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Editorial

Chemical Cure of Psychosocial Problems – a Myth

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There are 120 million people worldwide who have been diagnosed with mental disorders and placed on psychotropic drugs as "treatment". The psychiatric pharmaceutical industry is earning about $84 billion per year.[1] The important myth in psychiatry is that all personal, interpersonal, social and occupational problems can be treated with psychiatric drugs. This is not the heart of core psychiatry. There is increasing tendency to attribute symptoms to physical or chemical disturbances in brain without any evidence or as an outcome of corrupted evidence of drug trials. There are no medical tests that can show that mental disorders are medical conditions. People are also convinced that only solution for treating problems of emotion, mood or behavior for themselves or their children is drug. Our society actually expects for pills that results in origin, perpetuation or maintenance of myths.[2]

There is no justification in giving drugs for problems purely psychosocial in nature.[3] The majority of psychosocial problems need to be addressed timely and appropriately to help the patient and giving only drugs imply, sedating the patient, till his problems are settled automatically. For example, a female patient presenting to psychiatry outpatient department with symptoms mimicking depression, anxiety or somatoform disorder as an outcome of being victim of domestic violence by an alcoholic husband. The moment her husband has left alcohol, she spontaneously remits without needing any drugs. The controversy surrounding the drug treatment is that the drugs are being used to control patients' behavior without addressing to any specific pathology. This is just like giving paracetamol to treat fever or headache without addressing cause. Treating symptom as a disorder is also a myth.

There is growing tendency to classify psychiatric disorders as physical anomalies involving brain. For more than a century of searching, the biological basis of mental illness remains elusive. The disorders once included in psychiatry in 1970s are no longer considered disorders e.g. homosexuality, sexual deviations. With the declining popularity of Electro-convulsive therapy and psychosurgery, psychiatric drugs remain primary medical treatment and even force is considered acceptable if not desirable and patients are given drugs without their consent and knowledge. The psychiatric conditions requiring no medication or only short term therapy are increasingly being deleted from the classifications e.g. reactive depression; post partum depression, grief reaction etc. The latest trend is to categorize culture bound syndromes as subtypes of depression or somatisation. This is the case with Dhat syndrome. There is myth perpetuated about the safety of new drugs as in case of atypical antipsychotics is also a glaring example. Some drugs which can't be commercially patented are not promoted or orphaned e.g. lithium. The question is that in how many patients do the psychiatrists not prescribe any drugs or stop drugs. The result is that the patients drop out from follow up or they reduce or stop medication themselves. Many drug trials are not actually blind but they are done to blind the actual evidence.

Deinstitutionalization program was made possible because of introduction of neuroleptics is also an example of psychiatric mythology.[4] Many studies have shown that people with diagnosis of schizophrenia or bipolar disorder fared better for long term if they have not received psychiatric drugs or gradually discontinued their use.[5] There is evidence that people diagnosed with serious form of mental illness can recover without psychotropic drugs. To propagate myth that the continued promotion of concept of mental illness as a putative disease, which allows a predictive course and so can be treated with drugs as a medical illness is not

supported by the available evidence.[6] Drug prescriptions are wrongly justified with the notion that they prevent complications or relapse.

There is now a tendency to recommend/get approval for drugs for disorders not previously included for drug treatment (e.g. Post traumatic stress disorder, acute stress disorder, stress induced disorders, conduct disorder, grief reaction etc). The disorders not requiring drug treatment are now seldom diagnosed (e.g. dissociative disorder, personality disorder etc) or they are diagnosed with a co-morbid condition requiring medication. Psychiatric diagnosis is based on self report (symptoms) and a professional observation of some abnormal behavior or judgment that reported symptoms as abnormal. This may be incorrect or biased. Life - long treatment with drugs is also a stigma, trauma and myth. Drugs as principal means of treatment are incorrect. Time has come that psychiatric drugs are being abused or misused more than being rationally prescribed e.g. stimulants are sold many times more than the prevalence of hyperkinetic disorder; so is the case of sildenafil use by normal persons.

This is an era of '*pharmaco-centrism*'. Some experts[7] argue that the pharmaco-centrism in psychiatry is derived from successful marketing by drug companies rather than scientific research. How many people use drugs in approved indications or as per guidelines? Off-label use is much more prevalent. How many psychiatrists prescribe drugs in appropriate dose or follow rules for proper escalation or decrement. In psychiatry, symptomatic relief is erroneously considered as 'cure'. Seeking treatment from traditional healers as first contact is an example of not believing in drug treatment. This may also be due to stigma, fear of side effects or dependence on drugs. The change in focus of neurotransmitter in one disorder is an example of commercial propaganda to push drugs. Some serious effects of drugs are classified as side-effects but actually they are intended effects. According to Laborit's original view, the actual effect of prescribed drugs was to throw the brain into chemical chaos, creating perturbation in neurotransmitter function.

Many experts are on the advisory board of pharmaceutical companies, conduct trials, helping them getting FDA approval (by being FDA members), propagate the use and indications of a drug. They are also on the expert committees who devise classifications and tend to include more and more symptoms or disorders to be treated with these drugs.[8] Being on the editorial board of journals, they also get the articles and drug trials or whole of the issues sponsored for advertising the molecules. In many journals, academic articles are sandwiched between advertisements or drug - related products. The critical views are either rejected or silenced. Where mental health professionals voice their views, they risk serious sanctions.

The need of the hour is to accept and treat only disorders, not symptoms, with drugs, if truly required. The drug prescription should be evidence based and medication must be given in lowest possible doses, for shortest duration and only for indications approved for the drug. One has to be confident enough not to prescribe drugs for all patients ('*No Drug Quotient*') and stop them whenever required. Only rational use can remove the myths and stigma of psychiatric drug therapy.

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Review Article

Mental Health Perspectives of Epilepsy: Focus on Anxiety Disorders

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Introduction

Epilepsy is a common and foremost health problem worldwide. It may follow a chronic course and needs long term treatment. The quality of life and functioning of the patients are significantly affected by epilepsy. Psychiatric disorders are frequently associated with epilepsy which further compromises the quality of life, functioning as well as increase the burden of care. The most unfortunate thing in this context is under recognition of psychiatric disorders in epilepsy. Anxiety disorders are very frequently underdiagnosed which result in delay in intervention.

Stress is increasing everywhere and likely to increase further in the coming days. The stress related disorders and anxiety disorders are also predicted to increase further. There is always a pressure for performance, irrespective of the health status. The performance expectation from patients with epilepsy is likely to increase the anxiety and apprehension in these patients. Hence this understudied field needs to be understood and researched in detail.

Mental Health Perspectives of epilepsy

Psychiatric co-morbidities are commonly encountered in patients of epilepsy and the other way round epilepsy is also frequently reported in patients with psychiatric disorders[1]. Psychiatric co-morbidities are common in both in pediatric population (includes adolescents) and adult as well as elderly population.[2]

Psychiatric manifestation is reported as an adverse sequel in patients of epilepsy as frequently as 50 to 60%.[3] Among the psychiatric complications of epilepsy, anxiety disorders, depression and psychotic disorders are more common.[3,4] Personality disorders are also reported in patients with epilepsy, but they are relatively less common.[5]

Mood disorders in epilepsy are common but they usually manifest in an uncommon way, being intermittent, pleomorphic and going beyond the clinical diagnostic criteria.[6] Depression is frequently associated with temporal lobe epilepsy and more common in treatment refractory cases.[7,8] The frequency and severity of depressive symptoms are higher in interictal depression of temporal lobe epilepsy with dominant (left) hemispheric involvement.[9] In a study on Japanese population, Matsuura et al found mental retardation to be the primary risk factor for development of psychotic disorder in patients with epilepsy[4]. Fiest et al had conducted a systematic review and meta-analysis of depression in epilepsy and found that depression has strong association with epilepsy.[11] Association of depression in epilepsy can be explained on the basis of the bio-psycho-social model:[12]

- Biological
  - Endocrine related effects of seizure
  - Metabolic effects of seizure
  - Adverse effects of antiepileptic drugs
- Psychological
  - Personality factors
  - Individual's perception and attitude towards epilepsy and its treatment
- Social

- Stigma attached to epilepsy
- Psychosocial support
- Burden of treatment
- Employment related issues
- Compromised quality of life due to epilepsy

The pathophysiologic mechanism of epilepsy is also responsible for the pathogenesis of depression, thereby explaining the close association of these two disorders.[12] The manifestation of depression in epilepsy can be in the form of major depressive disorder or dysthymia or atypical depression.[9,12] The shared or common pathophysiologic mechanism possibly explains the dysthymia like presentation in epilepsy. The common antiepileptic medications that attribute to depressive symptoms in epilepsy are – Vigabatrin, Tiagabine, Phenobarbital and Topiramate.[12,13] Phenytoin, carbamazepine, oxcarbazepine, pregabalin, gabapentin, sodium valproate, lamotrigine and ethosuximide are associated with low risk of depression.[13] The antiepileptic medications that is effective in treating the depression in epilepsy is Lamotrigine.[12] Valproate also has a positive effect on depressive mood symptoms in epilepsy as monotherapy.[12] Preliminary data is suggestive of advantageous role of antiepileptic drugs – levitracetam, oxcarbazepine, tiagabine, felbamate and gabapentin against depression in epilepsy, however further study required in this area.[12,13] Depression associated with antiepileptic medication use can be explained by[13]–

- Cortical inhibition (due to potentiation of GABA mediated inhibitory activity)
- Forced normalization
- Nutritional deficiency (folic acid deficiency)
- Interaction among different antiepileptic drugs

Patients of epilepsy with past history or family history of depression are at higher risk, hence need careful monitoring during antiepileptic therapy.[13] Presence of structural brain lesions also carry a higher risk for antiepileptic mediated depression.[13] In females with epilepsy, postpartum depression is more frequently reported.[14,15]

Typical personality changes reported in persons with epilepsy is known as Gastaut-Geschwind syndrome.[16] Gastaut-Geschwind syndrome is characterized by circumstantial speech (over-elaborative), hyposexuality and intense emotional turmoil.[16] Sexual dysfunction is commonly seen in patients with epilepsy.[17] Hyposexuality is the most common form of sexual dysfunction and can be explained due to epilepsy itself or the use of antiepileptic medications.[17]

Persons with epilepsy and associated brain lesions have greater psychiatric co-morbidity as compared to those without brain lesion.[2] Epilepsy syndromes affecting the Sylvian and Rolandic regions, Juvenile Myoclonic Epilepsy (JME), Childhood Absence Epilepsy (CAE) and Temporal Lobe Epilepsy (TLE) are commonly associated with psychiatric manifestations like – depression, psychosis, attention deficit hyperkinetic disorder, conduct disorder and aggressive behavior.[2,18-21,22] Schizophrenia like psychotic manifestations may be seen in the interictal periods, which can be a form of severe interictal dysphoric disorder and surgical removal of the epileptogenic focus may be beneficial for interictal psychosis.[23]

Psychiatric co-morbidities are also commonly reported in children and adolescents with epilepsy, the frequency of this co-morbid association being approximately 40 – 50%.[24] The common co-morbid psychiatric disorders in children and adolescents with epilepsy are – anxiety disorders, depression, psychotic disorders, attention deficit hyperkinetic disorder (ADHD) and disruptive disorder.[20,24-26] Inattentive subtype of ADHD is common in children and adolescents with epilepsy, and the risk factors being severe seizures, family dysfunction and damage of the central nervous system.[25] In pediatric population, epilepsy causes impairment of cognitive abilities which may leads to scholastic difficulties and poor academic achievements.[2] Cognitive deficits in epilepsy also results as the adverse event of antiepileptic medications, the older antiepileptic drugs (e.g: Phenobarbitone, Phenytoin, Valproic acid and Carbamazepine) being more commonly responsible than the newer antiepileptic drugs (e.g: Oxcarbazepine, Lamotrigine, Vigabatrin, Levitracetam, Zonisamide, Tiagabineetc).[27] Psychiatric manifestations due to use of antiepileptic drugs are mostly behavioral problems, followed by mood disorder and rarely psychosis.[28]

Epilepsy syndromes affecting the Sylvian and Rolandic regions, Juvenile Myoclonic Epilepsy (JME), Childhood Absence Epilepsy (CAE) and Temporal Lobe Epilepsy (TLE) are associated with

involvement of major cognitive domains.[2,29-33] Attention is the most frequently involved cognitive domain in these epilepsy syndromes.[2,29-33] Cognitive impairment is more commonly seen in early onset epilepsy in comparison to late onset epilepsy.[2] Pediatric patients with Rolandic epilepsy present with poor quality of sleep along with behavioral problems in the form of anxiety, depression, inattention and aggressive behavior when the seizure is not adequately controlled.[34]

Suicide has been increasingly reported in patients with epilepsy.[35,36] As per the available data, the risk of suicide is five times higher in patients suffering from epilepsy in comparison to healthy general population and the risk of suicide is 25 times higher, if the patient suffers from complex partial seizure or temporal lobe epilepsy.[37] Blumeret al (2002), in their study concluded that suppression of seizure in epilepsy have psychotoxic effect (due to forced normalization) which plays a vital role in the causation of suicide. Suicide in epilepsy is commonly reported in:[35,36]

- Long standing epilepsy with good control of seizures
- Interictal dysphoric episodes with or without psychotic symptoms
- Postictal depression
- Early onset of seizures
- Temporal lobe epilepsy (TLE)
- Severe seizures
- Recent control of seizures
- Presence of psychiatric co-morbidities

Psychiatric complications are also associated with epilepsy surgery in patients of chronic epilepsy; however absence of seizure after epilepsy surgery is a predictor of good clinical outcome.[38] Use of antiepileptic drugs increases the risk of suicide in patients of epilepsy, however it is not so when used for additional indications other than epilepsy.[6,39] Co-morbid psychiatric illnesses in epilepsy are poor prognostic factors in terms of disease outcome, quality of life as well as treatment responsiveness.[1]

Selective Serotonin Reuptake Inhibitors (SSRIs) are the drug of choice and can be safely used for management of depression in epilepsy but fluvoxamine should be avoided as it interferes with the metabolism of antiepileptic drugs through hepatic CYP 450 enzyme system.[2,40-41] Thomé-Souza et al (2007), in their study found that SSRIs namely sertraline and fluoxetine as safe pharmacological agents for management of depression in epilepsy.[42]

Psychotherapies, particularly cognitive behavioral therapy is beneficial for management of depression in epilepsy.[2,43]

Antipsychotics are used in the treatment of psychosis in epilepsy. Clozapine lowers the seizure threshold, hence requires careful monitoring.[2]

Management of psychiatric co-morbidities in patients with epilepsy needs a multidisciplinary approach.[44] Timely recognition of symptoms by the primary care physician and collaborative approach towards management gives a better outcome.

Major biological correlates of psychiatric disorders in epilepsy

Temporal lobe involvement in temporal lobe epilepsy is a strong neurobiological correlate of depression.[2,45] Cognitive deficits are also related to temporal lobe involvement, particularly the hippocampal involvement.[2,46] Other brain areas that are responsible for cognitive disturbance in patients of epilepsy are:[2,46]

- Frontal lobe
- Parietal lobe
- Occipital lobe
- Cerebellum
- Corpus callosum[47]
- Subcortical structures

Hippocampal atrophy is associated with depression in patients of temporal lobe epilepsy and the degree and severity of depression also dependent on the extent of hippocampal atrophy.[2,45,48] Studies also suggest that the psychopathology in TLE is multifactorial and not exclusively related to temporal lobe involvement or biased by the laterality.[49,50] Hence further research is warranted in this area. Volume of Amygdala is found to be higher in psychosis associated with temporal lobe epilepsy.[2,51] Mood disorders associated with temporal lobe epilepsy correlate with the cingulum, orbito-frontal cortex, subcortical areas as well as brainstem.[2,52-54]

Amygdala is an important center for emotional processing associated with anxiety disorders and depression as well as temporal lobe epilepsy.[55] The basolateral nucleus of amygdala has central role in epileptogenesis in temporal lobe epilepsy through the mechanism of dysregulation of GABAergic transmission.[55]

Association of anxiety disorder and epilepsy

Anxiety disorders in epilepsy are twice more common than population without epilepsy as revealed from studies.[56] Sometimes anxiety, even feelings like panic can be the clinical presentation of epilepsy.[57] Anxiety disorders in patients of epilepsy are understudied.[3] The cause of anxiety disorders in epilepsy can be summarized as of[3] :

- Neurobiological origin
- Psychosocial origin
- Iatrogenic origin (drug induced or as a sequel of epilepsy surgery)
- Combination of the above factors

Serotonin neurotransmission dysregulation is commonly seen in epilepsy.[8] The neurotransmitter serotonin is responsible for the affective regulation and its dysregulation results in depression and anxiety disorders.[8] Hence, anxiety disorders are commonly seen in the course of epilepsy. In children, even in adults with epilepsy, there exists fear and apprehension in anticipation of a future episode of seizure which might attributes to the anxiety symptoms.[58,59] During the episode of seizure, the individual loses control over his body and is unable to do the desired action. This may also trigger the anxiety response.[60] Anxiety in epilepsy can be an ictal or peri-ictal or Interictal phenomenon and is less studied than mood disorder in epilepsy.[14] Sometimes, intense anxiety can be a part of aura.[14]

Kalscheuer et al (2009) in their study found the association of balanced chromosomal translocation disrupting the collybistin gene on chromosome Xq11 and another point of disruption on chromosome 18q11 with epilepsy, anxiety, aggression and mental retardation.[61]

Kessler et al (2012) mentioned the co-morbid association of anxiety disorders (Panic disorder), substance use disorder, conduct disorder as well as post-traumatic stress disorder (PTSD) in patients of epilepsy, in National Co-morbidity Survey Replication (NCS-R) in US.[62] This study also gives the message that association of psychiatric co-morbidities adds to the burden of epilepsy.[62] In a recent study, Vicentic et al (2013) found that the functional disability due to anxiety in patients with extratemporal epilepsy was maximum and was minimum in generalized epilepsies.[58] Anxiety disorder in epilepsy can be an ictal, interictal or postictal phenomenon or it may exist as a co-morbidity alongwith epilepsy.[56,63] Many factors increase the vulnerability for anxiety disorder in epilepsy. This can be specified as – neurobiological factors, psychosocial factors and iatrogenic factors.[63] Presence of anxiety and depression in patients of epilepsy significantly affects the quality of life, as found in the study of Kwan et al (2009).[64] Anxiety is also a predictor of functional outcome in patients with epilepsy. Patients with extratemporal epilepsy have more functional disability related to anxiety symptoms, than those with generalized epilepsy.[58]

Rai et al (2012), in a population study in United Kingdom, found the association between spectrum of anxiety disorders like – generalized anxiety disorder, social phobia, agoraphobia etc. in patients with epilepsy.[65] Kotov AS (2013), in their study on patients with epilepsy found that anxiety and depressive features are commonly observed in patients suffering from epilepsy.[66] In this study, sub-clinical and clinical anxiety symptoms were reported in approximately 13 % and 26% of total patients respectively.[66] Similarly co-morbid subclinical and clinical depressive symptoms are reported in 14 % and 13% of total patients respectively.[66] Co-morbid anxiety and depressive symptoms in patients with epilepsy, adversely affects the quality of life.[66,67]

Rabin et al (2013), in their study on pediatric population with epilepsy found – obsessive compulsive disorder, specific phobia, agoraphobia, panic disorder, separation anxiety disorder and other anxiety disorders as co-morbid anxiety disorders.[68] In children and adolescents suffering from epilepsy, anxiety symptoms are commonly reported.[69] Save-Pédebos et al (2013), in their study found that, parental anxiety related to epilepsy did not affect the anxiety symptoms of children and adolescents suffering from epilepsy.[69] Poor social competence has been reported in children suffering from epilepsy.[70] Vega et al (2011), in his study on childhood absence seizure disorder found that anxiety was a prominent impairing symptom, usually manifested in the form of nervousness and thought rumination.[71]

Children with epilepsy, often have behavioral problems which may be either triggered or intensified with antiepileptic medications.[72] Ekinci et al (2009), in their study found that depression and anxiety in children and adolescents with epilepsy as risk factor for suicide and poor quality of life.[73]

Management of anxiety disorders in epilepsy

Management of anxiety disorders in epilepsy is always a challenge as some of the medications used for the treatment of anxiety disorders increase the risk of seizure by either decreasing the seizure threshold or by interfering with the metabolism of antiepileptic drugs through the enzyme system.[56,74]

Bondarenko and Kissin (2012) in their study on patients with partial epilepsy and comorbid depression and anxiety disorders found that pregabalin and antidepressant (sertraline) combination with anti-epileptic drugs (AEDs) have superior efficacy and safety over antidepressant (sertraline) alone with AEDs.[75] Similarly, Maschio et al (2012), found adjuvant pregabalin to be effective in controlling seizure and anxiety in their study on patients with brain tumor related epilepsy.[76] Brandt et al (2013), in their study found pregabalin to be an effective pharmaco-therapeutic agent for management of focal epilepsy with co-morbid anxiety disorder.[67]

Selective Serotonin Reuptake Inhibitors (SSRIs) are the treatment of choice of anxiety disorders and depression in epilepsy as these have little effect on the neuronal excitability unlike the tricyclic antidepressants and bupropion which lower seizure threshold.[77] Serotonin Norepinephrine Reuptake Inhibitors (SNRIs) are also safe for use in epilepsy with co-morbid anxiety and depression.[77] However, the impact of long term use of these antidepressants on genesis of seizure is a matter of concern.[77] In a recent pilot study, Blocher et al (2013) assessed the feasibility of computer-assisted Cognitive behavior therapy (CBT) for management of anxiety disorders in children with epilepsy and found CBT to be a safe and effective modality of non-pharmacological management.[78] As coexisting depression and anxiety with epilepsy increases the risk of suicide, the consulting physician should be careful enough to identify these risk factors and appropriate intervention is also warranted for the prevention of suicide.[73,79] SSRIs are preferred pharmacological agents for the treatment of panic disorder, phobia, post-traumatic stress disorder and obsessive compulsive disorder.[80] Pregabalin is the first line agent for management of generalized anxiety disorder.[80] Combination of pharmacological agent with psychotherapy (particularly Cognitive Behavior Therapy) is recommended both in acute as well as maintenance phase of panic disorder.[80] Among the SSRIs, sertraline, paroxetine and even escitalopram are considered safe due to minimal interaction with antiepileptic drugs.[80] Antiepileptic drug – Lamotrigine is also found to have beneficial effect in treating anxiety symptoms associated with epilepsy.[81]

Conclusion

Anxiety disorders in epilepsy often go undiagnosed and hence untreated.[80] Co-existence of mood disorders along with anxiety disorders might be also responsible for the under-diagnosis.[80] Anxiety disorders in epilepsy attribute to poor quality of life.[56] Identification of anxiety disorder in pediatric population with epilepsy is always a challenge.[56] Anxiety is considered as an indicator of poor quality of life in patients of epilepsy.[82] Timely identification and appropriate intervention of anxiety disorder in epilepsy improves the quality of life.[82] Therefore, physicians treating epilepsy need to be aware of the psychiatric co-morbidities associated with epilepsy. The physician should be able to identify the co-morbid anxiety disorders and liaising with mental health professionals will be beneficial. In several patients of epilepsy, antiepileptic drugs attribute to the psychiatric manifestations; however it does not mean that antiepileptic drugs need to be stopped.[36] The focus should be on proper selection of antiepileptic drugs after assessing the risk and benefits.[36] Coping skills needed to adapt effectively with epilepsy is often lacking in many patients; this too needs to be improved in order to improve the quality of life.[83]

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Review Article

Understanding holistically the Child with Learning Disability — Going beyond Academics

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Introduction

Learning disorders (LD) are developmental disorders characterized by clinically significant impairment in scholastic skill (reading, writing, spelling or arithmetic) which is not accounted for by mental retardation or inadequate schooling. As the prevalence of Learning Disability (LD) in India is increasing, it is important to holistically understand the child with LD. Rather than solely focusing on their difficulties with academics, it is necessary to understand their various other difficulties namely deficits in social skills.

Studies have also consistently shown that children with LD have deficits in social skills. Social skills have been defined as situation-specific behaviors that enhance the overall social functioning of a person, resulting in personal and social satisfaction.[1] Social skills are the foundations of getting along with others and are required to deal with the demands and challenges of everyday life. They are a very important skill set in a child's life for emotional growth and for developing relationships.Here we briefly review the type of social skills deficits presented in children with LD. Social skill interventions for LD are also highlighted.

Social Skill Deficits in Children with LD

One of the most cited study Kavale and Forness, 1995[2] examining social skills of children with LD across 152 studies showed that 75% of students with LD had deficits in social skills. Over the past 30 years, an impressive body of research has accumulated detailing the social problems experienced by children and adolescents with LD namely in social perception, emotional regulation, interpersonal peer relationships and self-concept.

Social perception

Social perception is defined as the recognition and labeling of facial expressions, gestures, and body language. Studies of social perception have been based on children's accuracy in labelling photographs or silent-film scenarios, and auditory and visual recordings of emotions in which children with LDconsistentlyperform worse than comparison students. Bauminger et al,[3] reported that Children with LD have significant deficits in social perception. Some literature also suggests that children with Reading Disorder may have lower theory of mind scores and this may predict higher levels of psychosocial problems.

Social problem solving

When asked to generate solutions to social dilemmas, students with LD perform less ably than average-achievingpeers in encoding the dilemmas and in generating competent solutions.[4] Although students with LD are able togenerate a diversity of potential competent solutions, they indicate a preference for significantly more incompetent solutions than average-achieving students.

Pragmatics

A meta-analysis of pragmatic language skills found that students with learning disabilities demonstrated consistent and pervasive pragmatic deficits in conversation across settings, conversational partners, age groups, and types of pragmatic skills measured. Specifically, children and adolescents with LD display problems in topic selection, initiation and maintenance, conversational turn taking, requesting and producing clarification, narrative production, presenting logical opinions and

different points of view, gaze and eye contact, being tactful in formulating and delivering messages, and comprehension of humor and slang.[5] The author of this paper has experiences of parents of children with LD complaining that their children often interrupt conversations.

Social Behavior

A host of negative or inappropriate behaviours have been attributed to students with LD such as acting more aggressively, and exhibiting more negative verbal and nonverbal behaviours than class-mates. Some tend to be withdrawn whereas others behave disruptively.[6] A mother of a 9 year old girl with LD reported to the author that she would constantly be embroiled in fights in school and would also fight with her younger brother at home.

Peer Rejection

Several reviews and studies have indicated that Children with LD are reported to be rejected by their peers at a high rate.[7] Many hypotheses have been put forth to explain it: Some emphasize deficits in perceptual abilities, self-regulations problems, or aggressive behaviours.

This is a matter of grave concern as many longitudinal studies have revealed that children receiving negative peer nominations are more likely to put them at risk for future mal-adjustment problems and school drop-out. Many children who the author has worked with report being excluded or having few friends at school.

Social Skills Training

Social skills training aims to increase the ability to perform key social behaviours that are important in achieving success in social situations. The components of effective social skills instruction have been identified as (a) skill acquisition, (b) skill performance, (c) removal of competing problem behaviors (d) facilitation of generalization and maintenance.[8]

Effective social skills instruction is designed to remediate skill deficits through operant, social learning, and cognitive-behaviour approaches.[9]

Methods of social skills training

Many social skills programs emphasize teaching skills to small groups of children (selected method) whereas others are designed for use with the entire class (universal method). The selected method is very effective in teaching social skills to students who display less positive social behaviour and it also allows the trainer to focus on the needs of the individual students.[10]

The training of social skills typically includes behavioural methods of instruction, discussion, modelling, practice and feedback. The use of reinforcement and home-based practice outside training sessions is also important.

The behavioural strategies ofmodelling, coaching, behavioural rehearsal, role play,feedback and reinforcement have beenfound to be effective in producing short-term improvements in speciûc social skill responses.[11]

Instructions and discussion – In social skills training, children learn a great deal from the instructions given by the trainer. Discussion is an important way to learn social skills because during discussion children play an active part in learning social behaviours rather than just being told to do something. The aim of the discussion component is to think and identify specific skills and to reason out the rationale as to why these skills are so important and should be learnt.

Modelling – Another way of learning is through the observation of other people. Modelling refers to the demonstration of the skill to be learned and may take various forms. It may consist of videotapes or the group trainer could be the model.

Role playing – Role playing provides an opportunity for children to practise the skills observed during modelling in a non-threatening environment, before they attempt to use them in real-life situations. At the end of the role play, the trainer provides feedback regarding the performance. Feed back should be given immediately after the role-play, it should be specific, positive and constructive. Feedback is also generally accompanied by praise and other forms of social reinforcement.

Transferring the skills learnt into everyday life-generalisation

As a training objective, skill generalization can be seen as a process in which the learner progresses from performing new skills in a relatively controlled, risk-free context, to one in which he or she is expected to use the skills in the course of normal social interactions in real-life situations.

One of the most consistent and long standing criticisms of social skills training programs is that the skills which the students learn during the training are often not maintained or generalized. Few methods have been suggested to make generalization more likely:

To make the training resemble real-life – The training activities and role plays should be made as realistic as possible. Similarly, it may be possible to run sessions in a realistic situation rather a clinic or hospital type of setting. For example, ran their adolescent social skills training program in a youth club and had the children practise their skills during the regular youth club activities.

Parent generalisation – Involvement of people from the child's life such as parents or teachers has been suggested to make generalisation more likely. Parents are explained the activities and rationale of each session and are taught how to support the transfer of skills learnt by prompting and rewarding skill usage outside the training sessions. At times, parents also observe the training process when essential.

Home tasks – Home tasks are also one of the most important ways of encouraging children to learn to use their skills in real life situations. Children should also be given the chance to discuss the outcome of their home tasks and to outline any problems that they experienced.

Several studies have attempted to teach the social skills that have been identified as being problematic among students with LD. Positive effects have been reported in some research and meta-analytic analyses have found limited positive effects on social behavior[12].Nevertheless, it is now a widely accepted component of multi-method approaches to the treatment of many emotional, behavioural and developmental disorders.[13]

Many modules for social skills training are available: Eg: Spence Social Skills training is a very established and detailed manual, the developer of this module Susan Spence has considerable work and publications in social skills training with a wide variety of child population.

Computer assisted social skills training

Along with traditional strategies for social skills instruction, novel techniques are also emerging which include the use of computer technology and the integration of video instructional content.

The potential advantages are that the content of these computer programs can provide interesting and fun individual instruction for the child andis also flexible in the sense that it can be suspended at any point and for any length of time to deliver relevant instruction during the practice activity.

The author uses many videos freely available online on YOU TUBE to teach students important skills like sharing, positive peer contact etc.

Cognitive deficits

Cognitive processing deficits have long been considered to be at the core of LD. They are not frequently assessed as a part of LD determination. This omission is worthy of reconsideration as research is rapidly throwing light on the cognitive deficits in LD.

In reading,for example deficits commonly identified include expressive and receptive language, phonological processing, processing speed,[14,15] and workingmemory.[16] In mathematics LD, the key deficits found are in attention, verbal working memory, visual working memory, processing speed. If the deficits are severe, then cognitive re-training procedures can be employed.

Self-esteem, depression and suicidal tendencies

Children with LD tend to have low self-esteem due to their academic problems, social skill problems and peer rejection. It is very important to address this issue in intervention planning and also be alert for any signs of depressive or suicidal features.

Also here, psycho-educating the parents about LD is very important as many parents especially in the Indian context where there is little awareness, parents may have myths that it is the child's fault, he is being naughty etc and due to these myths they keep blaming the child for his poor academic performance which further contributes to the low self-esteem of the child.

In more severe cases, suicidal tendencies could also be present- in one case the author was presented with a boy of 12 years old who had locked himself in the bedroom and tried to hang himself by the fan when he failed in 7th class for the second time. His parents were not aware of LD and used to think he is "being naughty" and he was also fed up of being

teased by his friends in school of being a 'duffar'.

Conclusion

Data suggest that social problems of children with LD are pervasive and put these children at heightened risk for future social maladjustment. Instructing students in social skills can have important preventive effects. Also, there is a dearth of Indian studies regarding social skills training for LD population. Hence, a need for this type of study in Indian context is indicated. Also, when we work with children with LD, we need to be cognizant about the various other problems that they tend to face such as low self-esteem, peer rejection.

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Review Article

Dentistry and Psychiatry: It's Time to Bridge the Gap

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Introduction

The term "liaison psychiatry" was first coined by Edward Billings.[1] Consultation-Liaison (C-L) psychiatry has developed as a unique area of expertise in psychiatry[2,3] and is referred to as the guardian of the psychological and holistic approach to patient. Liaison psychiatry has been undergoing rapid change especially in the developed countries but its practice is strongly affected by stigma and negative attitude of professional colleagues.[4]

Liaison psychiatry is a branch of psychiatry that specializes in the interface between medicine and psychiatry, usually taking place in a hospital or medical setting. The role of the consultation-liaison psychiatrist is to see patient at the request of the treating medical or surgical consultant or team. "Consults" occur when the primary care team has questions about a patient's mental health, or how that patient's mental health is affecting his or her care and dental treatment. The psychiatric team works as a "liaison" between the medical or dental team and the patient. Issues that arise include assessing the capacity of a patient to consent to treatment, attempting to settle conflicts between patients with the primary care team, and the intersection of problems in both physical and mental health, as well as patients who may report physical symptoms as a result of a mental disorder, and assessing patients for abnormal illness behavior.[5]

Liaison psychiatry is fast emerging as a well-recognized subspecialty within psychiatry.[2] The boundaries of this subspecialty are ill defined and extend into various branches of medicine. Though psychiatric consultation liaison in dental practice is still in its infancy, the contribution of behavioral sciences in management of psychosomatic symptoms in patients presenting to dental specialists is well recognized.[6]

Psychopathology

Many people show aberrant, inappropriate, or abnormal behavior. Such behavior is often indicative of a psychological, psychiatric, or mental disorder, which are grouped under the term "psycho-pathology." Psychopathology is said to exist when unpleasant, painful emotions, experiences, or behavior impair a person's life to such an extent that he or she can no longer function properly, to the detriment of his or her own wellbeing and that of others.[7]

There are several important reasons why dentists should be aware of the nature of psychological disorders[8]:

(a) Psychological disorders are very common and do not just affect an odd few people;
(b) Psychological disorders may produce many problems relating to dental treatment. e.g. phobias;
(c) Many psychiatric disorders such as anxiety and depression, are commonly accompanied by oral symptoms such as facial pain or preoccupation with dentures;
(d) Many drugs used in the treatment of psychological disorders have important adverse events which may produce oral symptoms.

Psychopathology and dentistry

Given the high prevalence of mental disorders in general population, dentists frequently treat patients who have noticeable abnormal behavior as well as patients who have psychiatric disorders that are not easily identified or obvious.[9] There is a need for dentists to be aware of patient vulnerability factors and psychological problems due to the possible negative effects of psychological distress and critical incidents, and their consequences for both symptom presentation and dental treatment planning.[10]

Dentists usually do not ask questions about one's psychological health, perhaps with the exception of dental anxiety. Dentists may avoid this aspect of a patient's health history as they feel that they are not trained to approach this topic or because they do not see its relevance to the dental symptoms. It is actually not the dentist's job to assess a patient's mental state or to decide whether or not the patient has a psychological dysfunction. However, when it is evident that patient's symptoms may be of psychological origin, dentists have a duty to refer the patient to a specialist for a mental health assessment and appropriate treatment.[11]

A major reason why the dentist should have some knowledge of psychopathology is that many mental health conditions interfere with dental treatment. This applies particularly to uncooperative patients, for example, who experience phobic anxiety about a particular aspect of dental treatment;[11,12] or patient disinterested in performing appropriate preventive self-care and oral hygiene mostly among patients who are depressed,[13] behavioral problems associated with substance-dependency or cognitive impairment[14] and dental erosion resulting from certain eating disorders.[15]

Some patients may be so disturbed or distracted psychologically that personal hygiene is neglected. It has been reported that psychological disturbances can lead patients to neglect oral hygiene and the resultant accumulation of plaque is detrimental to the periodontal tissues. Other patients may intentionally ignore oral hygiene to fulfill deep neurotic needs. Oral hygiene may be neglected during depression, deep anxiety and rebellion against authority or may be a result of passive aggression. Dependent individuals may exhibit chronic neglect. The dentist's instructions concerning oral hygiene may be ignored as a form of "parental defiance" in some children.[16]

Psychiatric disorder most commonly encountered in dental clinics (ICD – 10) [10, 17]

- Mood Disorders (Bipolar disorder, Depression, Dysthymic disorder)
- Anxiety Disorders (Panic disorder, Generalized anxiety disorder, Specific phobia, Obsessive-compulsive disorder, Post-traumatic stress disorder)
- Somatoform Disorders (Somatization disorder, Hypochondriasis, Conversion disorder, Body dysmorphic disorder)
- Substance-Dependence (Alcohol/ Nicotine or other drug dependence)
- Eating Disorders (Anorexia nervosa, Bulimia nervosa)

There are various factors that can influence the referral rate of the patient to a psychiatrist; some of them are[18] (a) Attitude of the treating doctor towards psychiatry and relationship with the psychiatrists; (b) Knowledge and awareness of psychiatric disorders of the treating doctor; (c) Quality of liaison provided by the psychiatrists; (d) Treating doctor's opinion that psychiatrists have very little to offer in practical management of patients; (e) Patient's reluctance in been seen by a psychiatrist (Social stigma). (f) Presence of a psychiatrist in the close vicinity.

Stages of consultation-liaison psychiatry in the any health care system[18]:

(a) No Consultation and No Liaison: The patient is under the care of the general health care system. The psychiatrist is either not present in the system or if present there is no interaction.

(b) Consultation but No Liaison: Predominantly referral system established for patient care. There is minimal education and research.

(c) No Consultation but Liaison: The psychiatrist does not have patient contact, but works in collaboration with the non – psychiatric treatment team.

(d) Consultation and Liaison: Progressively intense liaison teaching activities built on the already growing base of consultations.

Increasing attention needs to be given to identify and appropriately treat somatoform disorders (The

somatoform disorders is repeated presentation of physical symptoms, together with persistent requests for investigations, in spite of repeated negative findings and reassurances that the symptoms have no physical basis[17]; more so as they constitute one-third to one-half of referrals to any liaison psychiatry service.[19] Somatoform disorders, apart from posing management problems, also cause significant functional impairment and overall disability for the patient.[20]

Dentists are trained to provide treatment for patients with straight forward problems that respond to routine therapy and do not recur. However, patients may present to dentists and complain solely of physical symptoms; such as toothache, headache, and facial pain, abnormalities of sensation, movement and salivation involving the mouth and face and not due to a clearly identifiable physical cause.[21,22] Only after much inappropriate treatment these symptoms are revealed to be due to emotional disturbance.[23]

The dentist may spend hours investigating such patients, in some of whom dental pathology may be present, but the symptoms and ensuing disability cannot be satisfactorily explained as a result. There are other patients who are preoccupied by physical symptoms or by their appearance. Anxiety may manifest itself as phobia or dysmorphic concern about certain aspects of their appearance.[23]

Patients presenting with oral dysesthesia appeared to have psychiatric illness more often than the other subjects with chronic pain, except those attending a psychiatric clinic.[24] Burning mouth syndrome (BMS) symptomatology is associated with depression and anxiety; indicating that somatization should be taken into consideration during clinical evaluation of BMS symptoms.[25]

Oral manifestations/ complications of eating disorders (Anorexia nervosa and Bulimia nervosa) represent a challenge to the dental practitioner. The difficulties of recognizing the oral manifestations, and the failure to do so, may lead to serious systemic problems in addition to progressive and irreversible damage to the oral hard tissues. They represent a clinical challenge to dental professionals because of their unique psychological, medical, nutritional, and dental patterns as well as their unique characteristics. Dental erosion, caries, xerostomia, enlargement of parotid glands, traumatized oral mucosa, and other oral manifestations may be the presentation when a patient reaches a dental clinic. Often the dentist is the first health care provider to observe the clinical symptoms of an eating disorder. Dental treatment should be carried out simultaneously with the medical and psychiatric treatment.[26] Dental health providers should be able to recognize these signs and identify patients with this condition. Members of the dental health team then must intervene and assist in facilitating treatment of the eating disorder.[15]

Temporomandibular disorders (TMDs) are a common condition but its etiology is poorly understood. Although TMD can be quite disabling, most patients presenting with symptoms improve regardless of treatment type. It is a common opinion that temporomandibular joint pain-dysfunction (TMJPD) syndrome and bruxism have a major psychosomatic component. Two etiological models have been developed: the structural model emphasizes the role played by malocclusion or alterations of the maxillomandibular relationship, while the functional model underscores the role of stress, emotional tension, and personality characteristics. In TMJPD and bruxism patients a careful physical and psychological examination has to be performed.[27]

Given the prevalence and impact of unrecognized and untreated psychiatric disorders in patients presenting in dental practice, there follows the need for a service to address this unmet need. This would directly provide a framework for psychiatric-dental liaison and indirectly lead to better understanding of psychiatric disorders by dental specialists, which in turn will lead to early identification and referral. It has been shown that availability of psychiatric liaison service will lead to an increase in rate of referrals.[28]

Most of these patients, once identified, may respond well to simple and effective interventions. This specialist service will help to manage the patient subgroup, which otherwise remain resistant to conventional treatment; consume more resources and exact considerable economic burden on the health service and society.

