and score more than 79 as an addicted user. Cronbach alpha was 0.88 in this study.

(2) ***Depression, Anxiety and Stress scale (DASS):*** Depression, Anxiety and Stress were measured by using the DASS (Lovibond and Lovibond 1995).[11] The DASS is 42 item self report inventory that provides score on three subscales: Depression (14 items), Anxiety (14 items) and Stress (14 items). Each item rated as a 4 point scale ranging from "0 = did not apply to me at all" to "3 = Apply to me very much or most of times". The internal consistency alpha coefficients were found for Depression, Anxiety and Stress 0.90, 0.92 and 0.92 respectively.

(3) ***Somatic Symptoms Checklist:*** The somatic symptoms checklist was developed with in-depth review analysis and experts suggestions in the field of psychiatry, psychology, medicine and nursing. The somatic checklist contained 18 items related to common physical and psychological problem due to overuse of internet like fatigue, headache, eye strain, insomnia, and skipping meals etc. The checklist items were rated score '0' and '1' for absence and presence of particular symptoms respectively. The test-retest reliability of the checklist was 0.78 for this study.

Results

Table 1 depicted general characteristics of the participants.

A large Majority of subjects (64.6%) were between 20-22 years of age and 62 of the subjects (62.6%) were males and 37 (37.4%) were females. Of the participants, 51.5% of subjects studying in third year, 20.2% were fourth year and 14.1% students were first and second year students equally. In the matter of family income, 45.5% subjects reported monthly family income more than rupees 3000 per month and 59.6% belong to urban area.

In term of internet use, majority (48.5%) use google as most frequently search engine followed by 38.4% facebook. Most subjects (81.8%) use internet at home and 60.6 % reported internet cost fair. Majority (50.5%) of subjects use internet for social networking and 30.3% stated entertainment as purpose of using internet. In context of reported duration of internet use per day, 32.3% subjects said 1.1- 2 hours per days followed by 28.3 % mentioned more than 3 hours per day. Most of subjects (55.6%) mentioned mobile as a medium of using internet.

Table1. Level of Internet Addiction (N = 99)

Internet Addiction	Frequency (%)
Mild addiction	44 (44.4)
Moderate addiction	49(49.5)
Severe addiction	06(6.1)

Table 1 exhibits level of internet addiction among students. The mean internet addiction score was 50.88 ± 16.16 and it shows that 49.5% of subjects experienced moderate level of internet addiction while 44.4% experienced mild level and only 6% experienced severe level of internet addiction.

Table 2 describes level of depression, anxiety, stress and somatic symptoms related to the internet addiction. It reveals that around 10.1% of subjects experienced mild level of depression followed by 9.1% who experienced moderate level and only 4.0% experienced severe level of depression. 16.2% of subjects reported mild level of anxiety whereas 13.1% reported moderate anxiety and only 7.1% and 4.0% reported severe and extremely severe level of anxiety respectively. 17.2% of subjects reported mild level of stress, 14.1 reported moderate level and only 5.1 % reported severe level of stress. About 53.5% of subjects experienced mild somatic symptoms while 44.4% experienced moderate symptoms and only 2% presented with

Table 2 - Depression, Anxiety, Stress & Somatic symptoms (N= 99)

Variables	Normal	Mild	Moderate	Severe	Extremely Severe
Depression	76 (76.8%)	10 (10.1%)	9 (9.1%)	4 (4.0%)	–
Anxiety	59 (59.6%)	16 (16.2%)	13 (13.1%)	7 (7.1%)	4 (4.0%)
Stress	63 (63.6%)	17 (17.2%)	14 (14.1%)	5 (5.1%)	–
Somatic symptoms	–	53 (53.5%)	44 (44.4%)	2 (2.0%)	

severe somatic symptoms due to internet usage.

With regards to anxiety related to internet addiction, study reveals that 13.1% experienced moderate level anxiety, 7.1% shows severe and 4% reflect extremely severe anxiety. Study findings are consistent with the study conducted by Razieh et al[12] which also reported that out of 300 universities students, 12.7% reported higher anxiety and 3.03% experienced low level of anxiety and it also reveals significant difference between male and female students with regards to internet addiction. Study also reported that internet users show higher anxiety level than non users (80.76 and 28.5 respectively).

When the level of internet addiction was compared with socio-demographic variables of student, mostly used websites (χ^2 = 8.84, p=0.03), internet use per day (χ^2 = 21.19, p=0.00), purpose of internet use (χ^2 = 8.55, p=0.03) and medium of use (χ^2 = 7.97, p=0.04) were found significantly associated with level of internet addiction. However, age, gender, graduation year, family income, residential area, place of internet use and reported internet cost did not show significant association with level of internet addiction perceived by the students (Table-3).

When the extent of somatic symptoms compared with socio-demographic variables of students, gender (χ^2 = 10.58, p=0.00), duration of internet use/day (χ^2 = 7.57, p=0.05) and medium of internet use (χ^2 = 9.89, p=0.02) were found statistically significantly associated with somatic symptoms while age, graduation year, family income, residential area, place of internet use and reported internet cost did not show significant association with somatic symptoms perceived by the students. (Table 4)

Discussion

A number of studies have been conducted on students to measure extent of internet addiction and related psycho physiological problems. This study is a preliminary step to understand level of internet addiction and somatic symptoms among engineering students. The present study reported that around equal number of students (49.5% and 44.4%) experienced moderate and mild level of internet addiction and only 6.1% students experienced severe level of internet addiction. Study results found are consistent with the study conducted by Goel et al[13] which reported that 74.5% were moderately addicted, 24.8% experienced mild internet addiction and only 0.7% experienced severe internet addiction. Another study conducted by Balci and Gulnar[14] also reported consistent findings which reported that 23.2% university students were internet addicts, 28.4% noted risky internet users and 51.6% students characterized as 'problematic internet users. Similar consistent findings also reported in study conducted by Deng et al[15] which reported that 05(.9%) children met the criteria for definitive internet addiction and 14% met the criteria of probable internet addiction.

The result from DASS were a mean of 6.78 $\pm$ 5.48 indicating mild to moderate level of depression among engineering students. Prior research[16] also showed consistent findings with a mean of 11.2 (SD 13.9) indicating mild to moderate levels of depression among internet users. In term of relationship between internet addiction, anxiety and stress, there is no research evidence to justify the relationship. The studies conducted by Ko Yen et al[17] and Kraut et al[18] showed consistent findings that internet addiction is positively related to decrease social interaction, depression, and loneliness.

Present study reported statistically significant association of internet addiction with mostly used websites (χ^2 = 8.84, p=0.03), internet use per day (χ^2 = 21.19, p=0.00), purpose of internet use (χ^2 = 8.55, p=0.03) and medium of use (χ^2 = 7.97, p=0.04). Similar findings were also reported by the study conducted by Choi et al[19] in which a significant association was ruled out between internet addiction and duration of internet use (χ^2 = 83.5, p=<0.0001). Consistent findings are also reported for indulging more in social networking, chatting and downloading media files (χ^2 = 76, p=<0.001)[13].

In present study, gender (χ^2 =10.58, p=0.00), duration of internet use/day (χ^2 = 7.57, p=0.05) and medium of internet use (χ^2 = 9.89, p=0.02) were found statistically significantly associated with somatic symptoms. The similar findings also presented in the previous study which reported a significant association of internet addiction and workplace to access internet (χ^2 = 144, p=<0.001)[12]. Study also reported that male in comparison to female were significantly more likely to be addicted (χ^2 = 10.2, p=<0.006).[13] Similar consistent findings were also reported by study conducted by Ligang et al[20] which reported a statistical significant

Table 3 – Socio-demographic Characteristics and Internet Addiction in Students (N=99)

Variables	Frequency (f, %)	Level of Internet Addiction		ð2 Value df p= Value
		Mild (f)	Moderate + Severe (f)	
Age				
17-19 yrs	10 (10.1)	03	07	0.99
20-22 yrs	64 (64.6)	29	35	2
23-25 yrs	25 (25.3)	12	13	(0.60)
Gender				0.05
Male	62 (62.6)	27	35	1
Female	37 (37.4)	17	20	(0.81)
Graduation Year				
1st year	14 (14.1)	05	09	1.91
2nd year	14 (14.1)	05	09	3
3rd year	51 (51.5)	26	25	(0.59)
4th year	20 (20.2)	08	12	
Family Income(Rs)				
Below 10000	11 (11.1)	06	05	2.58
10001-20000	15 (15.2)	09	06	3
20001-30000	28 (28.3)	11	17	(0.46)
Above 30001	45 (45.5)	18	27	0.10
Residential area				
Rural	40 (40.4)	17	23	1
Urban	59 (59.6)	27	32	(0.74)
Mostly used websites				
Google	48 (48.5)	28	20	8.84
Yahoo	11 (11.1)	05	06	3
Facebook	38 (38.4)	10	28	(0.03)**
Any other	2 (2.0)	01	01	
Reported internet Cost				
Expensive-very expensive	31 (31.3)	15	16	1.73
Fair	60 (60.6)	24	36	2
Cheap-very cheap	8 (8.1)	05	03	(0.42)
Internet use per day (Hr)				
0.1-1	18 (18.2)	13	05	21.19
1.1 -2	32 (32.3)	15	17	3
2.1 -3	21 (21.2)	13	08	(0.00)**
> 3	28 (28.3)	03	25	
Purpose for internet use				
Academic related activities	18 (18.2)	13	05	8.55
Social networking	50 (50.5)	18	32	3
Entertainment	30 (30.3)	12	18	(0.03)**
Other activities	1 (1.0)	01	00	
Medium of use				
Mobile	55 (55.6)	18	37	7.97
Laptop	23 (23.2)	14	09	3
Tab	9 (9.1)	04	05	(0.04)**
Any other	12 (12.1)	08	04	

Table 4: Socio-demographic Characteristics and Somatic Symptoms in Students (N=99)

Demographic variables	Level of Somatic Complaints		δ^2 Value
	Mild(f)	Moderate + Severe(f)	df p – Value
Age (in years)			
17 – 19	04	06	1.16
20 – 22	34	30	6
23 - 25	15	10	(0.11)
Gender			10.58
Male	41	21	1
Female	12	25	(0.00)**
Graduation year			
1st year	06	08	2.59
2nd year	10	04	3
3rd year	26	25	(0.45)
4th year	11	09	
Family income (Rs. / month)			
Below 10,000	07	04	3.13
10,001 – 20,000	05	10	3
20,001 – 30,000	16	12	(0.37)
Above 30,000	25	20	
Residential area			
Rural	20	20	0.34
Urban	33	26	1
			(0.56)
Mostly used website / search engine			
Google	25	23	0.10
Yaho	06	05	3
Facebook	21	17	(0.99)
Any other (……..)	01	01	
Most frequently used place of internet use			
At college	13	05	3.09
At home	40	41	1
			(0.07)
Reported internet cost			
Expensive – very expensive	21	10	3.96
Fair	29	31	2
Cheap – very cheap	03	05	(0.13)
Internet use per day (Hr)			
a) 0.1 – 1 hour	12	06	7.57
b) 1.1 – 2 hour	11	21	3
c) 2.1 – 3 hour	14	07	(0.05)**
d) More than 3 hours	16	12	
Purpose of internet use			
a) Academic related activities	08	10	2.02
b) Social networking	26	24	3
c) Entertainment	18	12	(0.56)
d) Other activities like business transaction etc.	01	00	
Medium of internet use			
Mobile	35	20	9.89
Laptop	08	15	3
Tab	02	07	(0.02)**
Any other (if yes, specify….)	08	04	

p**< 0.05 Significant

association of gender and internet addiction (χ^2 = 74.027, p=<0.001).

Conclusions

The present study focuses on internet use and related psycho physiological problems. The related findings enable us to be aware of the effects of internet usage, internet addiction tendency and associated psycho physiological symptoms. It should give importance to the education of students' internet usage habits and medical health personals must be aware of this newly emerging disorder as an internet addiction and should take appropriate therapeutic interventions.

Limitations

Although the present study shows some significant association between internet addiction and psychiatric symptoms, still study findings must be viewed critically, as this is a preliminary study with many limitations which should be addressed. First, descriptive survey design limited the possibility of drawing conclusion. Second, data were collected over a short period of time and procedure of selecting sample also did not allow us to generalize the result.

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Original Article

Pattern of Diagnosis in Psychiatric Inpatients in A Tertiary Care Teaching Hospital Psychiatry unit in Delhi

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ABSTRACT

Background: *There is scarcity of psychiatry beds in general hospital setting in India with limited number of psychiatrists. There is a need to make psychiatric diagnosis using DSM-5 introduced in 2013 to make psychiatric diagnosis apart from ICD-10 which is official method of classification in India.* ***Method:*** *The present study aims to understand the pattern of psychiatric diagnosis in a tertiary care teaching hospital in an inpatient setting using both DSM-5 and ICD-10 in 80 patients admitted from April to August, 2014.* ***Results:*** *30% of the patients belong to schizophrenia and psychotic disorders, Depressive disorders (16.2%), Substance related and addictive disorders (26.2%), Somatic symptom and related disorder (12.5%), anxiety disorders (7.5%), others (33.7%). This is a preliminary effort to make diagnosis by both the systems.* ***Conclusion:*** *The inpatient setting enabled the clinicians to reach at diagnosis by both systems often referring to the manual of DSM5. Nevertheless, such a work enabled us to get accustomed with the changes and familiarize us with the new DSM-5.*

Keywords*: Psychiatric inpatients, DSM-5, ICD-10, Diagnosis*

Introduction

In India, neuropsychiatric disorders are estimated to contribute to 11.6% of global burden of disease. The number of psychiatric beds in general hospital is estimated to be 10,000 (.823 per 100,000 population) and 0.301 per 100,000 psychiatrists are available in the country.[1] Thus, there is scarcity of psychiatric beds in General Hospital Setting. Currently, we use International Classification of Diseases (ICD-10)[2] for diagnosing mental disorders. Diagnostic and Statistical Manual of Mental disorder (DSM-5) has been released in 2013 by American Psychiatric Association.[3] ICD-11 is in the process of development.[4]

Nowadays, there is currently international pressure to develop the classification systems which will help in both clinical and research purposes for the next decade. Clearly, this would change the scenario of the practice of psychiatry as a discipline globally. With the limited resources but a keen desire to work upto International standards, Indian psychiatrists need to act promptly so that they can suggest revisions that can be incorporated in ICD-11.

The current study is an attempt to evaluate psychiatric diagnosis over six months in inpatient services, according to both ICD-10 and new DSM 5 from a general hospital tertiary care psychiatry teaching unit. Guru Teg Bahadur (G.T.B) Hospital is the largest Hospital of Government of NCT of Delhi in the Trans-Yamuna Area (East Delhi) with over 1,000 beds capacity. It is a teaching hospital associated with the University College of Medical Sciences (U.C.M.S.), University of Delhi with 6,200

patients attending hospital outpatient services daily. The purpose of this descriptive study is to understand the clinical profile and pattern of diagnosis in an inpatient setting in a general hospital set up.

Method

This study was conducted in inpatient psychiatric unit of G.T.B. Hospital and U.C.M.S., Delhi from April to August, 2014. The psychiatric diagnosis for all inpatients admitted during this study duration were included for the purpose of the study. The inpatients who refused to stay for more than two days before a complete history and the evaluation of diagnosis could be made were excluded from the study. In the inpatient setting, clinical diagnosis was made by experienced psychiatrists according to both ICD-10 and DSM 5. Data were collected and analyzed using Microsoft Excel. Informed consent was taken from the patients/caregivers. Institutional ethical committee gave the approval.

Results

Eighty patients were included during the study period from April to August, 2014. The socio-demographic details of inpatients are mentioned in Table 1. 77.5% of the inpatients were in the age group of 19-50 years. 55% of the sample consisted of males and 45% females. Only 10% of the study population were graduates. 45% of the inpatient were employed. The family income of 81.2% of the inpatient was in the range of 5,000-30,000 Rs. per month. 50% were married and 66.2% belong to the rural area.

The pattern of psychiatric diagnosis both

Table 1. Socio demographic characteristics of the inpatients (N=80)

Characteristic	N	%
Age		
0 – 12	4	5
13- 18	11	13.7
19- 30	40	50
31- 50	22	27.5
51- 65	2	2.5
65 and more	1	1.25
Gender		
Male	44	55
Female	36	45
Education		
Illiterate	11	13.7
Primary	30	37.5
Secondary	13	16.2
Senior secondary	16	20.0
Graduate	8	10.0
Postgraduate	2	2.5
Professional	0	0
Employment		
Student	6	7.5
Housewife	18	22.5
Employed	36	45
Unemployed	20	25
Family Income		
5000 and less	0	0
5001- 15000	19	23.7
15001- 30000	46	57.5
30001- 50000	14	17.5
50001 and above	1	1.2
Marital status		
Unmarried	40	50.0
Married	39	48.8
Divorced	1	1.2
Area		
Rural	53	66.2
Urban	27	33.8

Table 2. Pattern of Primary Diagnosis (N=80) in inpatients according to ICD- 10 and DSM 5.

Diagnosis (DSM 5)	DSM 5 Code	N (%)	Diagnosis (ICD 10)	ICD 10 Code	N (%)
Neuro developmental disorder		6 (7.5)			
1. Intellectual Disability (mild)	319	2 (2.5)	Mild mental retardation	F70 F90.0	2 (2.5) 2 (2.5)
2. Attention deficit / hyperactivity disorder combined presentation	314.01	2 (2.5)	Hyperkinetic disorders, Disturbance of activity and attention		
Schizophrenia Spectrum and other psychotic disorder		24(30)			
1. Brief psychotic disorder	298.8	3(3.7)	Acute polymorphic psychotic disorder with symptoms of Schizophrenia	F23.1	3(3.7)

Diagnosis (DSM-5)	DSM-5 Code	N (%)	Diagnosis (ICD 10)	ICD 10 Code	N (%)
2. Schizophrenia	295.90	9 (11.2)	Paranoid schizophrenia	F20.0	5 (6.2)
			Undifferentiated schizophrenia	F20.3	3 (3.7)
			Simple schizophrenia	F20.6	1 (1.2)
3. Schizoaffective bipolar type	295.70	2 (2.5)	Schizoaffective disorder, manic type	F25.0	2 (2.5)
4. Psychotic disorder due to Another medical condition with delusion	293.81	4 (5.0)	Organic delusional [schizophrenia-like] disorder	F06.2	4 (5.0)
5. Catatonia Disorder due to another medical condition	293.89	1 (1.2)	Organic catatonic disorder	F06.1	1 (1.2)
6. Unspecified Schizophrenia Spectrum and other Psychotic disorder	298.9	5 (6.2)	Other nonorganic psychotic disorders	F28	5 (6.2)
Bipolar and related disorder					
1. Bipolar I Disorder, most recent episode manic, with psychotic features	296.44	5 (6.2)	Mania with psychotic symptoms	F30.2	2 (2.5)
			Bipolar affective disorder, current episode manic with psychotic symptoms	F31.2	3 (3.7)
Depressive disorder		**13 (16.2)**			
1. Major depressive disorder, single episode, mild	296.21	2 (2.5)	Mild depressive episode	F32.0	2 (2.5)
2. Major depressive disorder, single episode, moderate	296.22	6 (7.5)	Moderate depressive episode	F32.1	6 (7.5)
3. Major depressive disorder, single episode, severe	296.23	2 (2.5)	Severe depressive episode	F32.2	2 (2.5)
4. Major depressive disorder, Recurrent episode, moderate	296.32	3 (3.7)	Recurrent depressive disorder, current episode moderate	F33.1	3 (3.7)
Anxiety disorders		**6 (7.5)**			
1. Panic disorder	300.01	2 (2.5)	Panic disorder	F41.0	2 (2.5)
2. Generalized anxiety disorder	300.02	2 (2.5)	Generalized anxiety disorder	F41.1	2 (2.5)
3. Anxiety disorder due to another medical condition	293.84	2 (2.5)	Organic anxiety disorder	F06.4	2 (2.5)
Obsessive – compulsive and related disorders		**3 (3.7)**			
1. Obsessive- compulsive disorder (OCD)	300.3	2 (2.5)	OCD, predominantly obsessional thoughts or ruminations	F42.0	2 (2.5)
2. Trichotillomania (Hair Pulling Disorder)	312.39	1 (1.2)	Trichotillomania (In impulse control disorder)	F63.2	1 (1.2)
Trauma and stress related disorder		**2 (2.5)**			
1. Acute stress disorder	308.3	2 (2.5)	Acute stress reaction	F43.0	2 (2.5)
Somatic symptom and related disorders		**10 (12.5)**			
1. Somatic Symptom disorder, with predominant pain	300.82	5(6.2)	Somatization disorder	F45	5 (6.2)
2. Conversion Disorder, with attack or seizures	300.11	10(12.5)	Dissociative convulsions	F44.5	5 (6.2)

Diagnosis (DSM 5)	DSM 5 Code	N (%)	Diagnosis (ICD 10)	ICD 10 Code	N (%)
Feeding and eating disorder		**2 (2.5)**			
1. Pica in adults	307.52	2 (2.5)	Other eating disorders	F50.8	2(2.5)
Sexual Dysfunctions		**5 (6.2)**			
1. Erectile Dysfunction	302.72	3 (3.7)	Failure of genital response	F52.2	3 (3.7)
2. Premature (Early) Ejaculation	302.75	2 (2.5)	Premature ejaculation	F52.4	2 (2.5)
Disruptive, Impulse control and conduct disorders		**2 (2.5)**			
1. Conduct Disorder, childhood onset type	312.81	2 (2.5)	Unsocialized conduct disorder	F91.1	2 (2.5)
Substance related and addictive disorders		**21 (26.2)**			
1. Alcohol use Disorder, severe	303.90	5 (6.2)	Mental and behavioral disorders due to use of alcohol, dependence syndrome	F10.2	5 (6.2)
2. Alcohol Withdrawal	291.81	6 (7.5)	Alcohol Withdrawal state	F10.3	6 (7.5)
3. Cannabis use disorder, severe	304.30	2 (2.5)	Mental and behavioral disorders due to use of cannabinoids, dependence syndrome	F12.2	2 (2.5)
4. Tobacco use disorder, severe	305.1	8 (10)	Mental and behavioral disorders due to use of Tobacco, dependence syndrome	F17.2	8 (10)
Dhat syndrome		**2 (2.5)**			
Described in glossary of cultural concepts of diseases			Other specified neurotic disorder	F48.8	2(2.5)

according to ICD-10 and DSM-5 is shown in Table 2. The psychiatric diagnosis according to DSM-5 is as follows: Neuro-developmental disorders (7.5%), Schizophrenia spectrum and other psychotic disorders (30%), Bipolar and related disorders (6.25%), Depressive disorders (16.2%), Anxiety disorders (7.5%), obsessive-compulsive and related disorders (3.7%), trauma and stress related disorders (2.5%), somatic symptom and related disorders (12.5%), feeding and eating disorders (2.5%), sexual dysfunction (6.2%), disruptive impulse control and conduct disorder (2.5%), substance related and addictive disorders (26.2%) and Dhat syndrome (2.5%). The corresponding ICD-10 differences are shown in Table 2.

The co-morbid diagnosis of Antisocial Personality Disorder F60.2 (301.7) was made in one patient and Borderline Personality Disorder F60.3 (301.83) was made in the other patient. Another co-morbid diagnosis of medication-induced acute akathisia, G25.71 (333.99) was made in three patients and medication induced postural tremors G25.1 (333.1) was made in five patients.

Discussion

The findings of our study describe that the majority of population belongs to rural area and low socio-economic strata which is supported by mental health data from India.[5] Mental illness impairs the socio-occupational functioning of the patients during their productive years shown by previous referral study reporting 94.7% psychiatric diagnosis[6] in (N= 94). The employment was less in inpatient setting probably reflecting the more severe nature of psychiatric disorder and disability associated with it.[7,8]

This is first preliminary study to the best of the knowledge of authors comparing the psychiatric diagnosis in DSM-5 and ICD-10 from a developing country. The interesting finding is that the differences in the diagnosis by different systems become more obvious when we closely examine the different categories.

Another inpatient study of psychiatry patients

from an Asian country reported mental retardation in around 3.6% of the patients quite similar to our figures of 2.5%.[9] The change in terminology to intellectual disability in the category of neurodevelopment disorders in DSM-5 has to be kept in mind.

Thirty percent of inpatient sample belonged to the schizophrenia and other psychotic disorders. The category made in DSM-5 includes psychotic disorder due to medical conditions which is included in organic conditions in ICD-10.The subtypes of Schizophrenia in DSM-5 are no longer to be used as they have low longitudinal stability, only paranoid and undifferentiated schizophrenia were utilized. Elimination of bizarre delusions and Schneiderian first rank symptoms in DSM-5 is what clinicians have to carefully remember while making diagnosis. DSM-5 clarified the nosological status of catatonia as a separate entity.[10] Thus, DSM-5 has more precisely defined diagnostic boundaries of different psychotic disorders in our study sample but the diagnosis of paranoid (6.2%), undifferentiated (3.7%) and simple schizophrenia (1.2%), according to ICD-10 was eliminated in DSM-5. Dimensional approach highlighted in DSM-5 to be measured during the course of illness with response to the treatment could not be studied since this was cross-sectional study.

Bipolar disorders in DSM-5 now make it easier to define bipolar subthreshold syndromes and makes diagnosis of DSM-5 bipolar II disorder twice as common by including anti-depressant induced hypomania in DSM-5 bipolar II. Also, the definition is more restrictive in Criterion A of mania and hypomania by including irritable mood with increased energy.[11] Exclusion of bereavement was omitted in DSM-5 diagnosis of major depressive disorder.

Trauma and Stress related, Obsessive compulsive disorder given a different category from anxiety disorders. Trichotillomania included in obsessive compulsive disorder as shown in our data. DSM-5 has thus preserved the categorical approach for most of the disorders with the exception of alcohol use disorders where dimensional approach is used to some extent.[12] The new DSM-5 diagnosis of somatic symptom disorder, with chronic pain was found in five patients. However, future research is needed for medically explained versus unexplained disorders.[13]

Most of the eating disorders were classified in Not Otherwise Specified Category. Pica according to DSM-5 could be diagnosed in adults adding to clinical utility.[14] A recent review article has suggested that distress be included in the sexual dysfunctions.[15]

A major limitation of this study is the cross-sectional data and a small sample size. The study has the merit of helping the clinicians in ICD-11 development so that there is increased consistency in both ICD-11 and DSM5 as has been suggested by Frances and Nardo.[16] National Institute of Mental Health gives the research classification of mental disorders based on dimensions of neurobiology and observational behavior which has thrown DSM-5 in criticism.[17]

Conclusions

This is a preliminary effort to make diagnosis by both the systems. The inpatient setting enabled the clinicians to reach at diagnosis by both systems often referring to the manual of DSM 5. Nevertheless, such a work enabled us to get accustomed with the changes and familiarize us with the new DSM 5.

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Psychomicrobiology

Correaltion between Viral Infections and Autism: An overview

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Introduction

Autistic disorder, commonly known as autism, is a condition in which the individual exhibits communication difficulties, impaired sociability, and inappropriate behavior and language problems. It may or may not be accompanied by mental retardation. It is a neurodevelopmental disorder characterized by impaired social interaction, verbal and non-verbal communication, and by restricted and repetitive behavior. The diagnostic criteria require that symptoms become apparent before a child is three years old. The severity of symptoms can range from almost imperceptible to profoundly disabling manifestation. ASD (Autism Spectrum Diseases) comprises the third most common developmental disability, nearing the prevalence rate of Down's syndrome. Males are three to four times more likely to be affected than females.

Autism affects information processing in the brain by altering nerve cells and their synapses It is one of three recognized disorders in the ASDs, the other two being Asperger syndrome, which lacks delays in cognitive development and language, and pervasive developmental disorder, not otherwise specified (commonly abbreviated as PDD-NOS), which is diagnosed when the full set of criteria for autism or Asperger syndrome are not met.[1,2]

The prevalence of autism is about 1–2 per 1,000 people worldwide, and it occurs about four times more often in boys than girls.[3] The Centers for Disease Control and Prevention (CDC) report 1.5% of children in the United States (one in 68) are diagnosed with ASD as of 2014, a 30% increase from one in 88 in 2012.[4] The number of people diagnosed with autism has been increasing dramatically since the 1980s, partly due to changes in diagnostic practice and a better awareness worldwide.[3]

Autism has a strong genetic basis, although the genetics of autism are complex and it is unclear whether ASD is explained more by rare mutations, or by rare combinations of common genetic variants.[5] In rare cases, autism is strongly associated with agents that cause birth defects.[6]

One proposed etiology for autism is viral infection very early in development. The mechanism, by which viral infection may lead to autism, be it through direct infection of the central nervous system (CNS), through infection elsewhere in the body acting as a trigger for disease in the CNS, through alteration of the immune response of the mother or offspring, or through a combination of these, is not yet known. Many studies over the years have presented evidence both for and against the association of autism with various viral infections. The current paper discusses the correlation between viral infections and autism.

Background on ASD

Efficient diagnosis of autism, or other ASD, is difficult due to the spectrum of symptom severity and because the cause, or causes, have not yet been identified. Although young infants may in some cases exhibit subtle indications of the disorder, autism is

generally not diagnosed before the child has reached 18 months of age. At this age, delays in communication skills and emotional attachments can become apparent. However, because some individuals might show only slight disturbances in behavior or mild developmental delays, diagnosis is difficult.

Some recent reports have suggested that autism and ASD prevalence rates are on the rise.[7] Although the evidence for this claim is not conclusive, the number of children receiving these diagnoses is increasing, leading to a greater demand for services.[8] It is possible that the increased number of diagnoses may reflect enhanced awareness of ASD and changing diagnostic criteria, rather than a change in the actual prevalence of the disease. However, research continues worldwide into the possible causes of ASD, focusing notably on genetic and environmental factors.

Autism was first described in the early 1940s by Dr. Leo Kanner. Until the 1960s, it was thought to be caused by poor parenting that might have included neglect and withdrawal of affection. Since the 1970s, it has been clear to researchers and clinicians that autism is not caused by such emotional abuse. Children who are subject to such neglect or abuse might exhibit similar behavioral disturbances, but these are distinct from ASD.[9]

Individuals with ASD have been shown to have structural and chemical differences in their brains compared to normally developing peers. However, the manner by which these differences come about is the subject of considerable research. Autism and ASD are believed now to be multifactorial disorders; that is, many factors come into play when determining the cause. These factors include complex genetic interactions, nutritional deficiencies or overloads, pre- and post-natal exposure to chemicals or viruses, errors during the embryonic neural tube closure process, dysfunctional immune systems, and even allergies.

Role of Genetics

There is considerable evidence that ASD is determined largely by genetics, but the issue is very complex. Numerous studies involving families in which more than one member is affected with ASD have provided enough information for researchers to conclude that: the identical twin of an individual with ASD has a better than 90% chance of also being affected; a fraternal twin or sibling of an affected individual has a 15% chance of having ASD; and an ASD parent has a 10% chance that his or her offspring will also have ASD.

The difference between the probabilities that identical versus fraternal twins will be affected by ASD indicates that genetics is a strong determinant, since both identical and fraternal twins experience the same *in utero* environment while only the identical twins share the same genetics. The observation that the identical twin of an individual with ASD is not at a 100% risk of also having ASD indicates, however, that there is more at play than simply genetics. Finally, the broad range of symptoms, even within a family, has led researchers to conclude that multiple genes, possibly even an unfortunate combination of normal ones, are involved in causing ASD. Many of the physiological observations reported by researchers, such as faulty neural tube closure at the embryonic stage and abnormal brain physiology, may in fact be the result of the ASD genes involved.

Vaccines and Impaired Immune Systems

In recent years, considerable public attention was given to the theory that the measles-mumps-rubella (MMR) vaccine, or other combination of vaccines, potentially contributed to the development of autism due to the mercury-containing thimerosal used as a preservative. This theory came about during research into whether this vaccine could be linked to the intestinal disorder Crohn's disease, and involved a very small number of children. Since that time, no scientific evidence has emerged to substantiate the theory. On the contrary, the observation that the introduction of the MMR vaccine was not followed by a surge in ASD diagnoses is just one of the epidemiological findings that have essentially disproved the vaccine theory. Canada's National Advisory Committee on Immunization issued updated recommendations for thimerosal-containing vaccines in December 2005. The updated recommendations, based on the best available scientific evidence, reaffirm the Committee's earlier position that "there is no legitimate safety reason to avoid the use of thimerosal-containing products." Nevertheless, due to the speculation and public criticism, thimerosal has been phased out in most vaccines and very few

available in Canada still contain the preservative.

Environmental factors

Another factor that may be a potential cause of ASD is exposure to pollutants and toxins during foetal development. This possibility has been put forward due to the perceived increase in the prevalence of ASD over recent years, the belief that it has appeared as a disorder only recently, and the detection of geographic areas with slightly higher rates of ASD. Although no conclusive evidence has been found to date, this has become an active area of research.

Nutrition, Food Sensitivities and Digestive Disorders

Some attention has recently focused on digestive problems and sensitivities to certain foods, not so much as potential causes of ASD but as possibly contributing to autistic behavior. Researchers have found that autistic individuals are unable to break down, or digest properly, two kinds of protein: gluten, found in grains like wheat, barley and oats; and casein, found in dairy products. Further aggravating the problem is the fact that these same foods tend to be craved by ASD individuals. Eliminating or restricting the presence of these proteins in the diet of ASD people has been found to improve their health and behavior in many cases.

Further, scientists have noted that some ASD people have excessive amounts of the yeast *Candida albicans* in their intestinal tract. As yeast grows, it releases toxins into the bloodstream, and high levels of the yeast in turn mean higher toxin levels. These toxins are thought to contribute to autistic behaviors. However, the reason for elevated *C. albicans* levels in the intestines has not been identified.

Finally, some improvements in communication skills, awareness and attention have been noted as a result of supplementing the diet of ASD individuals with magnesium, vitamin B_6 and dimethylglycine. These observations are consistent with the other digestive abnormalities seen in autistic people and may be related to poor intestinal absorption of some nutrients. Other nutritional factors that may be involved include a lack of essential minerals such as calcium, zinc, iodine, lithium and potassium.

Maternal Factors

Although not currently a primary focus of major research, several factors experienced by the embryo or fetus have been identified as potential causes of autism. Studies have suggested that major psychological stress, such as death of a loved one, during the 24th to 28th week of pregnancy increases a woman's chance of having an autistic child. This timing agrees with the development of the foetal cerebellum, that portion of the brain that is structurally different in autistic children. It is possible that expression of some of the "autistic genes" is induced, or activated, by stress. Several genes have been identified that are induced following different types of stressors.