Psychological approaches include biofeedback, relaxation techniques (Jacobson's progressive muscle relaxation), and cognitive-behavioral therapy. Psychological treatments need not be viewed as a treatment of last resort, but rather should be

delivered concurrent with biomedical treatments.[29] In spite of all the efforts for combined therapy that have proliferated over the last years, the therapeutic options proposed for these patients are extraordinarily diversified and vary with the different schools. Hence, it has been proposed that psychosomatic approach using well-coordinated team work between stomatologists and psychotherapists might have a theoretical basis.[30]

So to have an overall improvement in health there is a need for the dentists to[10]: (a) be aware of patients difficulties and psychological functioning (just as they are aware of systematic conditions such as diabetes and hypertension); (b) develop the ability to recognize the importance of psychological health in a patient's overall presentation; (c) refer a patient who is having psychological difficulties for appropriate mental health care; (d) be aware of the role played by psychosocial factors in the development and persistence of dental problems and symptoms.

Recommendations

1. There should be a short period of training for the dental students (Undergraduates & Postgraduates) in Psychiatry.
2. There is a need to increase the awareness of non-psychiatric clinicians about psychiatric disorders.
3. To develop consultation-liaison psychiatric units. Consultant psychiatrist should be available in the close vicinity of the dental clinic resulting in more referrals being sent to the psychiatrists; leading to accurate assessment and diagnosis; this is the first step for correct management and treatment.

Conclusion

There has been underestimation of psychiatric morbidity by all the clinicians and a general reluctance to refer patients to a psychiatrist for varied reasons. Although many doctors considered psychiatric referral as useful in treatment plan but cannot get their help due to unavailability or no liaison.

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Original Article

Left ventricular ejection fraction as a severity indicator of post myocardial infarction depression

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Abstract

Introduction: *Major depressive disorder is usual in patients experiencing an episode of myocardial infarction (MI). Left ventricular dysfunction scores could be a tool to predict severity of post myocardial infarction depressive disorder.* ***Objective:*** *The purpose of this work was to test the relationships between the severity of left ventricular ejection fraction dysfunction severity of post Myocardial Infarction depression.* ***Methods****: The study was conducted on Patients of acute MI (n=50) attending cardiology Out Patient Department of Assam medical college, Dibrugarh, Assam in 4 to 6 weeks after the index event. Screening was done by The Primary Care Evaluation of Mental Disorders and diagnoses of Major Depressive Disorder were established according to the Diagnostic and Statistical Manual for Mental Disorders fourth edition Test Revision criteria. Severity of the depression was assessed by Beck Depression Inventory. Laboratory reports of Electrocardiography, Echocardiography, were brought down from the medical records of the patients. Logistic regression analysis and Spearman correlation tests were utilized for the analysis.* ***Results****: Severity indicators of MI like the severity of left ventricular ejection fraction has significant association (Wald = 8.96, Odd's ratio = 2.66, p = 0.003) and positive correlation (r = 0.723, p= 0.002) with severity of post MI depression.* ***Conclusion****: An increment in the severity of left ventricular ejection fraction is associated with increased risk of depression following the myocardial infarction. So it can be applied to predict future chances of depression later on, after an episode of myocardial infarction.*

Keywords*: Myocardial infarction, Major depressive disorder, Left ventricular ejection fraction.*

Introduction

Ischemic Heart Disease, otherwise called Coronary Artery Disease, is a condition that affects the supply of blood to the heart. The blood vessels are constricted or obstructed due to the deposition of cholesterol on their walls. This reduces the supply of oxygen and nutrients to the heart muscles, which is essential for proper functioning of the heart. This may eventually result in a portion of the heart being suddenly deprived of its blood supply leading to the death of that area of heart tissue, resulting in a heart attack.[1] The cardinal feature of CAD is chest pain, typically on exertion, and, often times, there are no symptoms until an acute coronary event occurs. In developing countries, rates are predicted to increase by 120% in women and 137% in men from 1990 to 2020.[2] CAD prevalence appears to be worsening in India. According to the global burden of disease

Abbreviations: CAD: Coronary Artery Disease, MI: myocardial infarction, LVEF: Left ventricular ejection fraction, BDI: Beck Depression Inventory, PRIME-MD, PHQ: Primary care evaluation of mental disorder - patients with health questionnaire, DSM IV: Diagnostic and Statistical Manual of Mental Disorders IV

study 2010, major depression is a significant risk factor for coronary heart disease.[3] Incidence of depression symptoms following myocardial infarction (MI) is a very common psychological problem among patients with MI. This psychological problem has negative impacts on the prognosis of cardiac disease.[4]

Lesperance et al.[5] in their study regarding post MI depression, discovered no relationship between the LVEF dysfunction and depression. Some studies have studied whether the characteristics of Myocardial Infarction intensity, such as left ventricular ejection fraction (LVEF) are associated with the incidence of depression. Studies like Frasure-Smith et al[6], Van Melle et al[4] and Bagherian et al.[7] showed a consequential association between LVEF and depression scores in Beck Depression Inventory (BDI). In the present work we have endeavored to inspect the association and correlation between LVEF dysfunction and depression.

Materials and methods

Study area: The study was done in Assam Medical College, which is a tertiary care center situated in Dibrugarh, Assam.

The design of the study: The study subjects were 50 randomly selected diagnosed cases of Myocardial infarction from the Cardiology Outpatient Department. The period of the study was one year (June 2012-May 2013). Socio-demographic information was accumulated as per the prepared standard questionnaire. Ethical approval and consent of the patients were obtained in the initial portion of the study. Patients were evaluated for screening of depression by using PRIME-MD, PHQ (Primary care evaluation of mental disorder - patients with health questionnaire) after 4-6weeks from an attack of MI, as by that time the normal psychological reaction to MI is supposed to have resolved.

During screening, patients who were discovered to be experiencing depression and fulfilling the criteria according to the Diagnostic and Statistical Manual of Mental Disorder IV Text Revision were selected for the survey. Later on Beck Depression Inventory (BDI) scale was applied to assess the severity of depression. Laboratory reports of Electrocardiography, Echocardiography, were taken down from the medical records of the patients. Categorization of severity of LVEF scores was done by the guidelines provided by the American College of Cardiology 2012.

The aim of the study: To examine the relationships between the severity of left ventricular ejection fraction and dysfunction severity of post Myocardial Infarction depression.

Inclusion criteria: (a) Both male and female patients, (b) Age between 21-70 year. c) Diagnosed cases of MI as per redefined AMI criteria.[8]

Exclusion criteria: (a) Patients aged more than 70 years were left out as there will be a heavier hazard of other co-morbid physical illness as well as psychological issues associated with old age (b) patient with other co-morbid medical conditions like diabetes mellitus and obesity as they are known to be commonly followed by depression (c) history of other psychiatric disorders.

Tools which are used in the study are: a) Informed consent form (b) Proforma for socioeconomic data (c) Prime MD PHQ (The Primary Care Evaluation of Mental Disorders) (d) Diagnostic and Statistical Manual of Mental Disorders IV (DSM IV-TR) (e) Beck Depression Inventory (BDI) (f) Electrocardiography, (g) Echocardiography

Prime MD PHQ

PRIME-MD a diagnostic tool containing modules on 5 different mental health disorders was developed in the mid-1990s. The PHQ-9, a tool specific to depression, simply scores each of the 9 DSM-IV criteria based on the mood module from the original PRIME-MD.[9]

Beck Depression Inventory (BDI)

The Beck Depression Inventory (BDI), created by Dr. Aaron T. Beck, is a 21-question multiple-choice self-report inventory, one of the most widely used instruments for measuring the severity of depression. Its development marked a shift among health care professionals, who had until then viewed depression from a psychodynamic-perspective, instead of it being rooted in the patient's own thoughts. In its current version the questionnaire is designed for individuals aged 13 and over, and is composed of items relating to symptoms of depression such as hopelessness and irritability, cognitions such as guilt or feelings of being punished, as well as physical symptoms such as fatigue, weight

loss, and lack of interest in sex. The cutoff score of BDI was as per the interpretation provided with the scale. The standard cutoffs are as follows:

- 0–9: indicates minimal depression
- 10–18: indicates mild depression
- 19–29: indicates moderate depression
- 30–63: indicates severe depression.

BDI is a clinician rated scale. The Assamese translation of BDI was used in this work, which was practiced earlier in another study and is a well accepted one.[10,11]

Echocardiography

Echocardiogram often referred to cardiac echo or simply an echo is a sonogram of the heart. Echocardiography uses standard two-dimensional, three-dimensional, and Doppler ultrasound to create images of the heart. An Echocardiogram can also give physicians, other estimates of heart function such as a calculation of the cardiac output, ejection fraction, and diastolic function. Left ventricular ejection fraction (EF) represents the volumetric fraction of blood pumped out of the left ventricle (heart) with each heartbeat or cardiac cycle.

The LVEF is an appropriate clinical indicator of the functionality or dysfunctionality of the left ventricle, which can be determined by echocardiography. This indicator is shown by the following formula:

$$E_f = \frac{SV}{EDV} = \frac{EDV - ESV}{EDV}$$

{End-diastolic volume (EDV), end-systolic volumes (ESV), Ejection fraction (Ef), stroke volume (SV)}

According to American college of cardiology 2012 Qualitative results should correspond to the numeric equivalents as: (a) Hyper-dynamic = LVEF greater than 70% (b) Normal = LVEF 50% to 70% (c) Mild dysfunction = LVEF 40% to 49% (d) Moderate dysfunction = LVEF 30% to 39% (e) Severe dysfunction = LVEF less than 30%.[12]

Statistical analysis

The information has been analyzed using statistical software packages like SPSS and XLSTAT. Logistic regression, Spearman correlation coefficient, and Student t tests were executed for analysis.

Results

The bulk of the survey subjects were male (74%), married (80%) from lower middle economic class (48%) and Hindus (84%). 32% of them had previous history of MI, 54% of them had their anterior wall involvement and inferior wall involvement was seen in case 46 % of patients. 28% of the study group were discovered to be depressed at around 4-6 weeks after the index event.

During statistical analysis the depressed group is split between two groups, i.e. depressed and non depressed. While investigating the extent of relationship of socio-demographic variables like age, gender, religious belief, marital condition, domicile status, job, locality and per capita income with depression by student t test and logistic regression method. No Statistically significant difference was understood between the two groups in terms of above mentioned social-demographic variables ($p > 0.5$). Age has been examined independently by student t test as here age and scores of depression both are continuous variable. The extent and the nature of the relationship of coronary risk factors and clinical variables are explored against depression. They are investigated using logistic regression model keeping depression as the dependent variable. The four coronary risk factor variables, i.e. history of smoking, history of previous myocardial infarction, family history of hypertension and history of hypertension are not found to have any bearing on depression ($p = 0.156$, $p = 0.110$, $p = 0.142$, $p = 0.150$). Similar cases of consequences were also shown by clinical variables ($p > 0.5$).

Table: 1: Analysis of difference of mean age in both groups

AGE Depression	Mean	N	Std. Deviation	t test	p value
No	53.18	34	11.546	0.446	0.657
Yes	54.63	16	8.586		
Total	53.64	50	10.621		

Table: 2: Analysis of extent of relationship of socio-demographic variables other than age with reference to depression

Variables		% Against non-depressed group (n=34)	% Against depressed group N= (16)	Wald	Odds ratio	CI	P value
Sex	Male	73.5	75	0.105	0.80	0.20-3.0	0.74
	Female	26.4	25				
Religion	Hindu	88.2	75	0.242	1.33	0.41-4.2	0.62
	Muslim	5.8	25				
	Christian	5.8	0				
Marital status	Unmarried	20.5	18.75	0.023	1.12	0.24-5.0	0.88
	Married	79.4	81.25				
Locality	Rural	55.8	43.75	0.761	1.43	0.63-3.2	0.38
	Semi-urban	32.3	37.5				
	Urban	11.7	18.75				
Type of family	Nuclear	73.5	68.75	1.38	1.578	0.73-3.3	0.24
	Extended	17.6	0				
	Joint	8.8	31.25				
Education	Illiterate	36.7	12.5	0.933	0.827	0.56-1.21	0.33
	Primary school certificate	14.7	25				
	Middle school certificate	32.3	6.25				
	High school certificate	20.5	31.25				
	Graduate or post graduate	32.3	25				
Occupation	Unemployed	32.3	37.5	0.123	1.061	0.76-1.47	0.72
	Unskilled worker	11.7	0				
	Semi-skilled worker	14.7	6.25				
	Skilled worker	5.8	12.5				
	Clerical/shop owner / farmer	29.4	43.75				
	Semi profession	5.8	0				
Socioeconomic status	Upper middle(II)	41.1	56.25	0.647	0.656	0.23-1.83	0.42
	Lower middle(III)	52.9	37.5				
	Upper Lower (IV)	5.8	6.25				

Analysis has shown that in case of clinical variables only LVEF function has significant association (p = 0.003) with the development of depression. Two other variables, i.e. the site of MI (myocardial infarction) and ST segment elevation don't have any significant association (p = 0.425, p = 0.321) with depression. The result of logistic regression analysis is introduced beneath in tables 1 to 4.

Severity of myocardial infarction is quantified by left ventricular ejection fraction dysfunction scores and severity of depression is estimated by using BDI score of the sample respondents. The kinship between the concerned two variables is tested through the Spearman correlation test. The investigation has been displayed in the accompanying table: Table 5.

The results indicate a moderate positive correlation (rho=0. 723) between severity of myocardial infarction and severity of depression Thus, it can be inferred that with an increment in the LVEF dysfunction severity scores there is a there is a higher likelihood of an increase in severity of depression.

Discussion

Analysis in the present study reveals that socio-

Table: 3: Descriptive overview and extent of relationship of coronary risk factor variables with reference to depression

Variables		% Against non depressed group.(n=34)	%Against depressed group (n=16)	Wald	Odds ratio	CI	P value
H/O Smoking	No	52.9	31.25	2.008	2.475	0.70-8.6	0.156
	Yes	47.0	68.75				
H/O hypertension	No	76.4	56.25	2.060	2.528	0.71-8.96	0.151
	Yes	23.5	43.75				
Family h/o heart disease	No	55.8	31.25	2.56	2.787	0.794-9.778	0.110
	Yes	44.1	68.75				
Previous history of MI	No	79.4	43.75	5.91	4.9	1.3-18.0	0.112

Table: 4: Analysis of extent of relationship of clinical variables with reference to depression

Variables		% Against non depressed group(n=34)	% Against depressed group (N=16)	Wald	Odds ratio	CI	P value
ST–elevation	No	50	75	0.637	0.614	0.18-2.0	0.425
	Yes	50	25				
Site of MI	Anterior wall	58.8	43.75	0.985	1.837	0.55-6.1	0.321
	Inferior wall	41.1	56.25				
LVEF severity	Hyper dynamic	17.6	0	8.96	2.660	1.40-5.04	**0.003**
	Normal	50	18.75				
	Mild dysfunction	14.7	31.25				
	Moderate dysfunction	14.7	31.25				
	Severe dysfunction	2.94	18.75				

Table: 5: Analysis of correlation between LVEF dysfunction severity and BDI scores

Sl. No.	Independent variable	Dependent variable	Coefficient of correlation	P value	Remark
1	LVEF Dysfunction severity	BDI score	rho=0.723**	**0.002**	Significant

** The correlation is significant at 0.01 level (2-tailed)

demographic profile variables, coronary risk factors (except previous history of MI) and clinical factors (except LVEF dysfunction) do not exhibit any significant impact on depression (p >0.5). Our present study is in accordance with precedent Indian studies[7, 13] which have found no association between above mentioned variables with depression.

Like previous researches, [4, 5, 7, 13] in our study also history of MI and LVEF dysfunction severity are found to be having statistically significant relationship with probability of depression.

Bagharian et al.[7] found the association between low LVEF function and depression in their study. But they have divided LVEF function into only two categories, i.e. LVEF < 40% and LVEF > 40%. But in our study, we have divided LVEF function into three categories like mild, moderate and severe, according to American College of Cardiology 2012

[11] guidelines, to minimize error, as our number of the study sample is less. Our work is not in conformity with composed reports via Carney et al.[14] and Agarwal et al.[13]. These dissimilarities may be due to diverse cutoff values of LVEF function.

In our subject field it has been discerned that indicators of severity of MI, which was quantified fundamentally by LVEF dysfunction severity scores has a significant relation (rho=0. 723, p=0. 002) with the severity of depression.

In terms of possible mechanisms among left ventricular dysfunction and depression, there are two considered ways: psychological like overall poor physical condition, low quality of life, increased rate of hospitalization, increased unemployment etc, and biological like increased level of cytokines in the heart failure such as interleukin 1, 6 and tumour necrosis factor. This ultimately may involve the brain areas regulating our mood.[15, 16]

Summary and conclusion

The analysis uncovers that with increment in severity of myocardial infarction, there is an eminent probability of an increase in severity of depression. Our study has limitation like a low of sample size. But our study is of one year duration. Alongside we discarded co-morbid medical conditions like diabetes mellitus and obesity as they are usually found to be associated with depression as reported by different literatures.[17-21] Strict exclusion criteria were possibly another factor leading to reduced sample size. Albeit this work may represent as an eye opener for an incipient path of future research and as a prophylactic strategy for major depressive disorder.

Thus, in conclusion, it can be recommended that utilizing reduced LVEF scores after an onset of myocardial infarction should alert to the possibility of depression in the patient. Routine screening of depressive symptoms should be carried out and these patients should be referred for expert opinion and management, as depression may be connected with an addition in the likelihood of both increased mortality and morbidity rate in patients with MI.

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Original Article

Sleep Quality and its effect on activities of Daily Living among substance dependent subjects

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ABSTRACT

Background: *Sleep is a physical need for all human beings. Sleep hygiene is a variety of different practices like modification in daily habits, environmental factors in an attempt to ensure more restful, effective sleep which can promote day time alertness and help to treat or avoid certain kind of sleep disorders. Sleep disturbances are apparent in individuals taking psychoactive drugs and have been found to persist long after withdrawing from these drugs. Sleep disturbances lead to the inability to obtain sufficient sleep despite of an adequate opportunity, resulting in daytime functional impairment.* ***Aim:*** *The main aim of the study was to assess the sleep quality and evaluate its effect on the activities of daily living of substance dependent subjects. It will help to understand and identify the various dimensions of activities of daily living which can be affected by substance dependence.* ***Methodology:*** *A total of 50 substance dependent subjects were studied for sleep quality and activities of daily living and to measure all these parameters socio-demographic profile sheet and two standardised tools: Pittsburgh Sleep Quality Index (PSQI) and Katz Index Of Independence In Activities Of Daily Living were used.* ***Results:*** *In present study according to PSQI global score 62% of the subjects had score between 1-7 which indicates mild sleep difficulty and only 4% had score between 15-21 indicating severe difficulty in sleep. 44% of the subjects had sleep latency between 16-30 minutes and 34% subjects had sleep duration of more than 7 hours, 76% of subjects had 85% habitual sleep efficiency and 54% of the subjects had sleep disturbance score between 1-9. 66% subjects used to take sleep medications to get sleep and 66% of the subjects did not had daytime dysfunction for the past one month while 8% subjects had dysfunction 3 or more times a week.*

Key words: *Sleep quality, activities of daily living, substance dependent*

Introduction

Drugs are generally defined as substances other than food, which are taken to change the way the body or the mind functions. These drugs are considered abused when the user deliberately uses it for non-medical purposes as well as the arbitrary use without medical prescription. The effect of any psychoactive substance will depend on whether the substance is a stimulant which will raise levels of physiological or nervous system activity in the body and depressant which will lower the level of arousal when taken or has any other effect on the brain. If these substances are taken in excess amount, intoxication symptoms appear such as drowsiness, nausea, apathy, euphoria, tachycardia, anxiety and sleep disturbances.[1] Psychoactive substances have acute and chronic effects on sleep quality. Several aspects of sleep are compromised in individuals

taking substances. Substance dependence leads to complaints of insomnia and sleep disruption that can persist for months during abstinence and recovery.[2] Sleep is a physical need for all human beings. If sleep is disturbed due to any reason, person become more irritable, tired and aggressive, more likely to have confused reactions. To get good sleep, both quantity and quality are important.[3] Sleep hygiene is a variety of different practices like modification in daily habits, environmental factors in an attempt to ensure more restful, effective sleep which can promote day time alertness and help to treat or avoid certain kind of sleep disorders.[4] Sleep disturbances are apparent in individuals taking psychoactive drugs and have been found to persist long after withdrawing from these drugs. For some, sleep disturbance can be severe as to reverse treatment success and precipitate a relapse to addiction or dependence.[5] Insomnia is characterized by inability to obtain sufficient sleep despite of an adequate opportunity, resulting in daytime functional impairment.[6] Activities of daily living are those activities which are essential in our lives. Sleep disturbance is the big cause due to which person will not be able to complete his tasks with attention and proper concentration.[7] Sleep quality is the satisfaction of sleep experience which includes initiation of sleep, sleep quantity and refreshment after awakening.[8] Substance dependence is one of the major health problems all over the world. It affects sleep quality to greater extent and has adverse effects on overall health.

Methodology

The study population included all subjects admitted in Drug Deaddiction & Treatment Centre during the selected time period who were falling in age range of 16-60 years. A total of 50 subjects using the purposive sampling technique were included in the final sample. According to exclusion criteria subjects were exempted from study that was on benzodiazepines treatment. The research measure used were two standardized tools like Pittsburgh Sleep Quality Index (PSQI) and Katz Index Of Independence In Activities Of Daily Living along with socio demographic data sheet. Data collection was done through an interview schedule. Pittsburgh Sleep Quality Index is a standardized self rated questionnaire which assesses the sleep quality and disturbances over a one month time interval. The tool was administered through the interview method. There were total eighteen self rated items. These items were combined to form seven component score in the scale which included subjective sleep quality, sleep duration, sleep latency, habitual sleep efficiency, sleep disturbances, use of sleep medication and daytime dysfunction. Each of the components had a range of 0 to 3 points. In all cases a score of 0 indicated no difficulty while a score of 3 indicated severe difficulty. The seven component scores were then added to yield one global score with a range of 0-21 points. A score of 0 indicated very good sleep quality and 21 indicated very bad sleep quality. Katz Index of Independence in Activities of Daily Living was used to assess functional status as a measurement of the client's ability to perform activities of daily living independently. The index ranked adequacy of performance in the twelve functions of bathing, dressing, toileting, feeding, continence, ability to handle finances, own medication, shopping, transportation, housekeeping, using telephone and laundry. Clients scored yes/no for independence in each of the twelve functions. A score of 10-12 indicated full function, 5-9 indicated moderate impairment, and 4 or less indicated severe functional impairment. All subjects in the study were informed about their participation in research. Written informed consent was taken from each subject. Confidentiality and privacy of each subject was maintained. Full autonomy was given to all subjects to withdraw from the study at any time. Interview has taken 25-30 minutes on each subject and scoring was done according to selected criteria. The analysis of data was done using the SPSS system.

Results

Table 1 depicts the socio-demographic data of the study subjects. As per this table, 38% of the subjects were in the age group of 21-30 years. 44% of the subjects were from Hindu religion. There were 28% subjects educated upto 10th standard and 32% subjects were professional workers. Among all, 66% subjects were married. With regard to type of family, almost 54% subjects were living in nuclear family.

Table 2 depicts the sleep quality of the subjects during the past one month. According to PSQI, 46% of the subjects used to go to bed between 10-11pm

Table 1: Socio-demographic profile of the study subjects

Variables	n (%)
Age (in years)	
< 20	08 (19.0)
21-30	19 (38.0)
31-40	15 (30.0)
41-50	06 (12.0)
51-60	02 (4.0)
Religion:	
Hindu	22 (44.0)
Muslim	04 (8.0)
Sikh	21 (42.0)
Christian	02 (4.0)
Buddhist	01 (2.0)
Education Status:	
Illiterate	05 (10.0)
Upto 5th	06 (12.0)
Upto 10th	14 (28.0)
Upto 12th	11 (22.0)
Graduate & above	12 (24.0)
Additional diploma	02 (4.0)
Occupation:	
Professional	16 (32.0)
Semi-professional	01 (2.0)
Clerical/Shop-owner/Farm	08 (16.0)
Skilled Worker	10 (20.0)
Semi-skilled worker	01 (2.0)
Unskilled	03 (6.0)
Student	02 (4.0)
Unemployed	09 (18.0)
Marital Status	
Single	16 (32.0)
Married	33 (66.0)
Divorced	01 (2.0)
Family Type	
Nuclear	27 (54.0)
Joint	22 (44.0)
Extended	01 (2.0)
Per capita income	
1000-5000	31 (62.0)
5001-10000	17 (34.0)
10001-15000	02 (04.0)
Locality	
Urban	20 (40.0)
Rural	30 (60.0)

Table 2: Sleep quality assessment according to Pittsburgh sleep quality index (PSQI)

Variables	n(%)
1. When have you usually gone to bed?	
(a) 7-8 pm	0
(b) 8-9 pm	03 (6.0)
(c) 9-10 pm	20 (40.0)
(d) 10-11 pm	23 (46.0)
(e) Others	04 (8.0)
2. How long has it taken you to fall asleep each night?	
(a) 15-30 min	21 (42.0)
(b) 30-45 min	13 (26.0)
(c) 45-60 min	07 (14.0)
(d) > 60 min	09 (18.0)
3. When have you usually gotten up in the morning?	
(a) 4-5 am	09 (18.0)
(b) 5-6 am	13 (26.0)
(c) 6-7 am	10 (20.0)
(d) 7-8 am	10 (20.0)
(e) Others	08 (16.0)
4. How many hours of actual sleep do you get at night?	
(i) 4-6 hrs	08 (16.0)
(ii) 6-8 hrs	23 (46.0)
(iii) 8-10 hrs	12 (24.0)
(iv) 10-12 hrs	06 (12.0)
(v) Others	01 (2.0)

and 42% subjects reported that they used to fall asleep within 30 minutes after going to bed. 26% subjects used to wake in the morning between 5-6 am and 46% of the subjects used to get 6-8 hours of actual sleep.

Table 3 depicts the sleep disturbances experienced by the subjects. 38% of the subjects could not get sleep within 30 minutes, 46% of the subjects awakened in the middle of night or early morning. 42% of the subjects got up to use bathroom during sleep. More than half of the subjects reported that they did not have any problem with breathing and did not experience cough or snore during sleep. Majority of the subjects never had experience of feeling too hot, too cold, bad dreams, any pains or any other significant problem during sleep in the past one month.

Table 4 depicts that 66% of the subjects had never taken any sleep medication for induction of sleep and 12% subjects had taken sleep medications for 3 or more times a week.

Table 5 depicts the problems faced by subjects in personal and social activities. Majority 78% of the subjects reported that they did not face any problem in any activity and 10% subjects reported that they faced troubles three or more times a week in the past one month. Majority 72% of the subjects were doing their work with same enthusiasm as before.

Table 6 depicts the rating given by subjects to their sleep quality in the past one month. 56% of the subjects rated their sleep quality as fairly good while

Table 3: Sleep troubles experienced by the subjects according to PSQI

1.	During the past month. How often have you had trouble sleeping because you.....	Not during the past month (0)	Less than once a week (1)	Once or twice a week (2)	Three or more times a week (3)
Cannot get to sleep within 30 minutes		18 (36.0)	05 (10.0)	08 (16.0)	19 (38.0)
Wake up in the middle of night or early morning		14 (28.0)	05 (10.0)	08 (16.0)	23 (46.0)
Have to get up to use bathroom		16 (32.0)	05 (10.0)	08 (16.0)	21 (42.0)
Cannot breathe comfortably		37 (74.0)	01 (2.0)	06 (12.0)	06 (12.0)
Cough or snore loudly		29 (58.0)	04 (8.0)	06 (12.0)	11 (22.0)
Feel too cold		40 (80.0)	02 (4.0)	02 (4.0)	06 (12.0)
Feel too hot		43 (86.0)	02 (4.0)	02 (4.0)	03 (6.0)
Have bad dreams		33 (66.0)	07 (14.0)	04 (8.0)	06 (12.0)
Have pain		27 (54.0)	02 (4.0)	04 (8.0)	17 (34.0)
Other reason(s)		44 (88.0)	0	02 (4.0)	04 (8.0)

Table 4: Assessment of sleep medications used by subjects according to PSQI

		Not during the past month (0)	Less than once a week (1)	Once or twice a week (2)	Three or more times a week (3)
1.	During the past month, how often have you taken medicine (prescribed or over the counter) to help you sleep	33 (66.0)	07 (14.0)	04 (8.0)	06 (12.0)

Table 5: Problems in personal and social activities due to substance abuse according to PSQI

		Not during the past month (0)	Less than once a week (1)	Once or twice a week (2)	Three or more times a week (3)
1.	During the past month, how often have you had trouble staying awake while driving, eating meals, or engaging in social activity?	39 (78.0)	03 (6.0)	03 (6.0)	05 (10.0)
2.	During the past month, how much of a problem has it been for you to keep up enthusiasm to get thing done?	36 (72.0)	05 (10.0)	02 (4.0)	07 (14.0)

Table 6: Rating given by subjects to their sleep quality according to PSQI

		Very good	Fairly good	Fairly bad	Very bad
3.	During the past month, how would you rate your sleep quality overall?	09 (18.0)	28 (56.0)	08 (16.0)	05 (10.0)

10% subjects rates their sleep quality as very bad.

Table 7 depicts the sleep quality domains according to PSQI. According to this table, 56% subjects reported their subjective sleep quality as fairly good, 34% subjects reported that they used to get sleep within 16-39 minutes after going in bed and 34% subjects reported that they used to sleep for more than 7 hours. As per habitual sleep efficiency, 76% subjects had habitual sleep efficiency of more than 85% and 54% subjects had sleep disturbance score between 1 to 9. 66% of the subjects had never taken any sleep medication for induction of sleep and 66% subjects reported that they had not experienced any daytime dysfunction

during the past one month.

Table 7: Sleep quality domains according to Pittsburgh Sleep Quality Index (PSQI)

Domains	n (%)
Subjective sleep quality	
Very good	09 (18.0)
Fairly good	28 (56.0)
Fairly bad	08 (16.0)
Very bad	05 (10.0)
Sleep latency	
< 15 min	09 (18.0)
16-30 min	17 (34.0)
31-60 min	15 (30.0)
>60 min	09 (18.0)
Sleep duration	
< 5 hrs	08 (16.0)
5-6 hrs	10 (20.0)
6-7 hrs	15 (30.0)
>7	17 (34.0)
Habitual sleep efficiency	
< 65%	03 (6.0)
65-74%	02 (4.0)
75-84%	07 (14.0)
> 85%	38 (76.0)
Sleep disturbance Score	
0	06 (12.0)
1-9	27 (54.0)
10-18	15 (30.0)
19-27	02 (4.0)
Use of sleep medications	
Not during the past month	33 (66.0)
Less than once a week	06 (12.0)
Once or twice a week	05 (10.0)
Three or more times a week	06 (12.0)
Daytime dysfunction	
Not during the past month	33 (66.0)
Less than once a week	06 (12.0)
Once or twice a week	07 (14.0)
Three or more times a week	04 (8.0)

Table 8 depicts the global score obtained by subjects according to PSQI. 62% of the subjects had score between 1-7 which indicates mild sleep difficulty and only 4% had score between 15-21 indicating severe difficulty in sleep.

Table 8: Global score of sleep quality as per PSQI

Global Score	n(%)
0 (No sleep difficulty)	0
1-7 (Mild sleep difficulty)	31 (62.0)
8-14 (Moderate sleep difficulty)	17 (34.0)
15-21 (Severe sleep difficulty)	02 (4.0)

Table 9 depicts the assessment of activities of daily living of the substance dependent subjects. All the subjects were independent in their activities such as bathing, dressing, toileting, feeding, continence, ability to handle finances, shopping, housekeeping and laundry. Only 4% subjects reported that they had difficulty in taking medication and 2% subjects reported to had difficulty in transportation.

Table-9. Activities of daily living assessment according to Modified Katz Index of Activities of Daily Living

Activities	Independence n (%)	Dependence n (%)
Bathing	50 (100)	
Dressing	50 (100)	
Toileting	50 (100)	
Feeding	50 (100)	
Continence	50 (100)	
Ability to handle finances	50 (100)	
Own medication	48 (96.0)	02 (4.0)
Shopping	50 (100)	
Transportation	49 (98.0)	01 (2.0)
Housekeeping	50 (100)	
Using Telephone	50 (100)	
Laundry	50 (100)	

Table 10: Scoring of Katz index of independence in activities of daily living

Level of dependence	Score
Independent	10-12
Moderate impairment	5-9
Severe functional impairment	4 or less

Table 10 depicts the scoring of Katz index of independence in activities of daily living in which 10-12 scores were for independent level, 5-9 for moderate impairment and 4 or less for severe functional impairment.

Discussion

The present study was undertaken to assess the sleep quality among substance dependent subjects and its effect on activities of daily living was conducted in DDTC, PGIMER, Chandigarh in the month of April 2014. Total 50 subjects were selected and the tool used for data collection was an interview schedule consisting of Socio-demographic profile, Pittsburgh Sleep Quality Index (PSQI), Modified Katz Index of Independence In

Activities of Daily Living. The sleep quality was assessed by using PSQI Scale consisting of 9 domains and its effect on activities of daily living was assessed by Modified Katz Index. Out of 50 subjects, 38% of the subjects were in the age group of 21-30 years, 28% subjects were educated upto 10th standard and 32% subjects were professional workers. With regard to type of family, 54% subjects were living in nuclear family. According to the per capita income, 62% subjects had per capita income in the range of Rs.1000-5000 and 60% of the subjects were from rural locality.

Effect of substance dependence on sleep quality:

In present study overall sleep quality score related to substance dependence was 56% subjects had fairly good sleep quality while10% subjects had very bad sleep quality. 44% of the subjects had sleep latency between 16-30 minutes and 34% subjects had sleep while10% subjects had very bad sleep quality. 44% of the subjects had sleep latency between 16-30 minutes and 34% subjects had sleep duration of more than 7 hours, 76% of subjects had 85% habitual sleep efficiency and 54% of the subjects had sleep disturbance score between 1-9. 66% subjects used to take sleep medications to get sleep and 66% of the subjects did not have daytime dysfunction for the past one month while 8% subjects had dysfunction 3 or more times a week. The global score of sleep quality is mean ± SD; 6.70 ± 3.765, Range within 16 (1-17). In a study conducted by Weddington et al. (1990), cocaine withdrawal was examined over 28 days in male inpatients. In the study, the authors suggested that cocaine abstinence did not produce a "classic withdrawal pattern" as seen with other drugs of abuse. However, with respect to sleep, the results showed that cocaine-dependent patients reported more difficulty falling asleep and significantly more wakefulness than those who didn't use cocaine. Therefore, the cocaine withdrawal period can be initially associated with excessive wakefulness.[9]

A study by Kirk J. Brower, showed that numerous neurotransmitter systems and other substances are involved in the regulation of sleep and various sleep stages. Both acute and chronic alcohol consumption alter the activity of many of these neurotransmitters—such as serotonin, norepinephrine, GABA, glutamate and nor-adrenaline as well as affect other sleep factors. These alterations may contribute to the sleep disturbances observed both in alcoholics and in people undergoing alcohol withdrawal. For the most part, however, the specific mechanisms underlying the relationships between neurotransmitter function, alcohol, and sleep disturbances still require further elucidation.[10] In contrast a study to assess sleep problems associated with recent abstinence, Alling and colleagues interviewed 56 adolescents alcoholic patients who had been abstinent for 2 to 60 days. The investigators concluded that insomnia was a common sub acute withdrawal symptom that persisted for approximately 5 weeks.[11]

Effect on activities of daily living

After this in next domain effect of sleep quality on activities of daily living was studied and it revealed that only 2(4%) of the subjects were dependent for medication and only 01(2%) of the subjects were dependent for transportation and rest all were independent. In other study conducted by Roehrs and his colleagues found that in the alcohol-consuming participants, next-day alertness as measured by the MSLT (Multi Sleep Latency Test) was reduced and divided-attention performance was impaired, demonstrating that alcohol can indirectly impair daytime alertness and performance through its disruptive effects on sleep. These reductions in alertness and performance were relatively minor in terms of percentage of the baseline values; in the performance of difficult tasks (e.g., driving a car or flying an airplane), however, even minor impairments might have significant consequences.

The findings of present study are supported by Rohear's study as it has shown the relationship of substance dependence with sleep quality and ADL's. It shows that alcohol has extensive effects on sleep and daytime sleepiness. In healthy people, acute high alcohol doses disturb sleep, whereas in insomniacs, lower doses may be beneficial.[12]

The effects of alcohol appear to be bidirectional in that nocturnal sleep quantity and continuity and subsequent levels of daytime sleepiness also influence alcohol's sedative and performance-impairing effects. Sleep quality and daytime sleepiness may also relate to rates of alcohol drinking and become a gateway to excessive alcohol use.

To investigate these issues and identify the mechanisms underlying the relationship between alcohol and sleep remain important tasks, as does documenting alcohol's effects on other physiological functions during sleep.[13]

The studies concluded that Sleep problems are common, potentially fatal, and costly among alcoholics. Sleep problems may occur during active drinking, acute alcohol withdrawal, and protracted withdrawal. Although most sleep abnormalities improve over time, some problems persist for months to years after initiating abstinence. Disturbances of sleep may either precede or follow the development of alcoholism. Whether sleep disturbances predispose some children and adults to develop abnormal patterns of drinking is unknown. Some evidence suggests that alcohol is more reinforcing in non-alcoholic people with insomnia than in people without insomnia, suggesting an increased likelihood of alcohol use in people with insomnia. Similarly, people with insomnia are more likely to report using alcohol to aid sleep than are people without insomnia. The use of alcohol to self-medicate sleep problems is especially common, although not particularly effective, among alcoholics.

Summary

The present study was conducted with the aim to assess the effect of substance dependence on sleep quality and activities of daily living among the substance dependent subjects registered in DDTC, PGIMER, Chandigarh. The research approach used was descriptive in this study. A total of 50 subjects were taken. The tool was developed through the review of literature and validated by experts from department of nursing and psychiatry. The results of this study revealed that the substance dependence moderately affect the sleep quality and because of this the activities of daily living are not much affected. The substance dependent subjects can perform their activities by themselves.

Conclusion

This study concluded that the substance dependence moderately affect the sleep quality and because of this the activities of daily living are not much affected. The substance dependent subjects can perform their activities by themselves.

Implications

The nursing profession will benefit from the literature generated by the study. The nurses can prepare a schedule of activities for the subjects to improve their sleep quality. Knowledge regarding effect of substance dependence on sleep quality and activities can be imparted by distributing pamphlets to the subjects coming in DDTC and thus family can also be involved in planning the care of the patient. Study will be helpful for nurses in understanding and identifying the various dimensions of activities of daily living which can be affected by substance dependence. Study will be helpful to conduct in-service education programme to upgrade the knowledge of the nurses about effects of psychoactive substances on sleep quality and its relation to activities of daily living. Study will be helpful to nursing administrator to plan and organize educational programme for nursing personnel, in order to prepare them to provide quality care. Future studies can build on this database and involve comparison of these variables.