Other research has explored the role of substances intentionally consumed by expectant women that may have a toxic effect. Retinoids have been studied in this respect. Thousands of retinoids have been either isolated or synthesized for potential pharmaceutical applications, mostly for treatment of skin diseases and cancer. Other retinoids may be environmental pollutants. Some researchers believe that these substances could cause brain abnormalities that resemble those seen in autism. Retinoids may also be taken as nutritional supplements, such as retinoic acid and vitamin A. While a deficiency of vitamin A could lead to abnormal neural tube closure in the embryo – thus providing a possible link to autism – studies have suggested that excesses of these compounds may also produce birth defects. That is, animal model studies have suggested that brain damage similar to that seen in ASD may be caused by overexposure to retinoids. The genetics of autism and the role of retinoids in ASD have recently overlapped with the discovery that retinoids are known modifiers of the proposed autism genes that are members of a family of genes known as the Hox genes. This suggests that an individual's predisposition to autism by virtue of carrying an "autism gene" may be further endangered by exposure to retinoids that modify the gene, producing an autistic behavior or physiological marker.

Mechanism of autism

Despite extensive investigation, how autism occurs is not well understood. Its mechanism can be divided into two areas: the pathophysiology of

brain structures and processes associated with autism, and the neuropsychological linkages between brain structures and behaviors.[10] The behaviors appear to have multiple pathophysiologies.[11]

Pathophysiology

Autism appears to result from developmental factors that affect many or all functional brain systems.[12] Neuroanatomical studies and the associations with teratogens strongly suggest that autism's mechanism includes alteration of brain development soon after conception. This localized anomaly appears to start a cascade of pathological events in the brain that are significantly influenced by environmental factors.[13] Many major structures of the human brain have been implicated. Consistent abnormalities have been found in the development of the cerebral cortex; and in the cerebellum and related inferior olive, which have a significant decrease in the number of Purkinje cells. Brain weight and volume and head circumference tend to be greater in autistic children.[14] The cellular and molecular bases of pathological early overgrowth are not known, nor is it known whether the overgrown neural systems cause autism's characteristic signs. Current hypotheses include: An excess of neurons that causes local over-connectivity in key brain regions,[15] disturbed neuronal migration during early gestation,[16] Unbalanced excitatory-inhibitory network,[17] Abnormal formation of synapses and dendritic spines.[17]

Interactions between the immune system and the nervous system begin early during embryogenesis, and successful neurodevelopment depends on a balanced immune response. Several symptoms consistent with a poorly regulated immune response have been reported in autistic children. It is possible that aberrant immune activity during critical periods of neurodevelopment is part of the mechanism of some forms of Autism Spectrum Disorder. As autoantibodies have not been associated with pathology, are found in diseases other than Autism Spectrum Disorder, and are not always present in ASD, the relationship between immune disturbances and autism remains unclear and controversial.[18]

Several neurotransmitter abnormalities have been detected in autism, notably increased blood levels of serotonin. Whether these lead to structural or behavioral abnormalities is unclear.[19]

The mirror neuron system (MNS) theory of autism hypothesizes that distortion in the development of the MNS interferes with imitation and leads to autism's core features of social impairment and communication difficulties. The MNS operates when an animal performs an action or observes another animal of the same species perform the same action. The MNS may contribute to an individual's understanding of other people by enabling the modeling of their behavior via embodied simulation of their actions, intentions, and emotions.[20] Several studies have tested this hypothesis by demonstrating structural abnormalities in MNS regions of individuals with Autism Spectrum Disorder, delay in the activation in the core circuit for imitation in individuals with Asperger's, and a correlation between reduced MNS activity and severity of the syndrome in children with Autism Spectrum Disorder. A variant theory, EP-M, segments the MNS into an indirect route for goal emulation and planning (EP) and a direct route for mimicry (M), and hypothesizes that only the M route is impaired in autism.[21]

The underconnectivity theory of autism hypothesizes that autism is marked by underfunctioning high-level neural connections and synchronization, along with an excess of low-level processes. Evidence for this theory has been found in functional neuroimaging studies on autistic individuals and by a brain wave study that suggested that adults with Autism Spectrum Disorder have local overconnectivity in the cortex and weak functional connections between the frontal lobe and the rest of the cortex. Other evidence suggests the underconnectivity is mainly within each hemisphere of the cortex and that autism is a disorder of the association cortex.[22]

Neuropsychology

Two major categories of cognitive theories have been proposed about the links between autistic brains and behavior.

The first category focuses on deficits in social cognition. Hyper-systemizing hypothesizes that autistic individuals can systematize—that is, they can develop internal rules of operation to handle internal events—but are less effective at empathizing by handling events generated by other agents. It extends

the extreme male brain theory, which hypothesizes that autism is an extreme case of the male brain, defined psychometrically as individuals in whom systemizing is better than empathizing. This in turn is related to the earlier theory of mind, which hypothesizes that autistic behavior arises from an inability to ascribe mental states to oneself and others. The theory of mind is supported by autistic children's atypical responses to the Sally-Anne test for reasoning about others' motivations, and is mapped well from the mirror neuron system theory of autism.

The second category focuses on nonsocial or general processing. Executive dysfunction hypothesizes that autistic behavior results in part from deficits in flexibility, planning, and other forms of executive function. A strength of the theory is predicting stereotyped behavior and narrow interests; a weakness is that executive function deficits are not found in young autistic children.[25] Weak central coherence theory hypothesizes that a limited ability to see the big picture underlies the central disturbance in autism. One strength of this theory is predicting special talents and peaks in performance in autistic people. A related theory—enhanced perceptual functioning—focuses more on the superiority of locally oriented and perceptual operations in autistic individuals. These theories map well from the underconnectivity theory of autism.

Neither category is satisfactory on its own; social cognition theories poorly address autism's rigid and repetitive behaviors, while the nonsocial theories have difficulty explaining social impairment and communication difficulties. A combined theory based on multiple deficits may prove to be more useful.

Viral infections and autism - The proposed correlation

One proposed etiology for autism is prenatal or early infantile viral infections. The CNS is not fully developed at birth[23] and is more susceptible to viral damage[24] Resistance to CNS virus infections increases with age.-The best association to date has been made between congenital rubella and autism; however, members of the herpes virus family may also have a role in autism. Recently, controversy has arisen as to the involvement of measles virus and/or the measles, mumps, rubella (MMR) vaccine in the development of autism. Biological assays lend support to the association between measles virus or MMR and autism whereas epidemiologic studies show no association between MMR and autism. Further research is needed to clarify both the mechanisms whereby viral infection early in development may lead to autism and the possible involvement of the MMR vaccine in the development of autism.

Herpes viruses and other viruses can readily cause encephalitis in newborn animals, but as the animal matures it becomes resistant[25] .The outcome of exposure to prenatal viral infection depends on many factors, including the maternal immune status, the infecting virus, the strain of virus, the variation in susceptibility of the maternal and fetal host, the developmental stage of the fetus, the amount of virus reaching the fetus—particularly the CNS and immune system, the route of access, genetics, and probably other factors.[26]

Exposure to cytomegalovirus and rubella during early pregnancy is thought by some researchers to increase the risk of having an autistic child. Possibly related to viral exposure is the observation that many autistic individuals have impaired immune systems. Some researchers believe that viral infections may be responsible for the fact that many ASD individuals have a decreased number of helper T-cells, which assist the immune system in fighting infections. Other findings indicate that early immune response to viral infection, either in utero or during infancy, may somehow cause the immune system to malfunction, resulting in the production of antibodies against the foetus' or child's own brain tissue and hence in the brain damage seen in ASD..The current paper discusses the correlation between viral infections and autism.

Upon viral infection, the immune response leads to the production of various cytokines. Through receptor-mediated events, cytokines substantially affect immune and CNS cells. For instance, cytokines such as interleukin (IL)-1, -2, and -6 have been shown to alter neuronal release of dopamine, acetylcholine, serotonin, and norepinephrine in the hippocampus and other brain regions.[27]

Pregnancy is immunosuppressive and women become more susceptible to infections.[28] Expectant mothers often report having colds or infections during pregnancy. It is not known whether infection of the mother or offspring could initiate events in a

genetically susceptible individual that leads to autism. An acute infection could lead to transient levels of cytokines without viral persistence, or infection could instigate an autoimmune process resulting in chronically elevated cytokine production. A persistent viral infection could also lead to chronically elevated cytokine levels. Depending on the location of immune activation, cytokines could be produced directly in the brain or gain access to the CNS by crossing an immature blood-brain barrier (BBB). Abnormal brain cytokine levels can alter CNS development For example,transgenic mice with astrocyte-directed expression of interferon (IFN)-α develop severe cerebellar and hippocampal dysplasia,[29] and in cultures of rat embryonic hippocampal neurons IFN-α inhibits dendritic outgrowths, decreasing synaptic formation.[30] Reduced complexity of dendritic branching has been shown in the hippocampus of autistic brains.

A mouse model has been developed to investigate viral infection of pregnant mothers.[31] Respiratory infection with the human influenza virus at mid-gestation results in behavioral and pharmacological abnormalities, indicating an effect on fetal brain development caused by the maternal antiviral immune response (cytokines). Cytokine changes have not yet been measured in the fetal brain in the influenza model; therefore, it is not yet known whether the cytokines are the product of the fetus or the mother. These behavioral changes remain into adulthood in the case of both BALB/c and C57BL/6 mice. The results are highly significant changes in several behaviors, not specifically analogous to autism[32]. An antiviral immune response can be induced without infection by intraperitoneal injection of polyinosinic-polycytidylic acid . This injection also results in behavioral abnormalities similar to the infection model. This mouse model can be used to investigate which components of the immune response cause changes in the fetal brain that results in behavioral changes.

Some parallels to autism have been observed in Lewis rats inoculated intracerebrally with Borna disease virus shortly after birth.[33] Behaviorally these rats displayed stereotypic behaviors, autistic disorder and viral infections dysregulated exploratory activity, growth delay, aberrant righting reflexes, and asymmetries in motor responses. Neuronal apoptosis occurred predominately in the hippocampus and cerebellum. Increased mRNA transcripts for IL-1α, -1β and -6 and tumor necrosis factor-α were observed in multiple brain regions in infected rats[33].

Other researchers have shown that Lewis rats neonatally infected with Borna disease virus demonstrate deficits in play behavior and other social interaction [34]. Although blood studies of children with autism do not show evidence of Borna disease virus infection, these infection models of developing animals provide some evidence that viral infections and the ensuing immune response can disrupt neurodevelopment and promote behavioral abnormalities with some similarities to autism.

Various clinical studies

Many studies have attempted to associate autism with various viral infections. Examples of studies finding no association include a study conducted in1994 who found no association between intrauterine human parvovirus infection and infantile autism[35], and another study which found no association between herpes simplex virus (HSV) serum antibody levels and autism[36]. Another study[37] finding no relationship between individual virus infections was performed in 1979. They imply that prenatal or early infantile exposure to measles, rubella, mumps, or chickenpox was unlikely to play a major role in a substantial proportion of autism cases. Interestingly, however, they suggest that an "increased frequency of combined illness and exposure was seen for the (autistic) cases relative to their sibling controls to prenatal measles, rubella, mumps and to postnatal mumps".[37] In contrast, other studies have found connections between various viral infections and the development of autism. In 1941 a scientist first linked congenital rubella virus infection to defects in the newborn,[38] and another group of researchers in 1970 put forward[39] the hypothesis that congenital rubella virus infection could contribute to autism. Stubbs in 1976 examined the relationship between prenatal rubella and autism and found that autistic children had an altered immune response to rubella vaccination indicating that they had been congenitally infected with rubella virus.Another group of psychologists conducted studies[40] linking congenital rubella to autism and found that children who had congenital rubella had an increased incidence of autism. The prevalence rates were 412 children with the complete syndrome

of autism[40] plus 329 children with a partial autism syndrome (displaying a significant number of signs of autistic behavior) for a total of 741 children with autism per 10,000 children having congenital rubella. This is in comparison to two other studies, which found prevalence rates of 2.1 children with autism per 10,000 child population[41] and 0.7 children with autism per 10,000 child population. From these data, it was proposed that in some children congenital viral infections of the CNS could produce the severe and complex symptoms of autism.

Additional viruses have also been reported to be associated with autism. Most of these reports are case studies linking viruses such as herpes simplex, cytomegalovirus (CMV), varicella, and mumps to autism[42] .Some of these reports suggest that HSV encephalitis can trigger autism. In 1981 a study first described three children, who developed autism after unknown encephalopathies or, in one instance, HSV encephalitis. These children, older than those usually diagnosed with autism, were between the ages of 5 and 11. Interestingly, as the encephalitis abated some of the features of autism did so as well. In contrast, another study described the development of the classical symptoms of autism over a 70-day period following herpes encephalitis in a 14-year-old girl. This was followed by a report by another group of scientist in 1989 who described the development of autism in another older child, a 14-year-old male, whose autistic symptoms continued after the acute signs of herpes encephalitis had diminished. A study in 1992 documented two patients who in all likelihood were infected in utero or soon after birth with HSV and developed herpes encephalitis. Both children developed autism prior to age of three. Many encephalitic patients had temporal lobe involvement have provided support for the hypothesis that autism results from neuropathology relating to the temporal lobes. They speculate the differences in the extent and neuropathologies of the temporal lobes contribute to the heterogeneity of autism. Several case reports have also linked congenital CMV infection (another herpes virus family member) and autism). One of the CMV infected patients who showed an onset prior to age 2 had some improvement but still retained marked deviant behavior). Another study suggested that maternal infection with CMV led to the congenital infection of two patients who subsequently were diagnosed with autism. Thus, members of the herpes virus family have been implicated as having a role in autism. Herpes viruses can induce a variety of proinflammatory cytokines during infections along with elevated IFN in the brain during HSV encephalitis. Curiously, there have been numerous reports claiming that there are seasonal differences in the births of children with autism. A study conducted in 1996 reanalyzed data from England, Japan, and Israel and found major periodicities and minor periodicities in the occurrence of autistic births, and proposed from these data that viral pandemics may play a role in the etiology of autism. Epidemiological studies in Israel find a positive association between the rate of measles and viral meningitis in the general population and the autistic birth pattern More specifically, the birth of autistic subjects with comorbid epilepsy correlate with the rate of viral meningitis in the general population However, another study found no evidence of seasonality in their attempt at replication . Other investigators have examined cases of autism associated with postnatal varicella encephalitis and a stealth virus encephalopathy. Overall, these observations suggest that infection of the CNS by certain viruses during early or late prenatal development or postnatally could promote the development of PDD in susceptible individuals.

Correlation between measles vaccines and autism has been established by[43] group of researchers who tested for the presence of antibodies against measles virus in 48 autistic children between the ages of 4 and 12. The 34 normal controls used in this study were between the ages of 5 and 50; only 19 of the normal controls were between the ages of 5 and 12. Commercially available enzyme-linked immunosorbent assay (ELISA) kits were used to determine viral antibody titers in sera, while autoantibodies to brain were detected by immunoblotting. Eighty-five percent of the autistic samples and 82% of the normal controls had a positive titer for anti–measles virus antibodies, which was not a significant difference. However, nearly 70% of autistic sera had anti–myelin basic protein antibodies and 57% had anti–neuronaxon filament protein, whereas none of the control sera were positive for these autoantibodies. In the autistic subjects a positive association between serology and autoantibodies was indicated. A second study by the

same group compared 125 autistic children between the ages of 4 and 10 versus 92 normal controls between the ages of 4 and 13, 28 of which had other behavioral diseases. ELISAs and immunoblotting were used to screen serum antibodies. The ELISAs showed that autistic children had a significantly higher level of anti–measles-mumps-rubella antibodies than normal or other disease children. The immunoblotting showed that 60% of the sera from autistic children had antibodies against the measles hemagglutinin protein as compared to 0% of control sera. No control children, but 56% of the autistic children, had autoantibodies reacting to myelin basic protein. A third study used ELISAs to test individually for serum antibodies against measles, mumps, or rubella. The results showed that 87 autistic children (ages 3 to 10 years) had a statistically higher amount of anti-measles serum antibodies than 32 normal controls (ages 4 to 10 years) or 14 siblings (ages 40 to 11 years). The serum antibody levels against mumps and rubella were not different between autistic children and normal controls and siblings. Immunoblotting of the serum antibodies to the measles virus vaccine showed that 83% (43 of 52) of the autistic samples were immunopositive for a 74-kDa size band, whereas none of the 30 normal controls nor any of the 15 siblings were immuno-positive for any bands .The authors suggest that an inappropriate or abnormal antibody response to the measles part of the measles, mumps, and rubella (MMR) vaccine might be related to autism pathogenesis. A study[44] has proposed a new form or variant of inflammatory bowel disease, ileocolonic lymphonodular hyperplasia, in children with developmental disorders (autism). Biopsies from the terminal ileum of 91 affected (gut pathology and developmental disorder) children (ages 3 to 14 years) were tested for the presence of measles virus fusion and hemagglutinin genes via TaqMan reverse transcriptase–polymerase chain reaction (RT-PCR) and nucleocapsid gene via RT in situ PCR, as compared to 70 developmentally normal controls (ages 0 to 17 years). Gut tissue was positive for the presence of measles virus in 75 of the 91 affected children, whereas only 5 of 70 controls were positive for measles virus. The measles virus was detected in dendritic cells and mature lymphocytes. Therefore, there appears to be an association between the presence of measles virus in the gut and gut pathology in children with developmental disorder as well as a possible interaction between measles virus and the immune response. The authors suggest that measles virus may be a potential immunological trigger for the gut pathology. Controversy has arisen as to whether an association between the administration of the MMR vaccine and the development of autism exists. There appears to have been a steady increase in the incidence of autism over the past two decades; and it has been proposed that this increase is due to the introduction of MMR immunization. In one study either the parents or the physicians of 8 out of 12 children (9 of which had autism) linked the child's behavioral problems with MMR vaccination[44.] The interval between the MMR and the first behavioral symptoms was 1 to 14 days, 6.3 days average.

It was found that along with the rise in the incidence of autism, there was a decrease in the proportion of autistic children with mental retardation. They proposed that the changing pattern of autism may be due to a change in the pattern of exposure to an environmental trigger, such as a delay in exposure until after the period of normal development of the CNS[44] as would occur with vaccination replacing congenital infections. Further, the proposition has been made that the mixture of the three viruses in the MMR vaccine may compound the risk for autism.[45] However, studies of MMR vaccine reports have shown that the frequencies of adverse events are the same for MMR as for each vaccine when given separately Adverse events include fever and rash for measles, arthralgia and arthritis for rubella, and parotitis for mumps. Also, no increased rate of complications was seen in children who had more than one infection of measles, mumps, or rubella at the same time or during the same season. Unlike rubella, measles does not usually cause congenital defects. Instead, either abortion results or the acute disease in the neonate is clinically similar to acute disease in older children however, measles virus can cause a CNS disease known as subacute sclerosing panencephalitis (SSPE).In support of an association between MMR and autism a study detected measles virus genomic RNA, via RTPCR, in peripheral blood mononuclear cells (PBMCs) obtained from previous group from three of nine autistic children (one-third of patients)

with regressive autism having gut manifestations, in the age range of 3 to 10 years. The sequence was found to be consistent with the Schwarz vaccine strain of measles virus. The behavioral changes in these nine children were reported to have developed soon after MMR administration. Twenty-two healthy controls, two human immunodeficiency virus (HIV)–infected patients, and four patients with systemic lupus erythematosus (SLE) were negative for measles virus genomic RNA. No ages or sexes were reported for the control individuals studied. Numerous epidemiological studies do not support a causal association between MMR vaccine and autism;[45] some have refuted the association between MMR and autism based on the lack of a sudden "step-up" in incidence of autism after the introduction of the MMR vaccine. Also, developmental regression does not cluster in the months following MMR vaccination. They believe that the temporal association between MMR vaccination, given between 12 and 15 months of age, and the first parental concerns for autism, seen around 18 to 19 months of age, is by chance alone. A follow-up study by the same group found that neither bowel problems nor autistic regression was related to MMR vaccination .A study of autistic boys born between 1988 and 1993 in the United Kingdom found that the incidence of autism increased during the time period while the prevalence of MMR immunization was over 95% and virtually constant over the same time period .A similar result was observed when comparing autism rates and MMR immunization coverage in children born between 1980 and 1994 in California[46] A large retrospective cohort study of all children born in Denmark from January 1991 through December 1998 investigated the potential role of MMR in causing autism. Information including MMR vaccination status and diagnosis of autism or related disorders was collected on 303 children. Eighty-two percent of the children in the cohort received the MMR vaccine. There was no increase in risk of autism or other ASDs among vaccinated children compared to unvaccinated children .Taken together, these epidemiological studies provide strong evidence against MMR vaccination triggering ASDs.

Conclusion

Although the evidence indicates that genetics play a prominent role in the etiology of autism, environmental factors also contribute to the syndrome. In general, genetic background influences an individual's susceptibility to infection and/or autoimmune disease. In these diseases, immune genes such as those found in the human leukocyte-associated antigen (HLA) have an important impact on disease susceptibility or outcome.[47] Some studies but not all provide evidence for HLA involvement in autism. Family history studies have found increased autoimmune disease in families with autistic probands, suggesting involvement of genes that regulate autoimmune disease susceptibility in autism The increased prevalence of autism in children with congenital rubella and case reports of autism developing after viral infections suggest that in some instances viral infection could be causal for autistic-like behaviors. However, many of these cases are atypical as they are associated with additional deficits. The mechanism(s) whereby acute or chronic viral infections could lead to autism are speculative. Perhaps cytokines play a role, as their production is increased during immune activation, and they have profound effects on brain function and neurodevelopment. Evidence for increased cytokine production exists in autistic subjects. Given the tropism of many viruses to brain regions putatively involved in regulating autistic behavior, viral encephalitis could result in direct destruction of brain cells leading to autistic behavior. Another possibility is that infection triggers a pathological autoimmune response. Increased autoantibodies to brain proteins and evidence of immune activation have been observed in autistic subjects. The HLA and family autoimmune history studies previously mentioned[47] also support this theory, which has been reviewed in greater detail by others. The possibility also exists that a mother's immune system could attack a developing fetus and cause abnormal neurodevelopment. In support of this theory, a study found that mothers of autistic children had increased antibody reactivity to lymphocytes of their autistic children; another study detected serum antibodies in the mother of an autistic child that bound to rodent Purkinje cells and other neurons. When this mother's serum was injected into pregnant mice, offspring had altered exploration and motor coordination along with changes in cerebellar magnetic resonance spectroscopy

compared to controls. Various studies have suggested that an inflamed or dysfunctional intestine due to chronic measles infection could play a part in behavioral changes in some children by allowing incomplete breakdown and excessive absorption of opioid-like peptides from food. These peptides would either exert direct effects on brain opioid receptors or alter the function of endogenous opioids by interfering with peptidases required for endogenous opioid breakdown. It is unclear how these food-derived peptides would cross the BBB.

Viruses have long been suspected as microbial triggers for immune-mediated diseases such as multiple sclerosis (MS) and inflammatory bowel disease. However, showing a direct role for viral causation in these and related disease states has proved to be difficult. Generations of researchers have implicated over 20 different viruses as causative agents in MS. Patients with MS produce elevated levels of antibodies to viruses such as measles human herpesvirus 6 and Epstein-Barr virus[48] Evidence exists for the presence of various viruses in MS plaques, and a mouse model of viral infection with Theiler's murine encephalomyelitis virus is extensively used as a paradigm for MS.[49] Yet, definitive evidence that viruses trigger MS does not exist, but association with virus infections remain. For inflammatory bowel disease, such as Crohn's disease and ulcerative colitis, a similar scenario exists.

Numerous viruses and other pathogens have been implicated in its pathogenesis, yet proof of causationis lacking. A relevant example of this involves the detection of measles virus in patients with inflammatory bowel disease. The same research groups that found evidence of measles virus infection in PBMCs and intestines of autistic subjects have also detected measles virus in PBMCs and intestinal tissue of subjects with inflammatory bowel disease[45] However, numerous groups have not been able to replicate these findings .The role of measles and MMR vaccination in triggering autism remains controversial despite a large body of epidemiological evidence that does not lend support to this theory. Given that the studies supporting the role for measles/MMR in autism are biological in nature, further investigation using similar biological techniques in independent laboratories is needed to ultimately clarify this controversial issue.

Further investigations could also examine brain tissue or cerebral spinal fluid for evidence of viral infection; and in addition, epidemiological studies could be employed to determine the co-occurrence of congenital or perinatal infections and autism. If research can consistently show evidence of viral infection in a subgroup of subjects with autism, the daunting task would still remain to determine what role, if any, the virus (es) might play in creating autistic behavior.

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Psychophysiotherapy

Performance Enhancing Drug Abuse in Athletes and Role of Physiotherapy

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The integrity of sport is predicated on the assumption that all athletes compete on a level playing field. Unfortunately, the use and abuse of performance-enhancing drugs (PEDs) has become ubiquitous, creating complex challenges for the governing bodies of individual sports.[1]

It is an unacceptable, illegal part of sports because of their adverse effects and performance enhancing actions; moreover, several prohibited drugs may have very high potential for addiction and abuse. These drugs help in increasing muscle mass, strength, and resistance to fatigue, but the utmost advantage of these drugs is their effect on the central nervous system, which makes athletes more aggressive in training and in competition.[2]

Several psychological and social support factors may contribute to the athletes' probability to engage in drug abuse. These factors include a desire to enhance performance, high perception of ego involving climate, criticism by coach, concern of athletes on their own mistakes, athletes' personal standard, lack of self confidence, low social support, as well as high task and ego orientations. Many athletes through self reported measures revealed that they can improve their performance by engaging in drug abuse in relatively short span of time instead of adapting to advanced techniques. General psychology of the athletes is that in their sports only performance matters, no matter how they achieve it.[3]

Performance-Enhancing Drugs

There are several types of performance-enhancing drugs: Anabolic steroids, Stimulants, Human growth hormone and Supplements.

- Anabolic steroids are synthetic substances that stimulate proteins that help build non-fat muscle mass, helping an athlete become stronger and able to train and play for longer periods of time.
- Tetrahydrogestrinone, also called "THG" or "The Clear," is the type of steroid purportedly used by many high-profile athletes.
- Stimulants help boost an athlete's energy level, helpful after strenuous training. Amphetamines are a type of stimulant.
- Human growth hormone (HGH), is available only by prescription and is administered by injection. Athletes take it for improved endurance and strength.
- Androstenedione, known as "andro," was formerly an over-the counter supplement but was banned by the National Football League (NFL), Olympics, Natiobnal Collegiate Athletic Association (NCAA) and later the Major League Baseball (MLB). It helps the body process testosterone.

The World Anti-Doping Agency (WADA) strictly regulates the use of pharmaceutical products in competitive sport. WADA produced and regularly updates the World Anti-Doping Code that includes a prohibited drug list. A substance is added to the list if it meets two of the three criteria listed below.[4]

1) The potential for enhanced performance
2) The potential for being detrimental to health
3) Violation of spirit of sport

Substances banned by WADA

1) Anabolic steroids including THG

2) Hormones including
   a) Erythropoietin (EPO)
   b) Human Growth Hormone (hGH)
   c) Insulin-like Growth Factor (IGF-1)
   d) Human Chorionic Gonadotrophin (HCG)
   e) Adrenocorticotrophic Hormone (ACTH)
   3) Beta-2-Agonists
4) Hormone Antagonists and Modulators
5) Diuretics

Reasons for taking PEDs by Athletes

Athletic life may lead to drug abuse for a number of reasons, including for performance enhancement, to self-treat otherwise untreated mental illness, and to deal with stressors, such as pressure to perform, injuries, physical pain.[5]

In a bid to improve performance and/or aid recovery, various pharmaceutical products have been used, both openly (legally) and in a clandestine manner against the rules of governing bodies, by a broad array of athletes.[6]

Additionally, athletes may be significantly less likely to receive treatment for underlying mental illnesses such as depression. Athletes receive comprehensive treatment and rehabilitation for physical injuries, but this may be less often the case for mental illness, because of their viewing that mental illness as a sign of weakness. Untreated mental illness is often associated with substance use, perhaps in an effort to self-treat.[5,7]

Individual mindset of the athlete plays a important role here. It is hypothesized that athletes' motivation to engage in, or refrain from prohibited PED practices is assumed to be influenced by the magnitude and dynamics of positive and negative expectancies and their developmental pathways. Individual differences between athletes and intrapersonal fluctuations across developmental stages are explained by the changes in the PE expectancy construct, which may serve as an effective starting point for anti-doping interventions.[7]

Some researchers[8] have found cardiovascular complications with steroid use. Hartgens et al reported that steroid use was associated not only with decreased HDL but also with increased LDL cholesterol. Other possible cardiovascular complications include cardiomyopathies, atrial fibrillation, embolism development and acute heart failure. Steroid use also reduces natural production of testosterone, which can lead to the onset of testicular atrophy and decreased spermatogenesis.[9]

Some studies found increased systolic blood pressure, frontal alopecia, acne and psycholo-gical problems, including increased aggression and irritability—commonly called "'road rage" associated with use of PEDs.[9,10]

Treatment / Coping with PED abusing athletes

Prevention and Education

The first level of addressing the problem of drug abuse by athletes is prevention. WADA has channeled a understanding and knowledge into what is known as the Athlete Learning Program about Health & Anti-Doping (ALPHA) which adopts a fresh approach to anti-doping education by addressing how an athlete's attitudes shape his or her intentions, and ultimately determine doping or anti-doping behaviors.

ALPHA approaches doping issues from a positive mindset. Instead of telling athletes 'Don't do this or that,' which can come across as negative and daunting, ALPHA provides athletes with 'solutions'.[4]

Potential side effects associated with Performance Enhancing Drugs [8]

Substance	Potential side effects
Androgens (eg, testosterone, danazol, nandrolone, stanozolol)	• Reproductive: diminished spermatogenesis and gynecomastia in men, decreased fertility, decreased testicular size, possible benign prostatic hypertrophy or prostate cancer • Cardiovascular: decreased high-density lipoprotein cholesterol, increased low-density lipoprotein cholesterol • Hepatic: hepatotoxicity • Neuropsychiatric: depression, mania, psychosis, aggression • Other: hastened epiphyseal closure in adolescents, acne, hirsutism, temporal hair recession, clitoromegaly, voice deepening, and oligomenorrhea/amenorrhea in women, infections (abscesses at injection sites, septic arthritis, and hepatitis/human immunodeficiency virus from sharing needles), tendon rupture
Growth hormone and growth factors (eg, insulin-like growth factor, insulin)	• Insulin resistance, hyperglycemia, diabetes mellitus, cardiomegaly, hastened epiphyseal closure in adolescents, myopathy, hypertension, edema, carpal tunnel syndrome
Stimulants (eg, amphetamine, D-methamphetamine, methylphenidate, ephedrine, pseudoephedrine, caffeine, cocaine)	• Hypertension, tachycardia, myocardial infarction, stroke, heat stroke, weight loss, rhabdomyolysis, headache, nausea, tremor, insomnia, anxiety/panic attacks, agitation, aggression, psychosis
Other recreational drugs	• Alcohol: sedation, decreased concentration and coordination • Cannabinoids: reduced alertness, impaired short-term memory, psychomotor retardation, dysphoria, anxiety, psychosis • Narcotics: physical dependence, nausea/vomiting, constipation, decreased concentration and coordination, fatigue • Nicotine: chronic use associated with cardiovascular disease, chronic obstructive lung disease, and many types of cancer
Beta agonists (eg, albuterol, formoterol, salmeterol)	• Tachycardia, arrhythmias, hypokalemia, hyperglycemia, tremor
Other prescription drugs	• Diuretics and other masking agents: dizziness, muscle cramps, rash, gout, renal insufficiency, electrolyte imbalances, gynecomastia (spironolactone)

Psychological Counseling

Psychological factors are very important in player's decision towards using banned substances, so proper counseling of athletes by sports psychologist is much required. During counseling, social support factors should also be considered. Motivational interviewing approaches have been suggested for athletes with drug abuse or doping problems, since athletes may often present in the pre contemplation stage of change.

Important elements of motivational interviewing include:

1. Clinician empathy
2. Developing discrepancies between where the athlete wants to go in life after sport and the impact that continued use of the substance might have on those goals. This helps to clarify conflict among their values, motives, interest, and behaviors.
3. Rolling with resistance. When resistance inevitably occurs, providers should avoid arguing with athletes, as that can exacerbate resistance to change. The provider may "agree to disagree" on certain points with some athletes.
4. Encouragement of self-efficacy. Athletes may need to shift their viewpoint from one of being willing to do whatever it takes to win, to acknowledging that they would use PEDs only if ultimately incapable of succeeding without them (with the hope that athletes will never get to that point). Any underlying mental illness should be treated.[5]

Role of Physiotherapy

Physiotherapist has a role at two stages. First in prevention of PEDs abuse i.e. by improving athletic performance, so that the athletes do not indulge in practice of PEDs. And the second at the level when the athlete has started with PEDs.

Performance enhancement does not come with a short cut, but if athletes take this course of doping they may end up with jeopardizing their health. So, to save athletes from ruining their health and future of sports by using these substances they should be encouraged to learn new skills and techniques to enhance performance which can be achieved with the help of a Physiotherapist.

The Physiotherapist will:

i. Be familiar with current anti-doping policies (including the current list of banned substances) and the rules of the WADC (World Anti-Doping Code).
ii. Not engage in any activity that encourages or enables the use or administration of any prohibited substance or doping method (as defined by the World Anti-Doping Code) unless an athlete has a current therapeutic Use Exemption (TUE).
iii. Cooperate fully with the athlete testing programme and not impede doping control officials, or encourage/assist athletes to impede or evade doping control procedures and processes. Discourage the potential use of banned performance enhancing substances and banned doping methods.[11,12]

- According to Breaking the Cycles,[3] a website dedicated to substance abuse and recovery education, physical therapy can help an individual with a full recovery and help prevent relapse. The benefits of physical therapy include:
- Improved self-confidence. Using exercise as a means of therapy can help a person feel and grow stronger. Lack of confidence in oneself can be a contributing factor to relapse, so fostering positive self-image can help a person make better decisions in the future.
- Improved physical appearance. A more healthy physical appearance correlates to higher levels of confidence. It also may help to mend some of the surface damage that can happen to a body as a result of drug or alcohol use.
- Pain relief. The American Physical Therapy Association identifies the use of physical therapy to assist with chronic pains. Exercise can help decrease pain levels and increase one's mobility.
- Fills void left over from drugs. When a person is recovering from drugs or alcohol, there is often the feeling of a void or hole where that substance used to be. Physical therapy can help to refocus a person on committing to a healthy lifestyle through exercise.

Role of Exercise

1. Positive Stimulation: Exercise produces endorphins that stimulate the body in a positive way. It helps patients in dealing with depression, and it can also help recovering addicts for the same reason.
2. Muscle Strengthening – Exercise helps muscles to gain mass and become stronger. So, it helps to enhance performance of athlete thus helping them to avoid PEDs.
3. Disease Prevention – Drug addiction can lead to symptoms such as fibromyalgia and arthritis. Physical therapy can help strengthen a patient's body and reverse some of the debilitating effects.
4. Promoting a Healthy Lifestyle – Restorative physical therapy helps recovering addicts learn how to lead a healthy lifestyle that includes mindful habits and physical fitness. Moreover, the level of physical fitness is correlated negatively with depression, anxiety and self centeredness and correlated positively with self satisfaction and social adjustments.[11,13]

Training principles to improve athlete performance

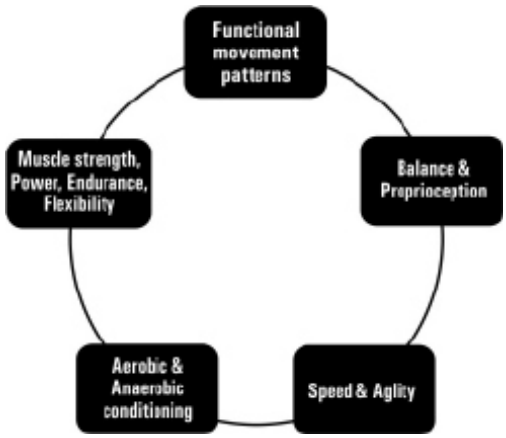
The following training principles should be kept in mind while helping an athlete improve his performance:

1) *Specificity Principle:* This asserts that the best way to develop physical fitness for your sport is to train the energy systems and muscles as closely as possible to the way

they are used in your sport.

2) *Overload Principle:* It states that to improve their fitness levels, athletes must do more than what their bodies are used to doing. When more is demanded, within reason, the body adapts to the increased demand.
3) *Progression Principle:* To steadily improve the fitness levels of athletes, physical demands to overload their systems must also be increased continuously.
4) *Diminishing Returns Principle:* When unfit athletes begin a training regime, their fitness levels improve rapidly, but as they become fitter, the diminishing returns principle becomes law. That is, as athletes become fitter, the amount of improvement is less as they approach their genetic limits.
5) *Variation Principle:* After athletes have been trained hard for several days, they should be trained lightly to give their bodies a chance to recover. This principle also means that exercises or activities should be changed regularly so that a part of the body is not overstressed.
6) *Reversibility Principle:* When athletes stop training, their hard-won fitness gains disappear, usually faster than they were gained. It is better to maintain a moderately high level of fitness year-round than detraining at the end of the season and then retraining at the beginning of the next.
7) *Individual Differences Principle:* Every athlete is different and responds differently to the same training activities. Factors that affect how athletes respond to training include their pre-training condition; genetic predisposition; gender and race; diet and sleep; environmental factors such as heat, cold, and humidity; and of course motivation.
8) *Moderation Principle:* All things in moderation. Make training fun. Design games and activities that challenge athletes to do the same work but without the drudgery of monotonous exercises. Be encouraging and promote a positive attitude about training.

Based on these above mentioned eight principles, the Physiotherapist can make an Exercise Regime for the athlete based on his individual requirements.



Your Physical Process

The pyramid represents the physical process that the athlete must go through to enhance his performance and reach his/her full potential.

Conclusion

Drug abuse in athletes is a significant problem that has many potential underlying causes. Trainers, coaches, Psychiatrists, Psychologists and Physiotherapists should provide evidence-based, safe alternatives to PED use, including optimal nutrition, weight-training strategies, and psychological approaches to improve performance, all of which may help with athletes' confidence in their natural abilities.

Moreover, they should guide athletes towards a positive approach to encounter the pressure of any competition. Emphasis should be given on sports participation and coaches should praise athletes for their effort whether they win or lose, never criticize them for their mistake but try to motivate them to learn from their mistakes.

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Commentary

Express the Anger and Control Wrath with Mental Health: An Overview

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Introduction

Forgiveness is an important component of well-being indicating that forgiveness has been linked to decrease in negative affect like anger, depression, and anxiety [1-4] as well as to increase in physical health [4,5] but many times anger do not let us to forgive others.

Stories, myths, and religious beliefs reveal the powerful role that anger has played in human affairs since the beginning of recorded history. The role of anger in motivating collective action in, e.g., the feminist movement, has also been described [6] According to American presidential folklore, Abraham Lincoln's hatred of slavery and anger at slave owners was part of his motivation for the American Civil War and for his emancipation of the slaves[7].

Anger has become the forgotten emotion, although all of us experience this negative emotion now and then, but some people continually live with anger and a common question we all have is "Why do I get angry in the first place?" The simplest answer is: "We get angry because we are human beings".

Anger is an important emotion that has profound health consequences and is based on a complexly organized neural circuitry. Some theorists believe that anger is a maladaptive attempt at coping with a stressful environment, resulting in greater conflict and personal discomfort.[8,9] Anger as an emotion existing in the human soul, has a useful aim for man and can be a counterbalance to cowardice if he uses it in a correct way. Anger is one of the most frequently experienced emotions and its source and expression has been examined from multiple theorists and perspectives.[10,11] According to Nelson, Finch, and Ghee, anger is defined as an "internal experience of a private, subjective event (i.e., emotion) that has cognitive (e.g., thoughts, self-statements, private speech, images, attributions), and physiological components".[12] In addition, anger has been described as a "complex psychophysical phenomenon with wide-ranging implications for physical, mental, and social wellbeing"[13] and should be viewed from a social, cultural context.[14] Anger is a normal human emotion. A natural emotion often underlies aggression.[15] Novaco summarizes the relationship between anger and aggressive behavior by stating that anger "is a significant activator of and has a mutually influenced relationship with aggression, but it is neither necessary nor sufficient for aggression to occur"[16] Anger has been shown to affect individuals behavior in a wide range of domains from anger to violence there are different type of concepts such as state anger, trait anger[17] and aggressive behavior and violent behavior and antisocial behavior,[18] Criminal behavior,[19,20] delinquent behavior.[20] There is evidence that anger problems frequently exist in individuals without symptoms of anxiety or depression. Fava, Anderson, and Rosenbaum describe "anger attacks," which refer to brief periods of anger out of proportion to what is considered appropriate in the situation and accompanied by a feeling of being out of control.[21,22] Hostile and reactive aggressive behaviors are often accompanied by feelings of anger.[23] Anger is a complex emotion and occurs as a result of an interaction between one or more eliciting events, the individual's pre-anger state, appraisals of the

eliciting events, and available coping resources.[24] Anger is found to affect people's attention to and preference for information,[25] depth of processing, [26,27] endorsement of anger-framed appeals,[28] perceptions of risk[29-33] and social attributions[34,35] but scientists believe anger alone is not the problem, but problem is that people do not know how to deal with anger and they need learning healthy ways of dealing with anger helps people to look after their mental and physical health,[36] achieve goals, solve problems and nurture social relationships, has determined place to be appeared as Stearns notes in connection with Victorian emotion ology, and anger was not a permissible emotion in the homes.[37] Expression of Anger referred to the physiology, cognitions, emotions, and behaviors associated with the reactions of anger.[38] Anger management programs have focused primarily on skill acquisition training alone[39] resulting in poor generalizability and ineffectiveness in chronically angry or emotionally constricted subjects.[40] The term "Anger management" implies that the emotion itself should be contained. Perhaps a more accurate terminology would be "anger expression management". Anger management programs aim to reduce intense emotional responses to frustrating circumstances and control the physiological arousal that ensues.[41] The aim of this study is to introduce the way of dealing with anger and the question of this paper is how to deal with anger? What if the effect of anger on mental health? What is Islamic and other approach on this subject?

Anger in Different Culture and Religions:

It would also be inconsistent with cited by the World Health Organization that certain patterns of emotional disturbances, as they occur in mental and behavioral disorders, are found across many different cultures.[42] East Asians as agency appraisals are central in some emotional experiences, such as anger, differences in the prevalence of agency appraisals may be reflected in different patterns of emotions. As mentioned before, anger is more prevalent in American than Japanese culture.[43] Differences in the tendency of personal agency attribution form another potential explanation for these differences in anger prevalence, in addition to the explanation of different event ecologies. It is important to note that the modal level of emotions in one culture (anger in the US for example) may seem to be excessive, and therefore emotionally disturbed, from another culture's point of view.[44] In many preliterate, animist cultures, angry, malevolent spirits were (and are) believed to cause misfortune. Some were modeled on dangerous wildlife. In the pre-Hispanic American Southwest, where water was rare and precious, Pueblo Indians believed that intrusion into springs inhabited by horned serpent spirits would provoke these irascible entities into retaliation by drought or flood, a Buddhist believes is that anger is a form of suffering that arises from appraisals that one has been insulted, hurt, defeated, or robbed by another. It can be remedied by "binding the mind' to dismiss these thoughts[45]. In Korea, angry ghosts are not responsible for sickness and injury of individuals and households.[46] When the east coast of Sri Lanka becomes excessively hot, bringing drought and disease, the goddess Pattini must be angry.[47] Floods of China's Yellow River were attributed to the anger of the river god, Ho Po.[48] In Zoroastrianism, a religion dating at least to ninth/tenth century BCE, Aeshma (A¯ešma, he of the bloody mace) is the demon of wrath. In Hindu mythology, Manyu is one of the 12 aspects of Siva who was himself born of the anger of Brahma. In the Greek parsing of the varieties of anger, Nemesis was the goddess of righteous anger and divine retribution against those guilty of hubris, i.e., the fault of assuming god-like characteristics. The three female Erinyes, supernatural personifications of the vengeful anger of the dead, become the Roman Furies. Lyssa was the goddess of insane rage in the Greek pantheon; Ira is her Roman equivalent. The highland Maya of Mexico similarly maintain an ideal of cool individual non-reactivity and non-confrontational interpersonal relations based on the threat of "buried" anger of the "fevered heart".[49] In the ancient world, Zoroastrianism transformed earlier combat myths into a theology of eternal apocalyptic struggle between good and evil,[50] and ancient Judaism forged a confederacy under conditions of war.[51] Early Christianity had its martyrs, and the medieval Roman church, its crusades and inquisition. Anger in Catholicism is counted as one of the seven deadly sins. While Medieval Christianity vigorously denounced anger as one of the seven cardinal, or deadly sins, some Christian writers at times regarded the anger caused by injustice as having some value.[52] Joseph F.D. in the Catholic Encyclopedia defines

anger as "the desire of vengeance" and states that a reasonable vengeance and passion is ethical and praiseworthy. Vengeance is sinful when it exceeds its limits in which case it becomes opposed to justice and charity.[53] Specifically, a research by Jones, Peacock, and Christopher found that although African American adolescents may lack some of the skill needed for coping and expressing anger, they often report knowledge of acceptable expressions of anger such as "talking to someone, physical activity, and talking to the person who made them angry".[54] Research by Gross and John found that individuals who utilize suppression, as an emotion regulation strategy, experience and express lesser positive emotion and experience greater negative emotion, and is associated with worse interpersonal functioning and related negatively to well-being.[55] Research confirms what we easily observe — that Jewish parents strongly encourage verbal and intellectual achievement. The expression of pain and anger is particularly valued in Jewish families.[56] There are cultural differences in the prevalent, model, and normative emotional responses.[57] This has important implications for the assessment of emotional disturbances. Emotional disturbances have been defined as "'excesses' in emotions, 'deficits' in emotions, or the lack of coherence in emotional components".[58]

Anger in Islam

Anger in Islam is so concentrated. Great leaders in Islam focus on anger. They recommended Moslems to control themselves and emphasizes on self-control which is a branch of "Kazme gheyz" (Control Wrath). The Prophet once asked his Companions, "Whom among you do you consider a strong man?" They replied, "The one who can defeat so-and-so in a wrestling contest." He said, "That is not so; a strong man is the one who can control himself when he is angry".[59] Imam Ali (a) said: The most powerful person is the one who is victorious over his anger with his forbearance.[60] Imam Jafar- Sadiq (a) said: "Anger is the key (that opens the door) to all kinds of vices". It is narrated

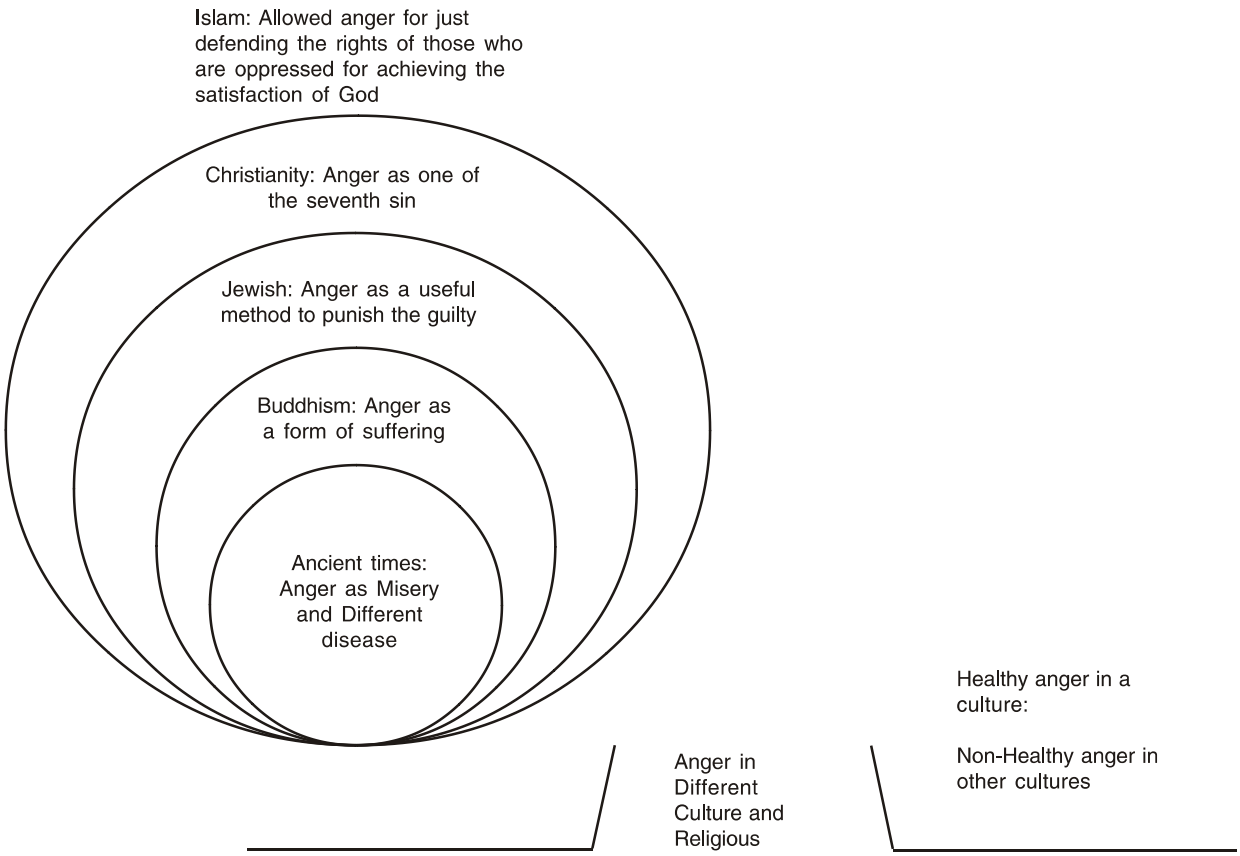

Figure1. Anger in Different Culture and Religions

from Imam Sadiq (a) that he heard his father Imam Baqir (a), as saying: "A Bedouin came to the Prophet (s) and said: 'I live in the desert. Teach me the essence of wisdom.' Thereupon the Prophet(s) said to him: 'I command you not to get angry'. After repeating his question thrice (and hearing the same reply from the Prophet every time) the Bedouin said to himself: 'After this I will not ask any question, since the Apostle of God (s) does not command anything but good'." Imam Sadiq (a) says: "My father used to say, `Is there anything more violent than anger? Verily, a man gets angry and kills someone whose blood has been forbidden by God, or slanders a married woman. Imam Al Baqir (a) said: Indeed, this anger is a spark lit by Satan in the heart of the son of Adam.[61] Imam Ali (a) said: Protect yourself from anger for its beginning is insanity and its end is remorse.[62] Imam Jafar al-Sadiq (a) said: One who retains his anger (towards someone), God will cover his secrets.[63] There are advices to cure anger as Imam Jafar al-Sadiq (a) said: A believer is the person who when angered, his anger does not lead him away from that which is true.[61] Anger is a destructive emotion, as a fire which destroys our well-being, consumes our good actions, repels our friends and dear ones, frightens our children and forces the angels to report bad actions for the Heavenly Records. Prophet Muhammad said(s) "Whoever curbs his anger, while being able to act, Allah will fill his heart with certainty of faith."Imam Musa Kazim is one who is leader of dealing with anger in Islam. We told him Kazim as he is so powerful in controlling his anger. He believes Anger is the key to any evil. There are some sayings from him on anger as be cautious! Never at all be arrogant, for, the one who has a Misqal (unit of quantity) smallest amount of arrogance in his heart, will not enter the paradise. The affliction is one for the patient and is two for the impatient. Patience for solitudes is the sign of mind's power, whoever by the Exalted Glorious God uses his reasoning isolates from the people of this world and its lovers, and desires what is with God; God is his companion in horror, friend in loneliness, wealth in poverty, and honour when have no family or tribe Kindness and love to people is half of wisdom. Have patience in obeying and in not disobeying God because this world is only a short period of time, you do not feel the happiness and sorrow of what has passed and don't know of what didn't come yet. Therefore, have patience for that are in now as if you were happy.[64]

Anger and mental health

The basis for the pre-anger state as well as the basis of an angry response is often entrenched in personal identity, frequently represents consequences of traumatic life history, and can be associated with both Axis I and Axis II disorders[65] Aristotle's association of anger with heating of the blood around the heart[66] An extreme form of this idea is that anger, and even rage, is a "demonic" of pure and beneficial creative energy which will engender psychological and social disorder if chronically suppressed.[67] Given the impact of immigration-related stressors on levels of violence,[68] this study included assessments of (marital and occupational/ economic) stress. Barrett et al., examined the mental health correlates of anger in the general population using data collected as part of the 2007 Australian National Survey of Mental Health and Wellbeing. They understood anger can have extremely maladaptive effects on behavior and can lead to serious consequences for the individual and for the community. Findings of the their study denote the importance of assessing anger symptoms among individuals presenting with these common mental health disorders such as anger can have extremely maladaptive effects on behavior and can lead to serious consequences for the individual and for the community.[69] Often it may be difficult to distinguish among depression, anxiety, and anger because they are frequently comorbid disorders.[70,71] Research shows anger is accompa-nied by some mental health disorder such as major depressive disorder,[72] bipolar disorder[73] and suicide ideation.[74]

Anger and its impacts on different groups

Emotional regulation refers to "monitoring, evaluating and modifying" emotions[75] and can be further divided and classified into the internal regulation of emotional experiences or the regulation of the external expression of emotion.[76] Emotional competence overlaps somewhat with emotional regulation in that it refers to a set of skills that include emotion appraisal, expression and understanding.[77,78] Many researchers and clinicians have focused on illness mental behavior[79] such as aggressive, anger, violence or etc. Medical literature also suffers from the same confusion of terms.[80-83] Girls and boys are

identified as aggressive with almost equal frequency when both overt and relational aggression behaviors are assessed.[84-86] The ability to manage one's emotions through emotional regulation strategies is "central to the socialization process and its outcomes".[75] The lack of emotional regulation strategies have been linked to increased risk for non-suicidal self-injury and related to disordered eating.[87,88] Ellis and Dryden emphasize "appropriate" anger which motivates rational problem solving vs. "inappropriate" anger which engenders irrational thinking. Individuals who utilize suppression, as an emotion regulation strategy, experience and express lesser positive emotion and experience greater negative emotion, and is associated with worse interpersonal functioning and related negatively to well-being.[89] Anderson and Bushman articulate a description of five of the theoretical ways in which anger is causally related to aggression. First, they assert that anger provides justification for retaliatory aggression. Second, anger informs people about the origins, responsibility, and possible ways to respond to anger-inducing events. Third, anger increases the level of psychological and physiological arousal. Fourth, and related to increased arousal, anger primes aggressive thoughts. Finally, anger feeds aggressive goals thus allowing for the perpetuation and often the inflation of these goals over time.[90] The precise prevalence of anger related problems is unknown, however, in a large epidemiological study, about 15% of individuals reported extremely high hostility scores[91]. There is a strong connection between observed aggressive parenting and subsequent aggressive parenting in the offspring generation, which seems to suggest that anger/aggression is passed on via parenting styles from one generation to the next.[92] This finding is consistent with the observation that hostility aggregates in families.[93] Both negative life events and lack of social support were associated with higher hostility scores.[94] Recent research addressing anger as a function of relative social status[95] indicates that angry people will approach and confront subordinates, but retreat from and avoid superiors.[96,97] The scientists have proposed criteria for an anger/hostility disorder and also a research agenda that could establish its validity.[98] However, anger can be dysfunctional independently of aggressive behavior.[99-102] Higher levels of trait anger have been reported in younger individuals, and in males.[103] Ekman et al[104] and Levenson et al[105,106] found consistently that American men and women, young and old, exhibit the same responses when in intense emotional states means that everybody in different ages needs to learn how to deal with anger. Gender differences in aggressive behavior have been frequently reported in the literature, and the general view is that men are more aggressive than women. Indeed, men show higher levels of direct and physical aggressive behaviors than women.[107-109] Multivariate analysis in women revealed that 25% of the variance of improper health maintenance behavior was accounted for by hostility, low education, and the combination of high anger experience and outward expression of anger[110] High-anger arousal subjects were found to score lower on socialization, self-control, tolerance, psychological-mindedness, and flexibility.[111] Parrott and Giancola found in an experimental study that trait anger predicted aggressive behavior only in intoxicated participants with low levels of anger control[112]. Estimates of the incidence of clinical levels of childhood aggression indicate that at any given point in time, between 4% and 12 % of boys and between 2% and 7% of girls' exhibit significantly problematic aggressive behaviors[113] and emphasizing the impact of aggression in the lives of children and adolescents and those who interact with them.[114] Sukhodolsky, Golub and Cromwell[115] reported means by gender on the Anger Rumination Scale (ARS) and its associated subscales in a sample of college students. Somewhat in contrast to the hypothesis that men ruminate in response to anger more than women, men scored significantly higher than women on only the Thought Revenge factor of the ARS. As chronically angry people may become angry quicker and remain angry for longer periods of time. Hostility and anger are significant predictors of coronary heart disease and poor health[21] such as higher systolic blood pressures[116,117] and cancer.[118]

Dealing with anger is so important and different therapies are concentrated.[119] Some researchers suggested techniques which are effective to treat angry patients.[120-122] Recent conceptualizations have focused on anger as an adaptive mechanism for dealing with obstructed goals and perceived threats,[119,123,124] with healthy anger being differen-

tiated from unhealthy anger in terms of how successfully the emotion serves the basic needs of the person.[125] Despite the apparent connection between self-control and aggressive behavior demonstrated by prior research[126-129] the effect of self-control on angry behavior other than overt aggression has not been examined.

Many studies have been conducted to determine the most effective approach to intervention in dealing with anger.[130-139] Teach people how to deal with anger is so useful on decreasing the amount of violence.[140,141] Different effective kinds of therapy is existed such as cognitive-behavioral group.[142] Relationships between forgiveness, anger, and the outcomes effects of emotional support (e.g., emotion regulation) continue to be examined[143] but definitely the effects of increasing personal resources[144-146] and curbing angry in Islam is confirmed.

Conclusion

Living with anger can be stressful. Being patience and dealing with anger appropriately especially from the childhood time help people to be healthier and happier. Generally, we can say that we may become angry or frustrated whenever we are not able to achieve a goal that we expect. Life for all persons is full of frustrations from minor irritations to something really big. When we use our frustration and anger to motivate us to change something in our life, anger and frustration end up being good and helpful. But for many people anger and frustration result in irritability, rage, wrath, stress, resentment, loss of confidence, depression and other negative behaviors. If parents 'method in educating children be included educating patience, then we can believe that children can cope with their anger and their frustrate.in every culture and religion behave with anger and abnormal behavior is not true, and the angry person is not acceptable, in Islam, Christian, Hindu and all religion those people that management their anger and are patience, they are most powerful than others. And undoubtedly when we are calm, patience in front of anger, then we can manage the problems better than those are not, and make good results and benefit for our self, therefore we will be more satisfied and happy, and happy man and woman undoubtedly are more healthy. They less experience diseases and they have more mental health. Thus we can say controlling wrath is the best way for evolution of character that it lead to mental health and body health. As we can mention to prophet Mohammad (PBUH), who was sent to mankind to teach them good moral conduct, learned to control his anger toward the Unbelievers and teach them appropriate expressions. In addition Prophet Mohammad, many leaders in other religion and many researcher achieved to this result that the best way for personality development and improving mental health and body health is to control wrath.

Therefore the result of controlling wrath on human shows that in all educational system such as home, school and society the educating of control wrath' necessity and practice of this behavior is very important. This is important that these communities can create internal motivation within individuals. Because if internal motivation be create in individuals, then doing behavior more easily be created, and also according to psychologists' comments, every behavior with this model will be fixed in human.

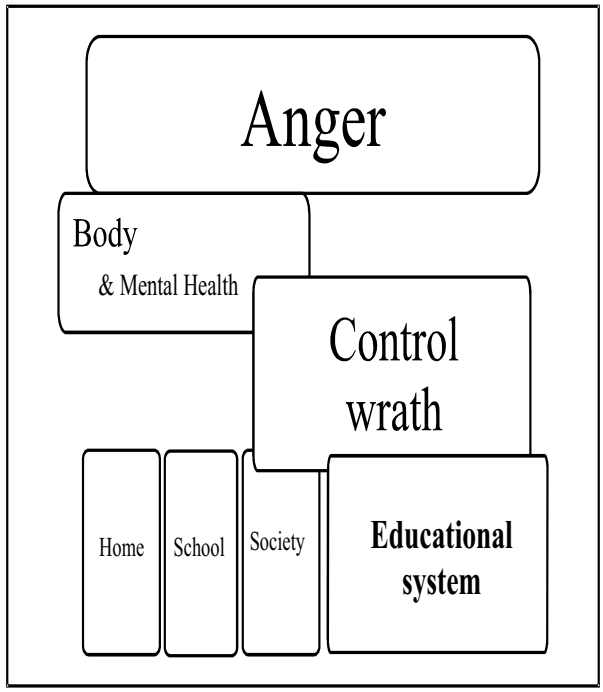

Figure-2: Conclusion

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Commentary

E-Cigarette in Tobacco Cessation – A misnomer

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Background

WHO Framework Convention On Tobacco Control (2013) reports that 63% of all deaths worldwide, are due to Non-communicable diseases (NCD), killing 36 million people each year.86% of premature deaths from NCD occurs in developing countries, tobacco being a significant contributor. One third of world population-2.3 billion people are covered by at-least one effective tobacco control measure, additional three billion are covered by national mass media campaign. Tobacco kills six million people and more than half a trillion dollar of economic damage each year. WHO Framework Convention of Tobacco Control recognizes the substantial harm caused by tobacco use and need to prevent it. Tobacco will kill one billion people in this century if not prevented. The Report focuses on enforcing ban on tobacco advertising, promotion and sponsorship.[1]

There are growing deleterious health concerns related to the use of smoked and smokeless products of tobacco.[2] *Electronic cigarettes(e-cigarettes)* is a new introduction in the recent years which claims to be less hazardous than the otherwise existing forms of tobacco. The liquid in e-cigarettes (commonly referred to as 'e-liquid' or 'e-juice') is formulated to contain a mixture of chemicals, nicotine in some products. Nicotine used for e-cigarettes can be chemically extracted from tobacco plants or tobacco dust.[3,4]

An e-cigarette generally contains a battery, an atomiser and a cartridge.[5] Typically, the cartridge is wrapped in a plastic bag.

The **sale of e-cigarettes has grown** world-wide in general population. Advertising claims on branded e cigarettes retail websites from United States show that Ninety-five percent of the websites made explicit or implicit health-related claims, 64% had a smoking cessation-related claim, 22% featured doctors, and 76% claimed that the product does not produce secondhand smoke. Comparisons to cigarettes included claims that e-cigarettes were cleaner (95%) and cheaper (93%).[6]

No studies formally evaluated the environmental impacts of the manufacturing process or disposal of components, including batteries. Some e-cigarette manufacturers claim their e-cigarettes are 'eco-friendly' or 'green', despite the lack of any supporting data or environmental impact studies as reviewed recently.[7]

In India, there is easy availability of e cigarettes from retailers and also online through several websites. They often attract the young population by advertisements promoting them to be smokeless and some sites even offering free trials.

Current Scientific evidence on electronic cigarettes

A recent study on 1074 participants included smokers (*patients with cancer)* who recently enrolled in a tobacco treatment program at a comprehensive cancer center found 3-fold increase in E-cigarette use was observed from 2012 to 2013. E-cigarette users were more nicotine dependent than nonusers, had more prior quit attempts, and were more likely to be diagnosed with thoracic and head or neck cancers. Using an intention-to-treat analysis, E-cigarette users were twice as likely to be smoking at the time of follow-up as nonusers.[8]

A recent review article reported *limited evidence for the effectiveness on the use of e-cigarettes on tobacco cessation* on compiling data from 1946 till March 2014.In small studies, e-cigarettes significantly decreased desire to smoke,

number of cigarettes smoked per day, and exhaled carbon monoxide levels. Symptoms of nicotine withdrawal and adverse effects were variable. The most common adverse effects were nausea, headache, cough, and mouth/throat irritation. Compared with nicotine patches, e-cigarettes were associated with fewer adverse effects and higher adherence. Most studies showed a significant decrease in cigarette use acutely; however, long-term cessation was not sustained at 6 months.[9]

A research article examined if e-cigarette liquid alters human young subject airway epithelial functions such as inflammatory response (IL-6) and host defense against respiratory viral (i.e., human rhinovirus, HRV) infection. The study found that nicotine-free e-liquid promoted IL-6 production and HRV infection. Addition of nicotine into e-liquid further amplified the effects of nicotine-free e-liquid.[10]

Glycerin (VG) and propylene glycol (PG) are the most common nicotine solvents used in e-cigarettes (ECs). It has been shown that at high temperatures both VG and PG undergo decomposition to low molecular carbonyl compounds, including the carcinogens formaldehyde and acetaldehyde. The authors after taking samples from commercially available e cigarettes found that vapors from *EC contain toxic and carcinogenic carbonyl compounds.* Both solvent and battery output voltage significantly affect levels of carbonyl compounds in EC vapors. High-voltage EC may expose users to high levels of carbonyl compounds.[11]

Another in vitro study demonstrated that menthol additives of e-smoking had harmful effects on human periodontal ligament fibroblasts.[12]

A small retrospective study indicates that regular use of e-cigs to substitute smoking is associated with objective and subjective improvements in *asthma* outcomes.[13]

A longitudinal study of electronic cigarette users based on internet survey from 2011 to 2013 was done to assess behavior change over 12 months in users of e-cigarettes ("vapers"). The authors assessed use of e-cigarettes and tobacco among the same cohort at baseline, after one month (n=477) and one year (n=367).[14]

72% were former smokers, and 76% were using e-cigarettes daily. At baseline, current users had been using e-cigarettes for 3 months, took 150 puffs/day on their e-cigarette and used refill liquids containing 16 mg/ml of nicotine, on average. Almost all the daily vapers at baseline were still vaping daily after one month (98%) and one year (89%). In daily vapers, the number of puffs/day on e-cigarettes remained unchanged between baseline and one year. In dual users who were still smoking at follow-up, cigarette consumption decreased by 5.3 cig/day after one month (from 11.3 to 6.0 cig./day, p=0.006), but remained unchanged between baseline and 1-year follow-up.[14]

Awareness and determinants of electronic cigarette use among Finnish adolescents in 2013 in population-based National survey of 12–18-year-old Finnish adolescents in 2013 (N=3535, response rate 38%).Of the respondents, 85.3% knew what e cigarettes were; 17.4% had tried them. E-liquids with nicotine were used most often (65.7%); also those who had never tried conventional cigarettes had used them. Of e-cigarette ever users, 8.3% had never tried smoking. Parents' high level of education, being in employment, and intact family protected against children's e-cigarette use. Daily smoking, snus use, water pipe use, children's vocational education and poor school performance were associated with e-cigarette experimentation. Those smokers with most experience of e-cigarettes were least likely to consider smoking cessation.[15]

A randomized controlled trial (RCT) carried out in New Zealand, between 2011 and 2013 randomized 657 people (289 to nicotine e – cigarettes,295 to patches, and 73 to placebo e-cigarettes).At six months, abstinence was 7.3% with nicotine e – cigarettes,5.8% with patches, and 4.1% with placebo e-cigarettes, no superiority observed, no significant adverse events.[16]

A U.S. population survey with a national probability sample (n=10,041) was used to assess ever use and current use of regular cigarettes, e-cigarettes, and U.S. Food and Drug Administration-approved pharmacotherapy for smoking cessation. Individuals with Mental Health Conditions (MHC) were more likely to have tried e-cigarettes (14.8%) and to be current users of e-cigarettes (3.1%) than those without MHC . Ever smokers with MHC were also more likely to have tried approved pharmacotherapy and to be currently using these products (9.9% vs. 3.5%, p<0.01) than those without MHC. Additionally, current smokers with MHC were

more susceptible to future use of e-cigarettes than smokers without MHC.[17]

In a prospective twelve month study on schizophrenic smokers, 50% reduction in the number of cig/day at week-52 was shown in 7/14 (50%) participants; their median of 30 cig/day decreasing significantly to 15 cig/day ($p = 0.018$). The use of e-cigarette substantially decreased cigarette consumption without causing significant side effects in chronic schizophrenic patients who smoke not intending to quit.[18]

A recent study provided the first evidence in a controlled setting that electronic cigarette exposure may evoke smoking urges in young adult daily smokers. Smoking desire and urge ratings were measured with visual analogue scale items for desire for a regular and an e-cigarette and the Brief Questionnaire of Smoking Urges.[19]

Because e-cigarettes lack many of the substances found in regular tobacco, they are often perceived as a safer smoking alternative, especially in high-risk situations such as pregnancy. However, studies suggest that it is exposure to nicotine that is most detrimental to prenatal development. The authors studied perceptions of tobacco and e-cigarette health risks using a multiple-choice survey. To study the perceived safety of e-cigarettes versus tobacco cigarettes, 184 modified Global Health Youth Surveys (WHO, http://www.who.int/tobacco/surveillance/gyts/en/) were completed electronically or on paper. Age range, smoking status, and perceptions about tobacco cigarettes and e-cigarettes were studied. The results verified that younger people use e-cigarettes more than older people. Tobacco cigarettes were perceived as more harmful than e-cigarettes to health in general, including lung cancer and pregnancy. Although more research is necessary, the authors postulate that the perception that e-cigarettes are safer during pregnancy may induce pregnant women to use these devices more freely. Given that nicotine is known to cause fetal harm, pregnant mothers who smoke e-cigarettes could cause even greater harm to the fetus because e-cigarettes are perceived as being safer than tobacco cigarettes.[20]

A review of Forty-four articles about the effects of e-cigarettes on human health showed that E-cigarette aerosols may contain propylene glycol, glycerol, flavourings, other chemicals and, usually, nicotine. Aerosolised propylene glycol and glycerol produce mouth and throat irritation and dry cough. No data on the effects of flavouring inhalation were identified. Aerosol exposure may be associated with respiratory function impairment, and serum cotinine levels are similar to those in traditional cigarette smokers. The high nicotine concentrations of some products increase exposure risks for non-users, particularly children. The dangers of secondhand and third hand aerosol exposure have not been thoroughly evaluated.[21]

Impact of tobacco via movies in India

Smoking/tobacco use has increased significantly to 89% among all movies released in 2004 and 2005. The brand placement has been also increased nearly three folds. Tobacco brands now appear in 46% of movies having tobacco scenes. Cigarette companies have almost all the tobacco product placements with two companies accounting for over 90% of the brand visibility. 75% of movies having tobacco also showed the main/lead character consuming tobacco. The instances of females consuming tobacco in movies has also increased in India pointing towards a specific market expansion strategy by tobacco companies using movies as a vehicle.[22]

Influence of tobacco advertising from India

Tobacco companies target middle and low income countries. Exposure to tobacco advertisements and receptivity to tobacco marketing were related to increase tobacco use among students in a questionnaire based study on 6th to 8th standard students from 2 cities (n=11642) from 32 schools in 2004.[23]

Perceptions about plain tobacco packs

Plain packaging would reduce the appeal and promotional value of the tobacco pack (>80%), prevent initiation of tobacco use among children and youth (>60%), motivate tobacco users to quit (>80%), increase notice ability, and effectiveness of pictorial health warnings on tobacco packs (>90%), reduce tobacco usage (75% of key stakeholders) with 346 participants, Delhi.[24]

Promotion tactics of companies manufacturing e-cig

Health claims and smoking-cessation messages

that are unsupported by current scientific evidence are frequently used to sell e-cigarettes. The presence of doctors on websites, celebrity endorsements, and the use of characterizing flavors should be prohibited.