Delimitations

The data collection period was limited to 10 days and only the patients who visited the DDTC OPD during the data collection period were included in the study.

Recommendations

A replication on large sample can be done to generalize the findings. Family members should be involved in planning of care of clients. A quasi experimental study can be done to assess the improvement in sleep quality of such subjects by using various relaxation therapies to induce sleep. Environmental modification e.g. in physical set up of wards can be done to induce sleep by separating the clients basis on their condition.

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Original Article

Psychiatric co-morbidity in patients suffering from cancer and its relationship to disease awareness

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ABSTRACT

Context: *Psychiatric comorbidity in the medically ill is a reality but is often under-diagnosed and undertreated as there is a tendency to explain away the symptoms experienced by the patient.* ***Aims:*** *The primary aim of the following study is to assess the psychiatric co-morbidity in the patients suffering from cancer. The secondary aim is to assess relationship of psychiatric co-morbidity to the disease awareness in the patients.* ***Settings and Design:*** *A cross sectional study was conducted at the Shri Maharaja Hari Singh Hospital attached to the Government Medical College, Srinagar.* ***Materials and Methods:*** *Two hundred cancer patients were subjected to Mini International Neuropsychiatric Interview-Plus (MINI - Plus) for evaluation of symptoms and diagnosis.* ***Results:*** *Psychiatric comorbidity was present in 47% of the studied patients. There was predominance of Major Depressive Disorder and the Adjustment Disorder, both of which constituted approximately 80% of the total diagnoses. Major Depressive Disorder was the most common psychiatric disorder followed by Adjustment Disorder, present in 41.5% and 39.4% of the patients. A large number of the cancer patients were found to be unaware of their diagnosis. The knowledge about the cancer diagnosis significantly increased the chances of developing a psychiatric disorder in the patients. The p-value of the comparison between the "aware" and the "unaware" patients for the presence of the psychiatric comorbidity was significant (0.005).* ***Conclusion:*** *Overall, findings indicate strong and immediate relationship between the diagnosis of cancer and psychiatric comorbidity as also between the awareness of the cancer diagnosis and psychiatric comorbidity.*

Keywords*: Kashmir, Srinagar, Awareness, Cancer, DSM-IV, Psychiatric comorbidity*

Introduction

Cancer is a multisystem illness. The presenting sign or symptom may be due to the primary tumor, metastatic deposits, paraneoplastic disorders, cancer therapy, or other drug treatments. Despite bio-medical progress, cancer is still often considered synonymous with death, pain and suffering.[1]

Worldwide, one in eight deaths is due to cancer; cancer causes more deaths than AIDS, tuberculosis, and malaria combined. In a developing country such as India there has been a steady increase in the Crude Incidence Rate (CIR) of all cancers affecting both men and women over the last 15 years.[2] Diagnosis of cancer is a catastrophic stress. Thus, most patients with cancer are previously psychologically healthy individuals whose psychiatric diagnoses in the oncology setting reflect emotional reactions to the stresses posed by the cancer and its treatment.[3]

The awareness about the cancer diagnosis and its relationship to the psychiatric morbidity has always been a subject of debate. This non-awareness on the part of the patient can be attributed to many causes notable being illiteracy, denial, decision of

their family members, conservative society, stigma attached to word cancer, fear of social ostracisation and financial implications.[4]

With this background, a study was conducted at the Government Medical College, Srinagar, to get information about the psychological distress among the cancer patients particularly with reference to the disease awareness and its resultant effects.

Aims

To find out the Psychiatric comorbidity in patients suffering from cancer and its relation to the disease awareness and correlate it with several sociodemographic parameters.

Materials and Methods

The study sample was drawn from the patients admitted to the various Departments of Shri Maharaja Hari Singh Hospital of the Government Medical College, Srinagar. The approval of the ethical committee of Government Medical College, Srinagar was sought prior to commencement of study and the study was cleared by the ethical committee.

The patients who were admitted during the study period to the concerned department (except patients admitted to an intensive care unit) with a primary diagnosis of neoplastic disease were considered for the study. However, patients admitted only for diagnostic purposes were not included. Patients were selected without regard to diagnostic classification, treatment regimen or duration of illness. The patients were selected using simple random sampling choosing every alternate patient. A total of 200 patients were included in the study.

Written consent was taken from patients and available relatives were also informed in detail. The patients were informed that the aims of study were to determine the prevalence of psychiatric morbidity and to assess their awareness of the illness from which they were suffering. Also, the patients awareness of the diagnosis of cancer was determined during the same interview. To assess patients knowledge of the cancer diagnosis, both patients and relatives were investigated separately. This was achieved at the end of each interview. First we asked relatives to indicate whether a patient knew his or her diagnosis. Patient's awareness of the diagnosis of cancer was determined after detailed questioning. The use of the terms which directly convey the diagnosis of cancer to the patients was discouraged. Patients were asked tactfully about the nature of their illness and the reasons for hospital admission. The following questions were asked: "What do you think you are suffering from?" and "Why do you think you are in hospital?". Based on the responses to these questions a decision regarding awareness or non-awareness of disease diagnosis was made by a psychiatrist.

General description, demographic data and psychiatric history were recorded using the semi structured interview scale.

Selected patients were subjected to Mini International Neuropsychiatric Interview-Plus (MINI-Plus) for evaluation of symptoms and diagnosis. The MINI-Plus is a DSM-IV based diagnostic interview with high reliability and validity.[5]

Interview was conducted after getting formal training in instituting MINI by trained psychiatrist of Postgraduate Department of Psychiatry, Government Medical College, Srinagar. The data was then subjected to appropriate statistical methods.

Inclusion Criteria

1. Primary diagnosis of neoplastic disease.
2. Age >18 years.
3. Both sexes were included.

Exclusion Criteria

1. Those who did not consent.
2. Admission for diagnostic procedures.
3. If the diagnosis was not clear.
4. Terminally ill cancer patients.
5. Admission to an ICU.
6. Past history of any psychiatric illness or on medication for the same.

Results

Two hundred cancer patients admitted to the hospital were evaluated in detail regarding their socio-demographic characteristics and the presence of psychiatric co-morbidity, as well as their awareness of the diagnosis of cancer (Tables 1-5).

Maximum number of the patients were in the age group of 41-50 (31.5%) followed by the age group 51-60 (26 %).The mean age of the studied patients was 50.4 ± 14.0 years. There were a total of 117 (58.5%) females and 83 (41.5%) males, out

Table-1. Demographic Characteristics of the Studied Patients (n = 200)

Characteristic		n	%
Age (yr)	≤ 30	18	9.0
	31 to 40	33	16.5
	41 to 50	63	31.5
	51 to 60	52	26.0
	61 to 70	27	13.5
	> 70	7	3.5
	mean ± SD	50.4 ± 14.0 (18, 90)	
Gender	Male	83	41.5
	Female	117	58.5
Dwelling	Rural	140	70.0
	Urban	60	30.0
Marital status	Unmarried	12	6.0
	Married	153	76.5
	Widowed	35	17.5
Occupation	Household	109	54.5
	Unskilled	32	16.0
	Semiskilled	33	16.5
	Skilled	24	12.0
	Professional	2	1.0
Family type	Nuclear	91	45.5
	Joint	43	21.5
	Extended	66	33.0
Literacy status	Illiterate	149	74.5
	Primary	7	3.5
	Secondary	11	5.5
	Matric	23	11.5
	Graduate	9	4.5
	Postgraduate/Professional	1	0.5
Family Income(Rs)	< 5000	30	15.0
	5000 to 10000	141	70.5
	≥ 10000	29	14.5
	mean ± SD	8402 ± 6740 (2000, 60000)	
Socioeconomic status (KuppuswamyScale)	Lower	10	5.0
	Upper lower	122	61.0
	Middle	49	24.5
	Upper middle	18	9.0
	Upper	1	0.5

Table-2. Age and Gender Distribution of the Studied Patients

Age (yr)	Male		Female		Total		p value
	n	%	n	%	N	%	
≤ 30	6	7.1	12	10.3	18	9.0	0.003
31 to 40	8	9.5	25	21.4	33	16.4	
41 to 50	22	26.2	41	35.0	63	31.3	
51 to 60	25	29.8	27	23.1	52	25.9	
61 to 70	17	20.2	10	8.5	27	13.4	
> 70	6	7.1	2	1.7	8	4.0	
Total	84	41.8	117	58.2	201	100.0	
mean ± SD	54.1 ± 14.7 (19,90)		48.1 ± 13.1 (18,90)		50.6 ± 14.1 (18,90)		

Table-3. Awareness of Comorbidity with respect to Site of Carcinoma

	Aware		Unaware		Total		p value
Site	n	%	n	%	n	%	
Haematological	3	33.3	6	66.7	9	4.5	0.130
Gynaecological	9	60.0	6	40.0	15	7.5	
Gastrointestinal	51	53.1	45	46.9	96	48.0	
Lung	4	44.4	5	55.6	9	4.5	
Urological	8	80.0	2	20.0	10	5.0	
Breast	25	71.4	10	28.6	35	17.5	
Skin	4	57.1	3	42.9	7	3.5	
Head/Neck	7	41.2	10	58.8	17	8.5	
Musculo-skeltal	0	0.0	2	100.0	2	1.0	
Total	111	55.5	89	44.5	200	100	

Table 4: Awareness vis-a-vis time duration (in months) of comorbidity

Awareness	mean ± SE (month)	p value
Yes	12.4 ± 2.0 (1, 156)	0.034
No	7.3 ± 0.8 (1, 48)	
Total	10.2 ± 1.2 (1, 156)	

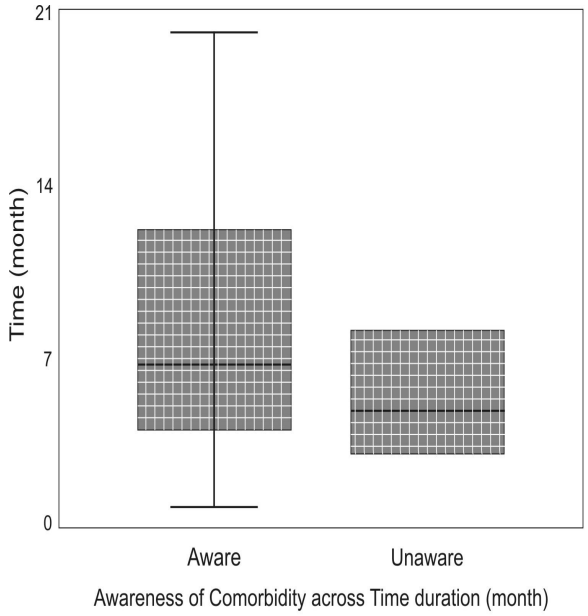
Table-5 Psychiatric Disorders in the patient population (n=200)

		Aware		Unaware		Total		Prevalance	p value
		n	%	n	%	n	%		
Major Depressive Disorder		26	23.4	13	14.6	39	41.5	19.5	
Dysthymia		2	1.8	0	0.0	2	2.1	1.0	
Suicidality		4	3.6	0	0.0	4	4.3	2.0	
Panic Disorder		6	5.4	5	5.6	11	11.7	5.5	
Alcohol Abuse and Dependence Disorder		1	0.9	0	0.0	1	1.1	0.5	
Generalised Anxiety Disorder		4	3.6	3	3.4	7	7.4	3.5	
Adjustment Disorder		25	22.5	12	13.5	37	39.4	18.5	
Total PsychiatricCo-morbidity		62	65.9	32	34.0	94	47.0	47.0	0.005
Number of Disorders	One	56	90.3	31	96.9	87	92.6	46.3	
	Two	6	9.7	1	3.1	7	7.4	3.5	

of a total of 200 in the studied patient population. The majority of the studied patients were having a rural background (70%) as compared to the urban dwelling (30%). The marital status of the majority of the studied patients i.e. 76.5 % was married. The rest of the patients were widowed (17.5 %) and unmarried (6%).

Majority of the female patients (i.e. 35%) were in the age group of 41-50 with a mean age of 48.1 ± 13.1years. Majority of the male patients (i.e. 30.1%) were in the age group of 51-60 with a mean age of 54.1 ± 14.7 years. The p –value for the comparison of the number of males and females across various age groups is 0.003 which is significant, implying that females were significantly younger compared to the male population in the studied sample.

While assessing the awareness of the co-morbidity across the site of the cancer, it was observed that there was no significant difference in the number of the patients who were aware and those who were unaware of their diagnosis at the following sites: Haematological, Gynaecological, Gastrointestinal, Lung, Skin, Head/Neck, Musculoskeletal ((Table 3). However out of the female patients who were suffering from breast cancer, majority were aware of their diagnosis

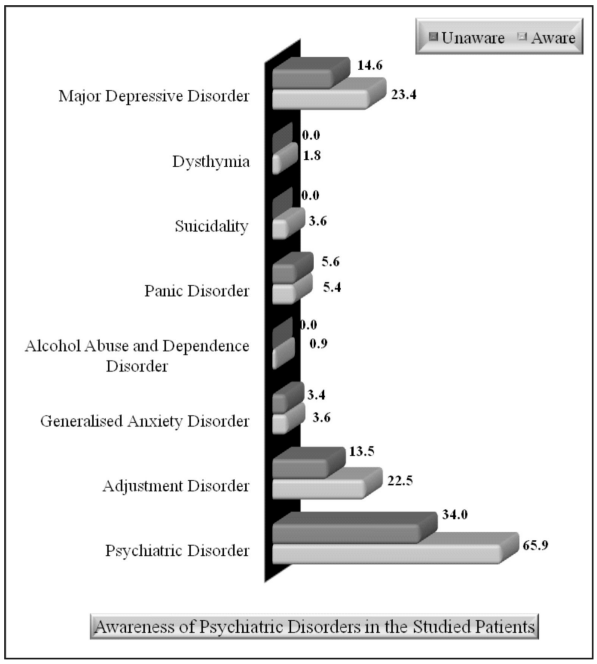


Graph 1: Graph 1 showing the awareness of the psychiatric co-morbidity across the time duration (in months).

(74.5%). Likewise, majority of the urological cancer patients were aware of their diagnosis (80%) as well. It was also seen that the majority of the studied patients were suffering from gastrointestinal cancers (48%) followed by the breast cancer (17.5%).

The mean time duration since the diagnosis of cancer in the aware patients was 12.4 ± 2.0 months while in the unaware patients it was 7.3 ± 0.8 months. The p-value of the comparison is 0.034 which is significant.

In our study 47% (94/200) of the studied patients were suffering from a psychiatric disorder. Out of the patients with a psychiatric diagnosis 65.9% were aware of their condition and 34% patients were unaware of their condition (Table-5). The p-value of the comparison between the aware and the unaware patients for the presence of the psychiatric co-morbidity was significant (0.005). Major Depressive Disorder was the most common psychiatric disorder present in 41.5% of patients with the psychiatric co-morbidity out of which 26 were aware and 13 were unaware of their diagnosis. The overall prevalence of the Major Depressive Disorder was 19.5%. Adjustment disorder was present in 39.4% of the patients with psychiatric co-morbidity out of which 25 were aware and 12 were unaware of their diagnosis. The prevalence of Adjustment Disorder was 18.5% of the studied patients. On defining the further characteristics of the Adjustment



Graph 2: Graph 2 showing the graphical representation of the awareness of the psychiatric disorders present in the studied patients.

Disorder it was found that 67.6% of the patients had associated Depressed Mood, 27% of the patients had associated Anxiety and 5.4% of the patients had associated Anxiety and Depression. The individual prevalence of Major Depressive Disorder and the Adjustment Disorder was almost similar. This was followed in descending order by the Panic Disorder, Generalised Anxiety Disorder, Suicidality, Dysthymia and Alcohol abuse and dependence respectively in the remaining of the patients.

Discussion

Despite recent advances in securing remission and possible cure, cancer has remained a disease equated with hopelessness, pain, fear and death. Its diagnosis and treatment often produce psychological distress resulting from the actual symptoms of the disease, as well as patient's and family's perception of the disease and its associated stigma.[6]

The psychiatric comorbidity in the cancer patients is often underdiagnosed. Data regarding the prevalence of psychiatric disorders in cancer patients is sparse. Most of the data is from developed countries, where the socio-demographic scenarios are different from developing countries.

In our study 47% (94/200) of the studied patients were having a psychiatric diagnosis. This

high prevalence of the psychiatric co-morbidity is comparable with that of Derogatis et al.[7] who found a prevalence of psychiatric disorders in 47% of the patients. In India Alexander et al.[8] has also found the prevalence of psychiatric morbidity to be 40% of the study population, Ashraff et al.[9] at the Malignant Diseases Treatment Centre, AFMC Pune found out that 44% of the patients had a psychiatric diagnosis and Mishra et al.[10] in a study done at Tata Memorial Cancer Hospital, Mumbai found that 63% had some psychiatric disorder.

The prevalence rate for all depressive disorders combined (major depression, dysthymic disorder, adjustment disorder with depressed mood and adjustment disorder with mixed emotional state) was *33.99%* in sample of patients under study which is comparable to Alexander et al.[8] who found total prevalence of depressive disorders to be 32%. The prevalence rate of anxiety disorders (panic disorder, generalised anxiety disorder and adjustment disorder with anxious mood) was 13.99% in our study. Depression and anxiety disorders together accounted over 90% of all psychiatric diagnoses. Our findings are in keeping with the observation of Derogatis et al.[7] and Alexander et al.[8] that depressive and anxiety disorders comprise the majority of psychiatric diagnoses in cancer patients.

Out of this 47%, 65.9% were aware of their condition and 34% patients were unaware of their condition. The p-value of the comparison between the aware and the unaware patients for the presence of the psychiatric co-morbidity is significant (0.005). This implies that there was significant difference in the presence of the psychiatric co-morbidity among the aware and the unaware patients and the knowledge about the cancer diagnosis significantly increases the chances of developing a psychiatric disorder. This confirms the findings of Alexander et al.[8] and Mishra et al.[10] who also found that there was significant difference in the presence of the psychiatric co-morbidity among the aware and the unaware patients.

The high rate of the patients who were unaware of their diagnosis can be explained on the basis of certain factors, like it may reflect the attitude of the doctor in avoiding informing patients about a cancer diagnosis. Clinical experience suggests that many cancer patients are not well informed about their diagnosis and prognosis, although relatives are informed. The diagnosis of cancer is interpreted as being equivalent to a death sentence by most people. Therefore, the family of a patient may insist on the patient not hearing the word cancer. They often fear that the outcome of treatment could be negatively affected by the patient being informed of the actual condition by a health professional, and the patient could develop severe adjustment problems.[11]

Also some percentage of this high rate of unawareness may be related in part to denial as a defense mechanism. It is well known that patients may often react with denial in the early period of the disease. Most of the patients who were in the early stages of cancer were considered to be unaware of their diagnosis. When confronted initially with a diagnosis of cancer, most patients experience a short period of shock, such that the diagnosis may actually be disbelieved. In this period, denial acts as a defense mechanism permitting the patient to avoid awareness of some painful aspects of the diagnosis. Chakravorty et al.[12] in a meta-analysis of 13 studies on the prevalence of denial of diagnosis in cancer found out that the prevalence of denial varied from 4.3% to 46.7% which is highly variable.

A lower rate of psychiatric disorders has been observed in the unaware patients in the present study. This can be explained in part that these patients had a more hopeful outlook as to the outcome of treatment. On the other hand, most of the aware patients are usually not well informed by their physicians about the cancer diagnosis and they often obtain information indirectly. This may be related to the higher frequency of psychiatric disorders in the aware patients. Communication and providing satisfactory information about diagnosis, treatment and consent have important implications for psychological adjustment of cancer patients as reported by Montgomery et al.[13]

Understanding of the diagnosis indirectly, without having satisfactory information, may cause the individual to be stressed because of arousing suspicions of cancer and of the treatment. This uncertainty may lead to the intrapersonal conflicts and consequently the risk of psychiatric disorders may also increase.

While assessing the awareness of the psychiatric co-morbidity vis-à-vis the time duration (in months) it was observed that the mean time duration since the diagnosis of cancer in the aware

patients was 12.4 ± 2.0 months while as in the unaware patients it was 7.3 ± 0.8 months. The p-value of the comparison is 0.034 which is significant implying that the mean time duration since diagnosis in the aware patients was more than the unaware patients. The most plausible explanation for this finding seems that with the increase in the time duration the chances of the patient getting aware about his diagnosis increase considerably. This can happen because of the treatment process, worsening of the symptoms or drug adverse effects as reported by Atesci et al.[14] in Turkey.

Another important observation was that maximum number of the cancer patients were from the young age groups and also that the female patients were significantly younger as compared to the male patients.This rise in the incidence of the cancer in younger female patients is mostly attributed to the rise in the number of breast carcinoma cases. The maximum number of the patients were suffering from gastrointestinal cancers which have been demonstrated to be the leading cause of cancer in Kashmir in various studies.[15]

Major Depressive Disorder was the most common psychiatric disorder present in 41.5% of patients with the psychiatric co-morbidity out of which 26 were aware and 13 were unaware of their diagnosis. The overall prevalence of the Major Depressive Disorder was 19.5%. These findings is in agreement with the available literature from the west i.e. Grassi et al.[16] who found that major depression was present in 18% of the studied patients, Nordin et al.[17] who found that Depression was present in 21% of the studied patients.

The prevalence of Major Depressive Disorder was more in our study as compared to Alexander et al.[8] who found out that Major Depressive disorder accounted for 33% of all diagnosis with a prevalence of 13%. This finding can be accounted for on the basis of the findings of Margoob et al.[18] who has reported that since last two decades the mental illnesses are increasing in Kashmir in the general population due to the ongoing conflict and turmoil in the valley. In an another study Amin et al.[19] has also shown that in Kashmir the overall prevalence of the psychiatric disorders is increasing and the prevalence of depression is 55.72% in the general population. Another important observation was that the Kashmiri population is more likely to develop Depression following a stressful life event.

Adjustment disorder was present in 39.4% of the patients with psychiatric co-morbidity out of which 25 were aware and 12 were unaware of their diagnosis. The prevalence of Adjustment Disorder was 18.5% of the studied patients. These findings match those of Alexander et al.[8] who found that adjustment disorders had a prevalence of 20% and accounted for 50% of all diagnoses. However data from west suggests that a significant more number of the patients suffer from adjustment disorders. Derogatis et al.[3] found that 65% of the patients with psychiatric disorders had adjustment reaction. This may be due to a higher number of the patients with psychiatric comorbidity in our study qualifying as Major Depressive disorder.

Major Depressive Disorder rates were almost similar to those of Adjustment Disorder (41.5% v/s 39.4%) respectively.

On defining the further characteristics of the Adjustment Disorder it can seen that 67.6% of the patients had associated Depressed Mood, 27% of the patients had associated Anxiety and 5.4% of the patients had associated Anxiety and Depression.

Conclusion

Overall, findings indicate strong and immediate relationship between the diagnosis of cancer and psychiatric co-morbidity; and also between the awareness of the cancer diagnosis and psychiatric co-morbidity. However there is need for further studies to understand relationship between psychiatric co-morbidity and factors such as nature, type and stage of cancer, duration of illness, disabilities, coping strategies and the potential role of denial as a defence mechanism especially during the initial stages of the cancer. Also the depressive and anxiety spectrum disorders which constitute over 90% of the comorbidity in these patients are highly treatable conditions giving good results with both pharmacological as well as non pharmacological interventions. And this may inturn have significant influence on quality of life, treatment compliance and prognosis of these patients.

Limitations of the Study

Number of patients in different groups was rather small to formulate clear conclusion(s).

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Original Article

Faith Healers in Modern Psychiatric Practice: Results of a 4 years Study

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ABSTRACT

Background: *Faith healers have been in the society serving people in times of physical and emotional suffering.* ***Objectives:*** *To study the socio-demographic of patients who sought psychiatric consultation/treatment after having visited faith healers, the patients attitude towards magico- religious beliefs; source of referral to faith healers; mode of treatment by faith healers; duration of treatment by faith healers (in terms of the number of visits); improvement reported after receiving treatment from faith healers; reason/s for discontinuing the treatment from faith healers; still believing in magico- religious beliefs after no improvement* ***Methodology:*** *The study was conducted at a private psychiatric hospital in North India. All consecutive admissions during the study period of 4 years fulfilling inclusion criteria were assessed using a semi-structured questionnaire to ascertain faith healing and other parameters. An informed consent was obtained from the patient (if possible) and also their care givers.* ***Results:*** *Out of the total 2880 hospitalized patients seen during the study period, 1182 were included in the study. The mean age of the sample was 31.57 years (±11.62 SD), 65.1% were males and 71.2% hailed from rural background, majority of the patients was treated with Jhara (47.5%). About 88% of patients visited faith healers more than once, only 2.12% of the patients reported improvement after receiving treatment from faith healer, 67% visited faith healers on their own, 87% believed in magico-religious beliefs, though no patient reported long term improvement but still 21% of subjects believed in magico-religious beliefs and treatment of faith healers. About 53% of were diagnosed as having psychotic disorders, mood disorders and anxiety disorders according to ICD-10. Thirty nine percent (39%) of the sample was from district of the study center.* ***Conclusion:*** *In spite of the availability of psychiatric services in the nearby areas, patients still seek the help of faith healers.*

Key Words: *Faith healers, psychiatric disorders, ICD-10.*

Introduction

Mental disorders continue to be viewed as "non-medical diseases" that were believed to be caused by invisible and abstract elements in many cultures.[1]

Faith healing is a concept that religious belief or faith can bring about healing - either through prayers or rituals that, according to adherents, evokes a divine presence and power towards correcting disease and disability. Belief in divine intervention in illness or healing is related to religious belief.[2]

Faith healing methods consisted of exorcism,

physical extraction of disease objects, counter magic, talisman, chanted rings, sacred ash, prayers, and offerings to temples etc. Temples in religious healing play a significant role.[3-5] It is commonly believed that faith healers are gifted with an ability to control evil phenomenon, therefore, it is in social and economic interest of the patients that for such ailments they report to the nearest healer.[6]

Important factors for seeking help from traditional healers are: familial faith in traditional healing, a successful exposure to faith healing before seeking medical help, economic problems, fear of social stigma, easy accessibility of faith healer, failure of medical treatment, influence by neighbors and friends and lower socio-economic status.[7]

The physical and emotional sufferings are magnified when we fail to see beneficial result from the treatment we receive. When people are faced with a serious or debilitating illness, they often consider supernatural healing or faith healing as an option. Our expectations for such healing are often placed in a variety of sources which present themselves as the only hope for a miraculous recovery. Some individuals will pursue the avenue of faith healers or those professing to have an "ability to heal." Religious icons or pilgrimages to holy sites are said to offer hope to those in desperate circumstances.[8]

In the Indo-Pak subcontinent, traditional healers (synonym with faith healers) along with psychiatric services are considered as important mental health service providers. It has also been seen that patients suffering from mental illnesses tended to access 'traditional healers' first[9] and one study reported that 56% of psychiatric patients attributed their illness to supernatural forces (ghosts, evil spirits, and witchcraft).[10] It is often noticed that a majority of the patients who attend psychiatric settings are mostly a turn over from faith healers and patients resort to the trained personnel just to take a chance.[11]

Neki pointed out that indigenous healers are the primary help for a vast majority of population,[12] as they perform a useful task in reaching out to people in community where modern psychiatry would take a long time to reach[7]as the number of qualified psychiatrists is small and psychiatrists are mostly concentrated in urban areas and metropolitan cities of India.[13]

Somasundram refers to various temples in Tamilnadu (India), where mentally ill are treated with the use of rituals, exercises, diet, isolation and even medicines are used in the treatment programme.[3]

It has been reported that 80% of all rural patients still visit indigenous therapists in India.[6,14] Widely prevalent magico-religious beliefs associated with mental illness and lower literacy pose significant social obstacles in seeking appropriate health care for psychiatric patients.[9,15-17]

Therefore, training the mental health personnel in areas that will familiarize them with their own culture is now being emphasized.[18,19] It has been suggested that working closely with traditional healers would give the primary health care workers a better opportunity to gain acceptance from the community and modify certain harmful practices.[20]

Against this background, the present work aimed to study utilization of faith healers for the psychiatric illness by those attending a psychiatric facility in an urban setting.

Objectives of the Study

1. To study the socio-demographic of individuals seeking the help of traditional healers.
2. To study the patients attitude towards magico-religious beliefs; source of referral to faith healers; mode of treatment by faith healers; duration of treatment by faith healers (in terms of the number of visits); improvement reported after receiving treatment from faith healers; reason/s for discontinuing the treatment from faith healers; still believing in magico-religious beliefs after no improvement.

Materials and Method

The study was conducted at a private psychiatric hospital Bathla Psychiatric Hospital, Karnal (North India). It is a 20 bedded hospital licensed under the Mental Health Act, 1987. The hospital provides both indoor and outdoor treatment facilities and 24 hours emergency services. The period of study was from 1st January 2006 to 31st December 2009. Two of the authors MB and GSK were involved in framing the semi-structured questions to ascertain the utilization of faith healing services.

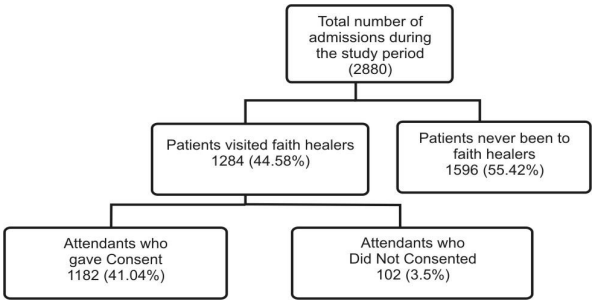
Inclusion Criteria

1. Hospitalized patients diagnosed to have any

psychiatric disorder (F00 to F99 as per ICD-10) and/or epilepsy.
2. Patients who had visited at least once to a traditional healer prior to seeking psychiatric treatment.
3. Patients attendants in the age range of 18 – 60 years.

Informed consent was taken from the patients (if possible) and their care givers. A semi-structured questionnaire specially designed for the study was used to record clinical and socio-demographic details.

Methodology: Algorithm below explains the method of sampling.



Algorithm for the study sample

Results

Table 1: Socio Demographic Data

Variable		Number	Mean ± SD/ Percentage
Age	Whole Sample	1182	31.57 ± 11.62 years
	Male	770	32.72 ± 11.86 years
	Female	412	29.42 ± 10.86 years
Gender	Male	770	65.1%
	Female	412	34.9%
Domiciliary status	Rural	842	71.24%
	Urban	340	28.76%

Discussion

About 45% (n = 1284) (Algorithm 1)of the patients had been to faith healers at least once which is similar to as reported by Chakraborty et al[21] and Balhara et al[22] but Srinivasan et al[17] and Lahariya et al[15] reported less number of their patients visiting faith healers.

The mean age of the sample was 31.57 years which is similar to the results of the previous studies by Sethiet al[6], Lahariya et al[15] and Chakraborty et al[21].

Males formed about two – third of the sample

Table 2: Patients attitude towards magico- religious beliefs/ source of referral/ mode of treatment/ duration of treatment/ improvement reported/ reason/s for discontinuing the treatment/ still believing in magico- religious beliefs

		Rural	Urban	Total
Patients attitude towards magico-religious beliefs	Yes	723 (85.87%)	305 (89.71%)	1028 (86.97%)
	No	119 (14.13%)	35 (10.29%)	154 (13.03%)
Source of referral to faith healers	Self (Patient and the first degree relative)	534 (63.42%)	257 (75.59%)	791 (66.92%)
	Others	308 (36.58%)	83 (24.41%)	391 (33.08%)
Mode of treatment by faith healers	Jhara (Chanting Mantras)	400 (47.51%)	162 (47.65%)	562 (47.55%)
	Talisman/Locket (Tabeez/ Ganda)	101 (11.99%)	44 (12.94%)	145 (12.27%)
	Prasad (something to eat/drink)	128 (15.2%)	60 (17.65%)	188 (15.91%)
	Others/more than one method	213 (25.3%)	74 (21.76%)	287 (24.28%)
Duration of treatment by faith healers(in terms of the number of visits)	Single visit	127 (15.08%)	19 (5.59%)	146 (12.35%)
	2 to 10 visits (in a month)	391 (46.44%)	133 (39.12%)	524 (44.33%)
	11 to 30 visits (in a month)	284 (33.73%)	166 (48.82%)	450 (38.07%)
	Visits conducted whole year	24 (2.85%)	12 (3.53%)	36 (3.05%)
	Visits conducted more than a year	16 (1.9%)	10 (2.94%)	26 (2.20%)
Improvement reported after receiving treatment from faith healers	Yes	19 (2.26%)	6 (1.76%)	25 (2.12%)
	No	823 (97.74%)	334 (98.24%)	1157 (97.88%)
Reasons for discontinuing the treatment from faith healers	No Improvement	842 (71.24%)	340 (28.76%)	1182 (100%)
Still believing in magico-religious beliefs after no improvement	Yes	220 (26.13%)	29 (8.53%)	249 (21.07%)
	No	622 (73.87%)	311 (91.47%)	933 (78.93%)

Table 3: Diagnostic Category wise (ICD-10) split up of the patients seeking psychiatric help after visiting the faith healers

Diagnosis Category wise (ICD-10)	Rural	Urban	Total	Percentage
F 00-09	23	08	31	2.62%
F 10-19	70	22	92	7.78%
F 20-29	200	53	253	21.41%
F 30-39	197	82	279	23.61%
F 40-49	68	30	98	8.29%
F 50-59	78	72	150	12.69%
F 60-69	24	18	42	3.55%
F 70-79	73	20	93	7.86%
F 80-89	0	0	0	0.00%
F 90-99	8	2	10	0.85%
Epilepsy	101	33	134	11.34%
	842 (71.24%)	340 (28.76%)	1182 (100%)	100%

size (Table 1); this is similar to the results as shown by Chakrabortyet al[21] and Lahariya et al[15], but contrasting to the results shown by Sethi et al.[6] More number of male patients being treated may be because as the illness in male member of the family leads to a loss of financial days, and also creates more problems in terms of quarrel/fights. Moreover a female patient might have been sent back to the parents' house after the illness have begun and there was no other option left in case of male patients.

Majority of the patients hailed from rural background (Table 1), which is similar to as reported earlier by Trivedi et al[14] and Lahariya et al[15] but dissimilar to the results as shown by Sethi et al[6] and Chakraborty et al[21] which showed about 15% and 80% of the patient belonging to the rural background respectively. A large number of rural populations reaching to faith healers may be because of the paucity of medical facilities in these areas, coupled with large number of faith healers available at a short distance. People residing in rural areas are either not aware of the medical facilities available in the nearby cities or, even if they know about these, are incapacitated by the lack of proper means of transportation and/or financial limitations.[6] Although there are six psychiatrist available in the city (study center) still a large number of urban population seeks the help of faith healers as a first option. This maybe because – the perception that the healers occupy desirable and prestigious position in the society. Moreover, there exists a problem of communication between patients and the western style trained doctors which may act as a barrier towards the development of proper relationship.

About 87 % of those who visited faith healers also believed in ghosts or some supernatural causes of their problems (Table 2), thus, explaining the role of faith healers in combating the so called evil forces. Although no patient reported long term improvement in symptoms but still about 21% of the patient believed in magico-religious beliefs as the cause of their illness.

About two – third of the patient had visited faith healers on their own (Table 2), as was also suggested by Satija et al[23] and Trivedi et al[14], thus, indicating that even the patients themselves and the family members are motivated to seek help of faith healers.

A majority of the patients was treated with Jhara or mixture of healing techniques. Similar trend was seen in both the urban and rural population (Table 2); suggesting that the method of treatment used is virtually same irrespective of the area these are practice and the type of background of the patient comes from. This has been alluded to in earlier studies also.[6,14]

Maximum number of patients visited faith healers more than once (Table 2) and made several visits during the ensuing month irrespective of the improvement in their symptoms. Many people might have kept on visiting faith healers expecting improvement in symptoms. A psychiatrist was not consulted at least in initial stages which could be explained by the social stigma associated with psychiatric disorder.

A small size number of patients reported some improvement after visiting faith healers (Table 2), still patients seek their help may be because of the acceptance of faith healers in the culture and society.

Majority of the patients (39.09%) were from Karnal (India) it-self (the study center), 48.74% of patients came from the adjacent districts of the study center (up to 70 kilometres); 6.77% of the patient had to travel more than 70 km (other districts within the state) whilst the rest 5.4% travelled more than 70 kilometres from the other nearby state to reach the study center.

Suggestions

Faith healing is like "first-aid" which is easily available and acceptable worldwide. There has been attempts to create awareness against stigma of mental illnesses. For this "Mental health week"(3rd – 10th October every year) is celebrated but only in big cities and not in small town or village.

So to reach masses a society named Tarksheel (Rationalist) Society[24] was founded. It is one such organization committed to the objectives of inculcating scientific and rational thinking among the people. Irrational beliefs dominated the daily lives of many people so they were easy victims of various superstitions, rituals, charms, tantriks, fortune-tellers, godmen, 'religious fanatics, occult practices etc.The society has its units in almost all the villages and towns of Punjab and many of the neighbouring states.

To accomplish its mission, the society organizes public meetings, conferences, study camps, seminars and publishes rationalist literature. The society undertakes campaigns to expose the so-called miracles and charlatanry of godmen who claim supernatural powers. They used role play; pamphlets and magazine as a better and easier way to reach masses.

It is true that superstitious thinking has not been eradicated but its case is just like corruption. People do corruption but nobody claims that corruption is "just". Similarly people still follow irrational practices but do not claim that they are doing a right thing.

Actually many imaginary concepts of gods, ghosts, spirits, heaven and hell, rebirth etc. and many myths, customs, superstitions have come down to our people through a number of generations. As a result they have become a part of their collective sub-consciousness. External factors such as hard life conditions of people provide a base or such thinking to continue its existence. So the struggle against all this will last for a long time and this struggle has to be waged not only to change the thinking of people but also to change the materialistic conditions of people's life.

More such attempts are required to be active at every taluka, panchayats, blocks and at districts levels so as to drive these godmens away from our society and to create awareness against stigma of mental illnesses.

Conclusions

This study shows that the faith healers are more acceptable in the society than the doctors perhaps because of the social stigma and the misconceptions regarding the psychiatric illnesses, their prognosis and treatment. A lot of work is still required to be done for the education of masses to create awareness towards psychiatric disorders and their treatment. We need to provide psycho-education to the family members and patients about the misconceptions regarding the causes and treatment of psychiatric illnesses. Also, accessibility, affordability and acceptability of psychiatric treatment need to be improved.

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Original Article

Quality of life and Expressed Emotion in psychiatric Rehospitalization

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Abstract:

Introduction: *Family and care givers play important role in the recovery of psychiatric patients. Family can perform causative as well as protective role for the psychiatric patients. When family provides adequate care and support for the patients and communicates their emotions in balanced way chances of rehospitalization are reduces and quality of life improves.* ***Aim:*** *The aim of the present study was to compare the expressed emotion and quality of life of the bipolar affective disorder and schizophrenia patients.* ***Methods:*** *200 rehospitalized bipolar affective disorder and schizophrenia patients were selected purposively. Family Attitude questionnaire was administered on caregivers and WHOQOL-BREF scale was administered on patients to know the level of expressed emotion and quality of life of the participants.* ***Results:*** *Schizophrenia patients have high level of expressed emotion in comparison to bipolar affective disorder patients another hand bipolar affective disorder patients showed good quality of life than schizophrenia patients.*

Keywords: Quality of Life, Expressed emotion, Family, Psychiatric rehospitalization.

Introduction

The phenomenon of hospital readmission of psychiatric patient has been a matter of concern ever since the concepts of deinstitutionalization and community care of these patients have been emphasized. There is evidence from the literature that readmission rate has been increasing substantially. Factors associated with readmission, mainly predictable by the diagnosis and psychosocial support[1] and length of the initial stay is important to prevent future hospitalization[2]. Psycho-education is very useful to reduce the relapse and rehospitalization.[3]

Today the issues on quality of life are discussed widely in different scientific fields. In sociology quality of life is understood as subjective understanding of well-being taking into account individual needs and understanding. Quality of life is referred to the definition of World health organization introduced in 1995 – (Quality of life) is an individual's perception of their position in life in the context of the culture and value systems in which they live and in relation to their goals, expectations, values and concerns incorporating physical health, psychological state, level of independence, social relations, personal beliefs and their relationship to salient features of the environment.