E – Cigarettes launched in India

Indian companies are witnessing loss in profits due to constant rise in prices of conventional cigarettes. They have started investments in E-cigarettes segment, will be rolled out pan-India in phases according to press release. The products are currently being manufactured in China.[25]

The main hurdle which is anticipated is that these new products are not subjected to regulations under the Cigarettes and Tobacco Products Act and can be consumed, marketed and sold like any consumer product.

Tobacco cessation and Total ban on e-cigarettes

WHO (2008) identified ***six evidence-based tobacco control measures*** that are effective in reducing tobacco use abbreviated as "**MPOWER"**.

M - Monitor tobacco use and prevention policies
P - Protect people from tobacco smoke
O - Offer help to quit tobacco use
W - Warn people about the dangers of tobacco use
E - Enforce bans on tobacco advertising , promotion and sponsorship
R - raise taxes on tobacco.

Tobacco cessation – Policies (WHO Framework Convention on Tobacco Control)

Robust supporting data and evidence, the WHO FCTC recognizes that meaningful tobacco control must include

- the elimination of all forms of tobacco advertising, promotion and sponsorship(TAPS).
- This goal is so critical that Article 13 (Tobacco advertising, promotion and sponsorship) is one of only two provisions in the treaty that includes a mandatory timeframe for implementation.

Tobacco cessation – Policies (WHO Framework Convention on Tobacco Control)

All Parties must implement a comprehensive TAPS ban (or restrictions in accordance with its constitution if a comprehensive ban would violate its constitutional principles) within five years after the entry into force of the treaty for that Party. The requirement includes domestic TAPS activities, as well as all cross-border TAPS activities that originate within a Party's territory.

India regulations

No brand names of tobacco products or tobacco product placement may be shown, close-ups of tobacco products and packaging are prohibited, and promotional materials such as movie posters may not depict tobacco use.

These rules also assign responsibility for implementation to cinema owners or managers and television broadcasters, with penalties for violations including suspension or cancellation of licenses.

National Tobacco Control Programme

- Government of India initiated the National Tobacco Control Programme in 2007–08 as the first national program for tobacco control.
- The program mandates implementation of different tobacco control initiatives at the national, state and district levels, encompassing law enforcement, awareness campaigns, training, and monitoring and evaluation, including surveillance.
- Another component of the program is to provide tobacco cessation services in the primary health care system.
- The district is the basic administrative unit for many public health services in the country and is responsible for the development of tobacco cessation services (with the state's technical support) in general hospitals, TB hospitals, regional cancer centres, teaching colleges and other institutions.[26]

275 million adults(15 years and above) use tobacco in India.[26] Global Adult Tobacco Survey,India,2009-2010 reports cross-sectional data having 25,175 ever tobacco users aged 21 years and above. Of the ever tobacco users, 10,513 (42%) made an attempt to quit, 4395(42%) were successful. Significant associations were demonstrated between male gender, increasing

educational attainment higher asset quintiles for both those who attempted to quit and those who were successful. Younger age groups had higher odds of quit attempts than all except the oldest age group, but also had the lowest odds of successful quitting.[27]

Obstacles removed if the will is strong both political, professional and public will should be strong to eradicate harmful tobacco use. Legal challenges have been used to obstruct and delay tobacco control measures by a decade in implementation of "The Cigarettes and Other Tobacco Products Act" in India.[28]

India according to WHO report, largest producer of movies, have taken action ton to reduce tobacco imagery in films and television. Regulations put into effect in 2011, 2012 now require films and television programmes depicting tobacco use to show a 30-second anti-tobacco spot at the beginning and middle, as well as a prominent static message at the bottom of the screen during scenes with tobacco use. New films and television programmes must justify depictions of tobacco use and include disclaimers at the beginning and middle of the film about the harmful effects of tobacco.

Government of India is considering a ban on the sale of electronic cigarettes. An expert panel on e-cigarettes constituted by the health ministry has recommended a blanket ban on the product, saying its safety has not been established.[29] Banning ECs seems to be the most plausible approach at present.[29] However, in the long run, India should be open to new research.[30]

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View Point

The Burning Issue of Sildenafil Misuse as Performance Enhancer: Time to Rethink

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Introduction

Sexual dysfunction, particularly erectile dysfunction in men is not rare. Under reporting is the major cause of its perceived uncommonness. Erectile dysfunction in medical literature has been reported since ancient times. In Indian literature (Ayurveda) it is depicted as *"Napunsakata"*. Description about the clinical manifestations and remedies has been described in literature since centuries. Despite being a centuries old problem or concern, the treatment outcome of erectile dysfunction was quite unsatisfactory till the discovery of Phosphodiesterase inhibitors (PDEIs)[1]. Discovery of phosphodiesterase inhibitors led to drastic change in the treatment of erectile dysfunction[1]. Due to its success in treatment of erectile dysfunction, it has gained popularity in clinical use, the downside of which is its over-prescription and abuse. Recognizing the abuse potential of phosphodiesterase type 5 inhibitors (PDE5), we aim to summarize the current knowledge about the growing abuse of this group of drugs.

Phosphodiesterase 5 Inhibitors (PDEIs) in the treatment of Erectile Dysfunction (ED)

Sildenafil was the first PDE-5 inhibitor launched in the late nineties and it brought about a revolution in the management of erectile dysfunction.The availability of sildenafil has changed the view of ED management, as well as increased patient access to disease management resources. Along with the more recently marketed tadalafil and vardenafil, sildenafil is now considered a first-line agent for treatment of ED, surpassing the use of older treatments such as intracavernosal or intraurethral prostaglandins and vacuum devices. Avanafilis the most recently launched PDE-5 inhibitor, a short acting and safer recommendation for treatment of erectile dysfunction.

Phosphodiesterase 5 Inhibitors and erectile response

Nitric oxide is released in the corpus cavernosum of the penis during sexual stimulation, which subsequently activates guanylate cyclase. This enzymatic activation results in increased concentrations of cyclic guanosine monophosphate (cGMP), the trigger for smooth muscle relaxation, which facilitates increased blood flow and thereby produces an erection. Sildenafil, tadalafil, and vardenafil potentiate this process by inhibiting PDE5, the substance responsible for degrading cGMP in the corpus cavernosum[2]. Because the drugs do not stimulate the cascade of events, but rather prevent a catabolic step, they have no inherent ability to produce an erection. Therefore, sexual stimulation is required for the medications to be effective[3]. All three agents have some effects on other phosphodiesteraseisoenzymes, including types 1 to 4 and 6.

Adverse effects

The most common adverse effects of sildenafil are headache (16%), flushing (10%), and dyspepsia (7%). Abnormal vision, including light sensitivity and color impairment, may be experienced by patients, particularly those receiving doses in excess of 100 mg.[4] Such experiences are due to sildenafil's weak inhibitory effect on PDE6. Prolonged erections, sometimes to the extent of at least 6 hours have also been reported. These adverse effects are similarly noted with tadalafil and vardenafil.

However, tadalafil's lesser affinity for PDE6 theoretically diminishes the likelihood of visual changes. This agent does, however, have increased affinity for PDE11, commonly found in skeletal muscle and other organs. Patient complaints of myalgia and back pain may be related to this mechanism.[5]

Inhibition of PDE5, present in blood vessels, produces hypotension.[4] Systolic and diastolic pressures may be diminished following sildenafil administration. The drug potentiates the decrease in blood pressure resulting from nitrates, and concurrent use with such agents is contraindicated. Caution should be exercised with concomitant administration of alpha-adrenergic receptor blockers. It is also contraindicated in men with underlying cardiovascular conditions that place them at risk if hypotension develops.

Misuse of PDEIs

Sildenafil is the most commonly used PDE-5 inhibitor and the most commonly misused PDE-5 inhibitor.[6] Heterosexuals as well as homosexual males and females misuse it for better for sexual performance.[6-8] Studies have reported the increased to misuse of unprescribed sildenafil for enhancing sexual performance among college going males, night clubbers and illicit drug users.[6-9] Due its extensive use by the club going people as a recreational agent, it has also earned itself the dubious status of a "club drug".[6] It is used along with different recreational agents like cocaine, amphetamine, marijuana, testosterone, steroids etc., which only further increases the risk of side effects.[6,10-12] These drugs of abuse often cause erectile dysfunction and sildenafil is often taken along with them to override this effect. Increasing access to these drugs via the internet may facilitate such misuse. Athletes also abuse sildenafil for enhancement of on-field performance as it is believed to increase the oxygen carrying as well as oxygen releasing processes in the body.

Consequences of misuse

Misuse of sildenafil can have many adverse consequences.There have been case reports of aortic dissection resulting from sildenafil misuse. One case report described a type B dissection after the use of cocaine and sildenafil and another aortic dissection in a patient who was using sildenafil without any prescriptions and with pre-existing heart disease.[13,14]

The concomitant use of sildenafil and club drugs poses risks of drug interactions and adverse effects not only to the individual user but also from a public health perspective. There is evidence that methamphetamine and sildenafil use are associated with sexual risk behaviour among men who have sex with men (MSM).[10] Most studies report frequent sildenafil use in high risk groups like men who have sex with men, and several showed independent associations between use of the drug and sexual risk behavior, as well as an increased risk for STDs, including incident HIV infection.[15] Potentially fatal drug-drug interactions between sildenafil and protease inhibitors have also been reported, with the latter agents inhibiting the metabolism of sildenafil and thereby increasing serum sildenafil concentrations and therefore the drug's potential for adverse effects.[16]

Management

Prevention is always better than cure. The misuse of sildenafil as a performance enhancer is mostly due to inadequate health information. Creating public awareness about the sexual health and addressing the sexual myths is of utmost importance. Attitude and knowledge about sexuality is poor in many people due to lack of proper platform for discussion. People get biased easily by advertisement, media, online available literature and traditional healers. It is high time to create public awareness, regulate the improper advertising, ovem the counter dispensing of drugs without prescription as well as to control the misuse of prescriptions.

In patients with signs and symptoms of excessive or toxic PDE5 inhibitor exposure, the primary management is to stabilize the patient, and to anticipate and minimize any adverse effects (e.g., hypotension).[3] If the ingestion was recent, gastrointestinal lavage may be of value; however, rapid absorption of the drug may preclude any benefits of this maneuver.[3] The administration of isotonic fluids may be required for hypotensive patients; those with cardiovascular compromise may require treatment with vasopressors (e.g.,

dopamine). Severe tachycardia with hemodynamic compromise or ischemia may necessitate the administration of short-acting cardio-selective beta-blockers (e.g., esmolol). Any previous pathophysiology and potential drug interactions should always be considered when treating such patients.[17]

Conclusion

PDE5 inhibitors may be misused for their perceived effects on sexual performance, as well as for the drugs' proven effects in erectile dysfunction. Such use may also occur with other drugs used in a recreational fashion, including a number of club drugs. Concomitant administration may place patients at greater risk for cardiovascular complications. Patients, as well as other health care professionals, should be educated about the potential and serious drug-drug interactions with PDE5 inhibitors, as well as the signs and symptoms of toxicity. Clinicians should also be aware of the potential ease with which some individuals may obtain the drugs without proper screening and evaluation. Larger-scale, well-controlled epidemiologic studies are required to further examine misuse patterns of all PDE5 inhibitors, and further mechanisms for preventive and educational efforts are needed.

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Drug Review

Levomilnacipran: New Entrant in the Fight Against Depression

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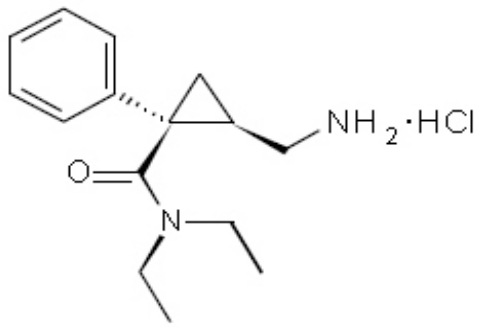
Introduction

Levomilnacipran is a new selective norepinephrine reuptake inhibitor (SNRI) approved by U.S. Food and Drug Administration (FDA) for the treatment of Major Depressive Disorder (MDD) in adults in July 2013.[1] It is pharmacologically more active enantiomer of the racemic mixture milnacipran.[2] Levomilnacipran is the most noradrenergically active of the SNRI class of drugs. The chemical structure is as follows:



The chemical name of levomilnacipran is (1*S*,2*R*)-2-(aminomethyl)-*N*,*N*-diethyl-1-phenylcyclopropanecarboxamide hydrochloride.[1]

Pharmacodynamics

Levimilnacipran's exact mechanism is unknown. Like other SNRIs, it is a potent and selective inhibitor of Norepinephrine (NE) and Serotonin (5-HT) reuptake in the central nervous system. Levomilnacipranhas higher selectivity for inhibiting the norepinephrine re-uptake relative to serotonin reuptake that makes it distinct from the other SNRIs like duloxetine, venlafaxine and desvenlafaxine which show greater preference for Serotonin reuptake inhibition.[3,4] In vitro studies show it has 2-fold preference for NE over 5-HT reuptake inhibition and it also lacks significant affinity for other receptors, ion channels and transporters.[3,4]

Pharmacokinetics

After oral administration, maximum concentration in plasma is reached in 6–8 hours. The apparent terminal elimination half life is approximately 12 hours which makes it suitable for once daily dosing. The oral bioavailability is around 92% and is not affected when given with food. It is 22% protein bound in plasma over the concentration range of 10 to 1000ng/mL. The steady state concentration of levomilnacipran is proportional to dose when administered within range of 25 to 300mg once daily and its mean apparent total clearance is 21 to 29 litres/hour.[1]

Levomilnacipran is widely distributed in the body and primarily metabolized by major enzyme P450 (CYP) 3A4 to pharmacologically inactive metabolites: desethyllevomilnacipran and p-hydroxy-levomilnacipran and undergoes further conjugation with glucuronide. Levomilnacipran and its metabolites are eliminated primarily via renal excretion.[1]

Efficacy/Clinical Results

Five short term randomized control trials (RCTs) (3 = fixed dose and 2 = flexible dose) were conducted to assess the efficacy of Levomilnacipran v/s Placebo with a primary outcome of change in Montgomery-Åsberg Depression Rating Scale (MADRAS) score from baseline to end of study and Hamilton Depression Rating Scale (HRDS – 17), Sheehan Disability Scale (SDS) and Clinical Global Impressions-improvement scale(CGI scale) as secondary efficacy measures (see Table -1).

Table 1: Completed Levominacipran randomized double blind controlled trials(RCTs) in the Major depressive disorder patients

Study	Phase	Length (weeks)	N randomized	Levomilnacipran dose (N)	NPlacebo	Comments regarding efficacy
Montgomery et al[5]	II	10	563	Flexible dose, 75 or 100 mg/day (282)	281	Levomilnacipran was more efficacious than placebo based upon change in MADRS, HDRS and SDS total scores.
Asnis et al[6]	III	8	724	Fixed dose, 40 (181), 80 (181), or 120 (183) mg/day	179	Based upon changes in MADRS total score, Levomilnacipran was found to be superior to placebo across all dose groups, while in 80-120 mg/day dose groups, its efficacy was established by change in HDRS and SDS total score.
Gommol et al[7]	III	8	362	Flexible dose, 40-120mg/day (178)	184	Statistical data analysis from this study failed to demonstrate improvement of levomilnacipran v/s placebo.
Sambunariseet al[8]	III	8	442	Flexible dose, 40–120 mg/day (222)	220	Superiority of levomilnacipran over placebo was demonstrated on basis of change in MADRS, HDRS and SDS total scores. In this study 44.2% patients received 120 mg/day dose, 34.1% received 80 mg/day dose and 21.2% received 40 mg/day.
Bakish et al[9]	III	8	568	Fixed dose, 40 (190) or 80(189) mg/day	189	Levomilnacipran was more efficacious than placebo as reported by changes in MADRS, HDRS, and SDS total scores.
Shiovitz et al[10]	III	24	384	Flexible dose, 40-120mg/day (235)	113	Patients receiving levomilnacipran showed slower relapse as compared to placebo group,but there was not much statistical significance in treatment differences.

HRDS- Hamilton Depression Rating Scale – 17 item, MADRAS- Montgomery Asberg Depression Rating Scale, SDS- Sheeshan Disability Scale

Of the five studies that were conducted, four studies corroborated the efficacy of levomilnacipran in the dose range of 40-120 mg/day. After compiling data from these five studies, the NNT for levomilnacipran in dose range of 40-120 mg/day v/s placebo for response was 10 and for remission, it came to 16. In a post hoc analysis of the entire data, conducted after the trials, MADRS scoring change was greater for levomilnacipran as compared to placebo across various groups selected on basis of age, sex, and severity of symptoms.[11]

Indications

Levomilnacipran is currently indicated for treatment of Major Depressive Disorder (MDD) only.

Adverse Effects

Based on the clinical trials conducted, the safety of levomilnacipran was evaluated in 2,673 levomilnacipran treated major depressive disorder patients among which 1583 patients were exposed to short term placebo controlled studies in which patients were given levomilnacipran in a dose range of 40 – 120 mg once daily without regard to food for a period of 6 months to 1 year according to grouping. In these studies, the adverse reactions incidence was > 5% and was at least twice the rate of placebo with a discontinuation rate of 9% due to adverse reactions. Among the adverse events reported, nausea was the most common and other adverse events included constipation, hyperhidrosis, increased heart rate, erectile dysfunction, tachycardia, vomiting and palpitations. Of these adverse events only erectile dysfunction and urinary hesitancy were dose related.[1,12]

Like other SNRIs, levomilnacipran is associated with increase in blood pressure. The short term,

placebo controlled studies of levomilnacipran in major depressive disorder patients reported mean increase of 3 mm Hg in systolic and 3.2 mm Hg in diastolic blood pressure and a mean increase in heart rate of 7.2 beats per minute (bpm). Orthostatic hypotension was observed in 11.6% of the patients in levomilnacipran group and 9.7% in placebo controlled groups. Studies also reported dose dependent increase in the orthostatic hypotension (5.8%, 6.1% and 9.8% with doses of 40, 80, and 120 mg/d) in the levomilnacipran treated patients.[1,12]

Contraindications

Contraindications specific to levomilnacipran are hypersentivity to levomilnacipran or milnacipran and uncontrolled narrow angle glaucoma. The other contraindications are similar to those seen with SNRIs and SSRIs including concomitant use of Monoamine oxidase inhibitors (MAOIs) and the use of levomilnacipran within 14 days of stopping of MAOIs because of the risk of serotonin syndrome.

Dosage and Administration

Levomilnacipran is available as extended release capsules in strengths of 20 mg, 40 mg, 80 mg and 120 mg capsules, which are to be swallowed as whole without crushing or opening them. The recommended dose of levomilnacipran is 40 mg to 120 mg once daily and can be taken with or without food.[13]

It is recommended to initiatelevomilnacipran therapy/treatment with a starting dose of 20 mg once daily for 2 days and then increasing it to 40 mg once daily. Based on the tolerability and efficacy, it can be increased in increments of 40 mg every 2 days with a maximum up to 120 mg once daily.

Dosage should not exceed 80 mg and 40 mg in patients with moderate and severe renal impairment as levomilnacipran is majorly eliminated via renal excretion, otherwise no dose adjustments are required in patients with hepatic impairment.[11,14,15]

Like with many other antidepressants, gradual dosage reduction should be done to avoid discontinuation symptoms.[1,13]

Drug Interactions

The CYP3A4 metabolism of levomilnacipran makes it susceptible to Drug drug Interactions (DDIs) with drugs that inhibit this enzyme and require dose adjustment with CYP3A4 inhibitors such as ketoconazole, clarithromycin, ritonavir etc, as it increases the levels of drug and the dose should not exceed 80 mg daily when patients are receiving a CYP3A4 strong inhibitor concomitantly but no dose adjustment is needed with CYP3A4 inducer or substrate.

Warnings and Precautions

Though there are no warnings and precautions pertaining specifically to levomilnacipran reported

Warnings and precautions for the antidepressant use in the patients with Major Depressive disorder[13]

S. No.	Warning	Precautions
1.	**Suicidal thoughts and behavior in Adolescents and Young Adults**	Monitor patients for clinical worsening and suicidal thinking or behavior
2.	**Serotonin Syndrome**	• Especially when coadministerd with serotonergic agents like Tryptans, Tricyclics, Fentanyl, lithium, tramadol, tryptophan, buspirone • In case of serotonin syndrome, discontinue Levomilnacipran • Provide supportive treatment
3.	**Elevated blood pressure and Heart Rate**	Monitoring of Blood Pressure and Heart rate, prior to and through out the treatment and control preexisting Hypertension
4.	**Abnormal Bleeding**	Caution the patient about Coadministration of NSAIDs, Aspirin or other drugs affecting coagulation
5.	**Narrow Angle Glaucoma**	Monitor patients with raised Intraocular pressure
6.	**Urinary Hesitation or retention**	Discontinue Levomilnacipran
7.	**Activation of Mania/ Hypomania**	Screen for Bipolar Affective Disorder
8.	**Seizures**	Use with caution in seizure disorder
9.	**Discontinuation Syndrome**	Taper dose when possible
10.	**Hyponatremia**	Can occur in association with SIADH
11.	**Pregnancy**	Category C drug and may cause fetal harm

so far in the studies conducted. But the drug being a member of SNRI family, the warnings and precautions for the group hold the same for levomilnacipran too.

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Newer Development

Orphan Drugs and Psychiatry

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Introduction

The word orphan is derived from the Greek word *orphanos*, a child who has lost one parent or both, or an adult who has lost child. In medicine this term was used long back by Melnick for virus not linked to a recognized disease such as Hepatitis G and same could be said for orphan genes and enzymes.[1]

An *orphan drug* can be defined as one that is used to treat an orphan disease. For example, haem arginate, used to treat acute intermittent porphyria, variegate porphyria, and hereditary coproporphyria.[2] However, it comes as a surprise that ibuprofen can also be categorized as an orphan drug, because it has been used to treat an orphan disease, namely patent ductus arteriosus in neonates.

The so-called 'orphan drugs' are required to treat diseases so rare that sponsors are reluctant to develop them and the process from the discovery of a new molecule to its marketing is around 10 years on an average, expensive and very uncertain i.e. among ten molecules under trial, only one may have a therapeutic effect. So, developing these drugs does not allow the recovery of the capital invested for its research.[3]

Orphan drugs can be categorized in the three categories[3]:

1. Products intended to treat rare diseases (orphan disease) : These products are developed to treat patients suffering from very serious diseases for which no satisfactory treatment is available.

2. Products withdrawn from the market for economic or therapeutic reasons:

For example, thalidomide widely used as a hypnotic drug some years ago and was then withdrawn from the market because of its teratogenic risk. However it has very interesting analgesic proprieties in diseases such as leprosy or lupus erythematosus.

3. Products that have not been developed: either because they are derived from a research process that cannot be patented or because they concern important markets which are, however, not creditworthy.

Another category could be of drugs ordinarily ineligible for patent protection such as albuterol, clonidine or caffeine.

The term orphan disease implies two separate concepts. It has been used to designate rare disorders, affecting only small number of individuals (health orphans) and to describe diseases that are neglected by doctors for example Fabry's disease, and tobacco addiction.[4]

In the United States (U.S.), rare disease is defined as one that affects fewer than 200,000 individuals, but in Japan the number is 50,000 and in Australia 2,000.[5] These numbers clearly relate to the population sizes of these countries, but even adjusting for that, the definitions vary from about 1 to 8 in 10 000. The European Community definition is less than 5 in 10 000. The World Health Organization has suggested a frequency of less than 6.5–10 in 10 000, although that seems rather high. Rare diseases are mostly genetic in origin and around 25 million North Americans and 30 million Europeans are currently affected by one of the 5000 – 6000 known rare diseases.[6]

Despite the technological advances and development of thousands of newer drugs,

development and availability of these needed orphan drugs that are of limited commercial profit is a significant problem.[7] After Thalidomide tragedy, Kefauver- Harris amendments were made in Food and Drug Administration (FDA) Act of U.S. in 1962 that considerably increased the number of preclinical and clinical tests before release of drug for marketing. The increased cost of documenting drug efficacy and safety under FDA regulations has considerably affected the development of drugs for various disorders.[8]

Patients affected by rare diseases have to be informed about scientific and therapeutic progress. They have the same rights to care as any other patient. In order to stimulate research and development in the sector of orphan drugs, the authorities have implemented incentives for health and biotechnology industries. It started as early as 1983 in the United States with the adoption of the Orphan Drug Act, then in Japan and in Australia in 1993 and 1997. Europe followed in 1999 by implementing a common European Union policy on orphan drugs.[9]

The Orphan Drug Act

In the United States, Congress passed the Orphan Drug Act in 1983 to provide incentives for industry investment in treatments for such rare conditions. The Orphan Drug Act provided manufacturers with three primary incentives: (1) federal funding of grants and contracts to perform clinical trials of orphan products; (2) a tax credit of 50 percent of clinical testing costs; and (3) an exclusive right to market the orphan drug for seven years from the date of marketing approval and hence protecting manufacturing company from any competition for seven years. Some additional benefits are also available to sponsors of orphan-designated products like close coordination with the Food and Drug Administration (FDA) throughout the drug's development, priority FDA review, and a waiver of drug application fees. The targeted drugs initially in the legislation were which there was "no reasonable expectation" that sales in the United States could support development of the drug. Because that criterion was difficult to assess and manufacturers were wary of showing the government their internal financial projections, an amendment in 1984 defined a rare disease as a condition affecting fewer than 200,000 people in the United States.[10,11]

Status of Orphan Drugs in India

In India the concept of orphan drugs is very different as many of the drugs having orphan status in the United States are extremely vital in the indian context (e.g. Intravenous Rifampicin, Mefloquine). Secondly, the patent law in India are process based i.e. the process required to manufacture a particular drugs is patented, as compared to product based patents worldwide. Hence Indian companies can prepare the same drug just by altering the manufacturing process. So, Indian companies introduce new products as soon as introduced in other countries.

In our country major resources are directed towards development of drugs used for communicable diseases which are responsible for large morbidity and mortality and hence the development and availability of orphan drugs is not stressed.[8]

Drugs with Orphan Status in Psychiatry

U.S. Food and Drug Administration, Cumulative list of all Orphan Designated Products that have received marketing approval.[12]

There are many drugs we use in psychiatry which have received orphan designation depending upon the illness for which they are being used and drugs which are being developed for an orphan indication. Table 1 below mentions these drugs and their orphan designation.

In the last few years many drugs in psychiatry have been announced as obsolete and discontinued by pharmaceutical companies as they were either used in minority of patients or they were less profitable in the market against the upcoming newer drugs in psychiatry like the antidepressants (nortriptyline, desipramine, phenelzine) and an anticholinergic agent benztropine, widely used to control the extrapyramidal effects of antipsychotic drugs. Although these antidepressants were not frequently used but clinicians still do not consider them as obsolete because they play many important as in treatment refractory depression.[13]

Similarly can be said for older antipsychotics like perphenazine, molindone, pimozide and in next few years would stand true for other typical antipsychoyics like chlorpromazine, trifluoperazine.

Table 1

S.No.	Drug	Orphan Designation
1.	Diazepam viscous solution for rectal administration	For the management of selected, refractory, patients with epilepsy, on stable regimens of antiepileptic drugs (AEDs), who require intermittent use of diazepam to control bouts of increased seizure activity.
2.	Intravenous carbamazepine	Treatment of epilepsy patients who cannot take anything by mouth.
3.	Midazolam	Treatment of bouts of increased seizure activity in selected refractory patients with epilepsy who are on stable regimens of anti-epileptic drugs and who require intermittent use of midazolam
4.	Topiramate injection	Treatment of partial onset or primary generalized tonic-clonic seizures for hospitalized epilepsy patients or epilepsy patients being treated in an emergency care setting who are unable to take oral topiramate
5.	Gammahydroxybutyrte	Treatment of narcolepsy and the auxiliary symptoms of cataplexy, sleep paralysis, hypnagogic hallucinations and automatic behaviour
6.	Viloxazine HCL	Treatment of cataplexy and narcolepsy
7.	Topiramte	Treatment of Lennox-Gastaut syndrome
8.	Topiramate injection	Treatment of partial onset or primary generalized tonic-clonic seizures for hospitalized patients or epilepsy patients being treated in an emergency care setting who are unable to take orally.
9. .	(R)-N-[2-(6-Chloro-methoxy-1H-indol-3yl) propyl]acetamide	Treatment of neuroleptic-induced tardive dyskinesia in schizophrenia pateints
10.	Tetrabenazine	Treatment of moderate/severe tardive dyskinesia
11.	Calcium benzoate and risperidone	Treatment of pediatric patients with schizophrenia
12.	Caffeine and sodium benzoate	Treatment of seizure prolongation in patients undergoing electroconvulsive therapy
13.	Benzoate	Treatment of pediatric schizophrenia
14.	Sodium benzoate and clozapine	Treatment of treatment-resistant schizophrenia
15.	Tasimelteon	Non-24-hour sleepwake disorder in blind individuals without light perception
16.	Tasimelteon	Treatment of sleep-wake disorder in Smith-Magenis syndrome associated with diurnal melatonin secretion
17.	Lithium citrate tetrahydrate (in reverse micelle formulation)	Treatment of Huntington's disease.

But the largest clinical trial till date, CATIE (Clinical Antipsychotic Trials of Intervention Effectiveness) has compared the effectiveness of olanzapine, risperidone, quetiapine, and ziprasidone with that of a conventional antipsychotic, perphenazine in over 1400 schizophrenic patients and found that perphenazine was not only as effective as three of the four newer agents but also did not cause more extrapyramidal side effects. Olanzapine alone showed marginally higher effectiveness, but it was associated with a significantly greater risk of weight gain and other adverse metabolic changes.[14]

Lastly, Lithium, once considered the most important drug in psychiatry now facing a major setback. One factor that may be responsible for lithium's fall from grace among clinicians and patients is its status as an "orphan" or "poor relative." Since lithium is cheap and unpatented, no wealthy drug company has interest in demonstrating its merits as a mood stabilizer.[15]

Conclusion

The development and availability of orphan drugs is of paramount importance to ensure availability of safe and effective drugs to the minority population suffering from orphan diseases and otherwise population of developing countries, which can be benefitted from these cheap agents which are becoming obsolete because of being less profitable to marketing and pharmaceutical industries.[16] The Orphan Drug Act attempts to solve some of these problems by providing incentives for

development of these dugs but legislation in developing countries like India has to take a stand to prevent washout of these important, cost effective drugs from market.[17]

Like FDA office of Orphan Products Development (OOPD), European Organization for Rare Diseases (EURORDIS) and Centre for Orphan Drug Research, Minnosota.[18] India should open model center to provide help to companies in areas of drug synthesis formulation, pharmacometrics and biosynthesis and sponsor research in area of rare diseases.