In many fields, including medicine, health sciences, and social sciences, the concept of quality of life has attracted much research focused on Quality of life.[4] Although there are different definitions of the concept, there is a general agreement among researchers[5,6] that quality of life is a multidimensional concept comprising material well-being (finance, income, housing quality, transport), physical well-being (health, fitness, mobility, personal safety), social well-being (personal relationships, community involvement), emotional well-being (positive affect, mental health, fulfillment, satisfaction, faith/belief, self-esteem), and productive well-being (competence, productivity). Besides, there are researchers who argue that objective life

situation (e.g., literacy rate in a society) as well as subjective perceptions of an individual in evaluating one's objective living conditions (e.g., subjective satisfaction with one's life) are important dimensions to be considered[7]. There are also views that suggest that a holistic approach is needed to understand and research the concept of "quality of life".[4]

Though the quality of life is intensively under research over the last four decades but "good life" concept can be found in Plato or his student Aristotle works.[8,9] Later, after the shift in understanding of meaning of life and values, there was a shift in the concept of quality of life and its constituencies, one of which is happiness.[10]

Expressed emotion refers to care giver's attitude towards a person with a mental disorder as reflected by comments about the patient made to an interviewer. It is a significant characteristic of the family milieu that has been found to predict symptom relapse in a wide range of mental disorders.[11] The empirical data show that expressed emotion is one of the major psychosocial stressor and it has direct association with recurrence of illness.

The importance of expressed emotion depends on research that has consistently established that persons with mental illness, such as schizophrenia, who live with close relatives who have negative attitudes, are significantly more likely to relapse[11]. Research on expressed emotion was initiated in the 1950s, with researchers observing that close emotional ties between families could lead to sub-optimal stimulation and social withdrawal by the patient[12]. The emotional expressions that form the basis of expressed emotion were selected purely based on their considerable relationship to relapse, rather than a particular theory of knowledge.[13]

Expressed emotion is a gigantic factor during the recovery process of those diagnosed with psychological illnesses. The three attitudes pertaining to expressed emotion are known as hostile, critical, and emotional over-involvement. These attitudes of the relatives determine the direction of the illness after treatment. The relatives influence the outcome of the disorder through negative comments and nonverbal actions.[14] These particular interactions between family members that are dealing with a patient with a psychological disorder are stressful on the recovering patient. The stress from the family for the patient to recover and end certain behaviors causes the person a relapse in their illness. They do not know what else to do during this sensitive time of recovery because of the criticism and pity from others. This negativity from loved ones does not help the family member to improve the state of their health.[15] Hence, expressed emotion refers to the quality of family interactions, explicitly the existence of hostility, criticism, emotional over involvement, positive regards and warmth. Researchers have positioned expressed emotion within the diathesis-stress model of psychopathology, characterizing it as an environmental stressor that can potentially precipitate/cause relapse of psychosis among people with a genetic vulnerability.

Expressed emotion refers to care giver's attitude towards a person with a mental disorder as reflected by comments about the patient made to an interviewer. It is a significant characteristic of the family milieu that has been found to predict symptom relapse in a wide range of mental disorders[11]. The empirical data show that expressed emotion is one of the major psychosocial stressor and it has direct association with recurrence of illness.

Methodology

Aim

Present study was aimed to compare the expressed emotion and quality of life among bipolar affective disorder and schizophrenia patients.

Study Design: A cross sectional co relational research design was adopted for the present study.

Sample: In the present study 200 (100 Bipolar Affective Disorders and 100 Schizophrenia) patients, with diagnosed according to ICD-10 DCR and Rehospitalized in RINPAS were selected on the basis of purposive sampling technique.

Inclusion Criteria

- Patients and Parents Both were available
- Who had given informed consent
- Age between 18 to 60 year
- Having past episode

Exclusion Criteria

- Any psychiatric or Physical co morbidity with parents
- Parents with substance dependence

- Parents who had score above the cut of criteria of GHQ 12

Tools

- Semi structured Socio Demographic Data Sheet
- GHQ- 12[16]
- WHOQOL- BREF[17]
- Family Attitude Questionnaire[18]

General Health Questionnaire

The GHQ is a 60 items self administered screening test, which is sensitive to the presence of psychiatric disorders in individuals presenting in primary care settings and non-psychiatric clinical settings. The GHQ is not designed to detect symptoms that occur with specific psychiatric diagnoses, rather, provide a measure of overall psychological health or wellness. The GHQ-12 is a shorter version of the GHQ containing 12 items. GHQ-12 is generalized in Indian setup and frequently used for research purpose.

World Health Organization Quality of Life (WHOQOL-BREF)

WHOQOL-BREF is a short version of WHOQOL-100. It has been developed and field-tested in centers all over the world including New Delhi and Chennai. WHOQOL-BREF is available 19 different languages. The Hindi version of WHOQOL-BREF was developed by Saxena et al.[19] in AIMS New Delhi. The WHOQOL-BREF contains a total of 26 questions to provide a extensive and comprehensive assessment, the item from the 24 facts contained in the WHOQOL-100 has been included.

There are four domains in WHOQOL-BREF domain 1 is regarding "Physical Health" domain 2 is concerned with the "Psychological Aspect" domain 3 is about "Social Relationship" and domain 4 is concerned with questions regarding "Environmental as Pact". In addition two items from the "overall quality of life and general health" fact have been included. WHOQOL-BREF have been shown to display good discriminant validity, content validity and test-retest reliability. Their sensitivity to change is currently being assessed. Domain scores produced by the WHOQOL-BREF have been shown to correlate at around 0.9 with The WHOQOL-100 domain scores.

Family Attitude Questionnaire (FAQ)

To assess the level of Expressed Emotion, Family Attitude Questionnaire was used. It is developed by Sethi et al.[18] This attitude questionnaire is based on the methodological background as taken by Brown et al (1962 1972), in their studies. This scale composed of five sub scales: Critical comments, hostility, dissatisfaction, warmth and emotional over involvement. Each sub scale is comprised of six questions, responses are given on each question as 'yes' or 'no' and indefinite and they are rated as 2, 1 and 0 respectively. Reliability and validity is assumed to be good in Indian population.

Results

Table 1 is showing socio-demographic variables of bipolar affective disorder and schizophrenia patients. Participants from bipolar affective disorder group were more educated in comparison to schizophrenia patients, mean years of education in bipolar affective disorder and schizophrenia group is 9.08 years and 8.11 years respectively, but there was no significant difference was found between both the groups. Maximum participants (68 % in bipolar affective disorder and 65 % in schizophrenia) are married followed by unmarried (19% bipolar affective disorder and 16% schizophrenia), 13% participants in bipolar affective disorder group and 15% in schizophrenia were divorced only 4 percent Schizophrenia participants were widow. No significant difference was noticed between both the groups. 75% bipolar affective disorder participants are Hindu followed by Islam (17%) Christian (5%) and Schizophrenia participants are 71%, 22%, and 3% Hindu, Islam and Christian respectively. No significant difference was present between both the groups. 38.5 % total participants are from general category, 37 % participants come from other backward class, 25% bipolar affective disorder and 17% schizophrenia patients are from ST category only 3.5 % participants from SC category, no significant difference was found between both the groups. Maximum participants were from rural background (64.5%) (59% bipolar affective disorder and 70% schizophrenia) followed by urban (29% bipolar affective disorder and 18% schizophrenia)

and 12% participants are reside in semi urban areas, no significant difference was found between both the groups.

Table 2 shows the socioeconomic differences of the participants, maximum participants (36% bipolar affective disorder 35% schizophrenia) were unemployed in both the groups followed by agriculturist (24 % bipolar affective disorder & 34% schizophrenia) only 19 % (18% bipolar affective disorder and 20% schizophrenia) participants doing business independently or with the help of family. No significant difference was seen between the groups. Family income was comparatively higher in the families with bipolar disorder but difference is not significant.

Table 3 shows the quality of life in various domains among the participants, in bipolar affective disorder group domain wise means were physical 128.03 ± 8.24, psychological 82.62 ± 12.54, social 42.37 ± 8.68 and environmental 92.56 ± 17.59 and in schizophrenia group physical 123.50 ± 7.59, psychological 52.18 ± 5.64, social 27 ± 3.30 and environmental 69.06 ± 8.11, were the mean score of domains. Table reveals that bipolar affective disorder patients reported better quality of life in comparison to Schizophrenia patients. Difference between both the groups is highly significant at 0.001 level.

Table 4 shows the comparison of the various domains of the expressed emotions among bipolar affective disorder and schizophrenia family members. In the critical comment domain bipolar

Table: 1- Socio Demographic details of the participants

Domains		BAD	Schizophrenia	X^2	df	P Value
Education	Illiterate	12	17	2.578	3	0.461
	Primary	20	24			
	Metric to 12th	56	25			
	Graduate	12	14			
Marital Status	Married	68	65	4.468	3	0.215
	Un married	19	16			
	Divorced	13	15			
	Widow	0	4			
Religion	Hindu	75	71	5.051	4	0.282
	Muslim	17	22			
	Christian	5	3			
	Sikh	2	0			
	Sarna	1	4			
Category	General	38	39	2.166	3	0.539
	OBC	34	40			
	SC	3	4			
	ST	25	17			
Domicile	Urban	29	18	3.512	2	0.173
	Semi urban	12	12			
	Rural	59	70			

Table: 2- Socio Economic Variables of Participants

Domain		BAD	Schizophrenia	X^2	df	P Value
Occupation	Service	17	8	5.583	4	0.232
	Agriculture	24	34			
	Business	18	20			
	Unemployed	36	35			
	Student	5	3			
Family Income	<5000	29	26	2.232	3	0.526
	5001-10000	43	53			
	10001-15000	14	10			
	15001-20000	14	11			

Table 3: Quality of life among the person with Bipolar Affective Disorder and Schizophrenia

Domains	BAD		Schizophrenia		t(df =198)	P value
	Mean	SD	Mean	SD		
Overall QOL	35.25	8.14	33.06	4.80	3.371	0.001#
Physical	128.03	8.24	123.50	7.59	4.005	0.000#
Psychological	82.62	12.54	52.18	5.64	22.119	0.000#
Social	42.37	8.68	27	3.30	16543	0.000#
Environment	95.56	17.59	69.06	8.11	13.678	0.000#

Significant at 0.001 Level

Table: 4-Comparison of Expressed emotion in Bipolar Affective Disorder and Schizophrenia group (reported by family members)

Domain	BAD		Schizophrenia		t(df=198)	P value
	Mean	SD	Mean	SD		
Critical Comment	7.49	0.50	11.26	1.93	18.892	0.000#
Hostility	9.09	1.05	12.87	2.13	15.900	0.000#
Dissatisfaction	7.97	1.48	12.95	2.45	17.350	0.000#
Emotional Over Involvement	9.72	1.94	18.30	3.37	22.005	0.000#
Warmth	9.64	1.13	10.26	2.02	2.669	0.008**

Significant at 0.001 Level ** Significant at 0.01 Level

affective disorder participants score is 7.49 ± 0.50 compare to schizophrenia 11.26 ± 1.93, which is significantly higher and statistically significant at 0.001 level. In the hostility domain in bipolar affective disorder participants score is 9.09 ± 1.05 compare to schizophrenia 12.87 ± 2.13 which is significantly higher in schizophrenia. In dissatisfaction domain among bipolar affective disorder participants score is 7.97 ± 1.48 and, in schizophrenia 12.95 ± 2.45 which is higher than bipolar affective disorder participants and significantly differ. In the Emotional Over Involvement domain among bipolar affective disorder participants score is 9.72 ± 1.94 and in schizophrenia 18.30 ± 3.37 which is higher in schizophrenia and difference is significant at 0.001level, and regarding warmth bipolar affective disorder participants score is 9.64 ± 1.13 and schizophrenia participants score 10.26 ± 2.02 which is higher and differ significantly. The above table revealed that schizophrenia participants had high expressed emotion in comparison to bipolar affective disorder.

Discussion

Rehospitalization is uncomfortable situation for the patient and especially for caregivers. Maximum participants for both the groups are from 20s to 30s. Hospitalization in younger age is vulnerable factor for the rehospitalization.[3,20] Some other studies[21,22] suggest that there is no specific age factor for relapse or rehospitalization, in either study groups, the relapse is depend on the severity of illness, Duration and symptomatology, poor drug compliance, and poor financial condition. Early age is the time of growth of career and development of personality and early age of onset somehow disrupt this process which cause several difficulties in rest of life and make patients vulnerable for relapse, who could not grown their career and personality. Patients age of onset and age of admission, to be similar in good as well as, in poor prognostic factor for schizophrenic patients.[23]

Education has important role in the living style, communication pattern and perception views of the individuals. Present findings shows people with schizophrenia have higher faulty or pathological perception, communication pattern and living style in comparison to persons with bipolar affective disorder. However it does not have significant difference between both the groups. Education is associated with the prognosis, those who have higher educational qualification likely to be good prognosis.[24] Similarly years of education significantly interacted to predict the length of first stay and average number

of days hospitalized over the course for males. Less educated, patients and care givers are at higher risk of a poorer course.[25] More than 12 years of education was associated with a lower risk of early rehospitalization[22]. However some of the studies do not support such findings.[2,26] They argue that there is no correlation between education and outcome of illness,[2] higher education were predictive of readmission.[26]

Marriage is a social system and it exits in all the cultures only age of marriage and mode of acceptance are differing across the culture. Present study reveals that marital status as a predictive factor for rehospitalization in both the study groups. People living alone, have no family or friends to receive incessant expressed emotion from, for a constant period of time have more chances to improve.[27] Marital status is a predictive factor for rehospitalization. Married people are likely to experience expressed emotion only while periodically talking to family members, friends, or significant others but are able to retreat from the issues to their own safe environment when the stress increases to unbearable levels. Living with spouses has a greater relapse rate than those living with parents[1]. Present finding are similar to the previous findings, study shows marriage as a risk factor for rehospitalization in both the study groups, male who are married and living with their spouse they are vulnerable for rehospitalization, which is contrary to findings, single/ widow marital status is a risk factor for rehospitalization.[28]

Urban or rural habitation didn't have any specific effect on mental illness or rehospitalization, no consistent result regarding rural and urban habitation and rehospitalization was found. Studies conducted by Myin-Germeys[29] and Nuechterlein and Dawson[30] views that rural population has good prognosis and low rate of rehospitalization in comparison to urban. In the present study almost unequal distribution was found between both the groups in representation of rural, urban and semi-urban area where participants from rural area are high in both the groups. Geographic region, living arrangement, and post hospital service hours significantly differentiated patients who were readmitted from those who were not.[31] More than a quarter of the patients in congregate care were readmitted, compared with about one in five of those in foster care and one in eight of those who were living with parents, relatives, or independently. Regional variations in practice style or access to community services may influence readmission rates.[31] In study area fewer community services, and obtaining existing services often requires significant travel time. Researchers have demonstrated differences in psychiatric hospitalization rates between rural and urban settings.

Family type is also having significant difference as more people with schizophrenia come from joint family. Residential area and partner may play influence role for rehospitalization.[32] Contrary to present findings A cross-cultural study[33] reported Asian families often are able to provide more constant and persistent emotional and material support to their sick members and thus contribute to a better prognosis.

Functioning between the first hospitalization and rehospitalization is comparatively better in persons with bipolar affective disorder which is supporting prior research of Nuechterlein and Dowson.[30] Occupation is associated with the prognosis, those who are working (employed) before illness and social interaction is also good likely to be good prognosis after intervention. Employment is having significant role in rehospitalization of the psychiatric patient's unemployed people more prone to be rehospitalized.[32]

Study reveals that lower socio economic status as risk factor for rehospitalization. It may not be associated directly but there are causes for relapse like irregular follow up due to distance and poor financial conditions are the fact which prove that lower socio economic status itself a factor for relapse as well as rehospitalization.

In the past fifty years or so, research on the effects of the family environment on the course of schizophrenia has become almost synonymous with the work on expressed emotion. Expressed emotion is now a well validated predictor of poor clinical outcome and re-hospitalization for psychiatric disorder study reveals that level of expressed emotion is high in schizophrenia participant[12] in comparison to bipolar affective disorder patients.

Expressed emotion plays a significant role in rehospitalization of the patients with schizophrenia. Living in a high expressed emotion home environment more than doubled the baseline relapse

rate for schizophrenia patients after 9 to 12 months of hospitalization.[11]

Family functioning affect the course of illness, families with high level of critical comments have a threefold grater rate of increase relapse within 9 months after recovery[15] patients with high criticism have a larger chance of early relapse in both study groups.

Quality of life is negatively correlated with positive as well as negative symptoms.[34] Present finding shows that quality of life of person with frequent rehospitalization is reduced, at the time of relapse every patients have some kind of positive or negative psychotic symptoms which played a significant role in the deteriorating quality of life patients as well as their family members also. Findings reveal that quality of life is comparatively better in patients with bipolar affective disorder than schizophrenia patients. Patients who were rehospitalized with more severe symptoms and were more likely to have a history of hospitalization in comparison to patients who were not re-hospitalized have poor quality of life[35] findings shows that level of quality of life reduces with the number of readmissions.

Conclusion

Psychiatric illness create worsening of quality of life of Persons leaving with schizophrenia and bipolar affective disorder, and persons living with schizophrenia face higher expressed emotion from their dear once in comparison bipolar affective disorder.

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Original Article

Substance misuse among patients having schizophrenia and its effect on their clinical status

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ABSTRACT

Background: *Substance misuse is the most common co-morbid problem among schizophrenic patients which results in frequent relapses, high positive symptoms, cognitive impairment and poor outcome.* ***Aims:*** *The aim of the study was to examine the prevalence of substance misuse among patients having schizophrenia and its effect on their clinical status.* ***Material and Methods:*** *A convenience sampling in cross sectional survey of 120 adult patients diagnosed with schizophrenia in psychiatry OPD of AIIMS, New Delhi, was done. Socio-demographic Schedule, Clinical Profile Sheet, Mini-International Neuropsychiatric Interview (MINI), Alcohol, Smoking and Substance Involvement Screening Test (ASSIST), Positive and Negative Syndrome Scale (PANSS) were used for assessment.* ***Findings:*** *Half (49.1%) of patients were current substance users and nearly one third (30%) were poly substance users. The most common substances misused were nicotine, alcohol and cannabis. A little over half (54%) of current users were dependent or at high risk. Most of the current substance users were male, paid worker, stayed in rural area, had late age of onset of schizophrenia, irregular with follow up and non-complaint to their psychiatric treatment regimen. No difference were found in never, past and current substance users on PANSS subscales. Difficulty in abstract thinking and poor impulse control was found in current substance users.* ***Conclusions:*** *High substance misuse was found among schizophrenic patients. The potential effect of substance misuse identifies in this study may be helpful for designing and implementing preventive and corrective measurers.*

Key words: *Substance misuse, Current users, Clinical status, Abstract thinking.*

Introduction

Substance misuse disorder is by far the most common co-morbid problem among patients having schizophrenia[1,2] and it involves the misuse of nicotine, alcohol, cannabis, cocaine, stimulants, anxiolytics and others.[3,4] Over the lifetime course of schizophrenia, approximately one-half of all patients experience a co-occurring substance misuse disorder which is surprisingly very high as compared to general population.[5] Lifetime prevalence[3,6,7] of overall substance misuse (harmful use, abuse and dependence) is typically between 40% to 73% in schizophrenic patients with 12% to 87% of current use.[8-11] Indian studies report that 38% of the patients having schizophrenia are current cigarette smoker[12] where as 11.23% are misusing cannabis[13] currently.

Co-morbidity of schizophrenia and substance misuse results in exacerbation of symptoms,[14,15] frequent relapses,[16-18] more neuro-cognitive impairment,[19] poorer outcome[4,19] and reduced treatment compliance.[4,19-21] Substance user patients experience more EPS (Extra Pyramidal Symptoms)

to antipsychotics medications[22] and require hospital readmissions.[23-25] These patients are at high risk of suicide and violence due to high impulsivity and aggression.[26-29]

Some studies report that co-morbidity of substance misuse in schizophrenia results in poor social adjustment, high psychosocial burdens[30,31] and more likely to have medical, legal and social problems.[32,33]

In summary, drug and alcohol misuse by patients with schizophrenia has become one of the most significant problems faced by agencies and clinicians involved in their treatment. Literatures illustrate very few Indian studies about substance misuse in patients having schizophrenia, which did not focus to assess the impact of substance misuse on their clinical status at one point of time. The study aim is to assess the prevalence of substance misuse among patients having schizophrenia and to identify its impact on their clinical status. The finding of the present study will provide baseline data to plan for interventional strategies to improve clinical status of patients with a view to improve treatment outcomes for the long term management of patients having schizophrenia especially the subgroup that is misusing substances.

Method

Design and setting

The study is a cross sectional survey in OPD of Psychiatry Dept at All India Institute of Medical Sciences (AIIMS), New Delhi- a tertiary care referral centre located in northern India.

Sample

A sample of convenience was chosen for the study. Adult patients (18-65 years) seeking treatment/follow-up who were diagnosed as schizophrenia as per the ICD -10 (DCR) criteria by the treating psychiatrist and Mini International Neuropsychiatric Interview (MINI) by the researchers were recruited for the study. 120 stable (dose of medication had not been altered by more than 50% in the last three months) and willing (to participate), patients who had accompanying family member were included for data collection. Patient who had co-morbid debilitating chronic medical-surgical illness, mental retardation or had organic mental disorder were excluded.

Data collection procedure

120 eligible patients were explained the purpose of the study and informed written consent was obtained. Firstly, patients were assessed on either in Hindi or English version of the assessment tools for data collection. Appropriate referral was made for those patients who were misusing the substances. The study protocol was approved by the Institutional Ethics Committee of AIIMS, New Delhi.

Measures

1. Structured Demographic Schedule

Structured Demographic Schedule was developed by researchers to record socio-demographic details of the patient. It was a 10 items structured questionnaire.

2. Clinical Profile Sheet

Clinical Profile Sheet was developed by researchers to measure the psychiatric illness and substance use history. Part one of the tool contained fifteen items on Psychiatric Illness History and part two of the tool contained two items on Substance Use History. Content validity of the Structured Demographic Schedule and Clinical Profile Sheet was established by experts from psychiatry. The reliability was established through test retest method (r =1).

3. Mini-International Neuropsychiatric Interview (MINI)

MINI was selected for a short and accurate diagnosis of schizophrenia. Module L of MINI was used which has ten items. The MINI is a structured and standardized instrument with acceptably high validation and reliability scores.[34] Inter-rater reliability coefficient for MINI was r =0.9.

4. Alcohol, Smoking and Substance Involvement Screening Test (ASSIST)

The ASSIST was used to screen the patients for hazardous, harmful and dependent use of psychoactive substances. It categorized patients in to three groups; never user, past user and current user. It is a standardized,[35] brief and eight items questionnaire which provides information about the substances people had ever used in their lifetime, the substances they had used in the past three

months, risk of current or future harm, dependence and injecting drug use. It has a high internal reliability with correlation ranging from 0.76 to 0.84 ($p<0.01$). Patients who score 1 to 3 are defined as low risk and require no intervention (except for alcohol, score is < 10). Patients those score between 4 to 26 are defined as moderate risk where as patients with more then ≥ 27 score are defined as high risk. The test retest reliability coefficient was r = 1.

5. Positive and Negative Syndrome Scale (PANSS)

The PANSS[36] was used to identify the symptoms severity and psychopathology of schizophrenia. It is a 30 item standardized scale which is designed for individuals with schizophrenia and is rated on a seven-point continuum (1=absent, 7=extreme). The assessment provides separate clinical domains of positive symptoms, negative symptoms and general psychopathology symptoms. High scores indicate more impairment in clinical psychopathology. Validity and reliability were established (r =0.83), coefficient analysis showed a high internal reliability and homogeneity with coefficients ranging from 0.73 to 0.83. The Inter-rater reliability coefficient was r =0.82.

Analytical approach

Statistical analyses were performed with statistical package STATA 16.1 version. We used the appropriate descriptive statistics (i.e. mean, median, percentage, range and standard deviation) and inferential statistics (ANOVA, Independent t-test, Chi-square test and Spearman's or Pearson's correlation test).

Results

All the 120 patients were categorized in to never, past and current user groups by ASSIST questionnaire. Table 1 and table 2 compared the socio-demographic characteristics of the never, past and current user groups which shows that most of current substance users were male ($\chi^2 = 44.9$, d.f = 2, p = 0.001), paid worker ($\chi^2 = 41.5$, d.f = 4, p = 0.001) and stayed in rural area ($\chi^2 = 7.14$, d.f = 2, p = 0.02).

Prevalence of substance misuse

Nearly half (49.1%, n = 59) of the schizophrenic patients were current substance users where as 18% (n = 22) of the patients were past users. Thus total 67.1% (n = 81) of the patients ever misused any kind of substance in their life. Nicotine (91.5%, n = 54) was the most commonly used substance by current users followed by alcohol (30.5%, n = 18) and cannabis (15.2%, n = 9). Three fifth (61%, n = 36) of the current user patients were using only nicotine where as one third (30%, n = 18) patients were poly substance users. Ever use of the opioids, inhalants and sedatives was very low (4%, 1% and 4%, respectively). Where as only 1% of the patients was using sedatives currently, no one was using opioids and inhalants currently.

The mean age of patients at the time of 1st substance misuse was 18.98 years (SD = ±5.7) which was not different between past and current user group (t = 0.9, d.f. = 79, p = 0.5).

Figure no.1 shows the distribution of 'current users' patients according to their pattern of substance use.

Table-1. Distribution of the Patients According to their Socio-demographic Characteristics in Never, Past or Current User Group

Socio-demographic characteristics	'Never User' (n=39)		'Past User' (n=22)		'Current User' (n=59)		F/H	d.f.	p	Total N = 120	
	Mean	(SD)	Mean	(SD)	Mean	(SD)				Mean	(SD)
Age in Years	31.35	(9.99)	33.09	(14.24)	35.77	(9.97)	F=2.01	2	0.13	33.8	(10.9)
Years of formal education	10.87	(4.2)	11.77	(3.2)	10.3	(5.2)	H=1.56	2	0.45	10.78	(4.6)
Annual house hold / capita income in Rs	29630	(19715)	36290	(29324)	29113	(27814)	H=3.1	2	0.21	30597	(25697)

*p < 0.05

Table-2. Distribution of the Patients According to their Socio-demographic Characteristics in Never, Past or Current User Group

Socio-demographic characteristics	'Never User' (n=39)		'Past User' (n=22)		'Current User' (n=59)		χ^2	d.f.	p	Total N = 120	
	N	(%)	n	(%)	n	(%)				n	(%)
Gender											
Male	18	(46.2)	21	(95.5)	58	(98.4)				97	(80.8)
Female	21	(53.8)	1	(4.5)	1	(1.6)	44.9	2	0.001**	23	(19.2)
Marital Status											
Married	16	(41)	7	(31.8)	33	(56)				56	(46.6)
Unmarried	18	(46.1)	14	(63.6)	23	(39)				55	(45.8)
Divorced/widow	5	(12.9)	1	(4.6)	3	(5)	6.7	4	0.16	9	(7.6)
Religion											
Hindu	34	(87.2)	22	(100)	55	(93.2)				111	(92.5)
Others (Muslim & Sikh)	5	(12.8)	0		4	(6.8)	3.41	2	0.21	9	(7.5)
Current employment status											
Employed	26	(66.7)	12	(54.5)	28	(47.4)				66	(55)
Unemployed health reason	12	(30.7)	8	(36.4)	24	(40.7)				44	(36.6)
Unemployed other reason	1	(2.6)	2	(9.1)	7	(11.9)	4.66	4	0.31	10	(8.4)
Occupation of patient											
Paid work	7	(17.9)	11	(50)	34	(57.6)				52	(43.4)
Self employed e.g. business, farming	5	(12.8)	6	(27.2)	20	(33.9)				31	(25.8)
Non paid work, e.g. student, homemaker,	27	(69.3)	5	(22.8)	5	(8.5)	41.5	4	0.001**	37	(30.8)
Type of family											
Joint family	11	(28.3)	8	(36.3)	18	(30.5)				37	(30.8)
Nuclear family	24	(61.5)	13	(59.2)	38	(64.4)				75	(62.6)
Extended nuclear family	4	(10.2)	1	(4.5)	3	(5.1)	1.51	4	0.84	8	(6.6)
Place of stay											
Rural	2	(5.1)	3	(13.6)	15	(25.4)				20	(16.6)
Urban	37	(94.9)	19	(86.4)	44	(74.6)	7.14	2	0.02*	100	(83.4)

*p < 0.05 ** p < 0.01

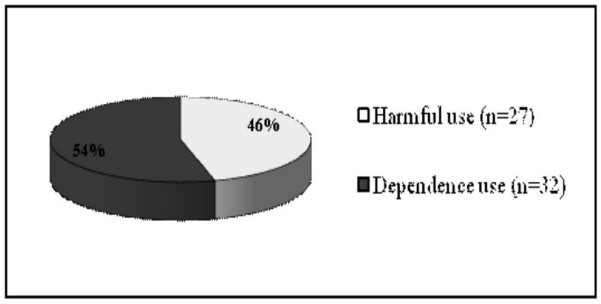

Figure No. 1: Pie Diagram showing the distribution of 'current users' according to their pattern of substance use. (n=59)

Comparison of the clinical status

As shown in Table 3 and Table 4, current substance users had late age of onset of schizophrenia (H = 8.95, d.f. = 2, p = 0.02), irregular with OPD follow up (χ^2 = 26, d.f. = 2, p = 0.001) and non-compliant to their psychiatric treatment regimen (χ^2= 18.6, d.f. = 2, p = 0.001).

Table 5 shows that no association of substance misuse was found in never, past and current user groups with the positive symptom, negative

Table-3. Comparison of Clinical Status between 'Never User', 'Past User' and 'Current User' Patients

Clinical characteristics	'Never User' (n=39)		'Past User' (n=22)		'Current User' (n=59)		H	d.f.	p	Total N= 120	
	Mean (SD)	Mdn	Mean (SD)	Mdn	Mean (SD)	Mdn				Mean	(SD)
Age of onset of schizophrenia	23.69 (8.09)	22	24.63 (9.88)	21	28.45 (9.47)	26	8.95	2	0.02*	26.2	(9.3)
Total duration of schizophrenia	8.21 (6.72)	6	8.43 (10.32)	4.25	7.53 (6.65)	5	0.59	2	0.74	7.9	(7.4)
Numbers of hospitalization	0.51 (0.9)	0	0.6 (0.8)	0	0.5 (0.9)	0	0.7	2	0.70	0.58	(0.9)

*$p < 0.05$

Table-4. Comparison of Clinical Status between 'Never User', 'Past User' and 'Current User' Patients

Clinical characteristics	'Never User' (n=39)		'Past User' (n=22)		'Current User' (n=59)		χ^2	d.f.	p	Total N= 120	
	N	(%)	n	(%)	n	(%)				n	(%)
Diagnosis by MINI											
Life time	21	(53.8)	13	(59.1)	22	(37.3)				56	(46.6)
Current	18	(46.2)	9	(40.9)	37	(62.7)	4.2	2	0.12	64	(53.4)
Type of onset of schizophrenia											
Abrupt	6	(15.4)	5	(22.7)	7	(11.8)				18	(15)
Acute	8	(20.5)	9	(40.9)	24	(40.7)				41	(34.2)
Insidious	25	(64.1)	8	(36.4)	28	(47.5)	6.8	4	0.14	61	(50.8)
Course of illness											
Continuous	23	(59)	10	(45.4)	28	(47.4)				61	(50.8)
Episodic	8	(20.5)	8	(36.4)	19	(32.3)				35	(29.2)
Improving	8	(20.5)	4	(18.2)	12	(20.3)	2.3	4	0.6	24	(20)
History of hospitalization											
No	26	(66.6)	12	(54.5)	38	(64.4)				76	(63.4)
Yes	13	(33.4)	10	(45.5)	21	(35.6)	0.9	2	0.67	44	(36.6)
Family history of psychiatric illness											
No	27	(69.3)	17	(77.3)	49	(83)				93	(77.5)
Yes	12	(30.7)	5	(22.7)	10	(17)	2.5	2	0.26	27	(22.5)
Family history of substance use											
No	16	(42.1)	11	(50)	15	(25.5)				42	(35.3)
Yes	22	(57.9)	11	(50)	44	(74.5)	5.3	2	0.06	77	(64.7)
Co-morbid psychiatric illness											
No	37	(94.9)	22	(100)	57	(96.6)				116	(96.6)
Yes	2	(5.1)	0		2	(3.4)	1.1	2	0.821	4	(3.4)
Co-morbid medical illness											
No	39	(100)	20	(90.9)	52	(88.2)				111	(92.5)
Yes	0		2	(9.1)	7	(11.8)	4.8	2	0.053	9	(7.5)
Side effects of drugs											
No	9	(23.1)	8	(36.4)	21	(35.6)				38	(31.7)
Yes	30	(76.9)	14	(63.6)	38	(64.4)	1.9	2	0.397	82	(68.3)
Frequency of follow up											
<Monthly	7	(18)	3	(13.6)	5	(8.5)				15	(12.5)
Monthly	16	(41)	10	(45.5)	29	(49.1)				55	(45.8)
>Monthly	16	(41)	9	(40.9)	25	(42.4)	2.0	4	0.72	50	(41.7)

Clinical characteristics	'Never User' (n=39)		'Past User' (n=22)		'Current User' (n=59)		χ^2	d.f.	p	Total N= 120	
	N	(%)	n	(%)	n	(%)				n	(%)
Follow up in last 6 months as advised (as per records)											
Irregular	6	(15.4)	7	(31.8)	39	(66.1)				52	(43.4)
Regular	33	(84.6)	15	(68.2)	20	(33.9)	26	2	0.001**	68	(56.6)
History of non compliance with psychiatric medication regimen											
No	34	(87.2)	13	(59.1)	26	(44.1)				73	(60.8)
Yes	5	(12.8)	9	(40.9)	33	(55.9)	18.6	2	0.001**	47	(49.2)

*p < 0.05 ** p < 0.01

Table-5. Comparison of Severity of Symptoms between 'Never User', 'Past User' and 'Current User' Patients

N=120

Severity of illness of the patients	Groups of patients						H	d.f.	p
	'Never User' (n=39)		'Past User' (n=22)		'Current User' (n=59)				
	Mean (SD)	Mdn	Mean (SD)	Mdn	Mean (SD)	Mdn			
Positive symptoms	13.2 (5.4)	12	11.9 (5.7)	9.5	14.2 (5.9)	14	3.3	2	0.1
Negative symptoms	19.4 (7.0)	19	17.8 (7.4)	20	20 (7.3)	19	0.6	2	0.7
General psychopathology symptoms	34.8 (11.3)	31	30.4 (10.1)	29.5	34.7 (11.7)	34	2.9	2	0.2
Total PANSS score	67.3 (21.2)	63	60.5 (19.8)	60	69.6 (20.1)	69	3.0	2	0.2

*p < 0.05

symptoms, general psychopathology symptoms and total symptoms severity on PANSS. But when individual analysis of 30 items of PANSS was done, we found that current substance user had the difficulty in abstract thinking (H = 6.9, d.f. = 2, p = 0.03) and poor impulse control (H = 6.8, d.f. = 2, p = 0.03) as compared to past and never user.

Discussion

This study assesses the prevalence of substance misuse among patients having schizophrenia and their relationship with clinical status at one point of time. Our results suggest that the mean age of the patients in the 'never user', 'past user' and 'current user' groups were not significantly different. On the contrary, in previous studies,[3,7,23,29,35,36-39] the substance using patients were younger than non users and it was reported that substance use precipitated the symptoms of schizophrenia. The reason for the difference between previous and present study are not immediately apparent.

In the present study, most of substance users (in past and current user groups) were male which is consistent with previous findings.[7,11,24,29,36,42,43] The possible reason might be the Indian culture in which substance use by women is not socially accepted. Most of the women in the present study were homemakers and they might not have ready access to substances.

We found that substance user patients were paid worker. The difference could be due to the fact that the most of the women (n = 21, 91%) were in 'never user' group and they were working as homemaker (non-paid work). Paid work might be assisting substance user by providing more opportunities and better financial and social recourses to access substances for misuse.

In the present study, marital status, religion, annual household per capita income, current employment status and type of family of the patients in all the three groups were not found to be significantly different. So these variables are poor predictors of substance misuse. Similar findings were also found in the studies reviewed.[8,23,40,41] Our results suggest that patients who stayed in rural areas were more likely to misuse substance currently. The

probable reasons might be non-availability of the antipsychotic medication at the rural chemist shop or the patients might not have sufficient money to purchase the costly psychiatric medications. Long distance between their home and the treatment center (AIIMS) might also be a hurdle. These reasons might result in substance use by the patients to manage their disease symptoms. On the contrary, place of stay was not significantly associated with substance misuse in western studies.[8,23]

Present study showed high prevalence (49.1%) of the current substance misuse by the patients, where as 18.3% were past users. This is in line with published national and international data[3,4,6,7,10,12,13,24,27,29,36,42,43] indicating nearly 50% of the patients misused substance. This prevalence is very high as compared to general population in India as projected in National Household Survey[5,42] and other Indian studies.[43]

As reported in the most of the previous studies, this study also suggest that nicotine was the most frequently used substance by the patients having schizophrenia followed by alcohol and cannabis use in both 'ever user' and 'current user' groups.[3,4,20,34]

Psychoactive substances like cocaine, amphetamine and hallucinogens were not used by our patients as these substances are not commonly available in the Indian market. Patients coming to the center (AIIMS) are probably unable to access these substances. Drug choice might depend on the availability of the various illicit drugs in the geographical environment of the patients.

Nearly 54% of current users were dependent or at high risk of becoming dependent and probably experiencing health, social, financial, legal and relationship problems as a result of their substance misuse. These patients required intensive interventions.

The findings of this study seem to indicate that substance misuse was associated with later onset of schizophrenia. Previous studies.[3,23,29,35,36,41,42,43] had reported contrary results that substance users were younger and early onset of schizophrenia may be precipitated by the substance misuse. However, outcome studies like IPSS and DOSMED etc. have also shown that findings regarding schizophrenia in developed and developing countries can run contrary to expectation and underlie the need to have those studies in developing country populations.

In our study, the start of the substance misuse preceded the onset of schizophrenia by several years in most of the patients, which seem to contradict the self-medication hypothesis. However, as pointed out by other authors, it is possible that substance misuse improves some latent symptoms experienced by the patients before the onset of schizophrenia.

In previous studies,[23,24,33] it was found that substance users were hospitalizing more often as compared to non users but this was not found in the current study. The reason might be low availability of the inpatients recourses and also stigma associated with the hospitalization due to psychiatric illness (schizophrenia) in Indian society.

S Potvin et al[22] reported that schizophrenia patients with a co-morbid substance use disorder displayed more EPS compared with non-abusing patients but we did not find it.

In this study, current substance users were irregular with their OPD follow up in last 6 months as advised and were non-compliant to psychiatric medication regimen. The possible reason could be that they might be self-medicating with substances themselves at their homes. Similar results were found in previous studies.[4,15,21]

We did not found any difference on clinical symptoms of PANSS sub-scales and total symptoms. Similar findings were reported by other researchers[28] which argues against the notion that the substance using patients were self-medicating their symptoms of schizophrenia. The reason of this finding could be that the substance users may use less amount of substance which effects can not be visualized clinically. Other researcher reported contradictory view on this issue in which few reported increase in psychotic symptoms[4,14,15,33] due to their substance use where as some reported that substance use might attenuate negative symptoms.[10,20,26]

However difficulty in abstract thinking and poor impulse control were significantly high in current substance users which is in line with previous studies.[15,28] This could be explained in two ways: (1) Schizophrenia results in high impulsivity and impairment in abstract thinking which might lead to substance use. (2) Substance misuse by patients might worsen the abstract thinking and may cause high impulsivity which are also the characteristics of schizophrenia.

Conclusions

Half (49.1%) of patients having schizophrenia were current substance users. The most common substances used by the patients were nicotine, followed by alcohol and cannabis. A little over half (54%) of current users were dependent or at high risk of becoming dependent and these patients require intensive interventions. Most of current substance users were male, paid worker, stayed in rural area, had late age of onset of schizophrenia, irregular with OPD follow up and non-complaint to their psychiatric treatment regimen. Difficulty in abstract thinking and poor impulse control was found in patients misusing substances currently.

Implications

Patients and caregivers has to be given psycho-education about the treatment of schizophrenia, high risk of substance misuse in illness, its effects on outcome, importance of treatment adherence and regular follow up, so that the risk of substance use by the patients can be minimized. A standard protocol can be developed for counseling.

Recommendations

Future research can be done with longitudinal designs that examine the effects of substance abuse on schizophrenia patients' symptoms, neurocognition and functional outcome. Objective methods for assessing substance misuse can be used to confirm current substance use.

Limitations

Study is limited in several ways. Firstly, this cross sectional data can not actually demonstrate casual connection between variables; rather they show statistical associations which may be consistent with several casual formulations. Secondly, we used the convenience sampling method which reduces the subjects to be equally selected for the study, irrespective of their substance use. Thirdly, we did not use any laboratory assays (urine or hair sample) to detect substance use. As a result, findings regarding substance uses were solely depending on self-report than the estimate of substance use. It is great possibility that participant did not reveal true information (due to stigma associated with substance use) regarding their type and pattern of substance use which might result in under estimate of prevalence on substance use. In addition, we did not ask participants to estimate their consumption of substance which enables us to make finer-grained distinction about the level of consumption of each substance. Finally, participants in the present study may not be representative of all people with schizophrenia- particularly those who were not coming for regular follow-up were at highest risk for substance use.

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Original Article

A Study of the extent and nature of coverage of Mental Health issues in Newspapers

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ABSTRACT

Introduction: *Psychiatric illnesses are shrouded in the clouds of stigma and misconceptions. Even in the era of the internet, printed media are still among the most frequently identified sources of mental health information. Many studies have demonstrated the media's ability to shape public perception of mental illness. Studies have shown that this information is frequently negative and contributes to stigmatization of people with mental illness. This stigma and lack of awareness among people owes to great extent to the nature and extent of coverage of issues related to mental health in the print media. Because the public gets much of its knowledge of mental illness from the news media, it is important to understand what those media report about mental illnesses.* ***Aim:*** *The aim of the study was to find out the extent and nature of coverage of issues related to mental health in newspapers (national daily as well as newspapers in vernacular language) over a four week period in a prospective study.* ***Methods:*** *All items related to mental health were identified by a manual search in 3 leading newspapers of the region over a four week period extending from November 11, 2014 to December 11, 2014. The process of identification was carried out by a team of two psychiatrists. The three newspapers that were analyzed included The Times Of India(TOI) with an average daily circulation of 7.254 million, Punjab Kesari (PK), the leading Hindi language daily, with an average circulation of 334700 and The Daily Ajit (DA), the leading Punjabi language daily, with an average circulation of 400000.* ***Results:*** *Out of the 196 newspaper cuttings identified during the study period, most belonged to The Daily Ajit (47.9%), followed by those belonging to the Hindi newspaper, The Punjab Kesari i.e. 45.4%. The commonest theme was suicide, seen in 7.7% of TOI clippings, 7.9% of PK clippings and 7.5% of DA clippings. The other common theme was substance abuse which was the theme in 84.6% of TOI clippings, 88.8% of PK clippings and 86% of DA clippings. The predominance of "news in brief" and "regular news-item" was most pronounced in the coverage of PK (95.5%) followed by that of DA (94.5%) and TOI (84.6%). Mental health issues were featured on the front page in only 7.7% clippings in TOI. Corresponding figure for PK was 16.9% and that of DA was only 9.6%.* ***Conclusions:*** *We hope to sensitize both the print media as well as mental health professionals to the nature of coverage of issues related to mental health. This could form the basis of a new relationship between the two, which is more open, frequent and objective.*

Keywords: *Mental health, Newspapers, Print media*

Introduction

Psychiatric illnesses are shrouded in the clouds of stigma and misconceptions. Even in the era of the internet, printed media are still among the most

frequently identified sources of mental health information. Many studies have demonstrated the media's ability to shape public perception of mental illness.[1] Studies have shown that this information is frequently negative and contributes to stigmatization of people with mental illness.[2] This stigma and lack of awareness among people owes to great extent to the nature and extent of coverage of issues related to mental health in the print media. As the public gets much of its knowledge of mental illness from the news media, it is important to understand what those media report about mental illnesses.[3]

Aims and Objectives

The aim of the present study was to find out the extent and nature of coverage of issues related to mental health in newspapers (national daily as well as newspapers in vernacular language) over a four week period in a prospective study.

Methods

All items related to mental health were identified by a manual search in 3 leading newspapers of the region over a four week period extending from November 11, 2014 to December 11, 2014. The process of identification was carried out by a team of two psychiatrists. The three newspapers that were analyzed included The Times of India(TOI), with an average daily circulation of 7.254 million, Punjab Kesari (PK), the leading Hindi language daily with an average circulation of 3347000 and The Daily Ajit (DA), the leading Punjabi language daily with an average circulation of 400000.[4]

Results

Out of the 196 newspaper cuttings identified during the study period, most belonged to The Daily Ajit (47.9%), followed by those belonging to the Hindi newspaper, The Punjab Kesari i.e. 45.4%. (Table 1). Among other themes, suicide was the commonest, seen in 7.7% of TOI clippings, 7.9% of PK clippings and 7.5% of DA clippings. Next, we worked out the distribution of the newspaper clippings with respect to the different themes relating to mental health.

Table 2 presents an overview of the themes featured in the news clippings. Here, by far, the commonest theme was substance abuse. This was the theme in 84.6% of TOI clippings, 88.8% of PK clippings and 86% of DA clippings. A closer look at the theme of substance abuse (Table 3) reveals that most of the clippings were about those arrested or sentenced for possessing addictive substance. Other themes included promises by various political parties/ leaders to make Punjab drug-free, appeals by politicians, NGOs or beaurocrats to give up drugs, political parties blaming each other for the drug menace and crimes committed by patients of drug abuse. The interesting thing is that there were no articles or editorial or news-analysis which attempted to give an accurate picture of the problem and its correct treatment based on inputs from a mental health professional.

Table-1. Distribution of the newspaper clippings

NEWSPAPER	Number of Clippings (%) n=196
THE TIMES OF INDIA	13 (6.63)
PUNJAB KESARI	89 (45.41)
THE DAILY AJIT	94 (47.96)

An analysis of the extent of coverage of mental health issues shows that, across all the three newspapers, as many as 94.9% clippings were categorized as either "news in brief" or as "regular news-item" published on the inside pages. (Table 4). The predominance of "news in brief" and "regular news-item" was most pronounced in the coverage of PK (95.5%) followed by that of DA (94.5%) and TOI (84.6%).

Mental health issues were featured on the front page in only 7.7% clippings in TOI. This figure is 3.4% for PK and 2.1% for DA. (Table 5). An analysis of the likely impact of the coverage shows that 53.8% of clippings of TOI were likely to have a positive impact. (Table 6). The corresponding figure for PK was 16.9% and that of DA only 9.6%. Calculation of value of chi square shows that this difference of news is not significant and we can interpret that TOI is following the balanced approach while giving news in the newspaper with respect to its positive and negative impact. The calculated value of Chi Square is found to be significant which indicates that both the news papers i.e Punjab Kesari and The Daily Ajit are dominated by negative impact news.

Table 7 shows the role (or the lack of it) of a mental health professional in the coverage of issues

Table 2. Overview of the themes featured in the news clippings

Themes	The Times of India (%) (n = 13)	Punjab Kesari (%) (n = 89)	The Daily Ajit (%) (n=94)
Substance use Disorders	11(84.6)	79(88.8)	86(91.5)
Suicide	1(7.7)	7(7.9)	7(7.5)
Childhood Psychiatric Disorders	1(7.7)	1(1.1)	1(1.1)
Sleep Disorders	0	1(1.1)	0
Schizophrenia	0	1(1.1)	0

Table 3. Theme of Substance Abuse

Theme	The Times of India (%) (n=11)	Punjab Kesari (%) (n=79)	The Daily Ajit (%) (n=86)
Epidemiology	2(18.2)	0	0
Promises To Make Punjab Drug Free	0	6(7.6)	1(1.2)
Arrested/Sentenced For Possessing Addictive Substance	2(18.2)	50(63.3)	75(87.2)
Appeals By Politicians/NGOs/Beaurocrats To Give Up Drugs	0	8(10.1)	2(2.3)
Political Parties Blaming Each Other For Drug Menace	2(18.2)	2(2.5)	0
Treatment Of Addictive Disorders	2(18.2)	2(2.5)	3(3.5)
Complications Of Drug Abuse	1(9.1)	0	0
Crimes Committed By Patients Of Drug Abuse	0	3(3.8)	1(1.2)
Cocaine Abuse	0	1(1.3)	0
Nicotine Abuse	0	0	3(3.5)
Alcohol Abuse	0	2(2.5)	2(2.3)
Others	2(18.2)	5(6.3)	0

Table 4. Analysis of the extent of coverage of mental health issues

Newspaper	Frequency of Coverage	Theme
The Times Of India	1	Rising incidence of HIV in patients of drug abuse
Punjab Kesari	3	Suicide, crimes committed by a gang of patients of opioid abuse
The Daily Ajit	2	Suicide/attempted suicide no longer a crime, crimes committed by a gang of patients of opioid abuse

Table 5. Mental health issues featured on the various pages

Type of coverage	The Times of India (%) n = 13	Punjab Kesari (%) n= 89	The Daily Ajit (%) n=94	Total number of clippings (%) n= 196
News Items	11 (84.6)	55 (61.8)	30 (31.9)	96 (49)
News In Brief	0	30 (33.7)	60 (63.8)	90 (45.9)
Front Page News	1 (7.7)	3 (3.4)	2 (2.1)	6 (3.1)
Articles/Editorial	1 (7.7)	0	2 (2.1)	3 (1.5)
Coverage In Supplements	0	1 (1.1)	0	1 (0.5)

Table 6. Analysis of the likely impact of the coverage

Newspaper	Coverage with positive impact	Coverage with negative impact	Value of Chi - Square
The Times of India	7 (53.8)	6 (46.2)	0.384
Punjab Kesari	15 (16.9)	74 (83.1)	35.588
The Daily Ajit	9 (9.6)	85 (90.4)	65.306

Jalandhar Kesari, dated: 11.12.2014

Daily Ajit, dated: 14.11.2014

Table-7. Role of a mental health professional in the coverage of issues related to mental health

	The Times of India	Punjab Kesari	The Daily Ajit
Written by a psychiatrist or a mental health professional	0	0	0
Quoted by a mental health professional	1	0	0
Information given by a non-mental health professional	1	0	1

related to mental health. There was only one article featured in the TOI which quoted a psychiatrist. This is surprising and points to an urgent need of having psychiatrists or other mental health professionals on the consultant panels of all newspapers so that the coverage of mental health problems is more balanced and based on scientific facts.

Discussion

Print media remains one of the most accessible sources of information regarding mental health available to public. Many studies have shown that this information is frequently negative and contributes to the stigma that is associated with mental illnesses. Studies carried out in Central and East European countries,[1] New Zealand,[5] Bermuda,[6] USA[7] and UK[2] found the depiction of issues related to mental health as predominantly negative (37 to 61.3%). The corresponding figure in this study is much higher (84% to 91%) in two of the three newspapers analyzed. This finding underscores the need to make the journalists in our country more aware and to sensitize them about the mental health problems prevalent in our society.

As regarding the content analysis, substance use disorders were the most frequent mental conditions covered in the Central European study.[1] The corresponding figure in our study is much higher, which probably reflects the very high prevalence of this problem in the state of Punjab. Depression was the other commonly featured theme in Australian[8] and Central European study,[1] with figures ranging

from 18.7 to 19.3%. This theme was surprisingly absent in our sample.

Only one article out of 196 sought an advice of a mental health professional in our study. The corresponding figure in other studies is higher (15% to 50%).[1-6] This probably reflects on the absence of mental health professionals on the editorial boards of newspapers in India. It also reflects on the greater awareness about mental health issues among journalists in Europe, Australia and the U.S.

We could not find an Indian study similar to ours despite extensive search.

Limitations

This was a small study both in terms of the number of newspapers involved and in terms of the time period for which they were analyzed. Inclusion of magazines, television and radio could make the findings more broad-based. We plan to carry forward this study so as to include newspapers from other regions of India and, at a later stage, extend it to include newspapers from other countries.

Conclusions

We hope to sensitize both the print media as well as mental health professionals to the nature of coverage of issues related to mental health. This could form the basis of a new relationship between the two which is more open, frequent and objective.

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Original Article

Conceptual Abilities of Alcohol Dependent Patients – An Analysis of WCST profile

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Abstract

Alcohol dependence is a chronic and progressive condition characterized by persistent desires to drink and loss of control over alcohol consumption causing progressive disturbances of cognitive functions. Studies demonstrate influence of persistent exposure to alcohol on reduced abilities for flexible changes of action strategies especially on novel task and behaviour control, inspite of environmental feedback. Hence, the study at hand intends to examine the particular aspects of cognitive function i.e. conceptual ability of the Alcohol dependent subjects in relation to their first degree relatives. 30 male alcohol-dependent patients and matched control group of 30 each from their first degree relative and normal control were tested on The WCST performance according to standard procedure. Alcohol dependent patients had poor conceptual ability than their first degree relatives or normal control. Alcohol dependents in this study demonstrated significant impairment of abstract ability, error utilization and persuading goal directed behavior. Deficit on WCST seemed to be independent of duration of alcoholism and age at onset to some extent.

Key Words: *Alcohol dependence, WCST, Hypothesis testing, Concept formation*

Introduction

Among all the principle drugs of abuse or dependence globally, alcohol is one of the most commonly consumed psychoactive substances, closely trailing behind caffeine.[1,2] A study providing national estimate of regular alcohol use in India found a national prevalence of 9.5%, where men were noted to be 9.7% times more likely to regularly use alcohol.[3] Incidentally, among the developing countries the fastest growth in per capita pure alcohol consumption has been observed in the Asian subcontinent where it increased by over 50% between 1980 and 2000.[4] The term alcohol dependent syndrome (ADS) is often used to refer to a person, with serious drinking problem, which leads to life adjustment problems in terms of health, occupation, personal relationship and interpersonal functioning. Neuropsychological studies indicate majority of patients with the alcohol dependence syndrome are vulnerable to progressive disturbances of cognitive functions, mainly with regards to executive functions such as cognitive flexibility, Inhibition, categorization, deduction of rules, organization and planning, risky behaviour and further aspects of cognitive function.[5-10] Furthermore, a decrease in voluntary motor behaviour, decreased will and energy, a tendency to engage in repetitive or preservative behaviour, difficulty in shifting response set, and abnormalities of affect and emotion, particularly apathy, indifference, and shallowness also occur.[11,12] These behavioural symptoms share some similarity with neurobehavioural abnormality described in patients with frontal lesion such as constraining the

possibilities of flexible changes of action strategies, reduced behaviour control and suppressed psychosocial adaptation; and could readily be interpreted as part of the 'make-up' of the alcoholic's personality[13]. In contrary to findings reporting normalization of performance on tasks of executive functions, at the end of the first year of ceasing heavy drinking[6,14] studies revealed persistent impairments on tasks of abstraction and problem solving among alcoholics with 13 months abstinence and stated that remission of cognitive dysfunction occurs at 4 to 5 years of abstinence.[15-17] Some experimental studies in animals and lesions incurred during trauma or disease in humans have indicated that injury to the prefrontal cortex leads to disorders of categorizing.[18] Persistent cognitive impairment can contribute to poor job performance in adult alcoholics, and can interfere with learning and academic achievement in adolescents with an established pattern of chronic heavy drinking. For example, an alcoholic who has remained abstinent after treatment may have no apparent difficulty in finding the usual way back home or filing office documents correctly, a task that engages multiple brain regions. However, that same person might be unable to devise a completely different filing system, a task closely associated with higher cognitive functioning. In everyday clinical practice, the tests for assessing frontal lobe deficits are seldom used, thus, clients' remain unaware of lesions in this area. Similar to other measures of executive functioning Wisconsin Card Sorting Test (WCST) requires strategic planning, organized searching, utilizing environmental feedback to shift cognitive sets, directing behavior towards achieving a goal and modulating impulsive responding. Hence it is often referred to as a measure of frontal and prefrontal functioning which requires the ability to develop and maintain an appropriate problem solving strategy across changing stimulus conditions in order to achieve future goal.[19] Value and popularity of WCST is illustrated by the ever-increasing number of studies incorporating the WCST as a well-established measure of executive function. Among the factor analytic studies of the WCST Bowden et al[20]., 1998 used exploratory factor analysis (EFA). This review suggests that a 3-factor solution which includes the ability to shift set, problem solving/ hypothesis testing, and response maintenance best likely to accounts for the cognitive processes underlying performance on the WCST.

Such deficits usually are not apparent without neuropsychological testing such as more demanding verbal abstracting, concept shifting, or problem-solving tasks where alcoholics perform more poorly than their nonalcoholic peers.[15,21,22] Nevertheless, these results might reflect a cumulative effect of genetic liability in terms of neuropsychological deficits, coupled with the direct toxicity of alcohol on brain tissues and are not sufficient to hypothesize the existence of a cognitive endophenotype in alcohol dependent.[23,24] Most of these studies involved nonalcoholic offspring of alcohol dependent subjects to see the genetic pattern.

Hence, this study was planned to explore the particular aspects of cognitive function i.e. conceptual ability of the Alcohol dependent subject in relation to their first degree relatives. Designing practical strategies to cope with the complex combination of alcoholism and cognitive impairment requires an understanding of the nature of cognitive functions. Present study aims to find out the nature of conceptual ability in alcohol dependent patients and also to see whether conceptual ability in alcohol dependent patients shows any genetic pattern.

Material & Methods

Participants

Study group consisted of 30 Male, alcohol dependent patients attending de-addiction unit of a tertiary care institution of eastern region in India, with the diagnosis of alcohol dependence syndrome. Sample was taken on the basis of purposive sampling technique. Among the 55 patients who were interviewed, those who fulfilled the inclusion criteria and had any first degree relative above 18 years of age were included in the present study. Inclusion criteria for patient group were, only male subjects between 18-50 years of age (the mean age: 35 ± 9), diagnosis of alcohol dependence obtained according to diagnostic criteria ICD-10,[25] abstinent since at least last 3 weeks, and had not taken any psychotropic drugs since last 48 hours. Subjects having history of any other drug abuse except tobacco, significant head injury, clinically apparent neurological problem or seizure other than alcohol withdrawal seizure, previous psychiatric illness, mental retardation were excluded from study.

Details of alcohol misuse in alcohol dependent group showed mean age at the onset of alcoholism was 24 ± 6.5 years, ranging from 12 years to 39 years of age. On the average they had 9 ± 6 years of problem drinking. At the time of assessment patients of alcohol dependence were maintaining sobriety since on an average 3 months and their mean amount of alcohol consumption was 1479 gm.

Two control groups of 30 each were also included in the study. First group comprised of one first degree relative (father or brother) of each alcohol dependent patients who did not show any evidence of alcoholism. 30 normal subjects having no history of alcohol abuse in the self as well as in first degree relative and matched in terms of age, education, socio-economic status and handedness with Alcoholic group were also included. General Health Questionnaire score more than 2 was considered as cutoff point for both the control groups. Exclusion criteria of the Subjects were similar to that of the experimental group. Informed consent was taken from all the participants of the study. Details of sociodemographic and clinical data were collected with the semi structured proforma which also contained information about the pattern of alcohol use and abstinence.

Material

The Alcohol Use Disorders Identification Test (AUDIT; Babor et al[26]) – AUDIT is a 10-item self-report measure, which is widely used in clinical and community setting. AUDIT is used for screening of alcohol dependence. Items cover essential aspects related to patients alcohol use. AUDIT items are scored from 0 to 4. A participant's total AUDIT score is simply the sum of their responses to the 10 items, yielding possible total ranging from 0 to 40. A score of 0 to 7 is indicative of low risk alcohol consumption, 8 to 15 indicates risky or hazardous alcohol consumption, whereas a score of 16 or higher suggests harmful drinking pattern. Questions 1 to 3 assess level of alcohol consumption (e.g., 'how often do you have a drink containing alcohol?'). Questions 4 to 6 relate to alcohol dependence (e.g., 'how often during the last year have you found that you were not able to stop drinking once you had started?'). Questions 7 to 10 address alcohol-associated problems (e.g., 'how often during the last year have you had a feeling of guilt or remorse after drinking?'). The test took approximately two to four minutes to administer.

Wisconsin Card Sorting Test (Heaton et al[27]) - It is a clinical neuropsychological instrument originally developed by Grant and Berg (1984) to assess abstract reasoning ability; an ability to shift cognitive strategy in response to changing environmental contingencies. WCST contains 4 stimulus cards and two identical decks of 64 response cards with figures of varying forms, color and number. First deck of response card is handed over to the client with the instruction to match each consecutive card from the deck with one of the four stimulus cards. Once the client has made a specified number of consecutive correct matches, the sorting principle is changed and WCST proceeds in this manner through a number of shifts in set. WCST not only provides objective score of overall success but also for specific sources of difficulty on the task (e.g. inefficient initial conceptualization, failure to maintain cognitive set, perseveration and inefficient learning across stages of the test). Administration and scoring of WCST was done as per the standard procedure. The WCST data is presented in the form of age and education-corrected standard scores.[27] As the normative data for the Number of Categories (NC) is only available in terms of broad categories due to the skewed nature of the distribution of this score it was decided to present NC as raw data.

Procedure

Prospective participants were approached in the OPD by the first author and given oral and written information about the study. It was stressed that participation was voluntary and could be terminated by the patient without risk of negative consequences on treatment. All the subjects who were included in the present study were interviewed and then assessed with the help of semi structured clinical data sheet. Detailed physical examination including neurological examination was performed by treating psychiatric team. After initial screening of the subjects, WCST was administered as per the standard procedure on each 90 subjects.

Statistical Analyses

For the purpose of analysis raw score on WCST was converted into standard score, T- score and percentile score according to age and education

norms. For comparing the alcohol dependent with other two groups percentile score is used while impaired range was assessed with the help of T-score taking prescribed cut off point. Data was statistically analyzed using the appropriate statistical measure.

Results

Study and Control group was homogenous in respect to all the demographic variables as the difference between Groups was statistically not significant (Table-1). Table-2 shows overall WCST profile of the three groups. Alcohol dependent group differed significantly from the normal controls as well as from relatives also in total number of errors, percent errors and number of categories completed ($F > .001$). Alcohol dependent group also had significantly poor performance than relatives on number of non perseverative error, % conceptual level response, and trial to complete first category ($F > .01$). Relatives also differed from control group on the factors like perseverative errors, % conceptual level response, number of categories completed, trial to complete first category and learning to learn score ($F > .05$). Overall mean score indicates that alcohol dependent group performance was poorer than other two groups, and relatives' performance was the best among the three groups.

Table-3 shows comparison between duration of alcoholism and performance on WCST. Sample was split at 10 years into short duration (N=19) and long duration (N=11) considering Tarter observation that alcoholism history in excess of 10 years is detrimental to performance on WCST. Patients with the history of maximum 10 years of alcohol dependence apparently performed better than longer duration group which is evident from the mean score. But difference between the mean of these two groups were not found statistically significant for any of the WCST factor score. If standard score is being considered than significant difference was found between these two groups on number of errors, percent errors, and conceptual level response. Table - 4 shows difference in performance of early onset (< 21 years of age) and late onset group (≥ 21 years of age) on the basis of the age they started taking alcohol, on WCST. Out of 30 patients 10 qualified for early onset group and 20 for late onset group. Analysis of data of these two groups indicates that

Table- 1 Demographic and Clinical Variables

Variables	Alcoholic	Relative	Control	F
Age	35.7 + -9.41	32.70+-11.70	34.77+-19.65	.47
Education	10 + 3.62	11.63+-3.12	10.87+_3.87	.58
Age at onset	24.10 + 6.56			
Duration of alcoholism	9.43 + 5.98			
Amount consumed	1479.50 + 649			
Last Intake	23.33 + 4.55			

Table-2 Comparison of WCST scores between three groups

Variables	Alcoholics (1)		Relatives (2)		Control (3)		F	Post HOC
Total No. of errors	11.23	10.21	22.90	20.31	29.57	21.42	.000	1 < 2 & 1 < 3
% Error	12.90	11.45	25.87	21.14	30.60	20.14	.000	1 < 2 & 1 < 3
Perseverative Response	10.33	12.55	17.57	20	10.27	12.56	.115	
%Perseverative Response	11.57	15.85	19.50	23.54	11.40	15.86	.167	
Perseverative error	10.07	11.25	18.37	21.58	10.43	11.28	.069	
%perseverative error	11.57	14.85	20.60	24.12	11.73	14.93	.101	
Nonperseverative error	16.37	11.90	28.47	20.27	22.27	18.30	.028	1 < 2 & 3 < 2
%nonperseverative error%	21.17	13.18	32.43	21.47	27.87	20.27	.068	
Conceptual level response	11.57	11.30	24	21.21	17.70	20.15	.033	1 < 2 & 3 < 2
No. of Category	2.73	1.31	3.70	1.42	4.27	.91	.000	1 < 2 & 3 < 2
Completed								2 < 3
Trial to complete first category	2.89	1.34	4.27	1.10	3.60	1.80	.002	1 < 2 & 3 < 2
Failure to maintain set	3.63	1.54	3.97	1.35	4.40	.93	.078	
Learning to learn	3.52	1.61	2.80	1.49	4.40	1.04	.000	2 < 3

Table-3 Comparison of long and short duration of alcoholism

Variables	<=10yrs. (N=10)		>= 10yrs (N=20)		
	Mean	SD	Mean	SD	T
Total No. of errors	13.63	10.56	7.09	8.49	1.75
%Error	15.63	12.12	8.18	8.76	1.78
Perseverative Response	12.10	14.80	7.27	6.80	1.02
%Perseverative Response	13.74	18.97	7.82	7.51	.99
Perseverative error	12.21	12.90	6.36	6.56	1.39
%perseverative error	14.26	17.59	6.91	6.68	1.32
Nonperseverative error	18.74	12.07	12.27	10.93	1.46
%nonperseverative error	23.84	12.72	16.54	13.26	1.49
% Conceptual level response	14.47	12.22	6.54	7.63	1.94
No. of Category Completed	2.89	1.28	2.45	1.37	.88
Trial to complete first category	3.10	1.49	2.44	.88	1.23
Failure to maintain set	3.37	1.70	4.09	1.34	1.25
Learning to learn	3.47	1.61	3.67	1.75	.25

Table- 4 Comparison of early onset and late onset of alcoholism

Variables	Early onset < 21 (N=10)		Late Onset > 21 (N=20)		
	Mean	SD	Mean	SD	T
Total No. of errors	12.20	11.03	10.75	10.04	.36
%Error	16.20	15.03	11.25	9.19	1.12
Perseverative Response	14	19.78	8.50	6.68	1.14
%Perseverative Response	17.10	25.20	8.80	7.64	1.37
Perseverative error	13.30	16.25	8.45	7.72	1.12
%perseverative error	17.40	22.54	8.65	8.30	1.56
Nonperseverative error	13.80	16.61	17.65	13.79	.83
%nonperseverative error	18.30	8.49	22.60	15	.84
% Conceptual level response	12.10	11.67	11.30	11.42	.18
No. of Category Completed	2.20	.92	3	1.41	1.62
Trial to complete first category	2.78	1.72	2.95	1.18	.31
Failure to maintain set	3	1.94	3.95	1.23	1.64
Learning to learn	3.67	1.66	3.44	1.63	.34

early onset group had better performance on number of errors, perseverative response, and perseverative errors and conceptual level response. But again differences of mean between these two groups were statistically not significant.

Discussion

The WCST is a complex decision making task of hypothesis generation, testing and modification. It is designed to study "abstract behaviour" and "shift of set" and has earned its reputation as a measure of frontal lobe dysfunction. Most of the earlier studies reported that alcohol dependents were found to be deficient in maintaining a cognitive set, completed less category[22] and had more number of inefficient sorting than did the normal control.[28,29] In the present study alcohol dependents performed poorer than both normal control and relative group in almost every area of WCST. They committed significantly larger number of errors than other two groups who fell mostly in normal range. It indicates that alcohol dependents were unable to utilize information contained in an erroneous response to emit a subsequent correct response on the next trial. In addition to this alcohol dependent group achieved less categories than either control or relative group. Since alcohol dependent tended to interrupt correct sequences of positively reinforced response with an error it could not be possible for them to persist with 10 consecutive correct responses. Previous studies which investigated a number of executive functions among recently abstinent alcoholic individuals (i.e. sober for 3 weeks) reported deficits in inhibition of prepotent response[30] cognitive flexibility and decision making,[31] planning[32] and abstraction.[33,34] One important fact in this regard was that alcohol

dependents did not performed poorly on the learning to learn score, but for 7 patients in this group score could not be calculated as they did not fulfilled the criteria of completing at least 2 category and attempting for the third. This again indicates towards their problem in identifying and generalizing the concept and rule.

Another significant finding in this study was that alcohol dependents did not differ significantly from other two groups on failure to maintain set and percent perseverative error of the WCST. Alcohol dependents ability to shift and maintain a cognitive set was not impaired in this study. It has to acknowledge that non cognitive factors (e.g. motivational state) will significantly influence patients' ability to persist on a nonverbal task. It is plausible that a complex and unfamiliar task that is not inherently reinforcing (e.g. nonverbal abstract neuropsychological tasks) may generate a negative emotional state. Thus impersistence may occur independent to the ability to solve problem. It's possible that testing was done with full cooperation which helped in maintaining their motivation. This is of special interest because earlier studies found selectively increased perseverative errors (PE) but not nonperseverative errors (NPE). Selective increase in PE was thus interpreted by Lyvers and Maltzman as reflecting a relatively selective depressant action of alcohol on the prefrontal cortex, consistent with neurophysiological evidence.[35,36] The present study failed to find out group difference on perseveration as reported by earlier studies. The most likely explanation for this discrepancy is that patients in this study were well matched, generally younger in age and has shorter duration of alcoholism than reported in earlier studies. Our finding was supported by similar reported results[37,38] which were based on patients with less than 10 years of alcoholism. Instead patients of alcohol dependents did more nonperseverative error than the other two groups. This also can be explained on the basis of alcohol dependents inability to "sustain a pattern of search and impersistence" in problem solution. Alcohol dependents were found to be deficient than relative in percent conceptual level response. It is assumed that some insight (i.e. conceptualization) into correct sorting strategy is required in order to make three or more consecutive correct matches. As concept identification is a complex task which needs visual spatial memory, deductive reasoning, problem solving, cognitive flexibility etc., in consistency with the proposed hypothesis alcohol dependents were poor in identifying the concept.

This study intended to improve the methodological issues while assessing the conceptual ability in alcoholics. In this study due consideration has been given to the factors which can affect subjects performance on neuropsychological tests. Subjects for the comparison group comprised of first degree relative of alcohol dependent subjects who had no exposure with alcohol. A persisting question over the last decade has been whether subtle neuropsychological problems precede problematic use of alcohol and also contribute to its onset.[39,40] Moreover, developmental models of alcoholism also point to an activating environment impinging on within-individual vulnerabilities,[41] of which neuropsychological vulnerabilities may be an addition. To answer these questions effectively, most of the studies till date focused on children of alcoholic parents. As parents and sibling share half of the genetic background of proband, more or less similar nutritional status and socio cultural background yet are unexposed to alcohol unlike the children, this study assumed it will enhance the reliability of the finding. Thus, obtained neuropsychological deficits can be attributed solely to alcoholism.

Now there are substantial reports which indicate the impact of aging brain on neuropsychological tests. Thus giving considerable importance to this fact, cases within 50 years of age were included in the study sample. Result did not support convincingly the observation that alcoholism history in excess of 10 years is detrimental to performance on WCST. Better performance of patients with the history of maximum 10 yrs of alcohol dependence than longer duration group, as evident from the mean score was not found statistically significant for any of the WCST factor score. Studies[42-44] reported that performance on cognitive task is more significantly related with quantity per drinking occasion and lifetime consumption than the duration of alcoholism. In the present study patients were taking alcohol which contains varied amount of ethanol (eg. Whisky, Rum, Country liquor etc.) and only 5 people were taking alcohol since more than 15 yrs. while in most of the reported studies mean duration of alcohol intake was 5 years.[45,46]

Thus alcohol dependents in this study demonstrated significant impairment of abstract ability, error utilization and persuading goal directed behavior, which has been attributed to the lesion in dorsal PFC. In view of the findings it may be hoped that clinician will recognize that a subgroup of chronic alcohol patients will manifest difficulty in treatment that are due to their lack of appreciation of the impact that advice and therapy will have on their lives. This is because patients fail to see the importance of ideas and events in treatment much as they fail to recognize general rules and successful ways to cope effectively on neuropsychological test in question. Therefore, findings facilitates understanding that cognitively impaired patients may not be able to comprehend the information imparted during therapy and, thus, may not make full use of the strategies presented, thereby limiting their benefit from intervention.

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Forthcoming Events

INTERNATIONAL

1. **ISBS Conference** — 22nd Annual International "Stress and Behavior" Neuroscience and Biopsychiatry Conference, 16 May 2015 – 19 May 2015. St-Petersburg, Russia, http://www.scribd.com/doc/226595746 NA Nutsa; Phone: [+1 240 899 9571]; Email: isbs.congress@gmail.com
2. **EAWOP 2015** — 17th congress of the European Association of Work and Organizational Psychology, 20 May 2015 – 23 May 2015, Oslo, Norway, http://www.eawop2015.org/ https://www.conference-service.com/EAWOP2015/welcome.cgi, Psychology
3. **The Fourth Annual UAE Epilepsy Congress 2015**. 22 May 2015 – 23 May 2015, Dubai, United Arab Emirates http://congress2015.elae.ae/ DiaEdu ; Phone: [+971 4 453 2975]; Email: registration@excellence incme.org Neurology
4. **ISBD 2015** — 17th Annual Conference of the International Society for Bipolar Disorders. 03 Jun 2015 – 06 Jun 2015 Toronto, Canada http://www.isbd2015.com Raquel Louis, Kenes International ; Phone: [+41 22 908 0488]; Email: isbd@kenes.com
5. **Stress and Behavior** — 5th International Regional "Stress and Behavior" Neuroscience and Biopsychiatry Conference (North America). 22 Jun 2015 – 24 Jun 2015, Miami, United States 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
6. **World Psychiatric Association 2015 Bucharest Congress**. 24 Jun 2015 – 27 Jun 2015, Bucharest, Romania http://www.wpa2015bucharest.org
7. **International Congress of the Royal College of Psychiarists: Psychiatry at the Forefront of Science.** 29 Jun 2015 – 02 Jul 2015, Birmingham, United Kingdom http://www.rcpsych.ac.uk/congress
8. **Child Language Symposium 2015.** 20 Jul 2015 – 21 Jul 2015, Coventry, United Kingdom http://www2.warwick.ac.uk/fac/sci/psych/research/language/symposium/Pediatrics
9. **Mind, Value and Mental Health: Philosophy and Psychiatry Summer School and Conference 2015.** 23 Jul 2015 – 25 Jul 2015, Oxford, United Kingdom https://www.conted.ox.ac.uk/courses/details.php?id=V560 2&utm_source=conferencealerts&utm_medium=email&utm_campaign=ppss15
10. **Stress and Behavior : KOBE-2015** — 6th International Neuroscience and Biological Psychiatry Regional ISBS Conference "STRESS AND BEHAVIOR: KOBE-2015" 26 Jul 2015 '! 27 Jul 2015. Kobe, Japan 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

Original Article

Sociodemographic factors: A major predictor of anxiety and depression among pregnant women

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Abstract

Background: *Pregnancy can be defined as the period which starts with the onset of gestation and ends at child birth. It is the stage in which life goes through various physiological and psychological changes with respect to expectation and hope as well. It is also a test of fertility for women to become a mother.* ***Aims/objectives:*** *The purpose of the study was to investigate socio demographic factors as major predictors of anxiety and depression among pregnant women.* ***Material/Methods:*** *The present research recruited a sample of 47 pregnant women coming to obstetric clinics for their prenatal checkup. Hopkins Anxiety Checklist was used to assess anxiety and depression was examined by using a shortened version of CES-D (Center for Epidemiological Studies-Depression Scale). ANOVA, t-test and multiple regression techniques were used to analyze the data.* ***Results:*** *The age of the participants ranged from 20 to 38 years (Mean = 26.53, SD = 4.99). The majority of the participants (53.20%) had 6 to 9 months gestation period while 25.50% had 3 to 6 months gestation period and 21.30% participants had less than 3 months gestation period. It was found that anxiety was high among pregnant women less than 30 years of age and same findings was found in depression. Further anxiety and depression was found high in pregnant women with gestational age < 3 months as compared to 3-6 and 6-9 months respectively. Regression analysis revealed that age and income shows significant contribution on anxiety ($R = .76$, $R^2 = .57$). These variables jointly explained 57% variance in the scores on anxiety. It was indicated that age and monthly income was negatively and significantly related to anxiety, where as age, gestation age, and qualification shows also a significant contribution to depression ($R=.90$, $R^2= .81$). These variables jointly explained 81% variance in the scores on depression. It was indicated that age, gestation age, educational qualification and monthly income was negatively and significantly related to depression.* ***Conclusion:*** *The overall findings suggest that demographic factors seem to predict a better understanding of the anxiety and depression among pregnant women.*

Key words: *Demographic variables, Pregnancy, Anxiety, Depression.*

Introduction

Pregnancy can be defined as the period which starts with the onset of gestation and ends at child birth. It is the stage in which life goes through various physiological and psychological suffering along with expectation and hope. Pregnancy can

be a stressful time for expectant mothers.[1, 2] Pregnancy is a very crucial time when a woman feels insecurity and vulnerability. Psychologically healthy woman often find pregnancy as a means of self-realization. Other women use pregnancy to diminish self doubts about feminity or to reassure that they can function as women in the most basic sense. Still others view pregnancy negatively that they may fear childbirth or feel inadequate about mothering. At least one in ten mothers in all levels of society, and regardless of socioeconomic conditions experience clinical depression and/ or anxiety before and up to a year after child birth[3].The trimesters can bring their characteristic challenges and rewards, nausea, fatigue and emotionality. For many women the first and third trimesters are difficult.[4]Approximately 21% of women experience a mood disorder and 30% anxiety disorder at some points in their lives.[5]Although historically it was believed that pregnant women are at lower risk of anxiety and mood disorders.[6]But recent studies don't support this belief. Rather between 10 and 27% of women experience depressive symptoms during pregnancy, including 2-11% who experience major depressive disorder.[3]According to a study, 23% of pregnant women receiving prenatal care in California demonstrated depressive and anxiety disorders. In the studies including poor pregnant women the rate of maternal depression ranges from 30-70%. This empirical data substantiate that mood state neuroendocrine and immune systems may play a critical role in reproductive outcome and fetal development.[7]

Anxiety

Researchers, psychiatrists and related disciplines have been concerned about women experiencing anxiety and depression during pregnancy. They mostly focus on diagnosable mental disorders, primarily anxiety, and depressive disorders. [8,9]These periods are considered to be a high risk time both for preexisting and new psychiatric illness. These psychiatric illnesses occurring during the period not only affect maternal health but causes adverse action on fetal development as well.[10]It was found in studies that a significant portion of women experience prenatal anxiety both in general and about their pregnancy.[11,12]Anxiety during pregnancy have manifestations like: feeling anxious, concerned, afraid, or panicky about the pregnancy.[13] In a study using 10- item scale reflecting anxiety about the baby's growth during pregnancy, it was found that loss of the baby and harm during delivery were important variables.[14] Empirical evidence across studies of diverse populations regarding the adverse effects of pregnancy anxiety on gestational age at birth.[15] Multidimensional modeling techniques revealed that state anxiety, pregnancy anxiety, and perceived stress all predicted the length of gestation. But pregnancy anxiety (as early as 18 weeks into pregnancy) was the only significant predictor when all three indicators were tested together with medical and demographic risks controlled. [16]Women with high pregnancy anxiety were at1.5 times greater risk of preterm birth (PTB) controlling for socio-demographic covariates, medical and obstetric risks, and specific worries over a high-risk condition in pregnancy.[17] Women who are most anxious about pregnancy seem to be more insecurely attached, of certain cultural backgrounds, more likely to have a history of infertility or to be carrying unplanned pregnancies, and have fewer psychosocial resources.[18]Screening for pregnancy anxiety, state anxiety, depressive symptoms, and stress in pregnancy stands to provide potentially important clinical benefits not only for mothers but their children as well.[19,20]

Depression

Attention must be paid to these levels of influence in any attempts to screen and treat depression, anxiety, pregnancy anxiety among women because it has its own consequence which affects her either directly or indirectly. Depression occurs as frequently during pregnancy as in the postpartum.[21] It has been shown that women prefer psychosocial treatments for depression during the perinatal period.[22] More than a dozen studies on depressed mood or symptoms of trauma found significant effects on gestational age.[23] Changes in relationship adjustment and changes in depressive symptoms vary within individuals at times. When an individual's relationship adjustment is lower than usual, depressive symptoms tend to be higher.[24,25, 26] Relationship adjustment was found to be associated with depressive symptoms during pregnancy.[27] Marital adjustments continue to be significantly associated with depressive symptoms.[28] Resear-

chers have found differences in risk factors associated with first onset versus recurrences of depression.[29] Recent study reporting that women with both depression and anxiety disorders were at highest risk of low birth weight (LBW) as compared to those with only depressive or anxious symptoms or none.[30] A recent review found relatively large effects of maternal depressive symptoms on infant birth weight.[31] Evidence for effects of maternal stress, depression, and anxiety in pregnancy has adverse neuro developmental outcomes for the child.[32] Couple therapy has been shown to be effective in reducing depression and improving relationship adjustment in depressed individuals in the general population[33]as well as among pregnant women.