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Newer Development

The Psychology of Excessive Cellular Phone use

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Introduction

Mobile phones or cellular phones have emerged to become indispensible tools of daily life in the hands of mankind. Although the first cellular phone came into use more that forty years ago, the technology has gained its peak popularity in the period of the last ten years.[1] According to the International Telecommunication Union, the number of cellular subscriptions globally is expected to reach 7 billion in 2014, which is approaching the number of people on Earth.[2] The advent of numerous applications that provide the leisure of text messaging free of cost, lower call rates and easy availability and accessibility of internet use on cellular phones are among the prominent causes leading to the increase in its usage. Cellular phones, despite serving as a means to convey important information, for exchange of greetings and pleasantries and for the general entertainment of the user, have repercussions when projected to excessive use, which come into the realm of a number of recognizable psychological illnesses.[3-7]

Background

Cellular phones are being used as multipurpose electronic devices in today's world, with everyday uses varying from calling, text messaging, playing games to surfing the internet. Studies have shown that cellular phone use provides a plethora of psychological benefits to the user, namely feelings of independence and autonomy with respect to owning the device and controlling its parameters, establishing and maintaining healthy relationships by means of voice calls and text messaging. It has been reported to be used as a status symbol amongst peers, a constant source of fun and games and also to increase inclusion and connectedness amongst family and friends.[1,8-12] Needless to say, one cannot say enough to emphasize the usefulness of the novel technology. However, it comes with its own drawbacks. The harms become more evident with continuing and increasing use over time. There have been very few studies mentioning the detrimental effects of excessive use of cellular phones on psychosocial and physical health which include:

- Personal stress, insecurity, low self-confidence and frequent mood changes.[3]
- Anxiety due to inadequacy of access to mobile services at times, or due to feelings of social isolation and being neglected upon not receiving or sending text messages over a period of time.[13]
- Sleep disturbances, insomnia, waking up several times at night to check the phone for messages or voice calls.[3]
- Musculoskeletal effects such as neck pain and rigidity.[14]
- Dry eyes and computer vision syndrome.[14]
- Pain and weakness over the base of thumbs and wrists, increased frequency of de Quervain's tenosynovitis.[15]
- Radiation effects from the constant emission of microwaves from cellular phones, even when not in use.[16]
- Dependency and addiction to cellular phone usage.[1,17]
- Nomophobia and others.[14]
- Delusions, auditory and tactile hallucinations.[18,19]

The SMS addiction

The short message service (SMS), referred to as text messaging, or simply texting is one of the major uses of the cellular phone. However, excessive text messaging can be one of the domains of cellular phone usage prone to cause psychosocial detriments to the user. Previous data suggests that it is a form of addiction and dependency disorder, though it has not been included under the category of substance use disorders in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5).[1,4,17,20]

The characteristics of excessive cellular phone usage meeting the definition of an addictive disorder include.[1,4,14,21]

- Excessive use despite the high economic cost and time burden, increasing duration of unnecessary calls, chain messaging.
- Tolerance: Increasing frequency and duration of cellular phone use to obtain the same level of psychological satisfaction as earlier.
- Problems associated with excessive use: Interference in daily activities, affecting work and relationships, avoiding social, academic and recreational activities, decline in overall productivity.
- Failed attempts to cut down on usage.
- Withdrawal: Feelings of nervousness and anxiety when away from one's cellular phone, or when unable to use it.

It has been reported that the addictive behavior in case of cellular phone use is negatively reinforced, indicating that the user indulges in order to relieve discomfort rather that to achieve pleasure[1]. This is in concordance with the fact that the cellular phone has been instrumental in lowering stress, as well as in achieving a reduction in the levels of prevailing loneliness, especially amongst the youth[22]. It is interesting to note that because the technology being put in question here has since its advent been so useful to humankind, there exists no social consensus with regard to its risk for abuse.[1]

Cellular phone anxiety, delusions and hallucinations

Earlier studies have thrown some light on anxiety arising from the excessive use of cellular phones. Researchers have found that regular cellular phone users often suffer from feelings of anxiety, stress and insecurity in the absence of the device.[14] This has been reported too often happening in situations such as poor network zones, or when unexpectedly, the battery or the phone credit runs out.[23] This view encompasses the term "nomo-phobia", literally meaning no-mobile phobia. Briefly, it is the fear of being out of mobile phone contact, due to any reason.The other related term is "textiety", the feeling of anxiety on not receiving or sending text messages.[18] This can possibly stem from an underlying fear of social isolation. A study was done by Walsh et al, in which they found that not receiving messages and voice calls regularly is often perceived as not being loved by people, leading to feelings of depression.[5] Other entities include post-traumatic text disorder, where over-zealous text messaging has resulted in physical and mental insults to the user; and binge texting.[17] The latter often sees users sending multiple text messages in order to feel good about themselves and to attract responses that will bring a sense of elevation of mood. The other school of thought regarding cellular phone anxiety includes "ringxiety" and "textaphrenia", which brings into play delusions and hallucinations, giving a psychotic angle to the issue in consideration.[17,18,24] An individual believes that he had heard his cellular phone ring; while in reality there was no such event. The same can be applied to a feeling of vibration in the pocket, when no such vibratory impulse had been produced by the cellular phone, often seen in cellular phone users who regularly keep their phones on vibration mode. Such auditory and tactile hallucinations reflect the phantom ringing syndrome and the phantom vibration syndrome, which possibly share a common underlying mechanism.[19,25] These syndromes are likened to hallucinations, but they have been seen to occur in otherwise normal individuals.[19] Lastly, communifaking is the act of pretending to be using a cellular phone (calling, texting or surfing the internet) for reasons of avoiding real conversations, gaining social acceptance or simply to show-off.[26]

Facebook addiction (with activities like oversharing checking your facebook whenever possible, overly concerned with facebook image, reporting on facebook, spending hours everyday, mad rush to add mere friends and compromising

offline social life) has also been reported.[27]

Discussion

Despite not being included in the Diagnostic and Statistical Manual of Mental Disorders (DSM-5), excessive cellular phone usage does seem to meet most criteria of a substance use/dependency disorder.[18] It possibly arises from a neurotic pathway, according to which the dependency is explained by a constant need to seek reassurance and the fear of being rejected.[6] The newer entities like textaphrenia, ringxiety, phantom ringing and vibration syndromes which link delusional thought and hallucinations to the problem are intriguing, but needless to say demand further research and analysis.

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Diet and Psychiatry

Role of dietary factors in Psychiatry

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"Nutrition" may be defined as the science of food and its relationship to health. Dietetics is the practical application of the principles of nutrition. Nutritional neuroscience is the emerging field that deals with the nutritional factors and their correlation to the human cognition, behaviour and emotions.[1]

Constitution of brain and neurons

Twenty per cent of the fat in our brain is made from the essential fatty acids especially omega-3 and omega-6 omega fatty acids which are derived from outside and plays vital role in making up the brain cells (neurons) because they form part of the cell membranes.The differentiation and functioning of cultured brain cells require omega-3 FA. Deficiency of ALA (alpha-linolenic acid) alters the course of brain development, disturbs the composition of brain cell membranes, neurones, oligodendrocytes, and astrocytes.[2] The nerve endings contain the highest amounts of Vitamin C in the body.Vitamin B Complex plays role in various enzymatic reactions and as antioxidants. Insufficient levels of these FA results in depression and memory problem.

Role of a balanced diet

A balanced diet provides nutrients in adequate amounts and proper proportions.A balanced type of diet can ensure a balanced mood and sense of well being which can be achieved through adequate amounts of complex carbohydrates, essential fats, amino acids, vitamins, minerals and water. Various mental diseases are influenced by our dietary factors. Nutritional factors are closely correlated with human cognition, behavior, and emotions which in turn are related to functioning of neurotransmitters in the brain.The role of food is being studied extensively in the development, management and prevention of specific mental health problems such as depression, schizophrenia, attention deficit hyperactivity disorder and Alzheimer's disease.

Malnutrition is a problem in developing countries. Malnutrition in pregnancy results in retarded growth of the foetus. Malnutrition in early infancy results in decrease in number of neurons resulting in intellectual disability and mental retardation. Apathy is the most constant and earliest neurologic feature and present in children with Protein energy malnutrition. Psychological manifestations include cognitive inadequacies resulting in delay in learning particularly reading and writing. [3] Inadequate absorption or malnutrition as in Celiac disease can lead onto anxiety/depressive symptoms as the gluten free diet can lead to deficiency of B-complex, iron, zinc, calcium and Vitamin D.[4]

Food insecurity (inadequate and non-nutritious food) is associated with children's psychological difficulties like anxiety/depression, aggression and hyperactivity and inattention as evidenced from a prospective birth cohort study.[5] According to WHO, the people who suffer from a mental health-related pathology have a higher risk to encounter cardiovascular complications than the general population.The psychiatric patients are vulnerable to develop obesity due to sedentary lifestyle, side effects of medication, inability to take care of themselves.[6] Malnutrition can result in manifestation of varied neuropsychiatric symptomatology.

Role of major health constituents and mental health

The amino acids tryptophan, tyrosine, phenylalanine, and methionine are often helpful in treating many mood disorders including depression. Tryptophan is a precursor of Serotonin and serotonin is deficient in depressed persons.The deficiency of

omega-3 fatty acids are related to the high incidence of depression and schizophrenia. Diabetes Mellitus is associated with hyperglycemia which precipitates depressive and anxiety symptoms in the patient.Hypoglycemia can also manifest with psychiatric symptoms like apathy, fatigue, confusion (delirium), hallucinations, mood lability, stupor and ultimately person may land up in coma.[7] The vitamins and trace elements play and vital role in various physiochemical reactions and produce a wide range of symptoms.

Role of Vitamins and minerals

All vitamins and minerals are involved in one or more biochemical pathways and/or physiological actions which influence the function of the human brain.

Thiamine (Vitamin B_1)

The activity of B1 is based on the measurement of thiamine pyrophosphate concentration or of the activity of a thiamine-dependent enzyme, transketolase, in erythrocytes. Severe deficiency states can be observed in chronic alcoholics, after protracted vomiting during pregnancy and after bariatric surgery.Thiamine deprived subjects (volunteers) were found to have irritability, agitation and emotional stability.[8] Thiamine deficiency is related to neuropsychiatric syndrome in chronic alcoholics like Wernicke's Korsakoff syndrome (ataxia, confusion and ophthalmoplegia.

Riboflavin (Vitamin B_2)

Riboflavin deficient individuals show increased levels of depression, hypomania and psychopathic deviate behavior.[9]

Pyridoxine (Vitamin B_6)

A study done on a volunteer who was deprived of pyridoxine for 55 days, depression was seen which got corrected after supplementation with the vitamin.[10] Pyridoxine is required as a coenzyme for the synthesis of serotonin, dopamine and GABA. Pyridoxine is also required for carbohydrate metabolism and other aspects of amino acid metabolism. In infancy its deficiency may lead to seizures and mental retardation.

Cobalamin (Vitamin B_{12})

B_{12} is a cofactor required for methionine synthase, which catalyses the conversion of homocysteine to methionine, and is required for the production of energy from fatty acids and proteins. Methionine is the precursor of S-adenosylmethionine (SAMe), which is involved in methylation reactions ultimately in neurotransmitter synthesis.[11] The depression is one of the early psychiatric manifestation of B_{12} deficiency. Deficiency can lead to perpheral neuropathy, myelopathy or encephalopathy. A patient often presents with mental slowing, confusion and memory deficits , tingling or numbness in extremities.[12]

Ascorbic acid (Vitamin C)

Vitamin C is a cofactor for dopamine beta-hydroxylase which converts dopamine to norepinephrine, and a cofactor for tryptophan-5-hydroxylase required for the conversion of tryptophan to 5-hydroxytryptophan to serotonin.[13] Fatigue, weakness are reported to be symptoms of Scurvy. Depression is a classic early symptom of vitamin C deficiency.[14]

A case-control study done in 2004 the average plasma levels of Vitamin C were found to be higher in the control group than the cases of Dementia.[15]

Vitamin D

Vitamin D is found to be deficient in majority of the psychiatric patients as per the recent research. Maximum deficiency is seen in somatoform disorders who present with the generalized body aches without a definite medical or connective tissue disease. Low serum levels of 25(OH)D were found in patients suffering from recurrent depression.[16] Agras and Oliveau reported 6 cases of Psychosis in patients with hyperparathyroidism or hypercalcemia.[17]

Folate

The folate functions mainly via methylation and DNA synthesis. The most likely explanation for the folate deficiency affecting Serotonin is through defective methylation.[18] The neurologic symptomatology of folate deficiency overlaps with that of vitamin B12 deficiency and may cause cognitive impairment, dementia, depression, peripheral neuropathy and subacute combined degeneration of the spinal cord. Low folate and high homocysteine levels are risk factors for dementia (Alzheimer's

disease) and depression.[19] Folic acid supplements in pregnancy have reduced the risk of neuro-developmental abnormalities like neural tube defects. The Norweighian Cohort study has shown that use of folic acid by mothers in pregnancy state reported a better outcome in children and these children had reduced risk of severe language delay at the age of 3 years.[20] Folate plays a role in remitting depression when used concurrently with the antidepressants. The recent trend is towards the use of L-methyl folate (active form of folic acid) as an adjunct with the antidepressants.[21]

Niacin (Vitamin B_3)

Niacin plays role in oxidation-reduction reactions and metabolism of carbohydrates and tryptophan. Deficiency leads to pellagra which also leads to dementia. Initial manifestations of Pellagra may comprise non specific symptoms like hyperesthesia, increased psychomotor drive, fatigability, headache, sleep disturbance.(s/s simulate mixed anxiety/depressive disorder).[22]

SAMe

S-adenosyl-L-methionine is one of the metabolically active molecule that participates in many cellular reactions as it is the precursor for the synthesis of glutathione and principle methyl donor required for methylation of nucleic acids, phospholipids, histones, biogenic amines, and proteins.SAMe synthesis is decreased in chronic liver disease.[23]

Neuropsychiatric manifestations due to altered trace elements in the body

Magnesium

It was found that the individuals with low cerebrospinal fluid levels of magnesium also have lower cerebrospinal fluid levels of 5-hydroxy-indoleacetic acid which is a metabolite of serotonin, indicating Serotonin deficiency.CSF levels of magnesium were found to be lower in patients with major depression (n = 16) and adjustment disorder (n = 10), as compared with controls and also it found out that CSF levels of Mg were low in persons with suicidal attempt.[24] The deficiency of magnesium can cause depression, behaviour and personality changes, apathy, irritability and anxiety.[25]

Zinc

The study done by Maes and colleagues found out that serum zinc levels were significantly lower in depressed patients as compared to healthy matched controls.Zinc acts as a catalyst in many enzymatic reactions and also act as antioxidant.[26]

Calcium

Recent research has shown that indiscriminate use of SSRI's inhibit the absorption of calcium into the bones putting them to risk of fractures.[27]

Iodine

Iodine is essential in formation of thyroid hormone which plays role in BMR of the body. Deficiency of iodine can lead to hypothyroidism ultimately resulting in secondary depression and patient may present with lethargy and excessive fatigue/vague body aches.

Iron

Iron is essential for ensuring brain oxygenation and producing energy for brain cells. Iron deficiency anemia can cause apathy, fatigue etc and persons land up in Psychiatry OPD with depression with somatic complaints.

Neuropsychiatric manifestations due to electrolyte/water disturbance

Electrolyte imbalance related to sodium or potassium or dehydration can cause varied neurobehavioural symptoms like irritability or lethargy, neuromuscular hyperexcitability, parasthesias, apathy, seizures, confusion (delirium), stupor and coma.Visual hallucinations are commonly observed in delirium due to electrolyte disturbance.[28]

Role of diet in specific mental health problems

Depression

Complex carbohydrates as well as certain food components such as folic acid, omega-3 fatty acids, selenium and tryptophan are thought to decrease the symptoms of depression.As depression has been linked to low levels serotonin, its precursor tryptophan is derived from the food. Intake of carbohydrates triggers Insulin release and Insulin leads to taking up Glucose into the cells simultaneously triggering entry of Tryptophan into

the brain. Tryptophan regulates the release of Serotonin required for mood regulation.

The research highlights the role of the (n-3) fatty acids in maintaining membrane integrity for the transport of tryptophan, the precursor of serotonin in the raphe nucleus which regulates mood state, and limits oxidative damage to serotoninergic neurons as verified by Maes et al.They have shown the abnormal fatty acid metabolism in depressed patients.[29] In depressed patients, daily consumption of dietary supplements of omega-3 fatty acid that containing EPA (ecosapentanoic acid) has been shown to stimulate mood elevation.

Schizophrenia

MTHFR (Methylenetetrahydrofolate reductase) mutations leads to elevated plasma homocysteine concentrations, which has proposed to be risk factor in development of schizophrenia.[30] Another research shows deficiency of antioxidant enzymes implicated in etiology of Schizophrenia. The patients presenting with the first episode of psychosis show altered N-acetylaspartate in the brain. There are studies that show that N-acetylaspartate is linked to neuron membrane integrity, and its concentrations are dependent on (n-3) fatty acid serum concentrations.[31] Research has shown that people with schizophrenia have lower levels of polyunsaturated fatty acids in their bodies.

Metabolic syndrome, is being increasingly seen in patients with schizophrenia. Abdominal obesity is a key contributor to overall cardiovascular risk and is a particularly important consideration in schizophrenia as some atypical antipsychotics are associated with drug-induced weight gain.[32]

Alzheimer's disease

One long term population-based study found that high intakes of vitamins C and E were linked to a lower risk of AD, particularly among smokers, and this finding has been replicated in other studies. Based on research It was found that high caloric intake based on saturated fat promotes AD type Beta-amyloidosis, whereas the dietary restriction based on reduced carbohydrate intake is able to prevent it.[33] The deficiency of essential fatty acids like omega-3 FA can prevent the regeneration of neuronal membranes and thus accelerate cerebral aging.[2] The concentrated fish oil supplements (containing Decosahexaenoic acid) were proved to be helpful in subjects with mild cognitive impairment.[34]

ADHD

Studies have found some EFAs to be significantly low in hyperactive children. One of the animal based study has showed that Omega-3 PUFA enriched diet significantly reduced the impulsivity although not attention in spontaneously hypertensive rats (proposed to be a good genetic model of ADHD).[35]

Feingold and Failsafe diet (reduction of food additives, salicylates, amines, and flavor enhancers such as MSG) played role in Autistic Spectrum disorders.[36] Evangeliou and colleagues examined the efficacy of a ketogenic diet in autism in a pilot study of 30 children.[37]

Side effects related to certain nutrient in excess

Not only the deficiency but also the excess amounts of certain dietary factors like amino acid phenylalanine in the individuals can be harmful leading to phenylketonuria (brain damage) and mental retardation.[38] Hypervitaminosis A acute intoxication can lead onto symptoms of raised intracranial tension (pseudotumour cerebri) and person may experience severe headache, drowsiness, vertigo, irritability and blurred vision.[39] Coffee, colas, tea, some energy drinks all contain caffeine, which acts as CNS stimulant or cognitive enhancers. However, in large quantities caffeine can increase blood pressure, anxiety, depressive symptoms and sleep problems.Also they have diuretic effects which can lead to dehydration.[40]

Dietary interventions helpful in certain psychiatric disorders

In addition to replenishing deficit states, certain dietary interventions have found to be useful in certain disorders e.g. elimination of glutein (found in wheat, rye, barley, oats) and casein (a milk protein). After eliminating these two factors in the diet, the parents of the children have reported improvement in various features like eye contact and connection with others.[41]

Outcome of treatment with certain Psychotropic drugs

Lithium and all SSRI's can cause SIADH and

hyponatremia.Lithium induced Nephrogenic Diabetes Insipidus can cause dehydration and hypernatremia.Phenytoin tharapy can lead onto osteomalacia.SGAs like Olanzapine can alter the blood glucose levels leading to Metabolic syndrome resulting in obesity/hyperglycemia and risk of cardiovascular disease.

Iron depletion and deficiency are prevalent in children and adolescents chronically treated with risperidone.[42]

Dietary habits

The changing lifestyles, access to more of the fast/manufactured food is deteriorating the quality of food and hence the mental health. It is recommended to eat regular meals throughout the day to maintain blood sugar levels.It is advised to eat at least three meals each day. Missing meals, especially breakfast, leads to low blood sugar and this causes low mood, irritability and fatigue. If one feel hungry between meals you may have a healthy snack eg. fruit, nuts and cereals. Many people resort to emotional eating during stress which in turn may at times leads to obesity.The people who are obese and have Diabetes/HTN are more prone to develop depressive/anxiety symptoms.

Conclusion

The diet plays an important role in all physiological and biochemical reactions in the body purturbance of which leads to physical or psychological problems. Therefore dietary history is utmost important and needs to be compulsorily incorporated in history taking in every patient attending the hospital. It is rightly said "healthy mind resides in a healthy body" which in turn can be maintained through healthy diet.

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Forensic Psychiatry

Concept of Psychological Autopsy

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The autopsy (from the Greek autopsíâ, which means "to see with one's own eyes") is a method dating from ancient times.[1] Autopsy or postmortem examination is a process of examination of body after death. Every cavity of the body should be examined even if the cause of death is evident, other areas and organs of the body to be examined to find out any contributory cause of death. Complete autopsy is necessary to corroborate the evidence of the eyewitnesses and the investigations done by investigating officer since a poor autopsy can lead to miscarriage of justice.[2]

The aims and objectives of the autopsy:[2]

1. Determine the identification in cases of unknown body.
2. Find out the cause of death.
3. Find out the manner of death whether suicidal, accidental or homicidal.
4. Find out the time since death.
5. In new born babies, determination of viability and cause of death.
6. Preserve the trace evidences and viscera when needed.
7. Reconstruct the accident scene from the examination of injuries as to nature and duration

There are different types depending on the reasons for performing it. The various types of autopsy or postmortem examination are:

1. Medico legal autopsy
2. Pathological autopsy
3. Virtual autopsy
4. Psychological autopsy

Medico Legal Autopsy

Done in the Department of Forensic Medicine on request from police or SDM (Sub Divisional Magistrate), who is the Investigation Officer of the case. The consent of the relatives is not required. The doctor conducts a full and complete postmortem to find out the cause of death and other relevant questions asked by the Investigating Officer.[2]

Pathological Autopsy

Done in the Department of Pathology on request from the relatives, who are the consenting party. In these cases the doctor conducts a partial autopsy of the organ or cavities where the pathology is suspected to find out the cause of death.[2]

Virtual Autopsy

It is an alternative to a traditional autopsy, conducted with scanning and imaging technology. It is the application of imaging methods for non-invasive documentation and analysis of relevant forensic findings in living and dead persons.[3] Virtopsy employs imaging methods that are also used in clinical medicine such as computed tomography (CT), magnetic resonance imaging (MRI) and 3D surface scanning in addition to conventional roentgenographic methods. In dead persons, non destructive documentation is important for two reasons:[1]

1. It brings information without precluding any other conservative or destructive forensic investigation.
2. It can be used in cultures and situations where autopsy is not tolerated by religion or rejected by family members.

Psychological Autopsy

A procedure used to classify equivocal deaths. An equivocal death is a death in which it is not immediately clear whether a person committed suicide or not (e.g., drug-ingestion deaths, single car accident deaths).[4] It is essentially a mental state examination of the deceased.

A procedure for investigating a person's death by reconstructing what the person thought, felt, and did before death, based on information gathered from personal documents, police reports, medical and coroner's records, and face-to-face interviews with families, friends, and others who had contact with the person before the death.[5]

Estimates suggest that in up to 20% of cases presented to a medical examiner/coroner the precise mode of death is unclear. A psychological autopsy can help address this ambiguity and establish whether death was as a result of natural causes, suicide, accident or murder.

The Psychological Autopsy Methodology

The psychological autopsy procedure has two main elements:[6]

1. Extensive interviews of family members and other close intimates; and
2. Collecting all possible medical, psychiatric and other relevant documents of the deceased.

Psychological autopsies review the specifics of the death and the decedent for suicide risk factors. Shneidman[7] for example, has identified 14 areas for inquiry in psychological autopsy studies. These areas include:

1. Identifying information (e.g., age, marital status, religious practices, occupation)
2. Details of the death
3. Brief outline of the victim's history (e.g., previous suicide attempts)
4. Death history of the victim's family (e.g., family history of suicide, affective illness)
5. Description of the personality and lifestyle of the victim
6. The victim's typical pattern of reaction to stress, emotional upsets, and periods of disequilibrium
7. Recent stressors, tensions, or anticipations of trouble
8. The role of alcohol and drugs in the overall lifestyle of the victim and his/her death
9. The nature of the victim's interpersonal relationships
10. Changes in the victim's habits and routines before death (e.g., hobbies, appetite, sexual patterns, and other life routines)
11. Information relating to the life side of the victim (e.g., upswings, successes, plans)
12. Assessment of intention
13. Rating of lethality
14. Reaction of informants to the victim's death, and
15. Any comments or special features of the case.

The information collected from the interviews could provide relevant information in an attempt to reconstruct the deceased's background, personal relationships, personality traits and lifestyle.

Psychological autopsies have proved helpful in identifying and explicating proximate causation, determining the role of a variety of factors in bringing about a suicidal death. Psychological autopsies have been useful in determining liability in worker's compensation, product liability, medical malpractice, and criminal cases.[4]

Uses and Applications of Psychological autopsy[7]

Types of forensics cases in which psychological autopsy are used:

1. *Understanding Suicides:* Understanding suicides requires a sensitive under taking. Thus carefully conducting psychological autopsy it will be helpful to understand suicides and its causes in order to develop effective services, thus reducing the rates of suicides.
2. *Understanding Personality:* By collecting information from people who are in direct or indirect contact it is most likely to describe the personality of the deceased which is perhaps the most significant thing in understanding the thought process and personality of the deceased person prior to death.
3. *Understanding intention and motive:* It is reflected from suicidal notes and it is

strengthened by history of previous attempts and from history collected.

4. *Criminal Cases:* In criminal Cases Psychological Autopsies have been admitted in US courts to help juries decides whether a parent should be held responsible for suicides of a child or whether a decedent died by her own hand or at; the hand of her husband.
5. *Life Insurance:* As the suicide is viewed as an intentional act, the burden of proof rests on with the insurance company to prove that death was a suicide. Thus an opinion regarding the state of mind of the decedent derived from psychological autopsy will be of relevance.
6. *Institutional care:* With regard to suicide risk, institutions like jails and prisons have responsibility to assess that risk and take necessary precautions against suicide. If the suicide was a result of depressed mental state as result of position of the person at this institutions.
7. *Malpractice:* Systemically conducted psychological autopsy, allows the plaintiff to recover the damages if breach of the standard care to the patient was found to be proximate cause of suicide.

There are ethical issues connected with psychological autopsies. Many ethical considerations have to be taken while designing and carrying out such investigation. They include: taking informed consent from the participants, establishment of mutual respect and ensuring confidentiality of the facts. There can be a legal action if the key informants feel their right and dignity has been infringed.

Psychological Autopsy Certification Training Program

It has been developed in 1960, by American Association of Suicidology and refined over years since then. It is a two day, face-to-face training program in the psychological autopsy leading to certification as a Certified Psychological Autopsy Investigator. Upon completion of this training, participants will be able to:

1. Discuss the history and purposes of the psychological autopsy as a postmortem investigatory tool.
2. Identify the procedures used in the conduct of a psychological autopsy investigation.
3. Effectively implement a psychological autopsy protocol and associated procedures to conduct, analyze, and understand how and why an individual died in the manner they did.[8]

Validity

While there is certainly evidence to support the validity of psychological autopsies per se, it also needs to be recognized that in general, the term psychological autopsy is neither particularly well defined nor standardized for operational use.[9]

One major concern is that there does not appear to be systematic guidelines in place regarding training and best practice. Another, is that depending on the nature of the case under review, the person carrying out the psychological autopsy may not have the depth of forensic knowledge required to help inform the cause of death e.g. blood splatter analysis.

Admissibility in Court of Law

Legal use of psychological autopsies involves investigations of a single death in order to clarify why or how a person died. The burden of proof required during the course of investigations is different from that which is required in court. It may be, therefore that psychological autopsies could currently have a more productive role outside the court.[7]

It is for these reasons that it is probably sensible to view the psychological autopsy as just one of the many investigative tools available within a cause of death investigation.

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Case Report

Tiapride in Treatment of Alcoholic Hallucinosis

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Introduction

Alcoholic hallucinosis is a pathological mental state characterized by an acute onset of auditory and/or visual hallucinations that occur either during or after a period of heavy alcohol consumption with additional features which may include delusions, thought disorder, psychomotor disturbances and an abnormal affect.[1] There are no clear epidemiological studies on the prevalence of alcohol hallucinosis but authors[1] have found that 7.4% alcohol-dependent-patients showed symptoms of alcohol hallucinosis. Approximately 10–20% of the patients develop chronic psychosis with persisting auditory hallucinations independent from substance intake.[2] The pathophysiology of alcoholic hallucinosis is not clear. There may be lower levels of inhibitory (Glycine, GABA) and higher levels of excitatory (Glutamate, Aspartate) amino acid neurotransmitters.[3] Recent PET findings indicate a hypofunction of the thalamus in patients with alcohol psychosis that may resolve on clinical improvement.[4] Usually treatment includes benzodiazepines or neuroleptics. But sometimes the patient might have resistant hallucinations which persist despite treatment. Here we present a case of alcoholic hallucinosis responding to tiapride.

Case report

A 42 year old male sweeper married since 20 years with 3 children who had presented to our outpatient department with complaints of hearing voices inaudible to others and decreased sleep since 6 months prior to presentation. Longitudinally he started consuming alcohol at age of 19 years i.e. 1 pint of beer every 7- 10 days. Then shifted to whisky 1-2 quarters at evenings and over a period of 2-3 years he increased consumption to 3-4 quarters. He later shifted to country liquor due to financial constraints. There was history of withdrawal features present in form of decreased sleep, tremors, craving for alcohol and 2-3 episodes of withdrawal seizures in the past. Also he would have complaints of fearfulness that everyone was against him and trying to harm him. He would hear voices inaudible to others of his family members and friend giving information of his mistakes in work. Also he would occasionally see images invisible to others. These complaints would be present only on stopping alcohol consumption and would be relieved on taking alcohol.

He had decided to take treatment for his alcoholism and went to a public hospital 4 years prior to the present episode where he was diagnosed as alcohol dependence and treated with usual line of management. He was given Trifluoperazine 10mg and Trihexyphenidyl 4mg. He took medications for one year and also refrained from alcohol consumption for one year. He did not have any psychotic features after treatment. But due to some familial stressor he restarted alcohol consumption around 2-3 quarters a day for 2 years. He then stopped alcohol consumption and again had complaints of hearing voices inaudible to others. He did not have any suspiciousness or other psychotic complains this time. He waited for one month but the complaints of auditory hallucinations did not subside. So he came to us for treatment. He did not have any history suggestive of depression or obsessive compulsive disorder and other anxiety disorders. He was going to work regularly. There was no family history suggestive of psychiatric illness and no significant past medical or surgical history. We established a diagnosis of alcohol dependence in early remission and alcoholic hallucinosis. We started him on Trifluoperazine 15 mg per day, Trihexyphenidyl 6mg per day, Risperidone 4 mg per

day Lorazepam 2mg at night. After one week, the lorazepam was stopped completely. But his hallucinations did not subside so Trifluoperazine was gradually increased to 20 mg and Risperidone to 8 mg. Even after one month his symptoms did not subside. So an option of electroconvulsive therapy was given but he and his family did not give consent. Hence Olanzapine 10 mg was added which was gradually increased to 20mg while other medications were discontinued. No improvement was perceived with olanzapine after 4 weeks, while relatives were still reluctant towards a course of electroconvulsive therapy. So Tiapride 25 mg twice a day was added for his auditory hallucinations. After 10 days of follow up he showed improvement of 10-20% for 1st time. Hence Tiapride was gradually increased to 100 mg in divided doses while olanzapine was tapered off. After about a month he had 90% reduction in hallucinations. Thus tiapride was found very useful in treating alcoholic hallucinosis.

Discussion

Tiapride has been used for alcohol withdrawal symptoms treatment since the late 1970s, especially in France.[5] The common side effects with tiapride are drowsiness, extrapyramidal symptoms, dizziness, and orthostatic hypotension.[6] Valproate has been found useful.[7] Tiapride offers good results in patients whose main complaints are auditory hallucinations which have not responded to other antipsychotics while the side effects are minimal. We have reported earlier the usefulness of tiapride in resistant hallucinations in a case of schizophrenia.[8] Hence we thought of using it in this case. Tiapride does not cause sedation so it can be added easily to other antispychotics with no worry of cumulative sedation effect. To best of our knowledge there are no literature on use of tiapride for alcoholic hallucinosis.

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Case Report

Clonidine Induced Diuresis in Opioid Dependence

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Introduction

Clonidine, a 2-imidazoline derivative exerts its action by acting on alpha adrenoceptors located in medulla of brain. Clonidine reduces sympathetic and increases parasympathetic tone resulting in lowering of blood pressure.[1] Being a non opioid medication, it is widely and effectively used in the treatment of opioid dependence by blocking the activation of nor-adrenergic locus ceruleus nucleus.[2,3]

Uncommonly, clonidine affects kidneys causing diuresis. The plausible mechanisms are: (a) Release of Atrial natriuretic peptide (ANP), which is a vasodilator, diuretic and natriuretic hormone. ANP increases glomerular filtration rate and inhibits distal sodium reabsorption.[4] (b) Inhibition of Renin-Angiotensin Aldosterone axis[5] (c) Blocking of action of Anti Diuretic Hormone (ADH) on renal tubules by stimulation of alpha 2 adrenoreceptors.[6]

Case Report

A 55 year old male presented to Psychiatry OPD with complaint of opioid dependence. He was consuming poppy husk (opioid) since 20 years. Patient's initial daily intake was 10-20 grams. He developed tolerance over a period of 8 to 9 months and consecutively increased his intake to 80-100 grams. He would often start his day by consuming it daily. Gradually, patient started experiencing withdrawal symptoms when he did not take poppy husk. He would experience generalized bodyache, yawning, lacrimation, rhinorrhea, insomnia and to alleviate these symptoms he would again take poppy husk. Over the next few years, he further increased his intake to 100-150 grams /day to have the desired pleasurable effect. It became his usual routine to take poppy husk in divided doses 3 to 4 times a day. Over the years, patient had undergone several unsuccessful attempts at de addiction; he tried to leave it by self and even took treatment from a private doctor without much relief.

Patient was admitted in Deaddiction ward for detoxification. A diagnosis of Opioid Dependence (F 11.2) was made according to the International Classification of Diseases (ICD-10). Baseline score on Clinical Opiate Withdrawal Scale (COWS) was 13 which suggests moderate withdrawal.General and systemic examination along with routine investigations i.e. completes blood counts, hepatic, renal function tests and electrolytes were normal. Patient was put on Tramadol 400 mg/day, Clonidine 300 microgram/day alongwith symptomatic medications for managing withdrawal syndrome.

On 5th day of detoxification, patient complained of increase in frequency of micturation, upto 7-8 times in a day gradually increasing upto 10-12 times a day with bedwetting during night. Patient's blood pressure was normal. Renal function tests, electrolytes were repeated, but were within normal limits. Ultrasound KUB region did not reveal any abnormality. Serum ADH levels also came out to be normal. Even after stopping tramadol no improvement in symptoms was observed. Patient's increased frequency of micturition subsided after gradual withdrawal of clonidine. Thereafter, when clonidine was readministered, patient again developed increased frequency of micturition on third day, which subsided again after withdrawal of

clonidine. Patient's further stay in the ward was uneventful.

Discussion

As reported in our case, Clonidine may affect renal system and induce diuresis. An in-vivo study of Clonidine and its analogue ST-91 on rats indicated that the peripheral actions of clonidine were probably mediated by the activation of imidazoline binding sites and/or α_2-adrenoceptors present in the heart which on activation produces ANP.[7] In another study, clonidine was given along with diuretics to treat ascites. It was seen that Clonidine induced an earlier diuretic response by decreasing sympathetic activity, increasing glomerular filtration rate and later with decreasing plasma renin and aldosterone concentrations.[5] Clonidine has also been hypothesized to increase free water and osmolar clearance by acting on alpha 2b and 2a adrenoreceptors respectively.[8] In another study, intravenous administration of clonidine to dogs induced water diuresis with hypo-osmotic urine. The plasma renin activity also got decreased. It was hypothesized that clonidine induced water diuresis was mediated via an anti ADH effect due to increased renal prostaglandin activity. ADH infusion and indomethacine pre-treatment inhibited the diuretic effect of clonidine in these cases.[9]

Here we present a case highlighting the fact that diuresis though uncommon, should be looked for by psychiatrists in patients who are on clonidine for opioid dependence.

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Case Report

Use of Clonazepam in Parkinsonism Secondary to Chronic Toluene Use

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Introduction

Use of Inhalant in adolescents is on an alarming rise in India.[1] They are easily available, cheap, there is no problem with concealment and the use is not illegal. Inhalants are central nervous system (CNS) depressants, and cause serious medical effects on almost every organ system. Their mechanism of action is to stimulate the gamma-aminobutyric acid (GABA) and the glycine α_1 receptors and also inhibit the N-methyl-D-aspartate (NMDA) receptor, leading to inhibition in the CNS.[2]

There are no definitive treatment guidelines for inhalant abuse and literature search from India only has case report [3] and case series.[4]

Case Report

We report on a case of a 19-year-old female, a chronic toluene user for last 6 years, without any co-morbid psychiatric and medical disorder or history of other substance abuse. Her past and family history was not contributory. She inhaled toluene from a cotton bag saturated in paint thinner for many hours daily. She was admitted to this tertiary care neuro-psychiatric hospital for management of aggressive behavior, self neglect, restlessness, sleep disturbances, severe tremulousness, rigidity, muscular pain and hyper-salivation. Physical and mental state examination had diminished facial expression, hypophonic dysarthria and very few non verbal gestures. She had a bent posture with slow and festinant gait with shuffling steps. Examination of the limbs revealed a fine resting tremor, cogwheel rigidity and slowness of movements. On higher mental function examination there was cognitive impairment—disturbances of attention and memory. MRI (Brain) revealed mild cerebral and cerebellar atrophy. All other laboratory parameters were within acceptable range. She was sero-negative for HIV, HBsAg and HCV. Urine drug screen for other substance use was negative. She was rated on Abnormal Involuntary Movement Scale (AIMS) and on the Mini-Mental State Examination (MMSE) and scored 26 and 24, respectively. She was diagnosed to be suffering from Inhalant dependence syndrome with chemical induced Parkinsonism.

She was prescribed clonazepam initially for arousal symptoms (upto 3 mg/day). Within a week, the patient's anxiety, insomnia, and irritability remitted completely, whereas the cognitive functioning gradually improved. Rigidity and tremulousness also gradually resolved on increasing clonazepam to 4 mg/day. Three weeks later she could walk without support and tremors were negligible. The score on the AIMS dropped to 10 and MMSE score increased to 26. She was later taken up for behavioral interventions for substance use problem. The patient maintained improvement after discharge from the hospital following an in-patient stay of 45 days and was subsequently lost to follow up.

Discussion

This case study illustrates that inhalant use was initiated at a very early age and the neurological side-effects because of prolonged heavy use posed a therapeutic challenge in managing withdrawal symptoms. Parkinsonism and other neurological complications after heavy solvent use have already been reported in the literature.[5]

In our case, chronic toluene use resulted in Parkinsonism and mild cognitive impairment and

toluene withdrawal resulted in restlessness, aggression, anxiety, irritability and insomnia. Clonazepam has been shown to be effective in patients with parkinsonian dysarthria,[6] tremors,[7] muscle spasticity and pain,[8] and sleep disturbances.[9] The data from a case report[10] suggested that clonazepam might also be efficacious as monotherapy in the treatment of toluene withdrawal syndrome.

Concluding, till the time we have conclusive research evidence for the treatment of solvent dependence, clonazepam can be used for management of both withdrawal symptoms and neuropsychiatric complications in similar cases.

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Case Report

Alcoholic Hallucinosis

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Introduction

Alcoholic hallucinosis classified under alcohol induced psychotic disorder F10.52 in International Classification of Diseases-10 (ICD-10) is a well known entity.[1] It is a complication of chronic alcohol abuse and characterized by predominantly auditory hallucinations that occur either during or after a period of heavy alcohol consumption.

It can be very easily confused with withdrawal delirium as it occurs after quitting alcohol and usually within 72 hours, the time during which risk of delirium tremens is maximum. The differentiating points from delirium are that it occurs in clear consciousness and withdrawal symptoms are generally very less.

Alcoholic hallucinosis is a rare complication of chronic alcohol abuse and a prevalence of 0.6-0.7% in alcoholics has been reported.[2]

The course of alcoholic hallucinosis is variable. A 18 months follow up study of alcoholic hallucinosis by Sampath et al[3] found that recovery from acute symptoms is much earlier than schizophrenia.

Perme et al[4] followed up 52 cases of alcoholic hallucinosis for a period of 3 years and found that more than 55% of patients had no hallucination while maintaining abstinence from alcohol. However, more than 13% were still had hallucination inspite of abstinence.

Here, the authors have reported a case of alcoholic hallucinosis, who has been admitted in psychiatry ward multiple times and every time he recovered completely with antipsychotic medicines.

Case Report

A 43 year married male, middle pass, truck driver by profession presented with history of alcohol use in dependence pattern as per ICD-10 for around 20 years. Patient quit alcohol abruptly one week ago due to nauseating feeling and pain abdomen secondary to excessive alcohol consumption. After that, he started remaining fearful and family members noticed him talking to self and behaving oddly. He would keep on sitting on bed and would keep on praying to God most of the time. He would ask his wife to take food from his plate before him and when she refuses, he would be irritable and would not take food alleging that food has poison. He would give very limited reasons to family member for his behaviour. Being unmanageable at home, family member brought him to hospital and he was admitted in psychiatry ward.

During ward stay, he was observed talking to self and when asked for reason he revealed auditory hallucinations which were second person, commanding type predominately and third person in between. These hallucinations have persecutory content and patient would be following some of them. He was fearful because of these voices and was unable to sleep at night. These voices were of some saint "Guru Ji" and his followers. These voices were talking of mixing poison in his food so he was avoiding food. He was asking his wife to take food from his plate thinking that saint will not mix poison in his food because his wife is more religious than him. He would go to bathroom repeatedly to spit on command of voices and fearing dire consequences if he does not follow command. He would cover his mouth because of fear of being poisoned by some poisonous gas. Patient would often get irritable because of these voices. On asking, he would also express his surprise that why only he was able to hear these voices. He also had somatic hallucination and he feels that his body being cut at various places by some sharp object but did not feel any pain, saw any sharp object or blood. However, he would feel

flowing of blood and experience shaking of bed while lying on bed.

All above symptoms were occurring in clear consciousness, without any disorientation or diurnal variation and in absence of any organicity. There was no other significant family history. There were multiple protected sexual exposures to commercial sex workers. Physical examination was within normal limits except for fine digital tremors, routine blood examination (full blood count, urea, creatinine, electrolytes, liver function tests) and HIV status were within normal limit.

Patient was managed with antipsychotic Risperidone and he was also treated for alcohol dependence. He improved completely after 17 days of treatment. At time of discharge, there was no active psychopathology and associated behaviour. Patient also had good insight about his illness and he expressed strong motivation for future abstinence from alcohol.

In past patient had three similar episodes in last two years for which he was admitted in same hospital. In every episode, he was treated with antipsychotic and benzodiazepine medicines. After discharge all his medicines were tapered off (except for anticraving) within 4-6 weeks and patient would maintained well. Patient had poor follow up after stopping medicine and would starts consuming high amount of alcohol as before after 4-6 months of discharge from hospital. In earlier episodes also patient had second and third person persecutory auditory (with different content) and tactile hallucination. The onset of episodes was after 48 hours of quitting alcohol and illness would keep on worsening over next 4-6 days after which patient would be brought to hospital and would improve with antipsychotic medicines. There was no delirium in any episode. Every time patient was hospitalized and he recovered completely with antipsychotic treatment. However, over the time, the duration of subsequent episode was increasing (from 6 days in first episode to 22 days in 4th episode) but it always remained less than 1 month, and patient also requires higher doses (Asenapine 10mg in first episode, Risperidone 2mg, 6mg, 8mg respectively in subsequent episodes) of antipsychotics to get treated. There was no change in personality of patient and psychotic episodes were episodic with strong relation to abrupt discontinuation of alcohol.

Discussion

Alcoholic hallucinosis is a well known entity but its cases are rarely seen now. The foremost important part of evaluation is to differentiate it from alcohol withdrawal delirium. It is very important to differentiate the two as one requires higher doses of benzodiazepine and other requires antipsychotics.

Alcoholic hallucinosis should be differentiated from any comorbid /underlying psychotic illness as it is quite possible that patient might be taking alcohol to relieve the distress due to psychotic illness. Moreover, many of the hallucination found in alcoholic hallucinosis are also found in schizophrenia so misdiagnosis may lead to unnecessary long term antipsychotic treatment. A change in personality and continuous course are evident in schizophrenia and helps in differentiating. Our patient had a very acute onset (reach peak in 4-6 days) which is usually not present in schizophrenia. Thought phenomena which is found in schizophrenia is not usually found in alcoholic hallucinosis.[3]

Alcoholic hallucinosis has also been considered to be a heterogeneous condition with a varied outcome. However, in our case, the patient would be free from hallucination as long as he is abstinent from alcohol and would have hallucination after relapse to alcohol, which is similar to earlier study by Perme et al.[4]

The index case showed complete recovery from acute symptoms within 2-3 weeks of treatment which is similar to earlier studies.[3,4-7]

The current case is unique in the senses that every time he developed similar kind of psychopathology within 48-72 hours of abstinence from alcohol in clear consciousness, recovered completely with antipsychotic treatment, and remained well in between. However, with repeated recurrence, the dose of antipsychotic required to get relief, was increased and duration of episode was also increased, which may put the patient on risk of prolonged future episode and further higher doses of antipsychotics.

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Case Report

Intensive short term dynamic psychotherapy in management of chronic depression:

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Introduction

The essential feature of a major depressive episode is either depressed mood or the loss of interest or pleasure in nearly all activities. Females experience 1.5 to 3 fold higher rates than males beginning in early adolescence. The course of Major Depressive Disorder (MDD) is quite variable, such that some individuals rarely, if ever, experience remission, while others experience many years with few or no symptoms between discrete episodes. A more chronic form of depression, persistent depressive disorder can be diagnosed when the mood disturbance continues for at least 2 years in adults. This diagnosis, new in DSM-5, includes both the DSM-IV diagnostic categories of chronic major depression and dysthymia.[1] Persistent depression is the number one cause of disability in North America and is the third leading cause of disability worldwide.[2] Available evidence suggests that up to 50–60% of patients do not respond adequately to initial antidepressant trials.[3]

Problems identifying emotions, alexithymia, was associated with the severity of residual depressive symptoms in one recent study.[4] Gilbert et al.[5] found that over 80% of a sample of patients with depression directed anger at themselves. Theoretically, any of these psychological problems can counter the effects of clinical management if they are unattended.[5]

Davanloo developed intensive short-term dynamic psychotherapy (ISTDP) at the Department of Psychiatry of the Montreal General Hospital of McGill University, effective to treat patients with depression and personality disorders through an emotion-focused process.[6] This treatment helps the patient to overcome problems in regulating complex feelings, a process identified as important in diverse research.[4,5] ISTDP is effective with lasting effects, likely cost effective, and preferred by patients over medication treatments. ISTDP is also effective with personality disorders even combined with depression suggesting they be considered a first line option in those cases to reduce the rate of non-response and perhaps prevent chronicity.[7]

There are limited literatures on role of ISTDP in management of chronic major depressive disorder. We present the case of elderly female suffering from chronic depression and who had a significant improvement due to add-on ISTDP unmanageable with only pharmacotherapy.

Case Report

A 58-years old married female was brought by her husband to psychiatry department in OPD hours. She presented with the complaints of low mood, lack of interest in household activities, poor social interaction, neglected self care, guilt feeling, fearfulness that police will arrest her and significant deterioration in work function since 6 years with insidious onset and progressive course. According to her husband, her symptoms precipitated after her house being demolished by the municipal corporation. The psychotic symptoms arose after the depressive features. As per the available documentation, she was diagnosed as schizophrenia and receiving medications which included clozapine (250 mg/day), olanzapine (10 mg/day) and diazepam (15 mg/day) for 2 years and reporting no improvement. Husband reported good drug compliance. There were no

complaints suggestive of hypomanic or manic features, no fluctuation of symptoms and no pure psychotic symptoms in the absence of depressive features during this 6 years period.

Following this the patient was interviewed. She said, "she is not feeling well, she feels bad, doesn't like to work, she is a bad women and feels guilty as she had done bad things during her childhood." The interview revealed that at the age of 10 years, she was abused sexually by her cousin brothers and who threatened her not to reveal events to anybody. And out of fearfulness she never disclosed the matter to any of her family members. During the interview she said, "she was unable to stop them, not powerful enough to resist their acts and so she herself was responsible for her abuse and a bad woman and should be punished for her deeds, that's why the police will come to arrest her." She was diagnosed as persistent depressive disorder with persistent major depressive episode with mood congruent psychotic features (according to DSM-5) and admitted in psychiatry unit. She was started on fluoxetine (60 mg/day), olanzapine (20 mg/day) and diazepam (5 mg/day). The dosages of fluoxetine increased from 20 mg/day to 60mg/day; olanzapine increased from 5 mg/day to 20mg/day over a period of 6 weeks.

Following interview with both the patient and husband, past history revealed a brief psychotic episode within a week of her marriage with spontaneous remission. After around 7 years of her marriage she had episode of post partum psychosis of short duration after the delivery of her 3rd child with spontaneous remission. She had an episode of major depressive disorder around 20 years back which lasted for around 1 year and recovered after consultation from a psychiatrist. There was no hypomanic or manic symptoms in the past episodes and treatment history of past episode not available. There were no medical or surgical comorbidities contributing to treatment resistance. The family history was not suggestive of psychiatric illness.

During the hospital stay routine investigations done including the blood sugar level and thyroid profile which revealed normal levels; general examination suggestive of average built and normal BMI. Then her treatment was optimized to adequate dosages over a period of 6 weeks. As the patient was not showing response, she was opted by the treating psychiatrist for the non pharmacological interventions as an adjuvant treatment modality in addition to the pharmacological treatment.

The intensive short term dynamic psychotherapy (ISTDP) was used as a non pharmacological intervention to treat the patient. Total 8 sessions conducted over a period of 4 to 6 weeks. Each session lasted for approximately 60 minutes. First few sessions spent for assessment, psychoeducation, building therapeutic alliance and positive transference; and rest of the sessions were used for therapy. The treatment process began with assessment of the patient's capacity to respond to emotionally focused interviewing. From this assessment, the process became more emotionally focused and more cognitive, with the aim to increase capacity to tolerate emotions. The patient was repeatedly asked to focus on the repressed feelings (childhood traumatic experiences) and difficulties; during which she manifested various maladaptive defenses; she was asked to avoid those resistance and defenses. When the patient had developed the capacity to tolerate emotions, emotions about recent and past emotion-laden events were focused upon to help the patient experience these emotions directly. Each such focus was followed by recapitulation of what was learned, to encourage emotional awareness and weaken the patient's avoidance of emotional experiences. Thus, the process helped build tolerance of emotions and development of insight into emotions and their impact on mood states. As the patient had significant work dysfunction, she was asked to follow the daily activity schedule during period between the sessions. Cognitive restructuring and cognitive challenges also given to correct dysfunctional beliefs of patient during sessions. At the end of 8th session, the patient and husband reported significant improvement with complete remission of symptoms. She was discharged from the hospital and advised to be in weekly follow-up for further sessions. She was maintaining remission of symptoms during follow-up regularly.

Discussion

The central aim of Davanloo's system of ISTDP is the rapid reduction or removal of resistance in direct access to the unconscious as a result of the breakdown of the major resistance and defense

systems with the attendant mobilization of unconscious therapeutic alliance.[6] Previous results demonstrate that robust statistical and clinically significant improvement can occur in a naturalistic/ hybrid model of outpatient short-term psychodynamic psychotherapy for depression.[8] In patients with personality disorders or histories of trauma, addressing emotional and personality factors appears important, if not necessary, in order to bring adequate treatment response. ISTDP appears overall to be feasible, cost-effective, and beneficial in uncontrolled case series of treatment-resistant patients.[9]

This case highlights the efficacy of ISTDP in combination of pharmacotherapy for longstanding depressive illness without any significant side-effect. Patient had improvement in mood state, dysfunctional belief and overall social functioning, where pharmacotherapy alone failed to show a response. These findings are in line with those of previous studies. In a 6 month randomized clinical trial of antidepressants and combined therapy in ambulatory patients with Major Depression, Patients found combined treatment significantly more acceptable, they were significantly less likely to drop out of combined therapy and, ultimately, significantly more likely to recover. Combined therapy is preferable to pharmacotherapy in the treatment of ambulatory patients with major depression.[10] In another 6-month randomized clinical trial compared Short Psychodynamic Supportive Psychotherapy with combined therapy in ambulatory patients with mild or moderate major depressive disorder, it has been concluded that advantages of combining antidepressants with psychotherapy are equivocal.[11]

Shapiro et al[12] reported that there was no overall advantage to 16-session treatment over 8-session treatment. However, those presenting with relatively severe depression improved substantially more after 16 than after 8 sessions.[12] To conclude this case demonstrates the efficacy of ISTDP within few sessions (8 sessions) and the cognitive component of the treatment program results in significant change in dysfunctional cognitions. There is a need to apply this technique in a large number of patients with chronic depression not responding to pharmacotherapy alone.

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Case Report

Delirious Mania — A Dimension Entity

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Introduction

Bipolar disorder (BD) is classically viewed as a condition characterized by periods of euphoric excitement and depressive retardation, which is easy to diagnose and treat, whose treatment is exclusively pharmacological, and whose outcome is generally favourable. However, recent advances have shown that the rubric "BD" actually encompasses a variety of conditions. Also, it may have comorbidity with other psychiatric conditions. The diagnosis of BD becomes difficult when there is a variation of the classical picture.

Delirious mania (DM), also known as Bell's mania,[1] is characterized by excitement, grandiosity, emotional lability, psychosis and insomnia characteristic of mania, altered consciousness, and disorientation characteristic of delirium.[2-6] The term DM was coined by Kraeplin, but was initially described by Calmeil,[7] and reported to have a high morbidity[8] and mortality.[1,9] Bell, in 1849, reported 40 patients out of 1700 admissions, who had features suggestive of DM and 75% of these patients subsequently died.[1]

DM is associated with BD, and its symptoms encompass mania and acute mental confusion.[6,10,11] 5–20% of all patients with acute mania show signs of delirium.[2] Klerman proposed staging of manic spectrum as follows: normal, neurotic, hypomanic, manic, and delirious.[12] DM has marked similarity to stage III mania as described by Carlson and Goodwin.[13] The transition of mania to DM is marked by emergence of confusion, more hallucinations, and a marked intensification of the manic symptoms. A dreamlike clouding of consciousness may occur.[14]

Many cases are precipitated by medical or neurological conditions[11] or by psychoactive substances.[2,11]. Adolescents and children are particularly prone to the very rapid development of DM.[14] DM was initially thought to be an uncommon syndrome, as many cases used to go unrecognized. Though the concept of DM is now documented in literature, not much is known about its aetiopathogenesis[15] and core clinical features. There are no treatment guidelines. The published literature mostly consists of case series.[16] Various controversies exist regarding proper nomenclature. The differernt terms used for delirious mania include excited catatonia,[15] lethal catatonia, and malignant catatonia and popular term "DM".[2]

We describe a case of DM that needed more diagnostic evaluation because of variability of presentation. We are reporting the indexed case to notify about the separate entity of Bipolar Disorder.

Case Report

Mr. X, a 45 year old average built male educated up to M.B.A. working as class I officer in a multinational company, living in nuclear family of upper-middle socio-economic status, urban background was brought to adult psychiatry OPD, Department of Psychiatry, PGIMER, Dr R.M.L. Hospital, New Delhi by his wife with total duration of illness of 20 years with episodic course. Current episode was third for last one month with chief complaints of easy irritability, not recognizing the family members and disturbed sleep.

Exploration of current episode revealed that the patient was having easy irritability, increased talkativeness, increased activity, decreased need for sleep. He started talking more than his usual self, with more time spent on talking with increased

gestures. He used to talk on various topics with boasting about his self and his capability which were not truth. He even used to talk to unknown people telling them about his heroic deeds. Overall his psychomotor activity was markedly increased. He used to roam around in the house throughout the day. He wanted to do various tasks single handedly at one time. He was always on the go mode. He would sleep for lesser duration, retiring to bed at late hours and then getting up early.

As the illness progressed, patient would get up at about 2 A.M. and would start getting ready to go to office and taking bath. On being asked, he would tell the family members that its bright sunny day and all of them were lazy people and late for work. Two days prior to the presentation in Psychiatry OPD, he was unable to recognize the family members at times and also telling that he was at his workplace, while he was at his home. He would tell his family members that he had something in the meal but did not turn out to be so. Family members told that he used to cook up stories of his own, which were not true. Family members reported that he is not able to recognize any family members. It was also reported that he was not oriented to his surroundings. His symptoms would worsen during the evening period. History of 'Sun Downing Phenomenon' was present.

Past psychiatric history included two episodes. First episode was characterized by sadness of mood, anhedonia, excessive weakness, hopelessness, helplessness lasting for approximately for six months which responded after treatment from psychiatric facility. Second episode was characterized by overcheerfulness, increased talktiveness, boastful talks, increased goal directed activity, decreased need for sleep with inability to recognize family members and day and night. His old treatment records mentioned about bipolar affective disorder with reversible cognitive decline.

Family members reported that patient used to self medicate himself for past one month with tab Alprazolam 0.5 mg as he had difficulty in falling asleep. Details about the dosage of Alprazolam intake was not known to family members. No history of any another substance use was reported. Past medical history, family history, personal history and premorbid personality were noncontributory.

Mental status examination revealed an average built middle aged male brought by his wife, who was forced to enter the room. Patient was having below average personal hygiene. He was wearing dirty shirt and trouser with no footwear. He was unshaven with hair unkempt. As he entered the room, he was repeatedly trying to move out and did not greet the interviewer. Throughout the interview, patient was trying to get up and move to and fro in the room. He was unable to sit still. He was trying to pick up invisible things on the table telling them as stationary articles. Flocillations were present. Throughout the interview, he was not paying attention to the questions and saying things of his own which were not even asked. His speech was incoherent at times with excessive use of adjectives.

Patient was disoriented to time, place, and person. His attention and concentration was not aroused and ill- sustained. His affect was perplexed throughout the interview. His thinking showed confabulation. His immediate, recent and remote memory, intelligence and abstract thinking could not be elicited. His judgment was impaired. Patient had no insight about his illness.

His complete blood count, renal function test and liver function test were within normal limits. Serum electrolytes were within normal range. ECG was normal. Urine drug screen was within normal range. Ultrasonography of whole abdomen was normal study. EEG showed generalized slowing of the background. MRI Brain was also advised to rule out any neurological illness which did not showed any abnormality.

On the basis of exploration of history, mental status examination and battery of investigations we reached to a differential diagnosis of (1) Bipolar Affective Disorder, current episode mania with psychotic symptoms with Mental and Behavioral disorders due to use of benzodiazepine, complicated withdrawal, delirium without convulsions. (2) Delirious mania.

Since all the investigations were within normal limit and the urine drug screen came out to be negative, any medical / neurological cause or benzodiazepine withdrawal delirium was ruled out. Management was started in accordance with diagnosis of delirious mania. Dehydration was managed with appropriate fluids, with regular monitoring of vital parameters. Patient was treated in lines of delirious mania with mood stabilizer as

Sodium Valproate and atypical antipsychotic as Olanzapine. Patient showed initial response within one week.

As the patient showed improvement, his speech was coherent and relevant. So, mental status examination was repeated with findings of increased psychomotor activity. Patient was conscious of himself and his surroundings and he was oriented to time, place, and person. His attention was arousable, but his concentration was impaired. His affect was exalted throughout the interview. His speech was increased in rate, quantity, tone and volume with decreased reaction time. His thought flow was increased with prolixity and delusion of grandiosity with no perceptual abnormality. His immediate, recent and remote memory was intact. Patient had average intelligence level as his general fund of knowledge was adequate and had average arithmetic ability. His abstract thinking was impaired. His judgment was impaired. Patient had no insight about his illness.

Patient was rated on YMRS then, which could not be done earlier as patient was disoriented, which came out to be 19. Patient showed significant improvement on Sodium Valproate and Olanzapine. Patient was hospitalized for two more weeks. His symptoms gradually improved and his YMRS score was 9 at the time of discharge after a hospitalization period of approximately three weeks. Patient is in regular follow up for last six months at a standard dose of 1 gm Sodium Valproate and 20 mg Olanzapine.

Discussion

This could well be our "most severe" recorded case of mania, who responded wonderfully to treatment. It is a classical case of bipolar-I, but with an element of delirium. A case of DM as per Bond's criteria, (i) acute onset of symptoms, (ii) presence of mania, (iii) features of delirium, (iv) history of mania and (vi) responsivity to treatment for mania.[19]

A differential diagnosis of benzodiazepine withdrawal delirium was kept. But urinary screening test did not revealed any indication of benzodiazepine abuse. A possibility of any neurological cause was also ruled out by normal MRI Brain report. Delirium due to other medical causes was also ruled out following normal blood and urine examinations.

Early recognition of sleep disturbance is crucial for the prevention of relapse or recurrence in BD patients[20]. A point worth mentioning is that our patient's sleep was disturbed since few days before admission. After starting Sodium Valproate and Olanzapine, the sleep and mental status started improving within 1 week. Typical antipsychotics are found to be beneficial in delirium[21]; however, some authors caution against their usage in DM.[16,22] Atypical antipsychotics are proposed to be useful in DM.[16,18,23,24]

The indexed patient had a very brief inpatient stay, just 3 weeks, and this is in contrast to earlier case reports needing prolonged hospitalization.[17] It should be remembered that DM is a life-threatening condition and should be treated aggressively.

Conclusions

The indexed case illustrates the real world challenges which clinicians face in their day-to-day practice. Extreme excitement during the manic phase of BD should alert to the possibility of delirium. DM, an extremely severe, yet rare condition,[1] involves severe incessant agitation, leading to a medical emergency. There is a high likelihood to misdiagnose these cases as organic mania. Lack of recognition of this condition may lead to mismanagement of the course of illness.[19] Though this condition was first described about one hundred and eighty years back, and there is good literature in this regard, it is unfortunate that there is no mention of this life threatening, yet treatable condition in recent systems of classification and text books of psychiatry. The fact remains that there is a separate entity called DM, which needs specialized attention.

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Case Report

Trichotillomania with Anaemia

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Introduction

The International Classification of Diseases, 10th edition by the World Health Organization classifies trichotillomania under Habit and Impulse Disorders, as a condition "characterized by noticeable hair loss due to a recurrent failure to resist impulses to pull out hairs, preceded by mounting tension and followed by a sense of relief or gratification".[1] Though it has been long debated being in spectrum of obsessive compulsive disorder and currently, DSM 5 has categorized it in Obsessive Compulsive Disorder.[2,3] Trichotillomania is a term, first described by a French Dermatologist, Hallopeau in 1889, to denote an irresistible urge to pull one's own hair.[4] Its reported be more common in females, with prevalence rates of 0.6%.[5] Across the developmental spectrum sufferers can experience medical complications such as skin irritations at the pulling site, infections and hand injuries.[6] The subset of individuals who ingest the hair after pulling are at risk of gastrointestinal complications from trichobezoars, which have been documented in children as young as 4 years of age.[7,8] Psychiatric co morbidity in adults appears to be very common, with anxiety disorders, mood disorder, substance use disorders, eating disorders, and personality disorders being the most common co morbid conditions in adults.[9]

Trichotillomania has been found to be a familial and genetically influenced psychiatric disorder. Several cases of familial hair pulling have been reported.[10,11] The CDH2 gene located on chromosome number 7, encoding for protein cadherine-2 is a potential candidate for this disorder.[12] There is an apparent role of stress and it has been seen that hair pulling behavior increase or precipitate in tension and has been seen to be overlapping with post traumatic stress disorder.[13]

Treatment including use of clomipramine, olanzapine and selective serotonin reuptake inhibitors like fluoxetine, paroxetine, and others, either alone or in combination with behavior therapy including stimulus control, have been reported to be useful in the management of trichotillomania.[14-16] A form of psychotherapy called habit reversal training may be an effective treatment and another treatment, acceptance, and commitment (ACT), helps people learn to accept their hair pulling urges while at the same time teaching them how to avoid acting on their impulses.[17,18]

Case Report

A 22 year old lady was referred from dermatology department with complaints of marked hair loss on her scalp from last 6 months. This was due to repetitive hair pulling, which has increased from last two months. Patient described it as an irresistible urge which increased when patient has nothing to do or sitting alone. It increased especially when she was upset and it was also reported as pleasurable and tension relieving at times. She would get embarrassed when people noticed it and asked her to stop, but whenever she tried to stop, she felt tensed and anxious. There was no significant past and family history. There was no history of substance abuse. Pre morbid personality was well adjusted. The physical examination revealed marked patchy hair loss over parieto temporal and frontal areas, without any scarring. Eyebrows and eyelashes were normal. The mental status examination revealed a shy, well dressed and groomed lady. Her speech was normal and her affect was anxious. Thought assessment revealed preoccupation with hair loss on her scalp. There were no perceptual abnormality

and cognitive function revealed impaired concentration.

She was investigated thoroughly. Dermatologists did the dermoscopy which showed empty follicular ostia, broken shafts and no hemorrhage. No abnormal pigmentation or vessels seen. Her scalp biopsy was unremarkable. On investigations she was found to have anemia. Her hemoglobin was 8.7, peripheral smear showed microcytic hypochromic anaemia. Her mean corpuscular volume (MCV) was 63 (reference range is 83-97 fl) and the mean corpuscular hemoglobin concentration (MCHC) was 28.0 (reference range is 32-36g/dl). Serum iron profile showed decreased transferring saturation (6.7%) and her vitamin B_{12} level was normal.

Patient was started on Fluoxetine 20 mg/day, which was increased to 40 mg/day after 4 weeks. she was also given habit reversal training in which she was taught to recognize situations where she was likely to pull hair and substitute it by clenching of her fist. At follow up on 5 weeks she showed significant reduction in hair pulling behavior. She was no more anxious and reported that she could now control the urges in a better way. She was also taught relaxation exercises to reduce her stress and prevent exaggeration of illness.

Discussion

This is a case of Trichotillomania with iron deficiency anemia. Trichotillomania, though known to be familial,[10,11] in this case there was no positive family history for the disorder or any obsessive compulsive disorder. Trichotillomania is known to present with gastro intestinal tract obstruction with nausea, vomiting, anaemia, weight loss, vitamin B 12 and other deficiencies, ulceration and perforation.[19,20] Patients presenting with such features along with hair loss should be evaluated for Trichotillomania. Dermoscopy findings can help distinguish Trichotillomania from Alopecia areata.[21] An effort should also be made to rule out presence of other co morbid psychiatric disorders as depression, anxiety and personality disorders, which are commonly associated with Trichotillomania.[9] This patient was treated with Fluoxetine and behavioral therapy, though Fluoxetine should be used with caution in such patients especially in females, as its indiscriminate use is known to cause drug induced generalized alopecia. The exact prevalence and mechanism of Fluoxetine induced alopecia is not known but factors such as dose, duration of therapy and nutritional status might be implicated.[22] Behavioral interventions with pharmacological therapy are seen to be very effective in reducing symptoms of Trichotillomania, help in reducing relapse at times of stress and reducing need of medication in long term.

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Case Report

Dependence on Anabolic-androgenic steroids: A case report and brief review

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Introduction

Anabolic androgenic steroids (AAS) are synthetic lipophilic hormones that have effects similar to testosterone, which include muscle-building and androgenic or masculinization effects.[1] AAS are categorized in U.S. as schedule III controlled substance i.e. with accepted medical uses but may cause moderate/low physical dependence or high psychological dependence. AAS still remain a relatively easy substance to procure over internet and in many developing countries, including India. The AAS have been traditionally abused by sportspersons but in recent times, AAS use is seen among young men not involved in athletics or sports for various motives e.g. increased libido, increased body size and improved physical appearance.[2]

Presence of a dependence syndrome for AAS has remained a less explored and debatable subject. AAS users generally administer the drugs for blocks of time ('cycles') which typically last 8-12 weeks followed by drug-free intervals. These planned cycles help to avoid tolerance and prevent suppression of HPA-axis.[1,2] Evidence points to the addictive potential of AAS and regular use may lead to development of neuro-adaptation in brain-reward systems and associated behavioral manifestations. AAS users are also prone to use other body enhancing drugs and illicit drugs, most notable association seen with opioids.[3]

AAS abuse/dependence remains an uncommon clinical presentation in Indian treatment settings. We discuss the case of an adult male with AAS dependence who presented to the National Drug Dependence and Treatment Centre (NDDTC) for treatment.

Case Report

Mr. A, a 28 year old unmarried male, educated upto 12th standard, belonging to nuclear family presented to the centre accompanied by his mother. The chief complaint was injection nandrolone use for 4 years. Patient was substance-free till the age of 15 years when he started chewable tobacco with his friends and soon became a dependent tobacco user. At the age of 21 years, he started using codeine cough syrup on insistence of a friend. Within a few weeks, he also started capsule dextro-propoxyphene to supplement the effects of the cough syrup. He continued using both the substances daily (5-6 bottles of cough syrup and 24-32 capsule dextropropoxyphene) for their euphoric, relaxing effects and to induce sleep. After about three years, he had a few episodes of generalized seizures, possibly related to dextro-propoxyphene dose. He was strictly advised by the doctor to stop drug use, but patient would experience withdrawal and intense physical discomfort on trying to do so. He got himself admitted in a private treatment facility, where he remained abstinent from opioids for a month, but began to experience a subjective sense of physical weakness. It persisted in the post-discharge period, and over next few weeks, he tried several measures, including exercise and restarting of opioid use, in order to build physical strength and endurance. He was frustrated with sense of persisting 'bodily weakness', when he suddenly remembered that a medical practitioner had given him an injection to treat post-jaundice malaise and weakness few years

ago. He immediately consulted the medical practitioner to get the same injection again. The medical practitioner started injection nandrolone decanoate (25 mg/ml) intramuscularly, assuring him that it will help to gain physical strength. As advised, he continued with three-monthly injections (injected each time by medical practitioner using a fresh syringe/needle). Over next year, patient started to note that his muscle mass had increased, more so in upper limbs and torso. His body weight had increased by 10% of previous weight. He felt energetic and experienced a discernible improvement in sexual performance. His mother also noted that he had started to be irritable or aggressive on trivial matters. The use of capsule dextropropoxyphene and codeine cough syrup continued at previous daily dose in addition to injections.