Material and method

Sample: The present research recruited a sample of forty seven participants included pregnant women coming to obstetric clinics for their prenatal checkup. The age of these participants includes 20 to 38 years (*Mean* = 26.53, *SD* = 4.99). The majority of the participants (53.20%) had 6 to 9 months gestation period while 25.50% had 3 to 6 months gestation period and 21 .30% participants had less than 3 months gestation period. Participants with at least having one child and monthly income not less than 8000 has been included in the study. However women with less than 20 years of age and not having at least one child have been excluded from the study.

Tools

Demographic Questionnaire: The information about demographic profile of the participants have been collected with the help of questions related to their age, gestation period and education qualification. In addition, information about their family background including area of residence, family type, family occupation, income, etc were collected.

Anxiety: The Hopkins Anxiety Checklist was used to assess anxiety.[34] Ten items were rated on a 4-point Likert scale with higher scores indicating higher anxiety. Pregnant women rates how true each of the symptoms is for her. In the present sample the internal consistency reliability (Cronbach's alpha) of this measure was 0.89.

Depression: Depression was examined using a shortened version of the Center for Epidemiological Studies – Depression Scale (CES-D)[35] a 10-item, 4-point Likert scale that asks participants about a variety of depression related symptoms. The scale asks to describe how often he/she has experienced those symptoms over the past week. In the present sample the internal consistency reliability (Cronbach's alpha) of this measure was 0.83.

Procedure

After getting consent from hospital authorities, participants were identified by the investigators like nurse coordinators and nursing staff through appointment books, logs, and schedules. The participants were informed about the nature and purpose of the study by the researcher himself. The informed consent before data collection was taken from the participants and they were instructed that there were no right or wrong answers and the information obtained from them would remain confidential and can be used only for research purpose. The questionnaires took approximately 10 to 30 minutes to complete. Some participants completed their questionnaire and others took them home and returned it the day after. After completion participants returned the questionnaire and were thanked for their participation and cooperation. The obtained data was then statically analysed by using Statistical Package for Social Science (SPSS 16.0)

Results and discussion

Majority of the participants belonged to rural areas (77%). Only 11 (23.00%) participants were residents of urban areas. The percentages of participants belonging to nuclear and joint families were 46.00% and 54.00% respectively. Majority (40.40%) of the participants of the present study were illiterates.

In Table 2, Mean scores and standard deviations of two groups of participants with varying age of anxiety and depression showed significant difference between mean anxiety scores of two groups of participants F (1, 45) = 38.17, $p < .01$. Mean scores show that anxiety was higher among participants with < 30 years of age (M = 19.84, SD = 4.32), in comparison to the participants with 30 years and above (M = 11.63, SD = 4.77).Whereas depression revealed significant differences between mean scores of two groups of participants F (1, 45)

Table-1 Demographic and personal characteristics of participants

Characteristics	N	Percentage (%)
Age (Mean = 26.53, SD = 4.99)		
30 years	25	54
30 years and above	22	46
Gestation period		
Less than 3 months	10	21.3
3 – 6 months	12	25.5
6 – 9 months	25	53.2
Area of residence		
Rural	36	77
Urban	11	23
Family Type		
Nuclear	22	46
Joint	25	54
Educational Qualification		
Illiterate	19	40.4
Elementary Schooling	9	19.1
Matriculation	5	10.6
Higher Secondary part-II	5	10.6
Graduate	4	8.5
Post Graduate	5	10.6
Occupation		
House Wife	38	81
Job	9	19
Monthly Income		
Less than 10000 Rs	15	31.9
10001-25000	25	53.2
25001-50000	7	14.9
No. of children		
Less than 2	30	64
Greater than 2	17	34

= 108.94, $p < .01$. Mean scores clearly revealed that participants with < 30 years of age (M = 19.28, SD = 2.40) shows more depression in comparison to the participants with 30 years and above (M = 10.45, SD = 3.36).

In Table 3, Mean scores of anxiety and depression and standard deviations of participants with different gestation age showed significant difference between mean anxiety scores of three groups of participants F (2, 44) = 4.32, $p < .01$. Mean scores show that anxiety was higher among participants with less than 3 months of gestation age (M = 18.94, SD = 4.89), in comparison to the participants with 3 – 6 months (M = 15.45, SD = 7.61) and 6 - 9 months of gestation age (M = 13.39, SD = 5.14). Depression revealed significant differences between mean scores of three groups of participants F (2, 44) = 9.69, $p < .01$. Mean scores clearly revealed that participants with less than 3 months of gestation age (M = 18.39, SD = 3.73) shows higher depression in comparison to the participants with 3 – 6 months (M = 15.36, SD = 5.66) and 6 - 9 months of gestation age (M = 11.78, SD = 4.45).

In Table 4, Multiple -regression revealed that age and income shows a significant contribution on anxiety. In explaining scores on anxiety R = .76, R^2 = .57, F (12, 34) = 3.81, $p < .01$. These variables jointly explained 57% variance in the scores on

Table-2: Mean Difference between two groups of varying age in terms of anxiety and depression.

Variables	Age	Mean	SD	t-value
Anxiety	< 30 years	19.84	4.32	38.17**
	30 years & above	11.63	4.77	
Depression	<30 years	19.28	2.40	108.94**
	30 years & above	10.45	3.36	

**significant level at .01

Table- 3: Mean Standard Deviation and Analysis of Variance of anxiety and depression among pregnant women in varying gestation age

Variables	Gestation Age	Mean	SD	F (2, 44)
Anxiety	< 3 months	18.94	4.89	4.32**
	3-6 months	15.45	7.61	
	6-9 months	13.39	5.14	
Depression	< 3 months	18.39	3.73	9.69**
	3-6 months	15.36	5.66	
	6-9 months	11.78	4.45	

**significant level at .01

Table- 4: Multiple Regression analysis predicting demographic factors from Anxiety

Predictors	*B*	*Seb*	*Bet*	*T*	*Sig.*
Age	-6.24	2.17	-.52	-2.88	.01
Gestation period	-1.16	1.06	-.17	-1.09	.28
Area of residence	1.11	1.04	.13	1.07	.29
Qualification	.07	.49	.02	.15	.88
Occupation	-2.30	2.48	-.15	-.93	.36
Income	-2.38	1.17	-.30	-2.04	.05
Family Type	.50	1.43	.05	.35	.73
No. of children	.32	1.28	.09	.25	.80
Last delivery	-.47	1.63	-.06	-.29	.78
Parity	.40	1.37	.10	.29	.77
Age of previous child	-.22	.60	-.07	-.36	.72
Husband's occupation	-2.35	1.90	-.19	-1.24	.22
R = .76					
R^2 = .57					
F (12, 34) =3.81**					

**Significant level at .01

anxiety. It was indicated that age was negatively and significantly related to anxiety ($\hat{a} = .52, t = 2.88, p < .01$). This shows that participants who had less than 30 years of age show greater anxiety in comparison to those who had more than 30 years of age. Monthly income was negatively and significantly related to anxiety. This means that participants who had low income experience more anxiety in comparison to those who had high income. None of the other demographic variables were found significant predictors of anxiety among participants.

In Table 5 Multiple regression revealed that age, gestation period, and educational qualification shows significant contribution to depression. In explaining scores on depression $R = .90, R^2 = .81, F(12, 34) = 12.36, p < .01$. These variables jointly explained 81% variance in the scores on depression. It was indicated that age was negatively and significantly related to depression ($\hat{a} = .65, t = 5.52, p < .01$). This shows that participants who had less than 30 years of age show greater depression in comparison to those who had more than 30 years of age. Gestation period was negatively and significantly related to depression. This means that participants who had short experience of pregnancy reported more depression in comparison to those who had long experience of pregnancy. Education

Table-5: Multiple Regression analysis predicting demographic factors from Depression

Predictors	*B*	*Seb*	*Bet*	*T*	*Sig.*
Age	-6.85	1.24	-.65	-5.52	.00
Gestation period	-1.28	.60	-.21	-2.11	.02
Area of residence	-.17	.59	-.02	-.29	.70
Qualification	-.53	.28	-.18	-1.89	.05
Occupation	-.04	1.41	-.00	-.03	.97
Income	-.68	.67	-.09	-1.01	.31
Family Type	1.27	.82	.14	1.55	.12
No. of children	.41	.73	.12	.56	.57
Last delivery	-.91	.93	-.12	-.97	.33
Parity	-.02	.78	-.00	-.02	.98
Age of previous child	.20	.34	.07	.59	.55
Husband's occupation	-1.53	1.08	-.14	-1.40	.16
R = .90					
R^2 = .81					
F (12, 34) =12.36**					

**significant level at .01

qualification was also found negative and significantly related to depression. This means that participants who had low level of education experience more depression in comparison to those who had high level of education qualification. None of the other demographic variables were found significant predictors of depression among participants.

Discussion

The purpose of the present study was to find out various socio-demographic factors which are major predictors of anxiety and depression among pregnant women. The findings obtained by the present study can be discussed as under:

Age: Findings of the present study regarding age differences in terms of anxiety shows significant difference. Mean difference revealed that anxiety was found higher among participants with <30 years of age in comparison to the participants with 30 years and above. The observed finding was supported by the study conducted by Pigott[36] on anxiety disorders in women found high anxiety disorders during middle to late twenties.

Same as age difference in terms of depression shows a significant difference. Mean difference revealed that anxiety was found higher among participants with < 30 years of age as comparison to the participants with 30 years and above. The same result was highlighted by Marcus, et al[37]conducted a study on Depressive Symptoms among Pregnant Women Screened in Obstetrics Settings found high level of depression.

Gestation Period: In respect to gestation period of pregnant women scores of one-way analysis of variance revealed significant differences. Result of one-way analysis of variance revealed that anxiety was found higher among participants with less than 3 months of gestation age in comparison to the participants with 3–6 months and 6–9 months. The study conducted by Huizink[38] found high anxiety among nulliparous women during the first trimester of pregnancy.

Further, depression was found high among participants with less than 3 months of gestation age in comparison to the participants with 3 – 6 and 6 - 9 months. The present study was supported by Bergink et al,[39] that in the first trimester of pregnancy, major depressive episodes was detected with a sensitivity and specificity of 79% and 97% . Children born to depressed mothers were more likely to suffer from birth complications, including preterm birth, abnormal heart rate and long-term difficulties associated with impaired cognitive and emotional development.[40]

Role of Demographic factors:

Multiple regression analysis revealed that only age and monthly income is a significant predictor of anxiety among pregnant women less than 30 years of age. This means that less the age greater will be the anxiety. The same finding has supported by the study done by Huizink.[34] Monthly income is also a significant predictor of anxiety among pregnant women less than 30 years of age means that less will be the monthly income greater will be the anxiety. The consistent finding was supported by the study done by Da-Silva et al[41] on prenatal and postnatal depression among low income Brazilian women.

Multiple regression analysis revealed that depression is a significant predictor of age, gestation age and educational qualification. This shows that participants who had less than 30 years of age show greater depression as compared to 30 years and above. Education qualification was also found negative and significantly related to depression. This means that participants who had low level of education experience more depression in comparison to those who had high level of education qualification. The same results were found by Bolton[42] in an inner city, London population on incidence and demographic correlates of depressive symptoms during pregnancy. Furthermore, gestation period was negatively and significantly related to depression. This means that participants who had short experience of pregnancy reported more depression in comparison to those who had long experience of pregnancy. The present finding was supported by the study conducted by Bergink[39] as mentioned in earlier findings.

Conclusion

Thus, from the above discussion it was concluded that the age of the participants ranged from 20 to 38 years (*Mean* = 26.53, *SD* = 4.99). The majority of the participants (53.20%) had 6 to 9 months gestation period while 25.50% had 3 to 6

months gestation period and 21 .30% participants had less than 3 months gestation period. It was found that anxiety was high among pregnant women less than 30 years of age and same findings was found on depression. Further anxiety and depression was found high on gestation age of pregnant women < 3 months as compared to 3-6 months and 6-9 months respectively. Regression analysis revealed that age and income are significant predictors of anxiety (R = .76, R^2 = .57). These variables jointly explained 57% variance in the scores on anxiety indicating that age and monthly income was negatively and significantly related to anxiety. Further regression analysis revealed that age, gestation age, and qualification is also a significant predictor of depression(R=.90, R^2= .81). These variables jointly explained 81% variance in the scores on depression. It was indicated that age, gestation age, educational qualification and monthly income was negatively and significantly related to depression. The overall findings suggest that demographic factors seem to predict a better understanding of the anxiety and depression among pregnant women.

Limitations of the Research

There are a number of limitations to this study. First, the sample size was small and study only used a cross-sectional data from pregnant women. Second, these analyses relied only on self-report data which may be biased by the respondents, social desirability or conscious awareness of themselves. Third, there are a variety of statistical weaknesses with analyzing the data. Finally, the results of this study underscore the need for more empirical investigations of psychotherapies and interventions. This study contributes to an understanding of the role that demographic factors play in pregnant women experiencing pregnancy.

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Forthcoming Events Contd...

11. **ASCAPAP 2015** — 8th Congress of The Asian Society for Child and Adolescent Psychiatry and Allied Professions. 19 Aug 2015 – 22 Aug 2015. Kuala Lumpur, Malaysia, http://www.ascapap2015.com/
12. 11 NPY-PYY-PP Meeting 2015. 22 Aug 2015 – 26 Aug 2015. Leipzig, Germany http://research.uni-leipzig.de/11npymeeting2015/ Local Organizing Committee; Email: 11npymeeting2015@uni-leipzig.de
13. **International Society of Hypnosis Congress: Roots and Future of Consciousness 2015.** 26 Aug 2015 – 29 Aug 2015 Paris, France http://www.cfhtb.org/en/paris-2015-ish-cfhtb-congress/ Medicine (in general); Psychology
14. **WPCA 2015 — 9th World Psychotherapy Conference Asia 2015.** 30 Aug 2015 – 02 Sep 2015. Kuching, Sarawak, Malaysia http://www.counselingmalaysia.com/Jeniece Yong, Congress Secretariat; Phone: [603 2727 7434 / 6012 695 0234]; Email: secretariat@counselingmalaysia.com Psychology
15. **Regional Congress of the World Federation for Mental Health.** 01 Oct 2015 – 03 Oct 2015 Singapore, Singapore. http://www.wfmhsingapore2015.com/Neurology; Psychology
16. Asia Pacific Rim International Counselling and Psychotherapy Conference 2015. 01 Oct 2015 – 05 Oct 2015. Perth, Australia http://www.apricpc.com/ Healthcare Systems
17. **International Congress of the International Neuropsychiatric Association.** 14 Oct 2015 – 16 Oct 2015. Jerusalem, Israel http://www.ina2015.com/Neurology
18. **4th European Conference on Mental Health.** 21 Oct 2015 – 23 Oct 2015. Riga, Latvia http://www.ecmh.eu Psychology
19. **Continuing Education Cruise Conference — Psychotherapy, Psychiatry and Counseling in the Digital Age Eastern Caribbean Cruise December 2.** 06 Dec 2015 – 13 Dec 2015, Fort Lauderdale, United States, Continuing Education Inc. http://www.continuingeducation.net/schedule.php
20. **International Association for Child & Adolescent Psychiatry and Allied Professions World Congress 2016.** 18 Sep 2016 – 22 Sep 2016. Calgary, Canada http://www.iacapap2016.org/Psychology

Original Article

Quality of life in outpatient Schizophrenics: Correlation with illness severity and psychopathology

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ABSTRACT

Aims: *The main purpose of this study was to assess quality of life of Schizophrenic patients living in community and its correlation with illness characteristic and psychopathology.* ***Setting and Design:*** *Cross-sectional study carried out in outdoor patients attending Psychiatry Department of NIMS Medical College, Jaipur, India.* ***Material and Methods:*** *The study group consisted of 50 consecutive patients diagnosed with Schizophrenia and with minimum duration of illness being 2 years, who were living in community and taking regular maintenance treatment. Patients fulfilling the inclusion criteria were registered and evaluated using appropriate scales like PANSS, GAF, CGI and WHO QoL-Bref version. The data collected was analyzed using appropriate statistics.* ***Result and Conclusion:*** *Quality of life was found to be negatively correlated with negative symptoms and general psychopathology, however no correlation was observed between positive symptoms and overall quality of life. Perceived health domain showed negative correlation with positive symptoms and illness severity. Severity of illness was found to be negatively correlated with overall quality of life, perceived health and quality of life in environmental domain. Objective quality of life as assessed by G.A.F. showed significant correlation with overall quality of life and its physical and psychological domain.*

Keywords : *Schizophrenia, Severity, Psychopathology, Quality of Life.*

Introduction

Schizophrenia is a complex disorder known to have both genetic and environmental causes. From an all-India perspective, the ICMR multicenter study,[1]the prevalence rate for Schizophrenia varied from 1.8/1000 in Bangalore to 3.1/1000 in Patiala. The meta-analysis by Reddy and Chandrashekar[2] estimated the prevalence of Schizophrenia to be 2.7 (2.2– 3.3)/1000 population, while Ganguli[3]computed the prevalence to be 2.5 (1.1–14.2)/1000 population. Against this backdrop, a rate of 3/1000 has been taken as the all-India prevalence of Schizophrenia, the range being 2–3/1000 population.

Quality of life (QoL) has been recognized as an important outcome of Schizophrenia treatment. It can be thought of as a multidimensional set of components consisting of a person's (1) satisfaction with his/her life as a whole, or general wellbeing; (2) observable social and material wellbeing, or objective QoL; (3) satisfaction with his/her social and material wellbeing, or subjective QoL; and (4) health and functional status, or health-related QoL.[4]

According to previous researches, subjective evaluations of quality of life is a very important factor in determining global wellbeing of patients.[5]It is viewed by many as a concept that is both difficult

to define and to measure.[6]

In stabilized Schizophrenic patients, assessment of subjective QOL has good reliability hence, measurement of subjective QOL may be considered as a pertinent indicator of the state of health of stabilized Schizophrenic patients.[7]

Research has shown that clinically compliant and stable patients with Schizophrenia can evaluate and report their quality of life with a high degree of reliability and concurrent validity, implying that self-report measures are potentially useful tools in clinical trials and outcome studies.[8]

In treating and managing Schizophrenia, clinicians often focus on treating psychotic symptoms and ignore factors that are directly related to quality of life and prognosis of disease. Evaluation of patient's quality of life can help a lot in improving quality of care in Schizophrenic patients.

Research has consistently found psychiatric symptoms to be negatively related to quality of life, however the findings concerning the strength of these relationship have been mixed,[4] making it difficult to determine the degree to which such symptoms are related to poor quality of life. Clarifying the relationship between psychotic symptoms and quality of life represent an important step both in elucidating the factors that affect quality of life for individuals with Schizophrenia and understanding the utility of concept of quality of life.[4]

Influence of psychopathology on measurement of quality of life remain constant feature of Schizophrenia. This may indirectly confirm the usefulness of quality of life questionnaires as outcome measures in this disorder.[9]

Since there has been scarcity of reports on these issues from the geographical area of Rajasthan in India , hence it was felt that a systemic and cross sectional study be planned to assess the subjective quality of life of Schizophrenic patients and to evaluate the relationship between illness severity, psychopathology and subjective quality of life in Schizophrenia.

Aims and Objectives

The main aim of this study was to assess correlation between subjective quality of life in Schizophrenia, illness severity and psychopathology.

The study was designed to fulfill the following objectives.

1. To assess the subjective quality of life in individuals suffering from Schizophrenia.
2. To examine the relationship between psychopathology, type of antipsychotics used, illness characteristic and quality of life in Schizophrenia.

Material and methods

The study was conducted at Psychiatry OPD of NIMS hospital, Jaipur. 50 consecutive subjects fulfilling the specified inclusion criteria were enrolled in the study .

Study Group :

The study group consisted of 50 consecutive Schizophrenic patients attending psychiatric OPD with minimum duration of illness being 2 year, and who were taking regular maintenance treatment.

Inclusion criteria:

- Age: 18 to 60 years
- Diagnosis of Schizophrenia according to I.C.D. – 10 criteria.[10]
- Patients taking either atypical anti-psychotics or typical anti-psychotics or both since last 2 months without any change in their antipsychotic medicines except in doses.

Exclusion criteria

- Patients with medical or neurological illness
- H/O head trauma.
- Mental retardation
- Patient meeting ICD-10 criteria[10] for drug dependence.
- History of indoor admission in past three months prior to assessment.
- Duration of illness less than two years.
- Patient who refused to participate.

Study Design (Operational Procedure)

Patients fulfilling the inclusion criteria were taken up for the study. These cases were enrolled after taking informed consent from them to be included in the study. After detailed history and mental status evaluation a diagnosis of Schizophrenia was confirmed by two senior consultant psychiatrists according to ICD-10 criteria.[10] Then these patients were evaluated clinically.

The patient's socio-demographic data and illness history were obtained. Following this, psycho-

pathology, illness severity, level of functioning and quality of life was assessed using appropriate rating scales.

Ethical Issues

Informed consent was obtained from each patient and their caregiver prior to inclusion into the study. All were explained regarding the nature and the rationale of the study. The subjects had the right to withdraw from the study at any point of time.

Instruments of study

Self-designed semi-structured Performa was used. It included the following:

(a) Socio-demographic data sheet.

(b) Clinical profile sheet.

Positive and Negative Syndrome Scale (PANSS):[11] The PANSS includes 30 items on three sub scales, seven items covering positive symptoms (e.g. hallucinations and delusions), seven covering negative symptoms (e.g. blunted effect) and 16 covering general psychopathology (e.g. guilt, uncooperativeness). Each item is scored from one to seven point. The positive and negative subscales each range from 7 to 49 and general psychopathology scale ranges from 16 to 112. The rating can be completed in 30 to 40 minutes.

Global Assessment of Functioning (GAF):[12] It is a 100-point single item scale with value ranging from 1 to 100 representing the hypothetically sickest person to the healthiest. The scale is divided into 10 equal 10-point intervals with the 81 to 90 and 91-100 intervals for individuals who exhibit superior functioning. The 71 to 80 intervals are for person with minimal psychopathology. Most patient in outpatient setting will receive ratings between 31 and 70, and most inpatients between 1 and 40.

Clinical Global Impression (CGI):[13] The CGI is a three-item scale, which measures overall severity of illness. If repeated, it can evaluate response to treatment. The CGI is rated by the patient's physician or a trained rater who evaluate severity of illness, clinical progress, and therapeutic efficacy. Raters are asked to evaluate the severity of patient's illness based on the rater's total experience with the specific patient's population to which the patient belongs.

In clinical and research situations, only the first two items – severity of illness and global improvement – are utilized. Severity of illness is rated on a seven-point spectrum (1- normal, 7 - among the most severely ill patient). For the present study we have used its first item "Severity of illness" to assess patients illness severity.

WHOQOL-BREF:[14] This is a 26 item self-administered generic questionnaire, a short version of the WHO QOL- 100 scale. It emphasizes the subjective experience rather than the objective conditions It is made up of domain or facets (sub-domain). It includes four domain scores (Physical, Psychological, Social and environmental) and two individually scored items measuring the individual's overall perception of their quality of life and satisfaction with their physical health. All items are rated on a five-point Likert Scale. Domain scores range from 0 to 100, where as the individual items have a score range 1-5. In all cases, higher scores reflect better quality of life. For the purpose of present study WHOQOL-BREF, Hindi version was used.

All the findings of the study were compiled and suitable statistics was applied and results were drawn and discussed.

Statistical Analysis – Statistical analysis of the data was carried out using SPSS software version 17. Mean and standard deviation were presented for all the continuous variables, and χ^2 test was performed to test associations of categorical variables. To examine the relationship between independent variables (clinical characteristic) and dependent variable (Quality of life), Pearson's product moment correlation was carried out.

Results

Study group consisted of 35 males and 15 female patients with a mean age of 38.6 years. Approximately 48% of the patients in this study were working, 56% were from urban background, 68% were married and 62% were living in Joint family. 50% of patients were having family income below 3000 Rupees per month. [Table-1] .

Majority of patients (72%) had an onset of illness before the age of 30 years, 36% of patient had total duration of illness of more than 10 years,

28% of patient had duration of illness in range of 5-10 years and remaining 36% had duration of illness below 5 years [Table 1].

Scores on the PANSS ranged from 7 to 29 on the positive scale (M=13.70, S.D. = 5.32), 8 to 29 on the negative scale (M=14.56, S.D. = 6.27) and 18 to 54 on the general psychopathology scale (M = 29.74, S.D. = 7.17). The GAF mean score was 65.56, in our study, while the mean illness severity score as assessed from CGI- scale was 3.02 (S.D= 1.39) [Table – 2].

Table 1. Distribution of Sociodemographic and clinical profile of study group

Variable	Schizophrenia n = 50, f %)
Age in (years) – mean (SD)	38.62 (10.75)
Sex	
Male	35(70)
Female	15 (30)
Marital status	
Married	34 (68)
Unmarried (Single)	10 (20)
Separated, widower and widower, divorced	6 (12)
Domicile	
Rural	22 (44)
Urban	28 (56)
Education	
Illiterate	11
Below Higher secondary	15
Higher secondary and above	24
Occupation	
Working	24 (48)
Nonworking	13 (26)
Housewives	13 (26)
Family Income in Rupees / month	
< 3000	25 (50)
3000-10000	16 (32)
> 100001	9 (18)
Family type	
Joint	31 (62)
Nuclear	19 (38)
Type of medication	
Atypical	14 (28)
Typical	30 (60)
Both	6 (12)
Age of Onset(Years)	
≥ 20	08 (16)
21-30	28 (56)
≤ 30	14 (28)
Duration of Illness (Years)	
<5	18 (36)
5-10	14 (28)
>10	18 (36)

Table 2. Clinical characteristic of study group

Variable	Schizophrenia n = 50, mean (SD)
PANSS	
Positive	13.70 (5.30)
Negative	14.56 (6.27)
General Psychopathology	29.74 (7.17)
GAF	65.56 (17.76)
CGI	3.02 (1.39)

Statistically significant negative correlation was noticed between negative symptoms (r = - .324, P < 0.05) and general psychopathology with overall quality of life (r = - .372, P < 0.01). Health status of the patient was strongly negatively correlated with positive symptoms only (r = - .389, P < .01) while quality of life in environmental domain was negatively correlated only with general psychopathology (r = - .369, P < .01). Quality of life in physical, psychological and social-relationship domain showed significant negative correlations with positive, negative symptoms and general psychopathology variables (P < 0.05) [Table 3].

Statistically significant association was also noted for Global level of functioning with overall quality of life (r = .541, P < 0 .001), quality of life in physical domain (r = .315, P < 0.05) and psychological domain (r = .323, P < 0.05) [Table 6]. Severity of illness was found to be negatively correlated with overall quality of life, health and quality of life in environmental domain [Table 3].

Discussion

The present study is a cross sectional, hospital O.P.D based study which was undertaken to measure the quality of life in Indian Schizophrenic outpatients and to elucidate the relationship between quality of life, illness severity, type of antipsychotic used and psychopathology.

Regarding correlation between quality of life and psychopathology, the result of the associations found in our study approximately appear to be consistent with those in the previous studies.[15-31]

In this study, quality of life in its physical, psychological, and social domain was found to be negatively correlated with all variable of PANSS ie, positive, negative and general psychopathology symptoms [Table 3]. One interesting finding in our study was that although overall quality of life showed

Table 3. Correlation between Quality of life parameter and illness severity in Schizophrenia (n=50)

Variable (PANSS)	Overall QoL	Health	Physical	Psychological	Social relationship	Environmental
Positive	.263	-.389**	-415**	-.282*	-.326*	-.215
Negative	-.324*	-.151	-.310*	-.347*	-.398**	-.158
General Psychopathology	-.372**	-.268	-.380**	-.324*	-.325*	-.369**
GAF	.541**	.230	.315*	.323*	.266	.267
CGI-Sev	-.517**	-.282*	-.276	-.267	-.229	-.294*

Pearson product moment (r). *P<.05, ** P < .01

no significant correlation with positive symptoms of Schizophrenia similar to the finding of few other authors,[16,17,21] however strong negative correlation were observed between perceived health , physical, psychological, and social domains of quality of life with positive symptoms. [Table 3]

Eack et al[4] in their Meta-analysis on psychiatric symptoms and Quality-of-life in Schizophrenia found that general psychopathology was showing the strongest negative association across all quality of life indicators and we also noted the same finding in our study. [Table 3]

Level of functioning of Schizophrenic patients was observed to be strongly correlated with overall quality of life ($r = 0.541$, $P < 0.01$), and also with quality of life in physical ($r = 0.315$, $P < 0.05$) and psychological domains ($r = 0.323$, $P < 0.05$). [Table 3] The results of this study are in accordance with that of Norman et al[19] and Salome et al[25], who also reported correlation between quality of life and level of functioning in schizophrenic patients.

Severity of illness showed strong correlation with overall quality of life ($r = -0.517$, $P < 0.01$) perceived health ($r = -0.282$, $P < 0.05$), and quality of life in environmental domain ($r = -0.294$, $P < 0.05$), and weak but statistically non significant correlation with quality of life in physical and psychological domains. [Table 3]

Our finding confirms the findings of Alptekinet al[22], Salome et al[25] and Chino et al[32] who also reported negative correlation between illness severity and quality of life but are just opposite to findings of Orsel et al[33]who could not find any correlation between CGI severity scores and quality of life in schizophrenic patients.

Although the results of the present study are not fully comparable with those of earlier research which could be due to sample characteristics and the way quality of life was assessed, nevertheless, our results generally are in accordance with prior findings. As can be seen from the results, the quality of life of schizophrenic patients in this study was significantly affected by the illness severity and psychopathology. Early intervention with antipsychotics should play a major role in improving the quality of life of Schizophrenic patients.

Conclusions

This study confirm the previous finding of various other studies that quality of life of Schizophrenic patients is significantly affected by the psychopathology and severity of illness and early intervention may be beneficial in such patients.

Limitations

- The study was a cross-sectional study; it could have yielded more information if a longitudinal study were planned on this issue.
- The study was conducted in the population attending the hospital, which forms a self-selected group. As such the findings cannot be generalized to the person staying in the community.
- Though the sample size was adequate, it would be worthwhile to replicate it on a bigger sample in order to have wider applicability of findings.
- Caution should be exercised in extrapolating these results to other patients with Schizophrenia. Since this study included stable outpatients as an eligibility criteria, thus failing to analyze possibly more severe outpatients and inpatients.
- Areas that require considerable attention include the development of mechanisms to control for affective and cognitive states in

Schizophrenia while assessing quality of life.

Recommendations

- More socio-cultural factors in relation to subjective quality of life should be studied and a factorial analysis should be made to find their inter-correlation and correlation with Schizophrenia psychopathology. This sophisticated multivariate analysis could have been performed in the present study, had the sample size been large.
- The study should cover all types of Schizophrenic patients (e.g. acute, chronic, inpatients, outpatients).
- A longitudinal assessment of quality of life and other variables would serve to strengthen the contribution of future researchers to the existing literature on quality of life outcome in schizophrenia.
- Another suggestion for future research includes much more attention to the role of the experience of pharmacotherapy especially medication side effect in understanding subjective evaluation of quality of life in Schizophrenia.

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ERRATA

The authors of article entitled, "**Expressed emotion research in severe mental illness**" published in Journal April 2012; 15(1) : 32-40 to be read as **Pratima Pandey, SPK Jena and M.S. Bhatia**.

Original Article

Personality Pattern and Cognitive Executive Functioning among Female Adults

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Abstract

Background*: Personality is a critical psychological mechanism that guides a behavior. Genetic and environmental influences determine the set of psychological characteristics comprising personality. Executive functions are cognitive processes associated with the frontal lobes of the brain that help to coordinate and regulate other processes and brain regions. Although a definitive list of the executive functions does not yet exist, the usual suspects include the capacities for response inhibition, forming a plan and implementing it, switching back and forth between tasks, maintaining and updating memory representations, and resisting interference from distractors. Women are more deferential, warm, trusting, sensitive, and emotionally "reactive.****Aim****- Present study aims to measure the personality patterns and executive functioning.* ***Material & Methods****- 50Female Adults from various districts of Jharkhand State have been included purposively as a sample of study. Semi- Structured interview schedule along with Millon Clinical Multiaxial Inventory III and Cognitive Symptoms Checklist (Executive Functioning) were used for data collection. Data collected was analyzed using Statistical Package for Social Sciences (SPSS- 20 version).* ***Results:*** *Results suggest that female adults have dependent and anxious personality pattern at clinical level in personality profile and they face more problems in executive functioning such as initiation, organizing, sequencing, reasoning and solving their problems.* ***Conclusions:*** *Present study highlights that female adults have certain negative psychological personality traits in high manner such as schizoid, avoidant, narcissistic, sadistic, negativistic, borderline and suspicious behavior (paranoid). However when cognitive executive functioning were analyzed and examined in respect to various associated components, the results suggests that their initiation in starting tasks, self-correction and mental flexibility is poorer.* ***Implications:*** *This study will help the policy maker and professionals mainly working in general and psychiatric settings and correctional setting to deal effectively with female adults with negative personality trait and impaired executive functioning.*

Keywords: *Personality Patterns, Cognitive Executive Functioning, Female adults*

Introduction

Personality is a critical psychological mechanism that guides a behavior. Genetic and environmental influences determine the set of psychological characteristics comprising personality[1]. Among many personality theories, trait models emphasizing individual differences in thoughts, feelings, and behaviors assume that personality consists of several dispositions. Since personality traits tend to form a stable pattern of reactions in any given situation,

they can explain the mechanisms of an individual's information behavior with little variability[2].

A widely used personality model, McCrae and Costa's[3] NEO Five Factor Model, or "Big Five Model", consists of the following personality components: neuroticism, extroversion, and openness to experience, agreeableness, and conscientiousness.

Personality is seen today as a complex pattern of deeply embedded psychological characteristics that are largely non conscious and not easily altered, expressing themselves automatically in almost every facet of functioning. Intrinsic and pervasive, these traits emerge from a complicated matrix of biological dispositions and experiential learnings, and ultimately comprise the individual's distinctive pattern of perceiving, feeling, thinking, coping, and behaving[4].

Executive functions (EF) are higher order cognitive control processes that involve the abilities to plan, judge, consider, and weigh options; to make complex decisions; to accurately perceive one's own abilities; and to reorganize, implement, and control or inhibit other thoughts or behaviours[5]. The executive functions are cognitive processes associated with the frontal lobes of the brain that help to coordinate and regulate other processes and brain regions. Although a definitive list of the executive functions does not yet exist, the usual suspects include the capacities for response inhibition, forming a plan and implementing it, switching back and forth between tasks, maintaining and updating memory representations, and resisting interference from distractors[6].

Material and Methods

The sample consisted of 50 female college going adults from Jharkhand state between the age group of 18-30 selected purposively.

Females with history suggesting organic pathology like, head injury, seizure, mental retardation, and having psychopathology that interferes in eliciting reliable information like, irrelevant were excluded.

Research Design

The study was College based cross sectional study among Jharkhand State. The females fulfilling the aforementioned criteria were recruited after the written informed consent form. This study has been approved by ethical committee of Colleges (Vinoba Bhave University, Jharkhand, India).

Setting: The study was conducted in Vinoba Bhave University, Jharkhand, India

Tools of the study: To measure the personality patterns and executive functioning, the following tools were used:-

Socio-demographic Performa

It was a self designed tool for collecting socio demographic details. All recruits were Post graduate students.

Millon Clinical Multiaxial Inventory III[7]

It is a self-report inventory composed of 175 true-false items. The MCMIIII assesses 24 clinical scales (11 personality disorders, 3 severe personality disorders, 7 clinical syndromes, 3 severe syndromes), and has 4 validity indices. The original version of MCMI-III (Millon et al.,[7]) has produced alpha coefficients ranging from .66 to .90 and test-retest reliabilities ranging from .82 to .96. The Spanish adaptation has similar properties, with internal consistency ranging from .65 to .88, with a test-retest median of .91. After calculating the score (50 respondents) of all samples. mean and S.D. we calculated.

Cognitive Symptoms Checklist

The Cognitive Symptoms Checklist (CSC) is 11 developed by Christiane O'Hara et al[8] .It is used to identify the problems in daily living skills under the heading of attention, concentration, executive functions, memory, visual process, and language. These cognitive domains further subdivided.The domain of attention and concentration is further subdivided into the areas of internal distracters (physical/emotional), external distracters (visual, auditory and environmental), sustained attention, divided attention and simultaneous attention. Executive function was divided into following headings processing speed/reaction time, initiation/ follow through, self-correction, mental flexibility, planning, sequencing, problem solving, organization and reasoning.

Statistical Analysis: Data was analyzed using SPSS- 20 version for statistical analysis.