Gradually, there was an increase in the frequency as well dose of injections (3-monthly in first year, monthly in second year, fortnightly in third year followed by 3-4 injections fortnightly by time of presentation). He would not give any drug-free intervals. If he missed a dose, he would be lethargic, dysphoric, withdrawn and experienced a decrease in libido/sexual performance. Over past year, he had started experiencing hair loss over scalp, decreased sleep and frequent increase in aggression, which lead to repeated familial conflicts. Patient did not have any regular job for past four years. He would work for only few hours in part-time jobs and spend evening time with substance-abusing friends. He did not take much household responsibilities. Before presentation to centre, he had become concerned about growing baldness and frequent episodes of aggression. He presented to the treatment centre with his mother and was admitted for further evaluation and management.

Family history was positive for alcohol dependence in father. Birth, development and childhood history was unremarkable. He became sexually active at 20 years of age, and had multiple physical relationships with his girlfriends over time. The premorbid personality appeared well-adjusted, though an impression of few cluster B traits was made.

On physical examination, no abnormality was detected except hair loss over almost entire scalp. BP was 130/86 mm Hg. In mental state examination, the psychomotor activity and speech productivity was slightly increased. Thought content revealed ideas of guilt. Motivation was fair with an internal locus of control. As per ICD-10[4],a diagnosis of tobacco dependence syndrome (F17.2), opioid dependence syndrome (F11.2) and abuse of non-dependence producing substances - steroids or hormones (F55.5) was made. Patient was admitted for further evaluation and management.

Routine hemogram, renal and liver function tests were within normal limits. HIV ELISA was negative. Neurology referral was sought in view of past history of seizures. NCCT head revealed bilateral pallidal calcification and widened sulcal space, suggestive of generalized cortical atrophy. As advised by neurologist, Tab Phenytoin (300 mg/day) was continued for seizures. Following investigations were specifically done for steroid-related health damage: Serum cortisol, Serum ACTH, Serum LH, Testosterone levels, Lipid profile, 2D ECHO and USG abdomen. All were within normal limits except for serum LH (0.66 mIU/ml) and testosterone levels (0.284 microgram/ml), both of which were considerably below normal levels. On Endocrinology consultation, it was advised to wait for spontaneous recovery of HPA axis suppression and to keep monitoring the levels.

Tab Buprenorphine (sub/lingual) was started for purpose of managing opioid withdrawl, 4 mg/day in divided doses and gradually tapered off over two weeks. Antagonist therapy (Tablet Naltrexone 50 mg) was started for long-term management of opioid dependence. During the week 3 and 4, AAS withdrawl symptom checklist was applied to monitor any AAS withdrawl which may occur. There was fatigue, weakness (day 16th -26th), depressed mood, restlessness and anxiety (16th to 22nd), insomnia and decreased libido (persisted throughout) for which symptomatic management was provided. Patient was provided psycho-education and relapse prevention sessions on regular basis. He was discharged during the 5th week with an advice to continue out-patient follow-up. Patient remained compliant to medication and was abstinent from opioids (as confirmed by urinalysis using thin layer chromatography) as well as AAS (as per self and family's report). Both LH and testosterone levels recovered to normal in repeat assays done after three months. He had started job as an insurance agent and maintained well for a period of one year till last contact at the centre.

Discussion

Illicit AAS use represents a growing public health problem, more so in the western countries, where around 1% of young men have ever used AAS.[5] In contrast, surveys from Asian countries, including India, do not reveal AAS to be a common drug of abuse, which might be due to a cultural difference with a lesser emphasis on idealized physical appearance. The present case report adds to the limited literature on cases with AAS from India.

The concept and diagnostic criteria for AAS dependence syndrome has remained a controversial subject.[3,6] The ICD-10[4] classifies use of anabolic steroids under the category of abuse of non-dependence producing substances and the DSM-5 [7] also does not specifically categorize AAS, which may be diagnosed as 'other substance use disorders'.[7] Unlike classical drugs of abuse, AAS use does not produce any immediate intoxicating effects or 'high.' Although AAS may produce some feelings of euphoria and increased self-confidence, these effects are inconsistent, slow to develop, and usually carry a lesser significance in the decision to use the drugs.[1] Further, the standard diagnostic criteria for substance dependence do not apply quite as easily to AAS dependence. For example, criteria such as 'using the substance in larger amounts than was intended' or 'giving up or reducing important activities because of substance use' may apply more easily to alcohol or opioids than to AAS. Researchers have proposed a slightly modified diagnostic criteria for a diagnosis of AAS dependence.[8]

The present case had an evidence of AAS withdrawal symptoms, tolerance, difficulty in controlling levels of use and continued use despite overtly harmful consequences. This maladaptive behavior pattern surrounding drug use is strongly suggestive of dependence. Animal studies (e.g. repeated self-administration and conditioned place preference models) also support the possibility of dependence over AAS.[6,9] As many as 14-30% of AAS users are likely to be dependent users.[3] The withdrawal symptoms have mostly been described as mood symptoms/disorders, insomnia, anorexia, decreased libido, fatigue, headache, muscle and joint pain, and desire to take more steroids, many of which were seen in present case.

At least three etiologic mechanisms may facilitate dependence viz. underlying body-image disorder/dysmorphia, dysphoria occurring from AAS-induced hypogonadism or the hedonic effects of AAS itself as in case of classical addictive drugs.[10] The management plan should target the underlying factors, if any, which may be responsible for dependent use. In the present case, the AAS use began iatrogenically due to a persistent vague sense of physical weakness. Some hedonic effects (feeling energetic, confident) and positive effects on sexual performance were experienced by the patient which acted as a reinforcer. Later on, use mostly continued to relive himself of the dysphoric, lethargic state which would occur in absence of AAS injection.

The initiation of AAS use typically occurs a little later than other drugs of abuse, usually in 20s, as seen in present case. The dependent users of AAS, compared to occasional users/non-users, are significantly more likely to be older and muscular, less educated, have a single parent, family history of substance use disorder, childhood history of conduct disorder and a lifetime history of substance dependence (mainly opioids).[11] In present case, some risk factors e.g. opioid dependence and a family history of substance dependence were present.

AAS users have a significantly higher prevalence of non-alcohol substance dependence, most commonly opioid dependence.[3,11] AAS users are prone to develop opioid abuse/dependence in future, but in present case, opioid dependence preceded and co-occurred with AAS use. It has been proposed that AAS dependence may particularly involve opioidergic mechanisms, or both may arise from a common diathesis.[6,9] In animals, the opioid antagonist naltrexone has been shown to block AAS dependence. As AAS possibly enhance endogenous opioid activity, the role of naltrexone in AAS dependence might be explored in future research.[3,6]

Use of AAS has been shown to be associated with various psychiatric as well as medical co-morbidities.[12] The present case had developed frontal baldness as a result of chronic AAS use, which led to concern and help-seeking. Though there was some increased aggression and psychomotor activity at time of presentation, but it was not found

to be accompanied by other mood or behavioral symptoms. It is important to screen for AAS-related health damage by means of a thorough examination and relevant investigations. As with other drugs of abuse, management should aim at building the motivation, assisting in initiating and maintaining abstinence, addressing the health damage, improving the coping and self-efficacy, reducing relapse risk and involvement of family and other social support systems. This patient remained abstinent and was optimally functional for a period of at least one year of follow-up.

To conclude, illicit AAS use among young men is of emerging concern. It remains an uncommon presentation, at least in clinical settings in India. There is a need to study the clinical and biological aspects of AAS abuse/dependence, including its association with opioid use disorders.

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Case Report

Behavioural Management of an Adolescent with Writer's cramp

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Introduction

Writer's cramp (WC) is known as occupational neuroses (ICD-9, F300.8) and other specified neurotic disorders (ICD-10, F48.8) under the large group of functional motor disorders. It is characterized by in-coordination, stiffness, pain, spasm and tension in muscles of fingers and hand. It is also known as Mogigraphia, Graphic Dyskinesia, Scrivener's palsy and Graphospasm.[1] The prevalence rate of WC is 5.4 per thousand among office workers in urban setting.[2]

Various behavioural methods such as modification of retraining method, biofeedback, and operant conditioning have been used earlier to treat this disorder with less or more success.[3-5] Behavioural management tends to involve therapeutic package ranging from 20 to 50 sessions with components from relaxation, conditioning, reinforcement, desensitization, and supinator writing with or without abstinence from writing. This case report aims at presenting how an adolescent male was helped to manage writer's cramp.

Case Report

Mr. JMM, a 17 year old male, studying in Pre-University College-II, belonging to nuclear family with middle socio-economic status, hailing from urban area, came with his parents to the Department of Clinical Psychology, for psychological evaluation and treatment with the chief complaints of writing problems due to hand pain, unable to concentrate on study, anxious and nervous about future since last one year. The onset was insidious and course of the disorder was continuous.

He was born of full term normal delivery to a non-consanguineous marriage. His motor and speech developmental milestones were reported to be age appropriate.The medical and treatment history revealed that he neither had any physical, mental or neurological disorder nor any exposure to psychological or pharmacological treatment.

On detailed clinical interview, it was found that he was facing severe writing problem and hand pain in the right hand at school and coaching centre. Because of the severity of pain, he used to cry and started avoiding the writing and therefore his academic performance was progressively deteriorating. The poor academic performance caused him to develop poor-self esteem and anxiety about his career and future life. He was diagnosed as a case of other specified neurotic disorders (writer's cramp) (ICD-10, F48.8).

Intervention consisted of 20 sessions (approximately 20 hours of individualized treatment) of structured and need based intervention programme, divided into three sections like relaxation technique, supportive psychotherapy and supinator writing practice. Intervention started with psycho-education about WC and motivational counseling. To establish a baseline of hand pain and anxiety, Visual Analogue Scale[6] (VAS) and Hamilton Anxiety Rating Scale[7] (HAM-A) has been used and a writing sample was taken from him during the first session of clinical interview.

Techniques employed for intervention were

i. *Relaxation technique*: Jacobson progressive muscular relaxation therapy[8] was given to the subject. The goal of this therapy was

to make the subject relax and achieve mastery over it. Thus four sessions were given to teach this technique. Subject was asked to practice regularly at morning and evening to overcome his anxiety symptoms and to make him more relaxed during writing. His progress was checked during the sessions and maximum stress was given to the relaxation of the upper limbs like arms and shoulders, in addition to the whole body.

ii. *Supportive psychotherapy*: Four sessions were given to subject, to promote his best possible psychological and academic adaptation by restoring his ability to cope up with his writing problem. It helped him to break the vicious circle of negative self-appraisals about hand pain and writing problems and boosted his self-confidence to tackle the problem.

iii. *Supinator writing practice*: Twelve sessions were given for supinator writing practices which were preceded by relaxation exercise. He was also asked to practice the same two to three times at home for 10 to 15 minutes. The subject had to use a thick water colour painting brush (size 6) holding his writing hand in the supinator position with the fingers in the position of relaxation. The brush was placed between the index and middle fingers. This training consists of writing of words and sentences with brush, and writing with time limit to increase the speed. Primarily the focus was on retraining the right hand muscles to function without any strain and controlling his anticipatory anxiety for the spasm.

The pre-intervention scores were 9 on VAS and 26 on HAM-A respectively. Initially the progress was slow and reductions in symptoms were observed after the 10th session when researcher introduced supinator writing practice. The severity level came down after implementing structured and need based 20 sessions of intervention programme. Post intervention scores were1 on VAS and 5 on HAM-A. Thus significant improvement was observed in the subject's hand pain (88.89%), anxiety symptoms reduction (80.77%) and legible hand writing. Self-confidence was regained and improvement was shown in academic performance. Improvement was maintained after one year of follow up.

Discussion

This case report indicates that behavioural approach is critical in the management of WC without any pharmacological aid. This finding is in line with study of Kaur and Kaur[2] where they showed significant improvement in a 22 years old female after implementing 20 to 50 sessions of brief cognitive behaviour management, with relaxation, conditioning, reinforcement schedules and supinator writing practice with abstinence from writing.

John et al.,[1] reported 3 cases of writer's cramp and used eclectic approach including relaxation technique, supinator writing, supportive psychotherapy and anxiolytic drugs i.e., Diazepam and observed improvement after treatment and at follow up.

Mehta et al.,[9] studied 30 patients treated over a period of 5 years with a minimum follow-up of 6 months. This study included 28 males and 2 females with a mean age of 34.83 years in the age range of 19 to 54 years. There were two groups in this study, group one comprised of 20 patients subjected to relaxation therapy and retraining while group two comprised of 10 patients who had general anxiety and specific anxiety in different situations who were given relaxation, systematic de-sensitization and retraining. Significant improvement was noted for subjects in both the compared groups.

In sum, behavioural approach of management is effective in the treatment of WC. However, the present work is based on a single case. Future research should address larger sample size and long term follow up to establish the efficacy of behavioural management programme.

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Case Report

Efficacy of Cognitive Behavior Therapy in a patient suffering from hoarding type of Obsessive Compulsive Disorder

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Introduction

Obsessive – Compulsive Disorder is the most distressing disorders among the anxiety disorders as the sufferer has full knowledge of his symptoms and in spite of having full insights is unable to control it. There is increasing evidence that OCD is a heterogenous condition, where a person experiences frequent intrusive and unwelcomed obsessional thoughts, impulses, and images which often are followed by repetitive compulsions, avoidance and assurances. In fact it can be so debilitating and disabling that WHO has ranked OCD in the top 10 of most disabling illnesses of any kind in terms of lost earnings and quality of life.

Patients with OCD experiences obsessions which take the form of persistent and uncontrollable thoughts, images, worries, impulses, fears or doubts. They are often intrusive, undesired, disturbing and significantly interfere with socio-occupational functioning. The patient gets too much distressed with these unwanted thoughts and is compelled to indulge in many mental thoughts, rituals or actions in order to relieve his distress. The repetition of these actions reinforces and leads to an increase in intensity and frequency of obsessions.

Typically people suffering from OCD fall into one of the four main categories.

Checking
Contamination
Hoarding
Ruminations

Paradoxical hoarding behavior has from an historical perspective, been documented with various psychiatric disorders as OCD, Obsessive Compulsive Personality Disorder, dementia, schizophrenia and depression. Frost and Gross [1] defined it as the repetitive acquisition of large quantities of useless or poorly usable possession with failure to discard. Frost Hartl [2] have conceptualized compulsive as multifaceted stemming from information processing deficits, difficulties in forming emotional attachment, behavioral avoidance and faulty beliefs about the nature of saving and possessions.

Hoarding compulsions may be a result of specific hoarding obsession or may be a consequence of a range of preceding symptoms including contamination, aggressive or symmetry obsessions.[3]

Case Report

Mr. X a 43 year old married male, BAMS running his private clinic of approx. 80-100 OPD. His wife was a pharmacist, had one daughter and two sons 18 and 11 years old respectively. He came to psychiatry OPD with complaints of repeated checking of papers, documents, getting reassurance from significant others. Hoarding necessary/ unnecessary papers, keeping his documents, currency in unorganized manner. Inability to discard prescription, leafs, pamphlets, bus/railway tickets, bills etc. there was evidence of patient having decreased social interaction, sleep and appetite. He was also dependent on three tablets Orthodex 500mg each (Generic Name: Chlorzoxazone, Diclofenac sodium, Paracetamol) daily since 7 yrs. It was initially prescribed by physician SOS for pain but

gradually to decrease his anxiety his intake increased upto 3 daily. On non availability of drug he started having palpitations, inosomnia and headache, Precipitating factor was shifting of Ayurvedic clinic by his father in law in the same street.

Amount of clutter: The diagnosis of hoarding was confirmed by some photographs of his drawers, tables and cupboards. There was a huge pile of papers. Drawers of tables and his pockets were full of currency notes, tickets.

Belief about possession of papers and documents: He expressed that he was unable to throw any of these documents with the belief that just in case the item is ever needed or throwing it may cause any major harm or loss. The other reason he has given the lack of confidence and energy. He wants to earn more and more money but managing them is a big problem to him.

Information processing deficits: Because of anxiety of making any mistake and difficulty in making any decision. He also experienced difficulty in categorizing his possession because every item was unique for him.

Avoidance behavior: With the fear of discarding any item he prefers to put them in box, cupboard and in drawers.

Social and occupational functions: due to shifting of his father in law's clinic in the same street he started having the belief that his father in law is trying to put down his practice. He generalized this belief to all his relatives and started avoiding visits to his relatives, friends but interest in his profession was maintained.

Daily functioning: Besides his own daily functioning he handed over his daily obligations to his wife e.g. counting money, depositing in banks etc.

Insight: He was fully aware of his problem. He wants his dispensary to be spic and span as he was aware how his behavior and cluttering affecting his life.

Support system: Support from his family was very good. His wife visited at all sessions of psychotherapy. She even asked her father to shift his clinic to some other place.

Treatment Plan: the pharmacotherapy started with tab Fluoxetine 60 mg but due to poor response gradually tapered off and started with Tab Fluvoxamine 100 mg and Clomipramine 75 mg. After 6 weeks of only pharmacotherapy the patient did not show any significant improvement then the treatment was combined with CBT which included psycho-educational intervention, Jacobson Progressive Muscular Relaxation, Behavioral analysis, graded exposure and response prevention as well cognitive restructuring.

First two sessions were designed to relax him. Further sessions were meant for exposure and response prevention (ERP) by emptying his pockets, categorizing currency, bills, bus tickets useful papers, useless papers, then in graded way throwing useless papers, bills and tickets. The anxiety graph was noted in the form of palpitation, sweating, uneasiness. He was instructed for relaxation. Home assignment was given for one week. Next week ERP was done for another pocket with same procedure. Anxiety graph was decreased. Rest of the session done by categorizing his cupboards, drawers, table items in graded way, currency was organized, his useful items papers, documents were organized in different office files having labels and tags on them.

Discussion

After 8 sessions of CBT his hoarding obsession decreased significantly and he did not show any anxiety symptom except that he could not reduce his tab orthodox upto 1 tab/day. Therefore combining CBT with medication is optimal treatment for compulsive hoarding as with the other symptoms of OCD studies.[4-6] have shown some benefits of CBT for compulsive hoarding although with poorer response and higher drop out rates than non hoarding OCD patients. Exposure and response prevention focuses on preventing further hoarding, discarding, organizing and response prevention. Cognitive restructuring is done on focusing information processing, obsessional anxiety associated with hoarding then with discarding and avoidance decision. Patient was asked to have a daily log of everyday item they acquire or buy to build his awareness of what triggers his behaviors. For desensitization repeated exposure with anxiety, anger while discarding item and making decision done. He was motivated to provoke anxiety, anger by discarding then keeping only necessary items. His erroneous belief of discarding valuable thing was restructured that he has to challenge dire consequences of discarding them. In order to maintain his progress

and reduce relapse risk the patient was taught to create a realistic schedule that would include time for himself, his work, his family, recreation etc.

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Case Report

Psychiatric Disorders with Co-morbid Renal Cortical Cyst- a Chance Finding or Something Else?

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Introduction

Renal cysts are frequent findings in mid-aged people, with unknown aetiology, their frequency increases with age.[1] The availability and use of abdominal diagnostic ultrasonography or computed tomography has led to the frequent detection of asymptomatic renal cysts, the vast majority of which are simple cysts. Simple cysts are usually unilateral and solitary lesions with well-defined features.[2] Renal cystic disease has multiple etiologies like developmental, genetic, acquired, cysts associated with systemic diseases and they can be present since birth[3]. Simple cysts are asymptomatic, except when complications such as hemorrhage, infection, or rupture lead to the development of complex cysts with calcification, demarcation irregularities, and multi-lobularity. Ultrasonography on approximately 30,000 fetuses in succession revealed an incidence of 0.09%, in most of whom the cysts resolved by birth.[4] Between birth and 20 year of age, the occurrence of new cysts is very rare but thereafter begins to increase in frequency, with an increased male-to-female ratio of approximately 2:1 in some studies.[4-8] The reported overall prevalence of simple cysts is variable. Depending on the population and method of study, reported prevalence range from 5 to 41% but are likely in the range of 7 to 10%.[9-11] Older autopsy studies have reported their presence in 3 to 5% of cases.[12] Risk factors incriminated in the occurrence of simple cysts are serum creatinine, smoking, and hypertension; however, these associations may well be coincidental given the retrospective nature of the reported studies, with variable reasons for diagnostic referral of differing cohorts, with age being an overarching confounder of all reported associations.[13-16]

Several studies have been done to demonstrate the relationship between renal disorders and psychiatric manifestation. Depression has been found to occur as a result of renal failure in the patient and anxiety in the associated partner.[17-19] Dialysis patients has higher suicide rates and delirium than the normal healthy population.[20] Not many studies have been undertaken to show the association between psychiatric manifestations and renal cortical cyst. We wish to present the case data of 8 patients who presented with psychiatric varied symptoms and co morbid renal cysts to substantiate the database regarding the renal disorders and psychiatric disorders and also to throw light on the possibility of some underlying genetic and developmental factors that will lead to anatomic variation of renal cysts and psychiatric illness.

Case Series

Case 1 – 60 year old male c/o of BPAD presented with c/o low mood , sleep disturbances, with anxiety symptoms and with multiple somatic complaints like generalised bodyache, headache and abdominal pain. USG reported of right renal lower pole simple cortical cyst of size 13.7 × 13 mm.

Case 2 – 50 year old male presented with low mood, sleep disturbances and anxiety symptoms. USG finding revealed right renal cyst at lower pole of size 10 × 10 mm

Case 3 – 54 year old postmenopausal female with anxio-depressive features, and also having multiple somatic complaints, on USG simple cortical cyst of size 1.5 cm at upper pole of left kidney was found.

Case 4 – 25 yr female diagnosed as anxiety disorder NOS (GAD, OCD and somatic symptoms) with vascular headaches. USG shows cyst at mid pole of size 1 cm in right kidney.

Case 5 – 62 year old male c/o low mood, ghabrahat and multiple somatic complaints. USG revealed right renal cortical cyst of size 9.3 × 13.0 mm.

Case 6 – 50 year old female came with c/o ghabhrat, bodyache, sleep disturbances. USG revealed right lower pole cortical cyst of size 27 × 25 mm, middle pole medullary cyst of 39 × 38 mm.

Case 7 – 40 year female diagnosed as case of depressive episode with somatic complaints. USG revealed left. lower pole exophytic cortical cyst.

Case 8 – 40 years female diagnosed as mild depressive episode. USG revealed cyst on right kidney cyst of size - 9.1 × 3.9 mm and Left kidney have cyst of size 9.3 × 5.2 mm.

S. No.	Diagnosis	USG-Findings
Case 1–60yrs/Male	Bipolar Affective Disorder	Right Renal Cortical Cyst Lower Pole 13.7× 13 mm
Case 2–50yrs/Male	Mixed Anxiety Depressive Features	Right Renal Cyst At Lower Pole 10 × 10 mm
Case 3–54 Yrs/ Female	Mixed Anxiety Depressive Features	Left Renal Cortical Cyst At Upper Pole 1.5 × 1.5 cm
Case 4–25 yrs/ Female	Anxiety Disorder NOS	Right Renal Cyst At Mid Pole of 1 × 1 cm
Case 5–62 yrs/Male	Mixed Anxiety Depressive Features	Right Renal Cortical Cyst in lower pole of Size 9.3 × 13.0 mm
Case 6–50 Yr/ Female	Mixed Anxiety Depressive Features	Right Renal Cortical Cyst. Lower Pole of Size 27 × 25 mm. Middle Pole Medullary Cyst of 39 × 38 mm
Case 7–40 Yr / Female	Depressive Episode	Left Renal Exophytic Cortical Cyst Lower Pole 5.3 × 6 cm
Case 8–40 Yr / Female	Mixed Anxiety Depressive Features	Right Renal Cortical Cyst in Middle Pole 5 × 5 mm

Discussion

Out of 8 cases, there was female preponderance (5) in our data which is similar to the finding reported earlier.[21] Most of the patients belonged to > 50 years age group. It has been reported previously that with age risk of developing renal cysts increases.[1] Most of the patients were having mixed anxio-depressive symptoms with one patient with diagnosis of bipolar affective disorder. Common characteristics of the renal cysts in our patients appeared to be that they were single, most common site was found to be the cortex, lower pole of the right kidney, with size ranging from 5×5mm to maximum of 5.3 × 6 cm. 4 of our patients were physically asymptomatic and 4 had complaints of mild pain and uneasiness in the lumbar region. Similar to our findings regarding the characteristics of the renal cyst in a study, 143,328 patients of depression were studied, 164 (0.11%) patients were found to have renal cyst, among them 59.61% were female and 40.39% were male and mostly it was in the age group above 60 (36.56%) followed by 40-49 years (30.65%) and 50-59 years (25.81%).[21] It is interesting to know that the possible association that could be established between renal cysts and psychiatric disorders is that it is known that chromosome 3p25-26 is strongly linked to depression and this region is also linked to Von Hippel Lindau Disease which presents with multiple renal cysts and solid renal cell carcinoma.[22] Similarly, there might be other common genetic linkage between psychiatric disorders and renal pathologies like renal cysts. However, it is too preliminary or premature to say which chromosome or which chromosomal site.

Conclusion

The findings above suggest that further research is required to find out any association between renal cortical cysts and psychiatric disorders and to look for common denominator like genetic aetiology between the two.

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Case Report

Valproic acid monotherapy in OCD associated with temporal lobe epilepsy

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Introduction

Obsessive compulsive disorder (OCD) and epilepsy co-morbidity has been reported in much literature. OCD symptoms are reported in 14% to 22% of temporal lobe epilepsy (TLE) patients[1,2] but little is known about their causality or association. At present, selective serotonin reuptake inhibitors (SSRI) are considered first-line drugs for OCD but some antiepileptic drugs (AED) are now being tried for the treatment of difficult to treat OCD either as monotherapy or as augmenting agent.

Case study

A 32 year old unmarried male was admitted to this tertiary care neuro- psychiatric hospital in view of marked aggression and violent behavior. He was already on treatment for obsessive compulsive disorder (mixed) with poor insight. He has had multiple admissions in the past with poor symptom control and a possibility of treatment resistance was being considered. No history of substance use or medical co morbidity was obtained. Past, family and personal history was not contributory.

He reported to have a 2 year history of psychiatric symptoms of unprovoked violent aggressive behavior, obsessive impulses and doubt, compulsive checking and hurling abuses at others. On the day of admission the patient experienced a funny sensation in the stomach, unusual smells and a motionless stare. He experienced it as being the repetition of event he has already experienced (déjà vu) and complained of being in a dream state. This was followed by repetitive jerky movements of the right hand, which then progressed to a generalized convulsion lasting 2 minutes. Urinary incontinence, and tongue bite followed and mental confusion persisted for about half an hour.

Urgent EEG and MRI brain (with epilepsy protocol) were done on the patient and were suggestive of temporal lobe epilepsy and abnormal signal and volume loss within the right amygdala and hippocampus compatible with temporal lobe sclerosis, respectively. All other investigations including complete blood counts, blood sugar, liver and kidney function tests, serum electrolytes, ECG and chest X-ray were within normal limits. All psychotropic medications (venlafaxine, buspirone, haloperidol, clonazepam) were stopped and urgent neurology opinion was sought. Patient was started on AED sodium valproate and was increased build upto 1000 mg/day gradually with therapeutic drug monitoring. For arousal symptoms a short acting benzodiazepine (lorazepam) was used on a SOS basis.

The repeat EEG showed no epileptic discharges and patient showed good improvement in obsessive compulsive symptoms on the treatment. His Y-BOCS (Yale Brown Obsessive Compulsive Scale) score came down from 48 to 8 in 8 weeks. He was discharged from the hospital and is currently maintaining well on sodium valproate 1gm/day for 2 years on same treatment regimen, though he has had one episode of aura without seizure activity post discharge.

Discussion

An interesting observation here is that an apparent treatment-resistant case of OCD improved significantly with the use AED sodium valproate without the use of anti-obsessionals. The case also highlights the long duration of undiagnosed comorbid

epilepsy and its implications on management. It seems that the ostensible treatment resistance might have resulted from uncontrolled epilepsy which was further being compounded by the use of psychotropics resulting in a vicious cycle promoting kindling phenomenon.

The literature contains few trials involving the use of AED sodium valproate as monotherapy[3] or augmenting agent[4,5] in the treatment of OCD and one trial of carbamazepine[6] monotherapy in OCD co-morbid with epilepsy. One study found sodium valproate to be beneficial only when used as pre-treatment in patients intolerant to standard pharmacotherapy[7] in OCD. It is hypothesized that obsessive compulsive symptoms may be a variant of epileptiform forced thinking in a subgroup of patients, and may be preferentially responsive to anticonvulsant therapy.[6]

We suggest that monotheapy with valproic acid may be a good option in treatment of OCD associated with TLE, where the risk of induced seizures is very high because of lowering seizure threshold potential of psychotropics. Further research is required to evaluate the role of AED in the treatment of OCD comorbid with epilepsy.

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Case Report

Penile Self-amputation in a Epileptic Patient

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Introduction

Self-injurious behavior, self-mutilative behavior or self-harming behavior is defined as deliberate destruction of body tissue without any conscious suicidal intent.[1] An alternative definition of self-injurious behavior is repetitive, direct physical self-harm that is evidently not life-threatening.[2]

The three most commonly reported types of self-injurious behavior are self-cutting of the skin, ocular self-mutilation and genital self-mutilation.[1] Here, we present a case of genital self mutilation in a Epileptic patient.

Case Report

Patient was a 25 years old male, married, belonged to a nuclear Hindu family of rural background referred from Plastic Surgery unit for Psychiatric evaluation after 2 days of admission when he presented in emergency with penile self amputation.

Patient was a known case of Generalized Tonic-Clonic Seizures (GTCS) from last 15 years for which he consulted various general practitioners. Seizures frequency had decreased but never subsided with treatment, old records were not available. Currently patient was on Tab Oxcarbazepine 450 mg twice daily and Clobazam10 mg once daily from last 2 years. Last episode of GTCS occurred 6 months back.

Patient was married 1 year back and had normal sexual relationship with her wife. There was no discord in the family. According to his wife one day back, at around 11:30 PM after having dinner, the family members were preparing for sleep when the patient came down to the ground floor for some work. When patient didn't return after sometime his wife searched for him and found him in a pool of blood with a razor blade in his hand and his penis was totally amputated. Her wife asked him why he had done so but at that time patient was totally unresponsive and didn't show any sign of pain. Immediately, he was rushed to the hospital and seen by the plastic surgery residents. He was stabilized and his wound was stitched and draped.

On examination the patient was a young male of average built and nutrition, having eye to eye contact, rapport could be established. He was sad because of the event had feeling of guilt. There was no obsession, delusion or hallucination. His judgment and memory were intact. He had full insight about his disease process.

On interviewing about the incident, he said that he can't recall the event and how it happened. The only thing he remembered was that he came to ground floor for some work.

His parents also gave history of previous multiple episodes of self injurious behaviors like cutting his lips with blade, passing a needle throughout the wrist and striking his hand with iron rod from last 15 years. Any of the events was not preceded by any stress.

Patient had achieved normal childhood development and was average in studies; he has completed senior secondary school. His father had family business but patient didn't take much interest in it. His parents also reported that with his growing age he had became more stubborn. There was history of masturbation and sexual fantasies. Patient achieved his secondary sexual characteristics, he preferred heterosexual relationship, he was never confused over his gender identity or preferred any perverted sexual activities. There was history of any substance abuse or antisocial activities. On detailed evaluation, we have not found any disturbance in

his personality or any history of depressive or psychotic features. There was no family history of any psychiatric or seizure disorder.

His basic investigations (Haemogram, ESR, Renal function tests, Blood sugar, Liver function tests) were completely normal. CT Scan of head didn't reveal any abnormality. EEG shows epileptiform discharges. Oxcarbazepine dose was increased to 600mg twice daily. In one year follow up, patient didn't report any epileptic attack or any incident of self injurious behavior. Follow up EEG was also normal.

Discussion

In literature, about 110 cases of Genital Self Mutilation in men have been described.[3-7] In the earlier publications, the majority of these patients were either psychotic or intoxicated during auto-mutilation.[3] In recent articles, the number of psychotic patients has been reported to be smaller.[6]

Some proposed psychopathologies in genital self-mutilation in non-psychotic illnesses are: gender dysphoria,[8] psychotic solution to conflicts about the male role, male identification, guilt for sexual offences,[9] attempts at a crude sex change operation in the presence of trans-sexuality,[8,10] hyper-sexuality,[11] a rational suicidal act,[12] a means to get relieved from urinary symptoms.[13] It has also been ascribed to sexual conflicts and offences,[4] erotic purposes,[14] body image preoccupation and distortion[15,16] expression of internalized frustration and aggression resulting in an impulsive suicide attempt.[17] There are also reports of penile self mutilation due to religious beliefs,[18] and personality problems.[19]

Most cases of genital self-mutilation reported in the literature have been in psychotic patients with either functional or organic brain disease. This may be the result of selective reporting.

Studies have estimated that up to 50% of patients with epilepsy develop psychiatric disorders, the most common being depression, anxiety and psychotic disturbances. These psychiatric disturbances can be classified according to how they relate in time to seizure occurrence, i.e. ictal, peri-ictal (pre-ictal/prodromal, post-ictal) or inter-ictal. Multiple risk factors are associated with the increased risk of psychiatric problems in epilepsy which can be broadly divided into biological (e.g. type and severity of epilepsy), psychosocial and iatrogenic (antiepileptic drugs, surgery).[20]

Self-injurious behavior (SIB) or self-mutilating behavior (SMB) is rare but can occur in temporal lobe epilepsy.[21]

Mood and behavioral changes can occur as direct manifestation of the seizures, including anxiety, depression, and hallucinations. The episodes are usually brief (< 1-3 minutes), stereotyped, begin and end abruptly, and can be associated with other ictal phenomena (oral, motor automatisms). They usually occur with partial seizures, simple partial (aura) or complex partial seizures but can also occur in generalized seizures.[20]

Ictal anxiety is common, with up to one-third of patients with partial seizures reporting fear as part of their aura, usually in patients with right temporal foci. Ictal depression occurs less frequently than ictal anxiety and common symptoms are guilt, hopelessness, worthlessness, and suicidal ideation. Ictal psychotic symptoms can manifest as visual, gustatory or auditory hallucinations and are usually not well defined. They are mainly associated with partial seizures. Ictal aggression is very rare and mostly involves undirected or unintentional violence.[20]

In this case, all the above mentioned causes of genital self mutilation were ruled out by detailed evaluation. The self injurious didn't occur in pre ictal or post ictal phase as it is neither preceded nor followed by any episodes of fits. Any inter-ictal persistent mood or psychotics features were also not reported.