Results

Table 1. Socio-demographic characteristics of female adults

Age	Mean Age	22.84 + 04.82
Other variables	**Level**	**Frequency (Percentile)**
Religion	Hindu	46 (92%)
	Muslim	03(06%)
Domicile	Rural	22(44%)
	Urban	28(56%)
Stream	Arts	26(52%)
	Science	06(12%)
	Commerce	18(36%)
Marital Status	Unmarried	45(90%)
	Married	05(10%)
SES	Lower	03(06%)
	Middle	45(90%)
	High	02(04%)
Family type	Nuclear	26(52%)
	Joint	24(48%)
Mode of language	Hindi	34(68%)
	English	16(32%)
Intake of substance	Yes	08(16%)
	No	42(84%)
Pre-marital sex	Yes	03(06%)
	No	47(94%)

Discussion

Present study has been planned to the study of personality pattern and cognitive executive functioning among female adults. The mean age of the respondent was 22.84. This study finding was in agreement with study conducted by Fonseca-Pedrero et al[9]. "Borderline personality traits in non-clinical young adults" found that most of the respondents in his study was female adults (69.5%) and their mean age was 20.2. Result shows that majority of (92%) belongs to Hindu religion, (26%) belongs to Muslim religion, (06%) and (02%) respondents belongs to Christian religion Present study finding reveals that most (56%) of the respondent belongs to urban area, where-as (44%) respondent were resident of rural areas. Result reveals that most (52%) of the study participants studying in Arts groups, (12%) studying in science group, whereas (36%) participants studying in commerce. Among the respondent (90%) were unmarried and only (10%) were married. Result shows that majorities (52%) of respondents belong

Table 2. Personality pattern of female adults on MCMI-III (Million clinical multi axial Inventory)

Personality Patterns	Descriptions	Base Rate (Mean ± SD)	Impression
Clinical Personality pattern	Schizoid	67.26 ± 18.28	High
	Avoidant	64.88 ± 19.75	High
	Depressive	49.10 ± 30.37	Medium
	Dependent	79.08 ± 17.50	Clinical
	Histrionic	56.04 ± 11.96	Medium
	Narcissistic	71.72 ± 19.60	High
	Anti-social	41.28 ± 16.04	Medium
	Sadistic	67.54 ± 10.74	High
	Compulsive	58.20 ± 12.99	Medium
	Negativistic	63.56 ± 20.03	High
	Masochistic	45.90 ± 25.00	Medium
Severe personality pathology	Schizotypal	65.18 ± 15.06	High
	Borderline	63.00 ± 18.58	High
	Paranoid	70.62 ± 15.41	High
Clinical syndromes	Anxiety	75.14 ± 22.16	Clinical
	Somatoform	36.54 ± 29.25	Medium
	Bipolar- Manic	58.18 ± 22.78	Medium
	Dysthymia	46.94 ± 26.11	Medium
	Alcohol Dependence	41.72 ± 21.98	Medium
	Drug Dependence	48.88 ± 25.44	Medium
	Post-Traumatic Stress	46.48 ± 27.83	Medium
Severe Clinical syndromes	Thought Disorder	52.52 ± 24.75	Medium
	Major Depression	50.54 ± 33.51	Medium
	Delusional disorder	65.52 ± 16.77	High
Personality Level	Below 34- Low Level		
	35-59 – Medium Level		
	60-74: High Level		
	75-84 : Clinical Level		
	More than 85: Severe Clinical Level		

Table 3. Cognitive Executive Functioning of female adults

Cognitive Executive Functioning Descriptions	Obtained Mean Score/ Total score	Impression
Processing speed/ reaction time	03.30/08.00	No impairment
Initiation/ Follow through	02.84/03.00	Impairment
Self-correction	03.52/05.00	Impairment
Mental flexibility	03.02/05.00	Impairment
Planning	05.78/13.00	No impairment
Sequencing	04.82/07.00	Impairment
Problem Solving	06.01/08.00	Impairment
Organization	05.78/08.00	Impairment
Reasoning	06.42/11.00	Impairment
Total cognitive executive functioning	41.58/68.00	Below 17 (No Impairment) 18-34 (Mild Impairment) 35-51 (Moderate Impairment) 52-68 (Severe Impairment)

* Adding total number of Items in one domain such as Processing speed/ reaction time contained 08 items and mean score was 03.30.

to nuclear family structure and (48%) were in joint family structure. In present study majority (90%) of the respondents belongs to middle socio-economic status, (06%) belongs to low socio economic status, whereas (94%) belongs to upper socio-economic status. Mostly (68%) respondent's mode of language was Hindi and (32%) respondent's mode of language was English. It was also reported that (16%) respondents having personal history of intake of substance use, but (84%) didn't have personal history of intake of substance. Only (06%) of the respondent were indulged in pre-marital sexual activity, whereas (94%) of the respondents were not indulged in pre-marital sexual activity.

Results reveal number of respondents who scored in low, medium, high, clinical & severe clinical level on each personality description. Mean ± SD Score was given to assess the personality patters of female adults. In the domain of clinical personality pattern, Depressive, Histrionic, Antisocial, Compulsive and Masochistic type of personality were found at medium level, and Schizoid, Avoidant, Narcissistic, Sadistic and Negativistic personality pattern were found at high level, whereas only dependent personality pattern was found at clinical/ pathology level, among respondents. This study finding is in agreement with study conducted by Simmons et al[10] found that women scored higher on the Histrionic, Narcissistic, and Compulsive subscales. Similarly study conducted by Freheit et al[11] found that females performs low score in antisocial and Masochistic dimensions. Severe personality pathology domain all three personality pattern such as Schizotypal, Borderline and Paranoid were found at high level. In the domain of clinical syndrome, personality pattern such as Somatoform, Bipolar- manic, Dysthymia, Alcohol Dependence, Drug Dependence and Post- Traumatic Stress were found at medium level, but anxiety personality pattern was found at clinical/pathology level. Finally in domain of severe clinical syndrome, personality pattern such as Thought disorder and Major depression were found at medium level, whereas personality type such as delusional disorder was found at high level. This is in line with the study (Arroyo and Ortega, 2009)[12] personality disorder was observed in 30% of the prison inmates. The distribution of personality disorders was as follows; 12% with Antisocial Disorder, 12% with Borderline Disorder, 3% with Paranoid Disorder, 2% with Narcissistic Disorder, and 2% and Schizoid disorder[12]. Presence of anti-social personality disorder is a high risk for developing mental illness[13] and suicide[14]. Men had a higher prevalence of alcohol abuse and antisocial personality, while women more often showed depression, anxiety disorders and borderline personality disorders[15].

Result reveals that in cognitive executive functioning, impairment was found among Initiation, self-correction, mental flexibility, sequencing, problem solving, organization and reasoning but where as in processing speed/ reaction time and

planning, no impairment was found. Result revealed that in total cognitive executive functioning Mean ± SD score shows moderate impairment was found among female adult respondents. This finding is in agreement with study conducted by LeGris[16] found that females with Personality Disorder, characterized by significant suicide risk, intense affect and behavioral dysregulation, is frequently associated with the executive function (EF) deficits of problem solving, mental flexibility and decision making and inhibitory control.

Limitations

Present study assess and describe the personality pattern and cognitive executive functioning among female adults. Hence generalization of study finding is not easy due to limited sample size. Along with small sample size only female adult group was studied, the result would have much broader if study would have included more groups such as male, children's and ageing.

Future Direction

With present study findings it can be suggested that similar study could be carried out with large sample and with comparative group. In future researcher should try to recruit sample using probability sampling technique for better generalization. It would be better to conduct intervention study to find out the efficacy of cognitive behavioral therapy and mindfulness techniques in terms of reduction of clinical severity in personality dimensions and improving as well as enhancing executive functioning among female adults.

Implications

This study will help the policy maker and professionals mainly working in general and psychiatric settings and correctional setting to deal effectively with female adults with negative personality trait and impaired executive functioning. Present study will also help the professionals working at school, college, industrial or any other field by identifying and assessing people at risk of clinical negative personality traits and impaired executive functioning. Such exercise not only enhances the quality of life and psychosocial functioning of females but also help to achieve the goal of positive mental health.

Conclusions

Present study highlights that female adults have certain negative psychological personality traits in high manner such as schizoid, avoidant, narcissistic, sadistic, negativistic, borderline and suspicious behaviour (paranoid). These traits decreased capacity to tolerate frustration and problem solving ability, as a result they tend to be more tensed, anxious. However when cognitive executive functioning were analysed and examined in respect to various associated components, the results suggests that their initiation in starting tasks, self-correction and mental flexibility is poorer. Similarly they were not able to solve their problem adequately, and not able to competent in sequencing, organising and in reasoning dimensions. But on the other hand their processing speed, reaction time is good and their planning ability is also very perfect.

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Forthcoming Events Contd....

OTHER UPCOMING EVENTS

May 15, 2015

Child Psychiatry in Primary Care 15 - 15 May • Vermont, Listed in: Psychiatry, Pediatrics, Family Practice

May 16

22nd Annual International "Stress and Behavior" Neuroscience and Biopsychiatry Conference16 - 19 May • Russia, Listed in: Headache / Migraine, Sports Medicine, Psychiatry, Neurology, Pain Management,Immunology, Family Practice

May 20

The 1st International Congress on Controversies to Consensus in Primary and Outpatient Care (COPOC) 20 - 22 May • Israel Listed in: Endocrinology, Psychiatry, Cardiology, Allergy, Immunology, Family Practice

Jun 11

Update CME - Internal Medicine and Primary Care11 - 14 June • Illinois, Listed in: Gastroenterology, Nephrology, Rheumatology, Psychiatry, Cardiology, Internal Medicine,Family Practice

Jun 22

5th International Regional "Stress and Behavior" Neuroscience and Biopsychiatry Conference (North Am 22 - 24 June • Florida Listed in: Headache / Migraine, Sports Medicine, Psychiatry, Neurology, Pain Management, Immunology, Family Practice

Jun 23-25

Alzheimer's Disease Congress. London U.K. www.Alzheimers2015.com

Original Article

A comparative study to assess the functional recovery of alcohol and opiate dependent subjects admitted in drug de addiction centre attached to a tertiary care hospital of North India

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ABSTRACT

More than 2.6% of the global population is addicted to drugs. It is important to treat the patient, maintain their recovery and prevent relapse. The explicit expectation of treatment has been enduring reductions in substance use, improved personal health and social functioning, generally referred to as 'recovery'. Therefore a study was undertaken to assess the functional recovery of substance dependence subjects, with an aim to compare the recovery of alcohol and opiate dependent subjects with the aid of a research developed nursing evaluation tool (NET). ***Materials and Methods:*** *A total of 50 subjects were enrolled by purposive sampling from hospital inpatients of a drug de addiction centre. NET was applied to assess the recovery of the subjects through interview and observation. Assessment was done after two week of the admission and compared the functional recovery between the two groups.* ***Results:*** *Results of the study show that the recovery of alcohol dependence is faster than opiate dependence in this setting. Alcohol dependent patients had excellent recovery of 56% as compared to the opiate group (p <.014).* ***Conclusion:*** *The present study found that recovery of inpatient alcohol dependent subjects is faster than opiate group and recommends the need for a comprehensive nursing assessment in order to rate a better recovery.*

Key words: *Functional Recovery, Nursing evaluation tool (NET)*

Introduction

Globally drug dependence remains a serious problem and more than 2.6% of people suffer from drug dependence at some time in their lives. Substance dependence is described as continued use of drugs , even when significant problems related to their use have developed[1] and even with awareness of physical or psychological problems encountered by the extent of substance use.[2] Alcohol dependence is generally more common among people of lower income and educational levels, as well as among people living alone.[3] Prevalence of substance dependence is very high all over the world.[4-5]

The prevalence of dependence rises through the teen years, peaks at around 20 percent between ages 18 and 20, and then declines gradually over the next four decades [6] An Indian study of 81,802 treatment seekers in India in 2004-2005, 61.3% reported use of opiates and 39% of alcohol.

The prevalence of co-morbidity (Anxiety, depression, mental disorders etc.) was high due to substance use.[7]

Opiate dependence is a complex health condition that often requires long-term treatment and care. The treatment of opiate dependence is important to reduce its health and social consequences. An Indian study shows that alcohol was the commonest substance used (60-98%) followed by cannabis (4-20%).[8] Despite treatment, prognosis of substance dependence is slippery and recovery from substance dependence is very difficult. Relapses are most likely to occur within the first 12 months of discontinuing substance use. Triggers for relapses can include any number of life stressors (problems in the job or in the marriage, loss of a relationship, death of a loved one, financial stressors). The development of adaptive life skills and ongoing drug-free social support are believed to be two important factors in avoiding relapse. We determine how much or how little we value something, arriving at our judgment on the basis of criteria that we can define.[9] Health education which is a form of psychosocial intervention has been formed to facilitate recovery in alcohol and drug dependence[10] Family therapy in addition to pharmacotherapy was shown to reduce the severity of alcohol intake and improve the motivation to stop alcohol in a case-control study.[11,12]

Objective

To assess the functional recovery of substance dependent subjects and to compare the functional recovery of alcoholics and opiate dependent subjects.

Materials and Methods

The study was conducted in Drug De addiction and treatment centre (DDC) of Post Graduate Institute of Medical Education and Research (PGIMER), Chandigarh. The study population consisted of all patients admitted in DDC ward and purposive sampling technique was used. The study consisted of 50 subjects, who met dependence criteria as per ICD 10 Nursing evaluation tool (NET) which was developed by nursing expert was used. (Developed by senior MSc student of NINE PGIMER, 2010). NET has 12 domains with subdivision of 90 - items related to health perception, health management, nutrition, metabolism, elimination, activity exercise, sleep, rest, cognitive perceptual problems, mood, stress tolerance, value, belief, role, relationship, self-perception, self–concept and behavioral problems. Ethical approval and written permission were taken from the concerned authorities and study participants, prior to the interview. Subjects were interviewed and observations were recorded as per criteria of NET. Interview and observation was conducted after two week of admission. Data was entered in the MS Excel (2007) and analyzed by using Statistical Package for Social Sciences (SPSS version 16.0 Inc., Chicago, IL).

Results

Demographic characteristics

The two groups i.e. alcohol and opiate dependence were compared with each other as per socio demographic variables. Most of the subjects of opiate dependent category were in the age group 15-30 (68%), whereas there were more alcohol dependent subjects in the age group of 31-45 years (60%) ($p < .002$). More than half of the opiate subjects were unemployed (64%) as compared to alcoholic group ($p < .01$). Majority of the patients in alcoholic group were married (90%), ($p < .01$). Regarding the variables of education most of the subjects were undergraduate in both groups. ($p < .05$). The groups were comparable in relation to type of family, habitat, relapse and referred by, (p value is >.05).Where as groups was statistically not comparable in relation to age, education, occupation and marital status as p value is <.05.

Levels of functional recovery

Alcoholic subjects had an excellent and very good recovery as compared to opiate group (Table (1) Functional recovery is excellent 14 (56%) in alcoholic subjects, while only 6 (24%) opiate subjects had excellent recovery. Opiate subjects had very good 14 (56%) recovery as compared to the alcoholic subjects 11 (44%). On the other hand there were 5 (20%) opiate subjects who had good

Table-1: Levels of functional recovery

Level of functional recovery	Groups		χ^2
	Alcoholic n=25 f(%)	Opiate n=25 f(%)	p d f
Excellence (135-80)	14 (56)	6 (24)	8.56
Very good (90-135)	11 (44)	14 (56)	.014
Average (45-90)	–	5 (20)	*2

recovery where as there were no alcoholic subjects in this category. Result of the inferential statistics showed that there was a statistically significant difference in the functional recovery of subjects.

Comparison of functional recovery as per domains of NET

Table (2) depicts that there is a statistically significant difference in the mean score of functional recovery of subjects in the domains of activity and exercise, sleep and rest, coping and stress tolerance ($p < 0.05$). Mean value is different in both groups. Mean score of functional recovery in other domains, such as health perception and management, Nutrition and metabolism, elimination, activity, exercise, cognition, perception, self perception and self concept, role, relationship, sexuality, reproduction, value, belief and behaviour were statistically not significant ($p > 0.05$).

Relationship of socio demographic profile and recovery of alcoholic and opiate dependence

Table 3 depicts the relationship (correlation) of socio demographic / clinical variables and recovery of both the (alcoholic and opiate) groups. The results of the study show that there was no significant relationship between the age and recovery of alcoholic (-.03) and opiate group (-.34). Education and recovery was positively correlated in both the groups (.21, .30) but not up to statistical significance. There was low negative correlation between

Table-2: Comparison of functional recovery of total subjects as per domains. N=50

Domains	Groups		t	p
	Alcoholic n=25	Opioidn=25		
	Mean ± S.D.			
Health perception & management	12.16 ± 1.143	11.24 ± 2,204	1.853	.070
Nutrition & Metabolism	13.04 ± 2.31	12.40 ± 2.73	.892	.377
Elimination	12.32 ± 2.19	12.08 ± 1.55	447	.657
Activity and exercise	19.84 ± 2.41	17.40 ± 4.38	2.437	.019*
Cognition & perception	8.92 ± 3.10	8.72 ± 2.47	252	802
Sleep & Rest	21.56 ± 2.27	19.48 ± 3.73	2.380	021*
Sexuality and reproduction	5.92 ± 277	5.68 ±. .477	2.179	034
Coping and stress tolerance	14.16 ± 1.06	11.04 ± 3.60	4.155	.000*
Values & Belief	9.12 ± 1.09	8.56 ± 1.32	1.630	.110
Behavior	12.88 ± 1.201	11.88 ± 2.147	2.032	.048

Total – Mean ± S.D (A. group .150.08 ± 11.83) (Op. group .137.52 ± 16.616)

Table-3: Realtionship of Sociodemographic profile and recovery of alcoholic and opioid group. N= 50

Variables	Recovery of Alcoholic Group n1 = 25		Recovery of Opioid Group n2 = 25	
	r	p value	r	p value
Age (in years)	–.03	.90	–.34	.09
Education	.21	.3	.30	, .14
Occupation	–.07	.7	–.06	, .7
marital status	–.02	.91	–.19	.36
Type of family	–.47*	.01	–.17	.42
Relapse	.07	.75	.000	.99

*.p value is significant at the 0.05 level

occupation and recovery in alcoholic (-.07) and opiate (-.06) group. It was seen that there was low negative correlation between marital status and recovery in alcoholic (-.02) and opiate (-.19) groups. Relapse and recovery also did not have any relationship within the groups (alcoholic .07 and opiate .00). There was a statistically significant relationship between type of family and recovery in the alcoholic group (-.47) as compared to opiate group (-.17).

Discussion

Drug dependence has been showing a rising trend all over the world including India, as a result of newer and greater stressors related to rapid changes in life styles. It is a growing problem and consequences of its dependence cost heavily to the community and form a major health problem.[13] An epidemiological survey to estimate the pattern of alcohol and other substance dependence in rural and slum dweller of Chandigarh[13] found the health related complications in 85.71% followed by family problems (77.31%) due to drug dependence. Another study by Elnager et. al.[14] reported a prevalence rate of 13 per 1000 in West Bengal, while Nandi et al[15] gave a figure of 0.94 per 1000 of the total population for the same state. Similarly in Uttar Pradesh, Dube and Handa[16] reported that 22.8 per 1000 were dependent on alcohol and drugs while Thacore[17] from Lucknow gave a figure of 18.55 per 1000.The important finding of these studies is that alcohol was the commonest substance used (60-98%) in Indian settings and suggested the importance of evaluation of substance abuse and its functional recovery. Hence, the present study was undertaken to assess the functional recovery of substance abuse.

In the present study, subjects with age group 15-30, (68%) were opiate dependents and only (20%) subjects were alcoholic dependent. This percentage reveals that the subjects start taking drug at a very young age. Australia's National Drug and Alcohol Center study revealed that the 12 to 15 age group had a higher rate (39%) as compared to age group 16 to 17 (35%).[18] Present study found that the (36%) of alcoholic subjects were graduate but only (24%) of opiate dependent had studied the senior secondary level. Dropouts from school were more common in opiate group. Epidemiological surveys reported earlier[13] that the majority of the study samples were illiterate (37.67%). Present study found that half of the opiate subjects were unemployed (64%) and 80 % of alcoholic groups were employed. Most of the patients in alcoholic group were married (90%). The present study shows that the substance dependence affects the social life of subjects. The epidemiological survey revealed that[13] drugs affected almost all areas of life including health (85.71%), family (77.31%), marital (70.59%) and occupational (64.28%). Most of the researcher reveals that recovery of the substance dependence is based on muti-dimensnal approach. According to them, for the recovery of patient they need pharmacological intervention as well as psychosocial intervention. Psycho educational groups have been found to facilitate recovery in alcohol and drug dependence.[19]

Present study focuses on the functional recovery of subjects during hospitalization. Researcher used the NET scale to assess the

recovery and compared the functional recovery of alcohol and opiate dependence. Researcher found that the recovery of alcoholic group were faster and excellent than opiate group.

Laudet AB et al[18] has conducted a survey from 1,162 people entering treatment and followed up (>94%) for 8 years and examined the relationship between the duration of abstinence and other aspects of recovery (e.g., health, mental health, coping responses, legal involvement, vocational involvement, housing, peers, social and spiritual support). The findings demonstrate the rich patterns of change associated with the course of long-term recovery. The results of the present study show excellent and good recovery. The present study tried to examine the relationship of clinical variables and recovery in the alcoholic and opiate group. The results of the study showed that there was low negative correlation between the age and recovery of alcoholic (-.03) and opiate group (-.34). Result further showed that there was low positive correlation between the variable of education and recovery in both groups (.21, .30).

Conclusion

Functional recovery can be quantitatively measured through proper assessment and regular review of an individual's needs by a professional. In the current study, the functional recovery of patients dependent upon alcohol and opiate was assessed and compared by using a standardized tool (NET). It was observed that functional recovery at two weeks after admission was significantly better (p - 0.014) in alcoholic dependence patients than opiate dependence. Recovery in the patients of substance abuse is a complex process requiring intense, continuous personal effort that not only involves abstinence but also requires a series of changes to maintain sobriety.[11]

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Forthcoming Events Contd....

July 2

A-Cross Medicine Reviews Summer Mountain Vail CME2 - 5 July • Colorado, Listed in: Hepatology, Gastroenterology, Otolaryngology, Headache / Migraine, Osteopathy, Thoracic Surgery, Nephrology, Ophthalmology

July 26

6th International Neuroscience and Biological Psychiatry Regional ISBS Conference "STRESS AND BEHAVI26 - 27 July • Japan Listed in: Psychiatry, Neurology, Pain Management, Immunology

July 27

A-Cross Medicine Reviews Universal Studios Orlando CME27 - 30 July • Loews Portofino Bay Hotel at Universal Orlando, 5601 Universal Blvd Orlando, Florida, 32819, Listed in: Hepatology, Gastroenterology, Otolaryngology, Headache / Migraine, Osteopathy, Thoracic Surgery, Nephrology, Ophthalmology

August 23

Management of Mental Health Disorders Western Caribbean Cruise 23 - 30 August • Florida, Listed in: Psychiatry, Family Practice

October 8

APA Institute on Psychiatric Services8 - 11 October • New York, Listed in: Psychiatry

October 10

Primary Care at the St. Regis Kauai 10 - 13 October • 5520 Ka Haku Road, Princeville, P.O. Box 223069 Kauai, Hawaii 96722, Listed in: Gastroenterology, Otolaryngology, Headache / Migraine, Osteopathy, Thoracic Surgery,Nephrology, Ophthalmology, Hematology

October 10

Primary Care CME at the St. Regis Princeville Kauai10 - 13 October • Hawaii, Listed in: Hepatology, Gastroenterology, Otolaryngology, Headache / Migraine, Osteopathy, Thoracic Surgery, Nephrology, Ophthalmology

October 19

Medicres 5th World Congress On "good Medical Research"19 - 25 October • 7 East 7th Street New York Ny, 10003. Listed in: Podiatry, Hepatology, Gastroenterology, Otolaryngology, Headache / Migraine, Osteopathy, Thoracic Surgery, Nephrology

October 23

Bridging the Divide: Substance Misuse in Primary Care 23 - 23 October • Vermont, Listed in: Psychiatry, Family Practice

October 27

AACAP 62nd Annual Meeting27 October - 1 November • Texas, Listed in: Psychiatry

Original Article

A study of common factors among children with Parasomnia and Temporal lobe epilepsy

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ABSTRACT

Background: *Sometimes diagnosis of temporal lobe epilepsy (TLE) and night terror (NT) becomes challenging. Therefore apart of clinical evaluation other parameters like genetic factors, aetiology, brain mapping and treatment responses assists in diagnosis and care of patients.* ***Aim:*** *To see the correlates of night terror and children with temporal lobe epilepsy in Indian perspectives.* ***Method:*** *15 children in each group with night terror and Temporal lobe epilepsy were recruited from neurology clinic AIIMS New Delhi. Their socio-demographic data were noted, and the inclusion criteria was filled up. The polysomnography recording of both the groups of children was done and the semi structured proforma applied. Children of both the groups received oxcarbazepine at dose range 150-900 mg/day and response was evaluated at 3 month interval up to 9 month.* ***Results:*** *60% children with night terrors and 40.67% children with TLE shows positive family history of these disorders. The treatment response with Oxcarbazepine shows 66.67% complete and 64.29% partial response in NT group and 60% complete, 77.48% partial in TLE group after 9 month therapy. The score reduction on self-reporting stress pro forma after 9 month with oxcarbazepine therapy were73.58% in NT and 77.56% in TLE children.* ***Conclusion:*** *The children of both disorders have positive family history of NT or TLE and high level of stresses are common in both disorders. The treatment response with oxcarbazepine in both group was effective in reduction of frequency and levels of stress while polysomnography record in night terror did not shows any remarkable changes.*

Key Words: *Night terror, Temporal lobe epilepsy, Relative correlates.*

Introduction

Temporal lobe epilepsy was defined in 1985 by the International League against Epilepsy (ILAE), is a condition characterized by recurrent, unprovoked seizure originating from the medial or lateral temporal lobe area[1]. The other types of epileptic disorders are idiopathic, symptomatic, mesial temporal lobe epilepsy (MTLE) and lesional temporal lobe epilepsy. The idiopathic epilepsy is not associated with structural lesion in brain or neurological deficits. The symptomatic epilepsy has lesion in brain and causes neurological problems. The temporal lobe epilepsy is further divided into mesial temporal lobe epilepsy (MTLE) and lesional temporal epilepsy, the MTLE associated with hippocampal sclerosis and the lesional temporal lobe epilepsy has specific identifiable lesions localized to some temporal areas and also project axons preferentially to mesial temporal structures.[2] The symptoms of these subtypes of epilepsies differs from each other. The simple partial seizure consist seizures without loss of awareness and complex partial seizures (with loss of awareness)[3]. The origin of seizure is not fully known but certain parts of brain play important role

in functions of seizure.The exaggeration of seizure intensity of temporal and frontal lobe epilepsy work through the burst-firing of the thalamocortical system which is main player in the development of NREM sleeps phenomena.[4-6] The Absence seizures are considered the hallmark of IGE, and epileptic exaggeration of the burst-firing occurs through same phenomenon.[7] Since epilepsy and sleep is common bed fellow it stands to reason that sleep disorder may trigger to epilepsy or vice versa. A night terror usually consists of child sitting up on bed, not knowing where they are? And suddenly start scream or call out, he can look bewildered, half awake and half asleep.[4,5] The NT can occurs in children those who have post-traumatic stress disorder and anxiety, it is also common in some personality disorders like schizoid, borderline and dependent.[3] A study with adults found that lesions of the thalamus and brainstem are associated with night terrors.[4] It was also found that the symptoms of depression and anxiety increased frequency of episodes in NT patients.[5] The benzodiazepines (such as diazepam) used at bedtime often reduce the occurrence of night terrors; however, medication is rarely recommended in this disorder.[6] The most commonly encountered types of sleep-related epilepsies (those with preferential occurrence during sleep or following arousal) include temporal lobe partial epilepsy in adults, and benign epilepsy originating from Centro temporal area in childhood.[7] The systems within temporal lobe structures are also responsible for disturbed sleep. The limbic brain is connected with different nodal points in the network underlying sleep organisation and participates in both sleep inducing and arousal mechanisms. In experiment of an animal epilepsy model, amygdala kindling, involves temporal structures, induces disturbed sleep patterns. Sleep-fragmentation and deprivation may impair daytime functioning and cognitive performance by lowering the seizure-threshold.[8] There is limited information of differen-tiation and correlates available in both the disorders therefore diagnostic confusion more likely occurs. The neurobiological study reveals that both disorders influence each other at some point.[9] Therefore keeping this in view, we planned a study to explore common factors among both the disorders.

Aims: To evaluate the correlates, and pharmacological response in night terror and children with temporal lobe epilepsy in Indian perspectives.

Material and Methods

15 children in each group of night terror and epilepsy were recruited from neurology clinic, AIIMS New Delhi. The selection of sample and diagnosis of temporal lobe epilepsy was done by neurologist in OPD, and subsequent diagnosis of night terror by psychiatrist. The diagnosis of children with TLE was based on ILEA and NT on DSM V criteria. The consent for study was taken from parents of children. The inclusion criteria were (1) Age between 3 to 12 year. (2) Having more than single episodes per month in each disorder. (3) Their parents agree to give consent for study. (4) They were drug free up to one week and the exclusion criteria were (1) Intelligence quotient less than 80. (2) Past history of birth trauma. (3) Space occupying lesion, infection, degenerative diseases. (4) Physical illness requires any other medical assistance. The socio demogra-phic data of both groups noted, and the investigations MRI/CT scan, EEG, haemogram, done to exclude physical illness. In both the groups of children semi structured pro-forma contain 10 items (total score 60) of self-reporting stress (SRB) with epilepsy and night terror applied.This proforma covers personal, family and social aspects of children. Six hours Polysomnography recording of both the groups of children were done on day 1 and subsequent recording thereafter.

Oxcarbazepine therapy was given at 3, 6, 9 weeks intervals. For reporting of episodes in both groups of patients, their caregivers were given episode record diary, and they were given instructions that if episode occurs, they record the date, time, duration and types of movement as mentioned in record diary. The recording of SRS scoring of both the groups of patients was also done at day 1 and subsequent recording at 3, 6, 9 weeks intervals.

Statistical Analysis

The collected data were tabulated and analysed using SPSS version 20.0. Total, percentage, mean were used to analyse the data.

Results

The result analysis (Table1) showed that higher percentage of disorders i.e. 60% children with NT

and 53.33% children with TLE, were between age 3-6 years, and relatively lower percentage i.e. 13.33% NT and 20% TLE were between age group 9-12 year. In gender analysis 53.33% children with NT and 60% children with TLE were males compared to 46.67% NT and 40% TLE in female. On further analysis both the problems were common in children with low SES i.e. 66% NT and 73% TLE than middle and higher groups (Table 2). The analysis of family history shows that 60% single parent in children with night terror and 46.67% single parent in children with TLE showed positive history of either TLE or NT disorder.

The reduction of frequency of seizure (treatment response) with oxcarbazepine therapy in children with NT showed 33.33%, 53.33% and 66.67% was complete and 38.1%, 50% and 64.29% partial, while in children with TLE group these responses were 40%, 53.33% and 60% complete and 33.93%, 44.14% and 64.29% partial at 3, 6 and 9 months intervals (Table 3). The analysis of SRS score in (Table 4) shows that on day 1 it was 40.5 in NT and 56.8 in TLE group, those were reducedto 10.7 (17.8%) and 10.5 (17.5%) respectively after 9 months of Oxcarbazepine therapy and in polysomnography record 60% children with epilepsy shown spike wave pattern, while in children with NT shows multiple artifacts of other vital records therefore it was difficult to find out significant changes in sleep terror.

Discussion

In this study we found that TLE and NT both were more common in male children with low socio economic status in age between 3-6 years, the possible region could be in low socio economic status

Table-1. Socio-demographic data

Age group	Children with night terror	Children with TLE
3–6	9 (60)	8 (53.33)
6–9	4 (26.67)	4 (26.67)
9–12	2 (13.33)	3 (20)
Gender		
M	8 (53.33)	9 (60)k
F	7 (46.67)	6 (40)
Socio economic status		
Low	10 (66.67)	12 (80)
Middle	3 (20)	2 (13.33)
High	2 (13.33)	1 (6.67)

Percentage shown in parenthesis

Table-2. Positive Family History

Group	Children with NT 15		Children with TLE 15	
Numbers of children have positive FH	9 (60)		7 (46.67)	
First degree relative	NT	TLE	NT	TLE
Number/percentage	3 (33.33)	6 (66.67)	4(57.14)	3(42.86)
Percentage shown in parenthesis				

Table 3.Duration response with Oxcarbazepine

Duration	Response in NT		Response in TLE	
	Complete	Mean reduction/week	Complete	Mean reduction/week
Day 1	0	4.2	0	3.33
3 week	5 (33.33)	2.6 (38.1)	6 (40)	2.2 (33.93)
6 week	8 (53.33)	2.1 (50)	8 (53.33)	1.86 (44.14)
9 week	10 (66.67)	1.5 (64.29)	9 (60)	0.75 (77.48)

Percentage shown in parenthesis

Table-4. Analysis of SRS score

Duration	NT group		TLE group	
	Mean score	Percentage reduction	Mean score	Percentage reduction
Day 1	40.5	—	46.8	—
3 week	30.33	25.11	35	25.2
6 week	25.5	37.4	20.67	55.83
9 week	10.7	73.58	10.5	77.56

children are more vulnerable for brain insult due to traumatic delivery, infections and nutritional deficiency in many developing countries. In a study of Iceland Low SES, low education and lack of home ownership, are risk factors for epilepsy in adult, it increased risk for epilepsy [odds ratio (OR), 2.29; 95% confidence interval (CI), 1.21–4.34), and home ownership was protective (OR, 0.63; 95% CI, 0.43–0.92) but the resultwasnon-significant.[11] The finding of this study corresponds to finding of our study thoughthe causes of risk factor of epilepsy not mention in the latter part of study.

The result of family history in our study showed that 60% children with NT and 46.67% children with TLE have positive history of either NT or TLE disorders. This result correspond to findings of previous two studies. In first study a survey done on 100 cases of NFLE showed 39% of the patients reported positive family history of TLE and 34% positive for parasomnias.[12] In second study authors compared 33 Nocturnal frontal lobe epilepsy (NFLE) patients and 200 relatives of the pro band, matched controls with 194 relatives of arousal parasomnias found that it was significantly related to NFLE.[7,8] Thus higher co-occurrence of family history for the parasomnias in NFLE suggests that the two conditions can share a common genetic mechanism. The lifetime prevalence of arousal disorders (and nightmares) was more frequent among NFLE patient's relatives compared to the relatives of the controls. The electrophysiological and neuroimaging investigations have also clearly demonstrated the evolution of sleep and absence epilepsy through same thalamocortical and corticothalamic networks[3]. In a previous work done on six patients presented with sudden awakenings, complex movements and autonomic activation with abnormal motor activity during sleep arousal, sleep EEG not shown epileptic discharges. In that study Carbamazepine was effective for management of symptoms in 2 patients.[7] In our study we also found that children with NT shows 33%, 53%, 66% complete and 38%, 50%, 64% partial responses with oxcarbazepine. Though the Oxcarbazepine is a structural derivative of carbamazepine, with a ketone in place of the carbon–carbon double bond on the dibenzoazepine ring at the 10 position (10-keto), therefore it was thought that Oxcarbazepine has similar mechanism of action in cases of parasomnia as carbamazepine,[3] therefore this studies support that Oxcarbazepine seems to be effective medicine for NT disorder, but before making any conclusion larger studies requires in this direction.

In stress assessment of both groups we found total SRS score was 40.6 in NT and 46.8 in TLE group on day 1 and after 9 month with oxcarbazepine treatment these, scores decreased up to 77.58% and 77.56 %. These finding corresponds to the previous study in which stress score and frequencies of seizure was measured, in that it was found that thirty-nine percent patients reported increases in seizure frequency during periods of stress. The median increase of frequency was 2.5 times as compared to non-stressful periods. In same study it was also found that thirty-seven percent patients reported that their seizures were precipitated by acute stress. In that study overall, 51% of the patients reported stress sensitivity of seizures.[12] But in that study stress reporting questionnaire did not directly applied to children rather all information of life time stress and other stress events were collected from parents of children through given questionnaire sheet, therefore in that study author given more emphasis on external stress rather measuring internal stress. In our study we covered both the components of stress on directly applying SRS pro forma on children and their parents, we also measure the changes of SRS score on Oxbarbazepine therapy. Therefore measurement of SRS score and improvement in seizure frequency were more

accurate than previous study. The polsomnography record of NFLE in the largest case series published so far (100 consecutive patients), Provini et al found an absence of ictal pattern in 44% of patients, while 51% interictal recordings failed to show any epileptiform discharges.[13] In a study with six patients those complained distressing, sudden awakenings with abnormal motor activity during sleep causing insomnia, polysomnography shows paroxysmal short-lasting arousals during NREM, especially slow-wave sleep, associated with complex movements and autonomic activation.[14] In comparison to two previous studies we found high artefacts during vital recording of polysomnography in children with NT therefore it was difficult to make any definite comment.

Conclusions

Both Night terror and TLE are more common disorder found in males, younger children with low socioeconomic status. The family history of either NT or TLE disorders was positive in children with any disorder and Children with both the disorders have high level of stress that decreases with oxcarba-zepine therapy. We also found that oxcarbazepine is effective medicine for both groups of patients and polysomnography is not a diagnostic instrument for night terror.

Suggestions

In this study sample size was small and hospital based so, there were more chances of heterogeneities in sample collection and these sample does not represent whole community. Therefore for future research we addresses further study with large, community based sample and with well validated diagnostic and assessment tools.

Conflict of interest

This study not influenced nor funded by any Governmental or private agencies, study done in interest of patient care.

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Original Article

Attitude of Family Towards Elder Mistreatment: Cultural Perspective in Rural North India

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Abstract

Background: *Elder abuse is recognised as a socially and culturally constructed phenomenon and is a global burden. This quantitative cross sectional survey was carried out to ascertain the knowledge, attitude and perception of elder abuse among rural adults in a selected state of northern India.* ***Material and Method:*** *Eighty conveniently selected participants of a village were interviewed using self-developed structured questionnaire which consists 34 items regarding elder abuse and neglect.* ***Results:*** *Out of 80 participants, 42 (52.5%) were female, three fourth (75%) lives in nuclear family and 65% of the participants were educated upto high school or above. The mean age of the respondents was 34.7 ± 5.8 years. Thirty eight percent of the participants stated that the demanding behaviour of the elder leads to violent behaviour of the people in their household. Majority (60%) of the respondents agreed that the behaviour of the elderly is provocative which leads to abuse. Two third (70%) of the respondents stated that it is their individual responsibility to report elder abuse and neglect if they witness any. All the participants agreed that the elder abuse and neglect is a criminal act and they have the responsibility to prevent such abuse and neglect. All the respondents (100%) were aware of financial abuse but nearly half (42.5%) of the subjects believed that using swear words cannot be considered abuse and it is part of their culture. Most of them (92.5%) agreed that occasional manhandling of elderly is violence/abuse.* ***Conclusion:*** *There was a positive attitude from almost all the participants regarding negligence of the elderly. Public awareness and attitude related to some common issues of elder abuse are poor, especially regarding physical abuse, intolerance towards demands of elderly, cultural influence, sexual abuse and reporting of incidents.*

Key words: *Elder abuse, Elder mistreatment, Neglect, Attitude*

Introduction

Ageing is an inevitable and irreversible physiological process that affects all body systems. Elderly or old age consists of age nearing or surpassing the average life span of human beings. 'National policy on Older Persons' (1999) defines 'elderly' as a person who is of age 60 years and above.

As a result of increased life expectancy, the proportion of elderly population in the country is steadily raising. Projections suggest that India's elderly population will be double in size between 2001 and 2026, the elderly will account for 12.17 percent of overall population in 2026.[1]

The traditional Indian society and joint family system have been influential in safeguarding the social and economic security of the elderly people in the country. However, over the last decade, with the rapid changes in the social scenario and the emerging prevalence of nuclear family set-ups in recent years, the elderly people are likely to be exposed to emotional, physical and financial insecurity. Elderly face multiple medical and

psychological problems. Elder abuse is a type of harm to older adults involving abuse by trusted individuals in a manner that "causes harm or distress to an older person."[2] It ranges from physical abuse to neglect of basic needs of an older person. Neglect is the failure of a caregiver to provide the necessities of life to an older person, i.e. adequate food, shelter, clothing, medical care or dental care. Ahmad M and Lachs MS in their review stated that reports of elder abuse to official agencies have been steadily increasing; physicians report only 2% of reported cases.[3] World Health Organization (WHO) defines elder abuse as "a violation of human rights and a significant cause of illness, injury, loss of productivity, isolation and despair."[4] Forms of mistreatment include physical or verbal maltreatment, injury, sexual assault, violation, rape, unjust practices, financial wrongful practices or custom, offense; crime, and or otherwise verbal aggression.[5]

People consider old age to be a period when there is a decline in productivity, ability and independence in all areas of life. These attitudes can turn into behaviour.[6] These attitudes and behaviour toward elderly may result in abuse, negligence, compromised quality of care and health services.[7,8] In the last two decades, there has been increased awareness and action towards abuse and neglect of children and spouses. However, mistreatment of older people has been concealed from public view.[9] According to World Health Organization, 80 percent of elder abuse is unreported.[10]

It is important to address the abuse, mistreatment, abandonment and negligence of older people, particularly in a community and culture where older people are dependent on care from family members. Knowledge of family members regarding elder abuse, its causes and prevention plays an important role in prevention and intervention of elder abuse. Sensitization of family members to the dimensions of problems of elder abuse may stimulate creative thinking about the realistic possibilities of prevention and intervention. In this regard, this study is planned to assess the perception and attitudes toward elder abuse, neglect and ageism among adult family members and healthcare personnel working at community level. The results of this study may guide us in planning the curriculum and implementation of education programmes regarding prevention and management of elder abuse to community level healthcare personnel.