So it can be assumed that the self injurious behavior in this case may be either (a) Direct manifestation of seizure in ictal phase itself, as patient was unable to recall the events, also the patient was unable to give any justification for the act, the presence of epileptiform discharges on EEG and improvement in increasing the dose of antiepileptic drug or due to some brief intermittent mood disturbances or (b) in inter-ictal phase secondarily due to chronic epilepsy.

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Letter to Editor

Dear Sir, *Stepped care approach* has been recently promoted as a pragmatic framework for service delivery in patients with psychiatric disorders. A stepped care model seeks to treat service users at the lowest appropriate service tier in the first instance, only 'stepping up' to intensive/specialist services as clinically required. Similarly, a step down procedure is also recommended when there is no further need for intensive interventions. It may refer to a hierarchy of out-patient, inpatient services or a hierarchy of trained para-medical professionals, primary care professionals, specialists and super-specialists.[1,2] Such models have been applied to pharmacological management, psychological interventions as well as psychosocial management in patients with psychiatric disorders.

While the model is attractive considering the paucity of skilled manpower, the enormous burden posed by psychiatric disorders and the need for optimal utilization of available resources, the demerits have been widely discussed as well. While a recent study demonstrated less intensive outpatient care based on a stepped care approach as successful for adolescents with eating disorders, an earlier study had demonstrated the usefulness of such an approach in patients with depressive illness though multiple impediments in implementation were also discussed.[1,2] Other studies have demonstrated the relevance of similar approaches in children with ADHD and stress-related disorders including anxiety disorders.[3,4]

The criticism of such approaches include a more complicated treatment regimen for the patients that might result in attrition, patient satisfaction with health care services, acceptability to the clientele, need for a motivated clientele, need for an active collaboration at various levels and feasibility in certain settings where adequate quality cannot be assured across multiple levels.[5] An attrition rate of more than 10% over a period of one year has been documented in a previous study conducted over a year period.[1]

However, at the current moment the advantages seem to far outweigh the demerits particularly in the resource scarce settings of the developing world. It is also worth mentioning that studies evaluating such a model have not yet been conducted in the developing world, where such models are expected to work best. Hence, studies evaluating such models particularly for common mental disorders need to be carried out on a priority basis in the developing countries to ensure optimal utilization and distribution of mental health resources.

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Book Review

Learning Disability: Theory to Practice

Author: **SPK Jena, Publisher: SAGE [ISBN 978-81-321-0969-39; Price: Rs. 495.00]**

Learning disability is a burning problem of the modern era, one in twenty children is likely to suffer this condition. Teachers and parents are becoming more and more aware of the condition; state has also shown sensitivity to the reality of learning disability and has created certain provisions in the policy and practice to help children with learning disabilities. Professionals have started showing interest in the field of learning disability, more and more mental health professionals/psychologists are trying to help children with learning disability through assessment, diagnosis, certification and intervention. These require background literature on learning disabilities, adequate amount of conceptual and factual information related to learning disabilities and authentic, evidence-based guideline on intervention in such disabilities. Unfortunately there has been noticeable scarcity of original materials on learning disabilities in India. Dr. Jena's book has significantly filled the gap and Indian professionals, teachers as well as parents have handy materials in their hand to refer to.

The book contains extensive information on learning disabilities including conceptual issues, epidemiology, diagnosis, co-morbidities, neuronal basis and brain functioning, types of learning disabilities, theoretical models of each type of learning disability, their assessment and intervention, cognitive and computer assisted intervention strategies and large amount of case-studies. This has made the book highly useful not only for the professionals and practitioners working in the field of learning disabilities, but also for the postgraduate trainees in the field of clinical psychology, psychiatry, special education; for the faculty members and researchers who are involved in teaching, training, and research in the field of learning disabilities. The book will be a good and useful material to be kept in the library of professional institutions and organization.

Author has provided range of useful materials as appendices which will help the professionals, psychologists, remedial and special educators in their intervention program with children having learning disabilities. A reader's feedback form has been given toward the end which reflects the genuine interest of the author in making the book more and more useful for the readers. Wide range of references provided by the author has further enriched the book academically and from research point of view. Author deserves a huge applaud for bringing out the book which is going to be highly popular among clinical psychologists, special educators, postgraduates of mental health disciplines, and teachers.

By Dr. Uday K. Sinha
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Interesting Articles

- Eva Alisic, Alyson K. Zalta, Floryt van Wesel, Sadie E. Larsen, Gertrud S. Hafstad, Katayun Hassanpour, and Geert E. Smid. Rates of post-traumatic stress disorder in trauma-exposed children and adolescents: meta-analysis. BJP May 2014 204 : 335-340.
- Joseph Kambeitz, Anissa Abi-Dargham, Shitij Kapur, and Oliver D. Howes Alterations in cortical and extrastriatal subcortical dopamine function in schizophrenia: systematic review and meta-analysis of imaging studies. BJP June 2014; 204 : 420-429.
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Forthcoming Events

10 Nov 2014 – 12 Nov 2014, Global Addiction, Rio de Janeiro, Brazil. The annual meeting for the Global Addiction Association. Addiction represents one of the areas of medicine that is least understood, yet generates an enormous burden on society, the medical profession, carers and individual sufferers. The Global Addiction Annual conference is moving for the first time out of Europe. This pattern is to be continued into the future, with the conference alternating between Europe and other destinations year on year. global, addiction, rio, brazil, alcohol, drug, opioid. http://www.globaladdiction.org/index.php

10 Nov 2014 – 12 Nov 2014, Global Addiction Conference, Rio de Janeiro, Brazil, http://www.globaladdiction.org/rio-introduction.php Neurology

12 Nov 2014 – 15 Nov 2014, Academy of Psychosomatic Medicine 2014 Annual Meeting, Ft. Lauderdale, United States, http://www.apm.org/ann-mtg/2014/index.shtml, Medicine (in general)

13 Nov 2014 – 15 Nov 2014, WASP 2014 — WASP Jubilee Congress, London, United Kingdom World Association of Social Psychiatry, JOIN worldwide colleagues and professionals to discuss the latest trends and research in Mental Health Psichiatry, Social Psichiatry, Mental Health, Mental disorders, Mental health care http://www.waspjubilee2014.com/ Phone: [+ 44 (0) 207 383 8030]; Email: waspjubilee2014@kenes.com

13 Nov 2014 – 16 Nov 2014, 2014 NEI Psychopharmacology Congress, Colorado Springs, United States, http://www.neiglobal.com/go/congress, Neurology; Pharmacology and Drug Development.

14 Nov 2014, ZB2N-2014 — 7th One-day Zebrafish Behavioral Neuroscience and Neurophenotyping Workshop, Washington DC, United States. Zebrafish are becoming a popular model organism for neuroscience research. ISBS course consists of lectures covering major neurobehavioral domains and advanced phenotyping techniques for probing normal and pathological behaviors in zebrafish.
Zebrafish, neuroscience, Neurophenotyping, pathology, pharmacology, stress, behavior. http://www.scribd.com/doc/228164303. NA Nutsa; Phone: [+1 240 899 9571]; Email: isbs.congress@gmail.com Biology

10 Dec 2014 – 12 Dec 2014, IFMAD 2014 — The 14th International Forum on Mood and Anxiety Disorders, Vienna, Austria. IFMAD 2014 Congress — this year's topics include advances and updates in the treatment of depression, treatment resistant depression, OCD and anxiety disorders, treatment resistant GAD, borderline disorder, bipolar disorder, bipolar depression, psychotic depression and the possible link of resistant depression to bipolarity. Psychiatry events, psychiatry congress, IFMAD, Vienna congress, IFMAD 2014, Mood and Anxiety Disorder, Stress, psychology congress, psychology http://www.ifmad.org/2014/ Leonetta Baldini; Phone: [+420724220741]; Email: ifmad.congress@gmail.com; ifmad@publicreations.com

12 Dec 2014, Bipolar14 — Bipolar Disorder 2014, London, United Kingdom. Diagnosis and management of bipolar disorder can be complex and it is imperative that all specialists within the field remain as up to date as possible about emerging treatments and management approaches. Bipolar Disorder 2014 will examine the challenges of managing this complex condition, with the aim of arming participants with practical information that can positively influence every day clinical practice. bipolar, lithium, adult, child, http://www.mahealthcareevents.co.uk/bipolardisorder2014. Email: conferences@markallengroup.com

06 Mar 2015 – 07 Mar 2015, ISCP2015 — 22nd Int. SYMPOSIUM on CONTROVERSIES in PSYCHIATRY (Barcelona & Internet), Barcelona, Spain. Psychiatry, psychopathology, psychology, schizophrenia, depression, clinical practice, Targets in clinical practice, Symptoms or disorders?, anxiety, Anhedonia, Impulsivity, hallucinations, DSM5, DSM5 limitations, RDoc. http://www.Controversias Barcelona.org/en/ Albert Lopez; Phone: [34 934 108 646]; Email: secretaria@controversiasbarcelona.org Pharmacology and Drug Development

22 Mar 2015 – 25 Mar 2015, 6th World Congress on Women's Mental Health, Tokyo, Japan. The International Association for Women's Mental Health, a multidisciplinary group that has the mission of improving the mental health of women throughout the world, expanding the fund of knowledge about Women's Mental Health and promoting gender-sensitive and autonomy-enhancing mental health services for women, cordially invites you to participate in the 6th World Congress on Women's Mental Health to be held in Tokyo, March 22

to 25, 2015, in conjunction with the Institute of Women's Mental Health, Tokyo Women's Medical University. http://www.congre.co.jp/iawmh2015/

28 Mar 2015 – 31 Mar 2015, EPA 2015 — 23rd European Congress of Psychiatry, Vienna, Austria. EPA 2015 will showcase the latest and top European psychiatry developments through facilitating learning, discussion, and exchange among psychiatrists in Europe and around the globe. Psychiatry, psychotherapy, psychopathology, psychosomatics, psychopharmacology. http://www.epa-congress.org/ Vanessa Fisher, Kenes International; Phone: [+41 22 908 0488]; Email: epa@kenes.com

15 Apr 2015 – 18 Apr 2015, ADI 2015 — 30th International Conference of Alzheimer's Disease International. Perth, Australia http://www.alzint.org Email: adi2015@mci-group.com Neurology; Medicine (in general)

16 May 2015 – 19 May 2015, ISBS Conference — 22nd Annual International "Stress and Behavior" Neuroscience and Biopsychiatry Conference, St-Petersburg, Russia. An annual international event gathering scientists and psychiatrists from around the world to share an interest in stress-evoked brain disorders in both humans and animals. Stress, behavior, neuroscience, psychiatry, pharmacology, genetics. http://www.scribd.com/doc/226595746 NA Nutsa; Phone: [+1 240 899 9571]; Email: isbs.congress@gmail.com Biology

20 May 2015 – 23 May 2015, EAWOP 2015 — 17th congress of the European Association of Work and Organizational Psychology, Oslo, Norway. Europe and the world face turbulent times. This poses serious challenges to employees, teams, organizations, nations and leaders. Leaders with responsibility for both employees and results face globalized competition, reduction of costs, mergers and downsizing as everyday challenges. How can they manage respectfully and at the same time create and maintain an effective organization? The EAWOP 2015 Congress will address this question and the full breadth of work and organizational psychology. http://www.eawop2015.org/ https://www.conference-service.com/EAWOP2015/welcome.cgi

03 Jun 2015 – 06 Jun 2015, ISBD 2015 — 17th Annual Conference of the International Society for Bipolar Disorders, Toronto, Canada**.** The 17th Annual Conference of the International Society of Bipolar Disorders has a world class reputation of being a premier global educational forum which. ISBD 2015 will bring together international scientists and clinicians to trade ideas, information and expertise. Bipolar disease, bipolar disorder, manic depression, manic depressive illness, affective disorders, psychiatry, psychiatric disorders, mania, depression, Neuro-Psycology, Psycology, Neuro-Psychiatry http://www.isbd2015.com Raquel Louis , Kenes International ; Phone: [+41 22 908 0488]; Email: isbd@kenes.com

22 Jun 2015 – 24 Jun 2015, Stress and Behavior — 5th International Regional "Stress and Behavior" Neuroscience and Biopsychiatry Conference (North America), Miami, United States. An annual international event gathering scientists and psychiatrists from around the world to share an interest in stress-evoked brain disorders in both humans and animals.

stress, behavior, neuroscience, psychiatry, biopsychiatry, genetics, pharmacology, anxiety, mental health http://www.scribd.com/doc/229265453 NA Nutsa, Conference Secretary , International Stress and Behavior Society; Phone: [12408999571]; Email: isbs.congress@gmail.com Pharmacology and Drug Development

20 Jul 2015 – 21 Jul 2015, Child Language Symposium 2015, Coventry, United Kingdom. The Child Language Symposium is an interdisciplinary conference with a long tradition which attracts a diverse international audience of linguists, psychologists and speech-language therapists and provides a forum for research on language acquisition and developmental language disorders. http://www2.warwick.ac.uk/fac/sci/psych/research/language/symposium/ Pediatrics

26 Jul 2015 – 27 Jul 2015, STRESS AND BEHAVIOR: KOBE-2015 — 6th International Neuroscience and Biological Psychiatry Regional ISBS Conference "STRESS AND BEHAVIOR: KOBE-2015" Kobe, Japan. The conference will exchange and share the developing knowledgebase of the molecular and genetic link between biological psychiatry and behavior/neurobiology, with the particular focus on stress caused by natural and social disasters, abuse, social withdrawal, and the related stress-evoked neuropsychiatric disorders in general. Anyone interested in stress-related human or animal behaviors, neurobehavioral disorders and their mechanisms are welcome to join the conference. Stress, behavior, neuroscience, psychiatry, biopsychiatry,

pharmacology, anxiety, mental health http://www.scribd.com/doc/192758215 NA Nutsa, Conference Secretary , International Stress and Behavior Society; Phone: [+1 240 899 9571]; Email: isbs.congress@gmail.com Pharmacology and Drug Development

30 Aug 2015 – 02 Sep 2015, WPCA 2015 — 9th World Psychotherapy Conference Asia 2015. Kuching, Sarawak, Malaysia. Psychology, Psychotherapy, Psychiatry, Asia, International Conference, World Conference, 2015, Counseling, Mystery, Growth, Malaysia, Kuching, Sarawak, Mental Health, Health, Association, World Council, http://www.counselingmalaysia.com/ Jeniece Yong , Congress Secretariat ; Phone: [603 2727 7434 / 6012 695 0234]; Email: secretariat@counselingmalaysia.com

14 Oct 2015 – 16 Oct 2015, International Congress of the International Neuropsychiatric Association, Jerusalem, Israel. http://www.ina2015.com/ Neurology

WPA Co-Sponsored Meeting (Zone 9): XIII Psychiatric Days of Bosnia and Herzegovina "Suicidal Behavior, Suicide Prevention and Suicide"

WPA Co-Sponsored Meeting (Zone 8): "Training in the Clinical Application of Psychometric Instruments", Greece / Thessaloniki 08.11.2014 - 08.11.2014

WPA Co-Sponsored Meeting (Zone 8): "International Twined Congress" "The Psychiatry beyond the DSM-V" Italy / Iseo 13.11.2014 - 15.11.2014

WPA Co-Sponsored Meeting (Zone 8): "Training in the recognition of common mental disorders in primary care and community: development of Greek consensus", Greece / Thessaloniki 21.11.2014 - 23.11.2014

WPA Co-Sponsored Meeting (Zone 4): "XXVIII Latin American Congress of Psychiatry" with the theme: " Bonding Knowledge to Clinical Practice", Colombia / Cartagena de Indias 22.11.2014 - 26.11.2014

WPA Co-Sponsored Meeting (Zone 16): "8th International Conference of SAARC Psychiatric Federation" "Global Peace: Nurturing a Healthy Mind", Nepal / Lumbini 27.11.2014 - 29.11.2014

WPA Co-Sponsored Meeting (Zone 12): "13th Pan Arab Psychiatric Congress" , "Arab Psychiatrists; at home and abroad", Lebanon / Beirut 27.11.2014 - 29.11.2014

WPA Regional Congress (Zone 17): WPA Regional Congress"Ying and Yang of Mental Health in Asia – Balancing Priorities"

China / Hong Kong 12.12.2014 - 14.12.2014

WPA Co-Sponsored Meeting (Zone 8): "2nd Mental Health Conference in Primary Health Care" Greece / Athens 18.12.2014 - 20.12.2014

WPA Co-Sponsored Meeting (Zone 8): "Mental Health: Scientific Approaches through the Medium of Art" Greece / Several Locations in Thessaloniki 31.12.2014 - 01.01.2015

2015

WPA Co-Sponsored Meeting (Zone 8): "10th Congress on Medical Ethics, Bioethics and Medical Law of the UNESCO" "Bioethics, Medical Ethics and Health Law towards the 21st Century" Jerusalem / 06.01.2015 - 08.01.2015

WPA Co-Sponsored Meeting (Zone 12): Adjustment disorders and their treatments Lebanon / Beirut 30.01.2015 - 31.01.2015

WPA Co-Sponsored Meeting (Zone 8): "16th Virtual Congress edition of the Virtual Congress of Psiquiatria.com (Interpsiquis 2015)" On line / 01.02.2015 - 28.02.2015

WPA Co-Sponsored Meeting (Zone 16): "5th Asia Pacific Regional Conference on Psychosocial Rehabilitation", India / Bangalore 06.02.2015 - 08.02.2015

WPA Co-Sponsored Meeting (Zone 2): "7th International Together Against Stigma: Each Mind Matters", USA / San Francisco 18.02.2015 - 20.02.2015

WPA Co-Sponsored Meeting (Zone 2): DNA to Neighborhood: Relationship and Experience in Psychosis - An International Dialogue, USA / New York University, Manhattan 18.03.2015 - 22.03.2015

WPA Co-Sponsored Meeting (Zone 17): "6th World Congress on Women Mental Health" "Trauma, Depression and Resilience" Japan / Tokyo 22.03.2015 - 25.03.2015

WPA Co-Sponsored Meeting (Zone 8): "Twelfth Workshop on Costs and Assessment in Psychiatry"

"Mental Health Policy and Economics Research: Improving Access, Quality and Outcomes" Italy / Venice 27.03.2015 - 29.03.2015

WPA Co-Sponsored Meeting (Zone 12): "11th International Conference on Psychiatry" "Translational Psychiatry; From Science to Practice" Kingdom of Saudi Arabia / Jeddah 16.04.2015 - 18.04.2015

WPA Co-Sponsored Meeting (Zone 8): "IV International Congress on Dual Disorders, Addictions and other Mental Disorders and Dual Pathology" Spain / Barcelona 17.04.2015 - 20.04.2015

WPA Co-Sponsored Meeting (Zone 12): Psychotic transition, Lebanon / Beirut 17.04.2015 - 18.04.2015

WPA Co-Sponsored Meeting (Zone 9): "First European Conference on Transcultural Psychiatry in Central European Countries", Poland / Gdynia 24.04.2015 - 26.04.2015

WPA Co-Sponsored Meeting (Zone 12): "MENAMAT/CANMAT 3nd International Mood and Anxiety Treatment Guideline Congress", United Arab Emirates / Dubai 24.04.2015 - 25.04.2015

WPA Regional Congress (Zone 17) WPA Regional Congress "Asian Partnership in the World" Japan / Osaka 04.06.2015 - 06.06.2015

WPA International Congress (Zone 9): WPA 2015 Bucharest International Congress "Primary Care Mental Health: Innovation and Transdisciplinarity" Romania / Bucharest 24.06.2015 - 27.06.2015

16th World Congress of Psychiatry (Zone 8): "WPA 16th World Congress of Psychiatry" "Focusing on Quality, Access and Humane Care" Spain / Madrid 14.09.2015 - 16.09.2015

WPA Co-Sponsored Meeting (Zone 7): "31st Nordic Congress of Psychiatry" "Psychiatry works: psychiatric treatment and research from a Nordic perspective" Denmark / Copenhagen 20.09.2015 - 23.09.2015

WPA Co-Sponsored Meeting (Zone 6): 5th European Conference on Schizophrenia Research (ECSR): Bridging gaps - improving oucomes Germany / Berlin 24.09.2015 - 26.09.2015

WPA Regional Congress (Zone 16): WPA Regional Congress Theme "Mind Body and Culture" India / Kochi 25.09.2015 - 27.09.2015

WPA Co-Sponsored Meeting (Zone 5): "17th International Conference on Philosophy, Psychiatry and Psychology" "Why do humans become mentally ill? Anthropological, biological and cultural vulnerabilities of mental illness" Chile / Frutillar 29.10.2015 - 31.10.2015

WPA Co-Sponsored Meeting (Zone 17): "12th World Congress of World Association for Psychosocial Rehabilitation" Korea / Seoul 01.11.2015 - 04.11.2015

WPA International Congress (Zone 17): WPA International Congress "Bridging Asia to the World – A New Era for Psychiatric Treatment" Taiwan / Taipei 18.11.2015 - 22.11.2015

2016

WPA International Congress (Zone 8): WPA International Congress "Integrating clinical, community, and public health in psychiatry" Turkey / Istanbul 06.07.2016 - 10.07.2016

WPA International Congress (Zone 14): WPA International Congress "Psychiatry: Integrative Care for the Community" Cape Town South Africa / 18.11.2016 - 22.11.2016

INDIAN CONFERENCES

1. **HIVMAI 2014** 3rd Biennial Conference of HIV Medicine Association of India on November 8th - 9th '2014 at India International Centre, New Delhi.
2. **Annual Conference of IAPP** on 13-16 Nov 2014 at Kochi, Kerala (www.2014anciapp.com)
3. **XXI Annual Conference of Indian Association for Social Psychiatry.** 21-23 Nov, 2014 at Mysore (for details see website).
4. **Annual Conference of Delhi Psychiatric Society** on 14 th December at IHBAS, Dilshad Garden, Delhi (www.delhipsychiatricsociety.com)
5. **Annual Conference of IPS North Zone** on 20-21st December, 2014 at Ludhiana, Punjab.
6. **Annual Conference of Indian Psychiatric Society** on 8-11 January 2015 at Hyderabad (www.ancips2015.com)

24th Annual Conference:
Delhi Psychiatric Society
14th December 2014

Dear Friends,

The Executive Committee of Delhi Psychiatric Society (DPS) is pleased to inform you that the 24th Annual Conference of Delhi Psychiatric Society will be held on 14th December 2014 (sunday) at **Institute of Human Behavior and Allied Sciences, Jhilmil, Dilshad Garden, Delhi-110095**

Theme of the conference is "Changing Trends in Mental Health"

DPS Annual General Body meeting will be held at 2.45 PM on 14th December, 2014. Election Nomination Form along with notices for Election Nomination, Poster Presentation, Ravi Pandey Memorial Award, Ravi Nehru Memorial Award and Schedule of the Conference are enclosed.

The Registration Fee is Rs. 500/- (member) and Rs. 1000/- (non-member). The **last date for registration** for **DPS Annual Conference is 10th December, 2014**. The registration form is enclosed. Registration is complementary for senior members of DPS(60 years and above). No assurance of certificates and kits for the on spot registration, so please register yourself well in time.

Please send a cheque/ DD in favour of 'DELHI PSYCHIATRIC SOCIETY' payable at New Delhi along with the registration form by 10th December 2014 to "Dr. Rajesh Goyal, General Secretary (DPS), Tan Man Clinic, 33/3, Shakti Nagar, Delhi-110007, Ph. No.- 011-23843007

Looking forward for your active participation to make DPS Annual Conference a great success.

Thanking You
Best Wishes

Dr.*Manish Kansal*
President

Dr. Rajesh Goyal
General Secretary

24th Annual Conference:
Delhi Psychiatric Society
14th December 2014

The Institute of Human Behavior and Allied Sciences,
Jhilmil, Dilshad Garden, Delhi-110095
Theme of the conference is "Changing Trends in Mental Health"

Timings	Programme
9.30 AM - 10.00 AM	Registration
10.00 AM - 10.15 AM	Inauguration
10.15 AM - 10.45 AM	Presidential Address : Dr. Deepak Gupta Chair : Dr. Ashwani Kumar/Dr. Manish Kansal
10.45 AM - 11.30 AM	**Session One** Positive & Negative Aspects of DSM-V Speaker : Dr. Vishal Chhabra (Consultant Psychiatrist Metro Hospital, Lajpat Nagar) Chair : Dr. Rajesh Sagar/Dr. Sandeep Vora
11.30 AM - 12.15 PM	**Session Two** Changing Trends in DSM-V Speaker : Dr. Shruti Shrivastava (Asstt. Prof. GTB Hospital) Chair : Prof. Smitha Deshpande/Dr. S.C. Malik
12.15 PM - 12.45 PM	**Tea Break**
12.45 PM - 1.30 PM	**Session Three** Mental Health Services in Delhi & NCR Speaker : 1. Dr. Rajesh Rastogi (Prof. & Head Safdarjung Hospital) 2. Dr. R.C. Jiloha (Prof. & Head G.B. Pant Hospital) 3. Dr. Vijender Singh (Associate Prof. IHBAS) 4. Dr. N.K. Bohra (Sr. Consultant Psychiatrist, Holy Family Hospital) 5. Dr. Manish S. Kansal (Sr. Consultant Psychiatrist, Shanti Home) 6. Dr. Achal Bhagat (Sr. Consultant Psychiatrist, I.P. Apollo Hospital & Sarthak(NGO)) Panel Discussion
1.30 PM - 2.00 PM	**Session Four** **Dr. Ravi Pandey Memorial Award** Chair : Dr. M.S. Bhatia/Dr. Deepak Gupta
2.00 PM - 2.45 PM	**Lunch**
2.45 PM - 3.00 PM	Annual General Body Meeting
3.00 PM	Valedictory

Dr. Manish Kansal
President

Dr. M.S. Bhatia
Scientific Co-ordinator

Dr. Rajesh Goyal
General Secretary

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27TH FEBRUARY - 1ST MARCH 2015

Pre-Conference Workshop, February 27th,2015

"Understanding and working with dissociative disorders",

By Richard Chefetz M.D. & Kathryn Chefetz L.C.S.W.

Main Conference, February 28th - March 1st, 2015

Key note speakers
To be announced later

EVENTS

Day 1 February 27th, 2015
Pre - Conference Workshop by Richard Chefetz MD & Kathryn Chefetz LCSW

EMDR Association Conference Opening Ceremony
Day 2 February 28th, 2015
Conference
Day 3 March 1st, 2015
Conference
Closing Ceremony

NAMASTE!

The EMDR First Conference in India is organized by EMDR Association and is being held in New Delhi, India.

As EMDR grows and gathers momentum in India, we are now bringing together more experts to help us enrich our knowledge. The highlight of this EMDR first conference is a pre-conference workshop on understanding and working with dissociative disorders. Eminent speakers and EMDR therapist from different parts of India and Asia will also speak on various pertinent issues on EMDR at the conference.

Let's work together to integrate our knowledge from various faculties.

Contact Persons :

Dr. Deepak Gupta,
Conference Chair

Dr. Sushma Mehrotra,
President EMDR Association

Mobile: +919810046115, +919322868910
Email: emdrindia@gmail.com

CONFERENCE PACKAGE RATE

Registration fees (Does not include accommodation):
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Day 2 and 3: INR 6,000/-
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Non-members & ordinary members: INR 9,500/-
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All three days: USD 200
Registration fees after 30th September
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All three days:
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All persons designated as authors must qualify authorship criteria. It implies that all the authors have participated sufficiently to take the public responsibility of the content. Authorship credit should be based on substantial contributions to (1) conception and design or analysis and interpretation of data, (2) drafting the article or revising it critically for important intellectual content, and on (3) final approval of the version to be published. Conditions 1, 2, and 3 must all be met. Participation solely in the acquisition of funding or the collection of data does not justify authorship. Other persons involved in the study may be acknowledged at the end of the manuscript.

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We publish review articles, original articles, case reports in the field of psychiatry and allied branches e.g., neuropsychiatry, adult psychiatry, child psychiatry, geriatric psychiatry, psychosomatics, addiction, forensic psychiatry, newer developments etc.

Review articles are invited from the experts of the fields only and authors wish to send the review article must take the written permission of the editor beforehand. Word limit for review article is 5000 words with maximum of 50 references.

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Care reports should not exceed 1000 words and a maximum of 10 references.

Setting of Manuscripts

All the pages must be numbered starting from title page. The manuscript should be typed on A4 size paper with 1 inches margin and should be double-spaced. All abbreviations should be mentioned when they first appear in the text as well as on the abstract page below key words.

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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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Any acknowledgement (if any) must be cited at the bottom of this page.

It must be made sure that following pages does not have any information that may disclose the identity of the authors/institution to which the work is attributed.

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It should contain title of the manuscript, abstract and at least three key words. Abstract should be structured in following sections: introduction; objectives, method, results and conclusions.

Start each of following section on a separate page.

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Methods: Describe methods in sufficient detail so that the work can be duplicated, or cite previous descriptions if they are reality available.

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Tables : All tables must be created using the table function in a word processor program and also must conform to a one - (3.25") or two-column (6.5") format. Prepare each table with a title above and and any description below the table. Tables should be self-explanatory and should not duplicate textual material. They must be numbered and cited in consecutive order in the text, and must have a short title. Tables consisting of more than 10 columns are not acceptable. Previously published tables must have a signed permission from the publisher and complete reference data so that appropriate credit can be given. Tables must be given after references while sending the manuscript.

Figure : As far as possible, figures should be black and white. They should contain title and should be numbered. They should be mentioned in text according to their number.

References: Delhi Psychiatry Journal complies with the reference style given in "Uniform Requirements for Manuscripts Submitted to Biomedical Journals" (see Ann Intern Med 1997; 126 : 36-47 or online at http://www.acponline.org). References should be cited in Vancouver style in the manuscript. In the text they should be cited by superscript Arabic numerals and in references they should be cited in the order of their appearance in

the text. First 3 authors should be cited (followed by et al. if more than 3 authors and their name should be in following sequence: Last name followed by initials of first and middle names. Each author's name should be separated by comma. It should be followed by title of manuscript, journal's name as cited in index medicus, year of publication, volume, issue and page number.

For clarification see following reference styles.

Sample citations

According to our previous work,[1,3-8,19]
The Patient's were studied as follows.[3,4]

Sample References

- **Articles**
  1. Roest AM, Zuidersma M, de Jonge P. Myocardial infarction and generalised anxiety disorder : 10-year follow up. Br J Psychiatry 2012; 200 : 324–329.
  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.

Personal communication and unpublished data should not be used for the reference.

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After acceptance, paper will be sent to authors for proof reading. It is the responsibility of the authors to check the proof and return them within three working days. At this stage content of the manuscript can not be changed. Failure to send proofs in due time may result in delay in the publication of manuscript.

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WEBSITE Advertising

Website is having advertisement of several psychiatrists, Psychologists, Nursing homes and other mental health professionals. Payments for year 2014-2015 had fallen due on Ist September 2014. Committee has taken a decision that by this letter they are requested to pay their dues for year 2014-15 (From 01.09.2014 to 31.08.2015) immediately and latest by 30th October.2014. If they make payment, their advertisement will be retained, otherwise will be removed without any further notice and they have to reapply.

Website will be still having some space on home page, yellow pages and other places. Those who desire to place their advertisement may contact by telephone

Dr. T.P.Jindal (Mobile -09810316779), Email: tpjindal@rediffmail.com

Dr. M.S.Bhatia (Mobile-09820161790), Email: manbhatia1@rediffmail.com

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Rs. 12,000/- For example kindly go to the website of Delhi Psychiatric Society (www.delhipsychiatricsociety.com) and look at advertisement of Chetna, Shanti home, Cosmos Hospital (On top). Currently there are 3 locations for this kind of AD. However 3 more spaces will be created from this year.

Rs. 8,400/- For example kindly go to the website of Delhi Psychiatric Society (www.delhipsychiatricsociety.com) and look at advertisement of Dr. Deepak Gupta On side panel.

Rs. 4,800/- For example kindly go to the website of Delhi Psychiatric Society (www.delhipsychiatricsociety.com) and look at advertisement of Dr. Veena Kapoor and Dr. Rajesh Nagpal in middle of home page.

All advertisements mentioned above will also have one web page along with advertisement on home page.

Rs. 2,400/- Advertisement in yellow pages with one webpage.

You can directly contact us for any other space in website or any other location or special advertisement if website committee approves of it.

Please do not hesitate in consulting us in case of any doubts.

Those desiring their advertisement in website kindly contact persons mentioned above and make payments by 30th Oct 2013.

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Melts Away Anxiety

Alkepin

Asenapine Sublingual Tablet 5,10mg

Brings Back Life to **Full Circle**

Zopenta ER

Zolpidem Tartarate Extended Release 6.25/12.5 mg Tablets

Restores the sleep pattern

ALKEM LABORATORIES LIMITED
Alkem House, Senapati Bapat Marg, Lower Parel, Mumbai - 400 013

Zaptra

Paroxetine 12.5 / 25 mg + Clonazepam 0.5 mg Caps

Calms to elevate mood

ALTIMA
A DIVISION OF INTAS

INTAS PHARMACEUTICALS LTD.

Delvin formulations

When ED makes him small

Power him with

1st Time in India

Rx

S-film

Sildenafil Citrate 50 mg Orally disintegrating Film

PowerS Men... In 10 minutes

FAST ACTING
ODF TECHNOLOGY
Orally disintegrating Film

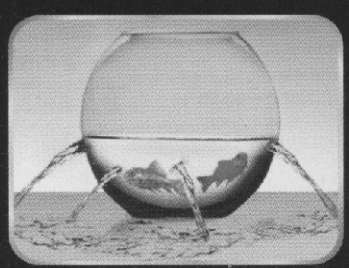
Its Cool...

Mouth - Freshener
In Mint Flavour

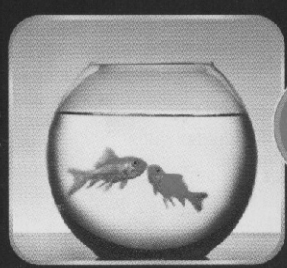
In Premature Ejaculation with Erectile Dysfunction

To prolong sexual activity by 4 times

Sildenafil Responders	Tadalafil Responders
Rx SD Pill*	Rx TD Pill*
Sildenafil 50mg + Dapoxetine 30mg Tablets	Tadalafil 10mg + Dapoxetine 30mg Tablets



Pill for Performance



Combination is safe & well tolerated[1]