Aims and Objectives

Objectives of this study were to determine the perceptions and attitude towards elder abuse and neglect among adults of a selected rural community in Uttarakhand.

Methods and Materials

The study design was descriptive and cross sectional. The target population for the study was adults living in rural area of Uttarakhand. Convenient sampling technique was used to draw sample of 80 adults from Thano village of Doiwala Block of Uttarakhand State. Investigator visited all the homes of Thano village and screened for availability of at least one older person living in the family, if so, family members who aged between 18 and 60 years were requested to participate in the study. Participants who were willing to participate were enrolled in the study. Investigator made sure that the older person was not around to hear the conversation during data collection.

Informed written consent was obtained from the participants of the study after explaining the purpose of the study. The participants of the study were interviewed by the researcher to fill the structured questionnaire on knowledge and attitude regarding elder abuse. Each interview took approximately 20 to 30 minutes.

A self developed 34-item Likert Scale (6 point) and a socio-demographic profile was used to collect response from the participants. Questionnaire was prepared after extensive review of relevant literature and it was validated by mental health nursing professionals. Socio demographic features include age, gender, educational status, marital status, profession and type of family. Six-point Likert scale includes 34-items covering questions related to attitude of blaming elderly for their abuse (7 items), awareness about different types of abuse of elderly (13 items), attitude of social responsibility related to elder abuse (4 items) and knowledge regarding possible causes of elder abuse (10 items). The response for each item ranges from strongly agree to strongly disagree (6 point). The reliability of the tool was tested by test-retest method and crohnbach alpha was calculated to determine the internal consistency. The reliability was found to be r=0.92 with crohnbach alpha 0.86.

Data Analysis

Socio-demographic characteristics were described using frequency and percentage. Likert scale (6 point) ranged from strongly agree to strongly disagree were grouped in to two major categories in order to describe the frequency and percentage of agreement and disagreement to each of the items of the attitude questionnaire. i.e. Agree (Strongly agree, agree and slightly agree) and disagree (Strongly disagree, disagree and slightly disagree).

Results

Socio-demographic characteristics of the study participants are described in Table 1. Majority (52.5%) of the participants were female and one third of the subjects were living in a joint family system. Items of the questionnaire were organized under four major categories to describe the knowledge and attitude of adults regarding elder mistreatment.

Table 1. Socio demographic characteristics of study participants (N = 80)

S.No.	Socio-demographic characteristics	Frequency	Percentage
1.	Gender		
	• Male	38	47.5%
	• Female	42	52.5%
2.	Education		
	• Never attended school	5	6.3%
	• Primary School	23	28.8%
	• Metric	18	22.5%
	• Graduate & Above	34	42.5%
4.	Monthly family income (in Rupees)		
	• 5,000-10,000	24	30%
	• > 10,000	56	70%
7.	Type of Family		
	• Joint	20	25%
	• Nuclear	60	75%

Attitude of blaming elderly for their abuse. Table 2 illustrates the frequency and percentage of agreement and disagreement for each of the items regarding attitude of blaming elderly for their abuse. Two thirds (67.5%) of the adults believes that the elderly would be less exposed to violence if they had more understanding of adult and children's problems. Majority (60%) of the participants blamed that elderly provokes aggressive behaviour in young people which leads to violence and 38% believes that the demanding attitude of elderly leads to violence behaviour of the family members. None of the participants agreed that there would be less family violence if the elderly lived in nursing home or live separately from their children.

Awareness about different types of abuse of elderly. Table 3 shows that nearly two third (64%) of the interviewed adults agreed that physically touching elderly without their consent is a sexual abuse. 11% of adults do not agree that placing elderly in a old age home is a neglect and 9% disagree that abandoning of elderly is a neglect. 43% believes that using swear words on elderly cannot be considered abuse because it is their part of culture and 7.5% agreed that occasional manhandling of elderly is not an abuse. All the participants (100%) understood about neglect of elderly.

Attitude of social responsibility related to elder abuse. Most (95%) of the participants agreed that elder abuse and neglect is a social problem. While all the participants (100%) agreed that they have responsibility of preventing elder abuse and negligence and elder abuse is a criminal act, surprisingly, a one third of them (30%) did not agree that it is their individual responsibility to report elder

Table 2. Attitude of blaming elderly for their abuse

S. No	Items related to Attitude of blaming elderly for their abuse	Agree Frequency (%)	Disagree Frequency (%)
1	The elderly often complain and nag, which leads to abusive behaviour	80 (100%)	0 (0%)
2	The elderly are demanding, which leads to violent behaviour of the people in their household	30 (37.5%)	50 (62.5%)
3	The behaviour of the elderly provokes aggressive behaviour in young people which leads to abuse	48 (60%)	32 (40%)
4	The elderly would be less exposed to violence if they had more understanding of the problems of their adult children	54 (64.5%)	26 (32.5)
5	If the elderly and the young lived separately, there would be no violence	0 (0%)	80 (100%)
6	The elderly would experience less violence if they didn't live with their children	0 (0%)	80 (100%)
7	If the elderly lived in a nursing home with their peers, less family violence would occur.	0 (0%)	80 (100%)

Table 3. Awareness about different types of abuse of elderly (N=80)

S. No.	Items related to awareness about different types of abuse of elderly	Agree Frequency (%)	Disagree Frequency (%)
8	Borrowing money from elderly parents and not returning it is not violence	0 (0%)	80 (100%)
9	Using swear words cannot be considered elderly abuse because it is part of culture	34 (42.5%)	46 (47.5%)
10	Occasional manhandling of elderly parents/in-law is not violence/abuse	6 (7.5%)	74 (92.5%)
11	Physically touching elderly without their consent is not a sexual abuse	29 (36.3%)	51 (63.8%)
12	Abandoning of elderly is a neglect	73 (91.3%)	7 (8.7%)
13	Placement of elderly to the old age home is a neglect	71 (88.8%)	9 (12.2%)
14	It is neglect that if an elderly's hygiene, nutrition and safety requirements aren't met.	80 (100%)	0 (0%)
15	It is a neglect that if elderly's health needs are' not met or retarded.	80 (100%)	0 (0%)
16	It is a neglect that if elderly lives in homes which have unsuitable conditions.	80 (100%)	0 (0%)
17	It is abuse that if elderly is exposed to violence such as beating, slapping, kicking, biting and throwing goods	80 (100%)	0 (0%)
18	It is abuse that if elderly is exposed to shouting, insulting and ridiculing.	80 (100%)	0 (0%)
19	It is abuse that if elderly's money and goods are stolen, getting by force and misuse	80 (100%)	0 (0%)
20	It is abuse that behaving to elderly as if they weren't, imprisoning the room/home and excluding from society	80 (100%)	0 (0%)

abuse or neglect when they witness one.

Knowledge regarding possible causes of elder abuse (Table 4). Majority (61.3%) of the participants felt that elderly women are more exposed to abuse and neglect than male. A tiny portion (7.5%) of the sample believed that the elderly who live in a large family are exposed to abuse and neglect more often than others. Every fourth person thinks that elder abuse and neglect is seen more in families of low socioeconomic and cultural status.

Association between responses to items of the questionnaire and Socio-demogrphic variables. Chi-square test was performed to find out association between the responses to each of the item of the questionnaire and selected socio-demographic variables. i.e. age (< 35 years and > 35 years), gender, educational status and family structure. The results of the chi-square analysis are illustrated in Table 5. Significantly less number of females and young age group (< 35 years) agreed that the demanding behaviour of elderly leads to violent behaviour of the people in their household. Significantly more number of males (30 out of 38) and members of joint family (16 out of 20) agreed that the behaviour of the elderly provokes aggressive behaviour in younger people. Significantly, more females than male had agreed that the elderly

Table 4. Knowledge regarding possible causes of elderly abuse

S. No.	Items related to knowledge regarding possible causes of elderly abuse	Agree Frequency (%)	Disagree Frequency (%)
21	Elderly women are exposed to abuse and neglect more	49 (61.3%)	31 (38.7%)
22	Elderlies who have mental disability are exposed to abuse and neglect more often	80 (100%)	0 (0%)
23	Elderlies who have physical disability, stroke, handicapped or bedridden are exposed to abuse and neglect more often	80 (100%)	0 (0%)
24	Elderlies who live in a large family are exposed to abuse and neglect more often	6 (7.5%)	74 (92.5%)
25	Elderly abuse and neglect is seen more often in families whose socioeconomic and cultural status is low	19 (23.8%)	61 (76.3%)
26	Bad habits in family cause abuse and neglect of the elderly	80 (100%)	0 (0%)
27	Violence in family cause abuse and neglect of elderly	80 (100%)	0 (0%)
28	Individuals who have negative feeling, thought and bad experiences to elderly are more likely to neglect and abuse of elderly	80 (100%)	0 (0%)
29	Individuals who think looking after the elderly as a burden are more likely to neglect and abuse of elderly	80 (100%)	0 (0%)

Table 5. Association between response to items of the questionnaire and selected Socio-demographic variables

S. No.	Attitude of blaming elderly for their abuse	Socio-demographic Variables (frequency of agreement for each of the item)			
		Age (< 35 vs > 35 yrs)	Gender (Male vs Female)	Educational Status (Upto primary vs ≥ high School)	Family Structure (Joint vs Nuclear)
2	The elderly are demanding which leads to violent behaviour of the people in their household	7.09*	8.35*	0.06	0.64
3	The behaviour of the elderly provokes aggressive behaviour in your people which leads to abuse	0.13	4.81*	1.11	4.44*
4	The elderly would be less exposed to violence if they had more understanding of the problems of their adult children	1.61	1.61	0.30	3.72
9	Using swear words cannot be considered elderly abuse because it is part of culture	0.70	0.15	0.99	0.61
10	Occasional manhandling of elderly parents/in-law is not violence/abuse	2.47	3.34	2.02	0.24
11	Physically touching elderly without their consent is not violence/abuse	1.07	0.13	1.93	0.01
12	Abandoning of elderly is a neglect	1.10	1.76	1.45	0.05
13	Placement of elderly to the old age home is a neglect	0.81	1.49	0.73	0.38
21	Elderly abuse and neglect is a social problem	0.01	0.01	0.19	0.35
24	When I witnessed to elderly abuse and neglect reporting is my individual responsibility	0.09	0.47	0.51	1.27
26	Elderly women are exposed to abuse and neglect more	0.11	4.72*	7.92*	2.98*
29	Elderlies who live in a large family are exposed to abuse and neglect more often	1.31	0.08	0.13	0.24
30	Elderly abuse and neglect is seen more often in families whose socioeconomic and cultural status is low	1.08	4.48*	0.04	0.58

* Significant at $p < 0.05$ level.

Note: All the subjects had either agreed or disagreed for item number 1,5,6,7,8,14,15,16,17,18,19,20,22,23,25,27,28,31,32,33 and 34. Hence, Chi-square was not computed for above said items.

women are exposed to abuse and neglect more while significantly more male than female had agreed that the elder abuse and neglect is seen more often in families whose socioeconomic and cultural status is low. There was no association found with other items of the questionnaire and socio-demographic variables.

Discussion

Elder abuse is recognised as a socially and culturally constructed phenomenon.[11] It is a global problem. International researches estimate between 3% and 10% of the older population experience some form abuse or neglect each year.[12,13] It has been estimated only 16 percent of all abuse incidents reach service agencies.[14] In this study, two third (70%) of the participants stated that it is their individual responsibility to report elder abuse and neglect if they witness any. All the participants agreed that the elder abuse and neglect is a criminal act and they have the responsibility to prevent such abuse and neglect. Thirty eight percent of the participants believed that the demanding behaviour of the elderly leads to violent behaviour of the people in their household. Majority (60%) of the respondents agreed that the behaviour of the elderly is provocative which leads to abuse. These responses suggest, to a great extent, that the intolerance of the adults towards elderly and discounts the needs of elderly to a great extend.

All the study participants (100%) were aware of financial abuse but nearly half (42.5%) of them believe that using swear words cannot be considered abuse and it is part of their culture. Most of them

(92.5%) agreed that occasional manhandling of elderly is violence/abuse. There was a positive attitude from almost all the participants regarding negligence of the elderly (Item 7 to 13 of table no. 3). Majority (61.3%) believed that the elderly women are more exposed to abuse and neglect than men and significantly higher proportion of female than male believes so. Results of research studies also reveal that women are more vulnerable for abuse than male.[15] Nearly one fourth of the participants (23.8%) believed that the elder abuse is more common in families with low socio-economic status. Public awareness and attitude related to some common issues of elder abuse is poor especially regarding physical abuse, intolerance towards demands of elderly, cultural influence, sexual abuse and reporting of incidents.

Significantly, more number of males than females and members of joint family than nuclear family were agreed that the provocative behaviour of elderly leads to elder abuse. Significantly, more number of adults aged above 35 years and males believed that the demanding behaviour of elderly leads to abuse than that of adults aged d"35 years and females respectively. According to earlier theoretical models, the stress level of caregivers was seen as a risk factor that linked elder abuse with care of an elderly relative.[16, 12] While the researchers do not disagree the component of stress as a factor of elder abuse, they expanded the context in which the quality of the overall family relationship is a causal factor in elder abuse.[17] So the attitude of family members towards elderly is an important factor in regard to elder abuse.

Conclusion

Public education and awareness are important component in preventing abuse and neglect. The objective of such efforts is to inform general public about the various types of abuse and negligence, counsel and educate regarding the needs of elderly, promote tolerance towards demands of elderly, how to identify the signs and symptoms of abuse, where help can be obtained and responsibility of individual in prevention and reporting of elder abuse.[18] The social networking sites and media can also be a powerful tool for bring changes in attitudes of public towards elderly. Creating awareness regarding elder abuse and neglect and changing the attitude of public toward elderly may bring positive result in prevention of elder mistreatment.

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Original Article

Children at Dawn: The Pattern of Childhood Psychiatric Disorders at a Newly Opened Academic Medical Centre

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ABSTRACT

Background and Objectives*: The extent to which adult criteria can be applied to children require good empirical data. It is becoming increasingly clear that most psychiatric disorders have their onset before adulthood. Unfortunately, the data on which to build such estimates is very sparse. We aimed to study the pattern of childhood psychiatric disorders at a newly opened academic medical centre.* ***Methods****: Sample consisted of children up to 15 years of age attending psychiatry outpatient department of a newly opened academic medical centre (FAAMCH) in the initial six months from its inception. Study period was from February 2011 to July 2011. Diagnoses were made according to the ICD 10 'clinical descriptions and diagnostic guidelines' (WHO 1992).* ***Results****: Total sample size was 26. Mean age was 10.4 years. Sixteen were boys. We found nine children with emotional disorders, five with disruptive disorders, and ten with developmental disorders. One child had hebephrenic schizophrenia. Co-morbidity in our study was equal in both within each group and across groups. In the present study, four children did not receive any diagnosis and six children had general medical conditions .* ***Conclusions:*** *Community-based data are needed to measure the extent of need, and the unmet need, for prevention or treatment. Classification of child psychiatric conditions has advanced enormously in the last 20 years. There is a much stronger empirical basis to support current schemes.*

Keywords: *Category, Dimension, Developmental psychopathology, Epidemiology, Community. Burden*

Introduction

The majority of childhood mental health problems arise from an excess of behaviour exhibited by many young people.[1] They are seldom due to qualitatively distinct phenomena of the kind more often seen in adult conditions.[1] Consequently choosing a cut-off point to make a categorical entity from a dimensional construct is more often used in child psychiatry.[1] The dimensions can be interchanged with categories, does not necessarily mean they are unhelpful–after all, day and night are useful terms yet the boundary between them is continuous and arbitrary.[1] Psychiatrists in particular may be criticised for 'medicalising' a child's difficulties by talking about disorders or diagnoses, whereas other professionals and parents may prefer to call them 'emotional and behavioural difficulties.[1]

The 'term developmental' psychopathology was coined in the early 1980s to denote the scientific study of how abnormalities can be understood in terms of processes underpinning human development.[2, 3] There are now journals and books incor-

porating the term into their titles.[4,5] Because mental processes and behaviour change as a child develops, it is not always clear whether the same diagnoses should be applied across the age range.[1] The extent to which adult criteria should be applied to children requires good empirical data.[1]

Epidemiology is the study of patterns of disease in human populations.[6] Patterns are non-random distributions, and patterns of disease distribution occur in both time and space.[7] The task of epidemiology is to understand observed patterns in time and space, and to use this understanding as a basis for the prevention and control of disease.[7]

In a world of scarce health care resources, it is important to understand the size of the burden to the community caused by these disorders.[7] Burden, in terms of numbers affected, impact on the individual, and cost to the community, is a crucial factor in the battle for resources for treatment and prevention.[7]

Attempts to reduce the burden of mental illness must, of necessity, pay attention to the early years.[7] It is becoming increasingly clear that most psychiatric disorders have their onset before adulthood, and that many should be regarded as chronic or relapsing disorders.[7] For example, the National Co-morbidity Survey Replication, a representative population sample of over 9000 adults aged 18 and over in the United States,[8] found that of the 46.4 per cent of all participants reporting one or more psychiatric disorders during their lifetime, half reported onset by age 12, and three-quarters by age 24.[8] Since we can expect a lot of forgetting of early episodes by older participants,[9,10] it is likely that onset in childhood is even more common than this.[7]

If the burden of mental illness begins to be felt in childhood, it is important to know the extent of the problem so that we can begin to plan for treatment and prevention.[7] Unfortunately, the data on which to build such estimates are very sparse.[7] We aimed to study the pattern of childhood psychiatric disorders at a newly opened academic medical centre.

Methods

Sample consisted of children up to 15 years of age attending psychiatry outpatient department of a newly opened academic medical centre (FAAMCH) in the initial six months from its inception. Study period was from February 2011 to July 2011. Diagnoses were made according to the tenth revision of the International Statistical Classification of Diseases and Related Health Problems (ICD 10) 'clinical descriptions and diagnostic guidelines'.[11] Informed consents were taken. The study was approved by the institutional ethical review board. Data were analysed by descriptive statistical methods.

Results

Total sample size was 26. Mean age was 10.423 years (standard deviation [SD] 3.941, 95% confidence interval [CI] 8.831–12.015, minimum 1, maximum 15). Four belonged to the age group of 1–5 years (15.4%), eight in 6–10 (30.8%), and 14 in 11–15 (53.8%). Sixteen were boys (61.5%) and ten girls (38.5%). The boy : girl in the age groups of 1–5, 6–10, and 11–15 years were 2:2, 6:2, and 8:6, respectively. Fig. 1 showed distribution of children with psychiatric disorders as per gender.

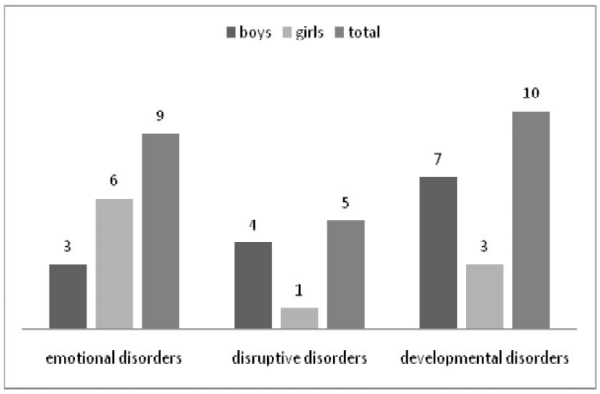

Fig. 1 shows childhood psychiatric disorders in relation to gender.

We found nine children with emotional disorders (anxiety [four], depression [two], phobia, and dissociative [two]), five with disruptive disorders (oppositional-defiant [two] and hyperactivity [three]), and ten with developmental disorders (intellectual disability [eight], the autistic spectrum, and stammering). One child had hebephrenic schizophrenia.

In the age group of 1–5 years, the number of children with emotional, disruptive and developmental disorders was 1:1:1 (anxiety, hyperactivity, and intellectual disability, respectively). In the age group of 6–10 years, the number of children with emotional, disruptive, and developmental disorders

were 2:3:3 (anxiety and phobia, oppositional-defiant [two] and hyperactivity, and intellectual disability [two] and the autistic spectrum, respectively). In the age group of 11–15 years, the number of children with emotional, disruptive, and developmental disorders were 6:1:6 (anxiety [two], depression [two], and dissociative [two]; hyperactivity; intellectual disability [five] and stammering; respectively); one child had hebephrenic schizophrenia. Fig. 2 showed childhood psychiatric

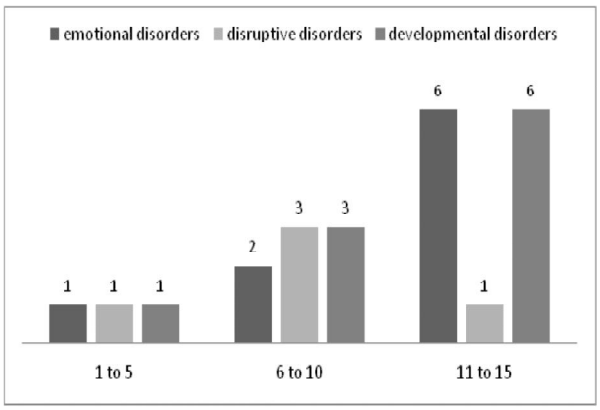

Fig. 2 shows childhood psychiatric disorders in relation to age.

disorders in relation to age.

Among boys, diagnosis of emotional disorders was made in three children (anxiety [two] and depression), disruptive disorders in four (oppositional defiant [two] and hyperactivity [two]), and developmental disorders in seven (intellectual disability [five], the autistic spectrum, and stammering). Among girls, diagnosis of emotional disorders was made in six children (anxiety [two], depression, phobia, and dissociative [two]), disruptive disorder in one (hyperactivity), and developmental disorders in three (intellectual disability). Fig. 3 showed childhood psychiatric disorders in relation to sex.

Co-morbidity in our study was equal in both within each grouping and across groups. Within each grouping co-morbidity was found in three children and same number of children had across groups co-morbidity (table).

One child in the age group of 1–5 years had co-morbidity (disruptive disorder [hyperactivity]—developmental disorder [intellectual disorder]). Two children in the age group of 6–10 years had co-morbidity (emotional disorder [anxiety]—emotional disorder [phobia] and disruptive disorder [hyperactivity]—developmental disorder [the autistic spectrum]). Three children in the age group of 11—15 years had co-morbidity (emotional disorder [anxiety]—emotional disorder [depression], emotional disorder [dissociative]—developmental disorder [intellectual disorder], and developmental disorder [intellectual disability]—developmental disorder [stammering]).

Table Co-morbidity within each grouping and across groups

Within each grouping
Emotional disorder (anxiety)—emotional disorder (phobia)
Emotional disorder (anxiety)—emotional disorder (depression)
Developmental disorder (intellectual disability)—developmental disorder (stammering)
Across grouping
Emotional disorder (dissociative) —developmental disorder (intellectual disability)
Disruptive disorder (hyperactivity)—developmental disorder (intellectual disability)
Disruptive disorder (hyperactivity)—developmental disorder (the autistic spectrum)

Among boys, co-morbidity was found in three children (emotional disorder [anxiety]—emotional disorder [depression], disruptive disorder [hyperactivity]—developmental disorder [the autistic spectrum], and developmental disorder [intellectual disability]—developmental disorder [stammering]). Among girls, co-morbidity was found in three children (emotional disorder [anxiety]—emotional disorder [phobia], emotional disorder [dissociative]—developmental disorder [intellectual disability], and disruptive disorder [hyperactivity]—developmental disorder [intellectual disability]).

In the present study, four children (all males; two in the age group of 11—15 years, one each in 6—10 and 1—5) had received no diagnosis. Six children had general medical conditions, either alone or in association with psychiatric disorder(s). two of them belonged to the age group of 1—5 years, one in 6—10, and three in 11—15. Two of them were boys and four were girls.

Discussion

Typical validating criteria in child psychiatry derived from developmental psychopathology include epidemiological data, such as age of onset and sex ratio.[1] Forty years ago 'childhood psychosis' was a unitary classification, but work showing the

clear difference in the age of onset helped validate the distinction between autism and schizophrenia, which seldom co-occur.[1] Disruptive disorders occur four times more commonly in boys, whereas emotional disorders are commoner in girls.[1] A simple but well researched, valid way of grouping child disorders 'lumps' them into three groups, which are helpful to hold in mind when considering specific diagnoses:[1] Emotional disorders including anxiety, depression, phobias, somatization, and obsessive-compulsive disorder; disruptive disorders including conduct disorder and hyperactivity; and developmental disorders including intellectual disability, the autistic spectrum, language and reading delays, and enuresis and encopresis.

Co-morbidity within each grouping is very common, but only occurs across groups in a minority of cases.[1] There are many artefactual reasons for co-morbidity appearing high, such as Berkson's bias[12] in clinical samples (where not all cases get referred, the chance of referral will be related to the combined likelihood of referral for each condition separately), or overlapping criteria, or artificial subdivision of syndromes.[1] However, even after taking these possible sources of error into account, co-morbidity is marked for child psychiatric disorders .[1] In a meta-analysis of community samples,[13] the odds ratio for anxiety with either Attention Deficit Hyperactivity Disorder (ADHD) or conduct disorder is three, for anxiety and depression eight, and ADHD and conduct disorder ten. Rates are even higher in clinical samples.[1]

True co-morbidity may arise through several mechanisms:[14] (i) shared risk factors (e.g. early deprivation may lead to oppositional-defiant disorder and an attachment disorder), (ii) overlap between risk factors (thus a depressed mother may pass on a genetic liability to depression in her son and provide inconsistent discipline which predisposes him to conduct disorder), (iii) one disorder creating an increased risk for the other (e.g. conduct disorder leading on to drug dependency), or (iv) the co-morbid pattern constitutes a meaningful syndrome (e.g. depressive conduct disorder).

Currently, ICD 10 and the text revision of the fourth edition of the Diagnostic and Statistical Manual of Mental Disorders (DSM IV-TR) have few emotional disorder categories specific to childhood, and they are mostly subtypes of anxiety.[1] Mood disorders are diagnosed according to adult criteria, with the consequence that surveys of depression find prevalence rates close to zero under eight years of age.[1] Yet there are miserable children who cry frequently, say they are unhappy, look sad, and are withdrawn .[15] In the past decade the United Kingdom has carried out a national prevalence study,[16, 17] conducted by the office for National Statistics, with funding from the Department of Education and other agencies. The primary purpose was to produce prevalence estimates of conduct, emotional, and hyperkinetic disorders, as well as pervasive developmental disorder, eating disorders, and tic disorders, using both ICD-10 and DSM-IV criteria. The second aim was 'to determine the impact or burden of children's mental health. Impact covers the consequences for the child; burden reflects the consequences for others'.[18] Third, the study measured service use. A stratified random sampling plan for England, Scotland, and Wales produced a sample of 10,438 children aged five to 15. Parent and child were interviewed using the Development and Well-Being Assessment (DAWBA),[19] a computer-assisted lay interview that uses a 'best-estimate' approach to diagnose, in which responses recorded by lay interviewers are evaluated by clinicians. The first interview wave, conducted in 1999,[18] was followed by a questionnaire mailed 18 months later to all 'cases' with a diagnosis at Time one, and a one-in-three random sample of non-cases. A second interview of all those completing questionnaires at Time two, and all others who were cases at Time one, was completed in 2002.[20] By weighing the responses to account for the various selection factors and for non-response, Meltzer and colleagues developed estimates of prevalence (i.e. the presence of a disorder at the Time one interview), of incidence (new cases between the two interviews), and of persistence.

The UK study found that almost one child in ten (9.5 per cent) aged five to 15 had a psychiatric disorder based on the ICD-10 classification system. Prevalence was higher in adolescents (11.2 per cent at 11 to 15) than in children (8.2 per cent at five to ten), and in boys (11.4 per cent than girls 7.6 per cent). Conduct disorders were the most common (5.3 per cent), followed by anxiety disorders (3.8 per cent). Depression was rare in both sexes and all age groups (0.9 per cent over all), as were

hyperkinetic disorders (1.4 per cent). Seven per cent of previously unaffected children developed a psychiatric disorder in the three years between the interviews. Four per cent developed a new emotional disorder (anxiety and/or depression), and five per-cent a behavioral and/or hyperkinetic disorder. More girls developed emotional disorders, and more boys developed behavioral disorders. Persistence, measured as the presence of the same diagnosis the years apart, was higher for behavioral disorders (43 per cent) than for emotional disorders (about one in four).

It is not a simple matter to compare the British prevalence rates with those from other countries, because there are few large studies, and the age ranges do not overlap.[7] A study of youth age seven to 14 in south-eastern Brazil, which used the same diagnostic interview but the DSM-IV taxonomy, found an overall prevalence of 12.7 per cent.[7] Although prevalence estimates were slightly different from those reported by the UK study, the relative ordering was the same.[7] Behavioral disorders were again the most common (seven per cent), followed by anxiety disorders (5.2 per cent) and ADHD (1.8 per cent).[7] Once again, depression was rare (1.0 per cent).[7] Other studies from around the world[21] usually generate prevalence rates of around 20 per cent. This puts the British and Brazilian studies at the low end of the range.[7]

The prevalence rates of different disorders vary markedly by age, sex, and age-by-sex across childhood and adolescence.[7] For example, a meta-analysis of 26 studies of child and adolescent depression[22] estimated the prevalence of adolescent depression (5.6 per cent) as twice that of childhood depression (2.9 per cent), and that of adolescent girls (5.9 per cent) as significantly higher than that of adolescent boys (4.6 per cent). It is clear that prevalence, even when measured over time in the same subjects, varies markedly with age.[7] This is because some of the common disorders of childhood, such as functional enuresis and encopresis, ADHD, and separation anxiety, diminish as children grow up, but then later on the problems of adolescence and young adulthood, such as drug abuse and depression, take their place.[7] Between about 11 and 14, when the disorders of childhood have faded and those of adulthood not yet appeared, relatively few children have disorders.[7] Prevalence rates will also differ depending on the distribution of males and females in the sample.[7] Boys are significantly more likely to have developmental disorders, enuresis and encopresis, and ADHD in the early years, and drug abuse in the later years.[7] Although girls are more vulnerable to depression after puberty,[23] this does not have a large effect on the overall prevalence of psychiatric disorder.[7]

Up to this point, the role of epidemiology has been mainly a descriptive one.[7] However, child psychiatry is changing, and epidemiology will change as well.[7] The term 'developmental epidemiology', first coined by Kellam in the 1970s,[24] is useful to describe what epidemiology is doing these days.[7] There are some rapidly growing research areas that will contribute to the next generation of studies, and will contribute to the shift from 'child psychiatric epidemiology' to 'developmental epidemiology'.[7]

There are now several research groups that have used their longitudinal data to look at continuities and discontinuities in mental illness from childhood into adolescence and beyond.[7] Some of the longitudinal studies have followed their subjects into adulthood.[21] These are beginning to show indications of continuity of disorder across childhood and adolescence,[25] and between temperamental characteristics in early childhood and the onset of psychiatric disorders in late adolescence and young adulthood.[26]

There have been two revolutions in genetic epidemiology in the past two decades that will have a tremendous impact on psychiatry in the next decade.[7] The first revolution occurred when the methods of psychiatric epidemiology were applied to behavioral genetics.[7] There have also been some longitudinal studies looking at how genes can have different effects at different developmental stages.[27] The second genetic revolution occurred when it became feasible to apply the methods of molecular genetics to epidemiologic samples.[7] Such studies can answer questions about which genes interact with which environmental factors, and at what developmental stage.[28,29]

Life course epidemiology has developed a special concern with 'the "embodiment" of social phenomena into the biological'[30] encapsulated in the concept of 'health inequalities'.[7] This concern arose historically from work showing that mortality from many diseases is spread unequally across the

population and that these differences in risk can be linked to social inequalities that often go back to infancy or even to the parental generation.[7] This body of work has had enormous significance for international thinking about social policy and is having a direct effect on the allocation of public resources in the United Kingdom and elsewhere.[7]

A life course approach to epidemiology intertwines biological and social transmission of risk across generations, recognizing that geographical and secular characteristics may be unique to one cohort of individuals.[31,32] Models for intergenerational research have recently appeared[33] and statistical methods have become more tractable.[7]

Epidemiology traditionally divides prevention into three categories, depending on the mean level of risk in the population of concern.[7] Once children have developed clinically defined psychiatric disorders, interventions tend at present to focus on clinical treatment rather than tertiary prevention.[7] Tertiary prevention programs are rare.[7] Given the early onset of most psychiatric disorders, this is clearly a vitally important area for future work.[7] There are fuzzy boundaries between epidemiology and developmental psychopathology, life course epidemiology, genetic epidemiology, services research, and clinical psychiatry .[7] It will be important to keep these boundaries pervious, to share a common language where possible, and to learn and use one another's methods.[7]

Limitations

Small sample size was a limitation of the study. Moreover, as the study was conducted at psychiatry outpatient department of an academic medical centre, the findings could not be generalized to the community at large. Sampling, or selecting the population within which to count cases, is of central importance in epidemiology.[7] Counting cases is an important first step towards measuring the social burden caused by a disease, and the effectiveness of prevention.[7] For most diseases, however, simply counting the number of individuals presenting for treatment will produce estimates that are seriously biased by referral practices, ability to pay, and other factors.[7] This is a big problem in child psychiatry because parents, teachers, and pediatricians all serve as 'gatekeepers' to treatment. [34] Community-based data are needed to measure the extent of need, and the unmet need, for prevention or treatment.[7]

Conclusion

Classification of child psychiatric conditions have advanced enormously in the last 20 years.[1] There is a much stronger empirical basis to support current schemes, which are grounded in the many scientific disciplines that contribute to developmental psychopathology.[1] Nonetheless, there are considerable obstacles to overcome if DSM V and ICD 11 are to be major steps forward.[1] Hopefully findings of the present study might be one of those steps.

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Original Article

A Study of Personality and Self Esteem among youth of Rohtak, Haryana

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ABSTRACT

Background: *Personality is a dynamic which is not easily defined but it is definitely influences our life and had a significant correlation with low and high self-esteem.* ***Aim****: The present study examined the comparison and correlation between the personality and self-esteem among youth of Rohtak, Haryana.* ***Method:*** *The present study was conducted on 80 youth from Maharishi Dyanand University Rohtak, Haryana. It was a cross-sectional study in which included both genders. McCrare & Costa's Big five personality factor scale was used to assess personality types and Virk and Chauhan's self-esteem scale was used to assess self-esteem of the youth. The data obtained for the variables under study have been subjected to different statistical analysis such as mean, standard deviation (SD),t-test, & Pearson correlation to understand the impact and relationship between the variables.* ***Results & Conclusion:*** *Pearson correlation of self-esteem on the personality traits sub-scales revealed that the extroversion versus introversion & closeness to experience type were significant positive predictors and neuroticism versus emotion stability was significant negative predictor of the self-esteem.*

Key words: *Self-esteem, Personality, Big five factor.*

Introduction

Youth is defined as any member of society between the ages of 15-34 years. The report titled 'The power of 1.8 billion', said 28 per cent of India's population is 10 to 24 year-olds, adding that the youth population is growing fastest in the poorest nations. Global number of youths is highest ever.[1]

In Columbia Encyclopedia 6th ed. define personality as "Personality refer to behavior which though not necessarily right or wrong, is pleasing or offensive to other people favorable or unfavorable to the individual's standing with his/her fellows. Personality can be broadly defined as the total quality of his/her attitudes and interests in his/her manner of acting and his/her personal philosophy of life".[2] In the first decade of the 21st century, the Five-Factor Model or Big Five has been the most widely researched structural model of personality was developed.[3] McCrae and Costa[4] explain that in personality research the broad traits such as, Extroversion, Neuroticism, Openness, Agreeableness and Conscientiousness represent the most general dimensions of individual differences in personality. Neuroticism (N) refers to the degree to which a person responds to stress; Extroversion (E) refers to the degree to which a person can tolerate sensory stimulation from people and situations; Openness (O) refers to the degree to which we are open to new experiences; Agreeableness (A) refers to the degree which we relate to others with tolerance and acceptance; and finally, Conscientiousness (C) refers to the degree

to which one works towards goals in an industrious, disciplined, and dependable fashion. Self-esteem is how we value ourselves; it is how we perceive our value to the world and how valuable we think we are to others. Positive self-esteem gives us the strength and flexibility to take charge of our lives and grow from our mistakes without the fear of rejection. It is difficult to get consensus on a definition of self-esteem but it can be defined stated that self-esteem is "the evaluation which the individual makes and customarily maintains with regard to himself/ herself".[5] Further, Self-esteem refers to people's representations of their typical, or general, global feelings of self-worth and self-esteem level reflects people's representations of how they typically feel about themselves across time and context.[6] Generally, self-esteem is described as a personal evaluation that an individual makes of her or himself, their sense of their own worth, value, importance, or capabilities[7].Individuals with high self-esteem appear confident and are less influenced by others than individuals with low self-esteem. Low self-esteem is significantly related to depression, suicide ideation, delinquency, aggression and antisocial behavior. It is also seen that family affluence, personality dimension of extroversion, emotional stability and openness to experience, as well as mental health and social support from family are also associated with self-esteem.[8] A study conducted by Ehrenberg and Juckes,[9] showed that more disagreeable individuals spent increased time on calls, whereas extroverted and neurotic individuals reported increased time spent text messaging. More disagreeable individuals and those with lower self-esteem spent increased time using instant messaging (IM). For addictive tendencies related to communication technologies, more neurotic individuals reported stronger mobile phone addictive tendencies; while more disagreeable individuals and those with lower self-esteem reported stronger IM addictive tendencies.[9] The goal of present study was to investigate effect of personality traits on self-esteem. The main purpose of the present study was to assess which one of the personality traits predicts the self-esteem.

Aims and Objectives

The objectives of the present study were to assess the relationship between personality and self-esteem among young adults and compare them on personality dimension and self-esteem.

Material and Methods

Participants

A group of 80 participants was recruited from Maharshi Dayanand University Rohtak, in which 40 were males and 40 were females with using snowball sampling technique. Those participants who have age range between 20-35 years and education at least 12th included and those having any chronic psychiatric disorder and medical illness were excluded from the study.

Measures

A specially designed Performa for collecting information about socio-demographic and clinical variables for the present study was used. To measure the self-esteem of the participants, Self Esteem Inventory was used[10]. It consists of 20 items in which some are positive (2, 4, 6, 8, 10, 12, 14, 16, 18 & 20) and some are negative (3, 5, 7, 9, 11, 13, 15, 17 & 19). Each statement consists of two alternate such as yes or no. In scoring procedure score were allotted to each answer with the help of scoring key in the manual. To measure the personality of participants, NEO-Personality Inventory[11] was used. NEO- FFI derived from NEO-PI developed by Costa and Mc Care[11] was used in the present 5 domains of personality (Neuroticism, Extraversion, Openness, Agreeableness and Consentaneous). Each domain consists of 12 items and item has to be responding in 5 point scale. The value of correlation of NEO-PI was found to 0.92, 0.90, 0.91, 0.77 and 0.87 for each domain respectively.

Procedure: Those fulfilling exclusion and inclusion criteria, were recruited for the present study. A special Performa designed for socio-demographic and clinical variables was filled up for all the participants. Written inform consent was taken from all the participants. Subsequently Self Esteem Inventory and NEO-Personality Inventory were administered to assess the self-esteem and personality. The study period was Jan 2012 to April 2012.

Statistical Analysis: Statically Package for social science16.0was used to analyze the data. The continuous variables have been expressed by mean,

and standard deviation. Both group have been compared by independent sample t test in which equal variance was assumed and Pearson's correlations. Statistical value considered as significant if than p value was less or equal to 0.05.

Results

Tables 1 depicted general characteristics of the participants such as sample size, gender, age- range, occupation and education, marital status and religion. In the present study, sample was equally distributed. Most of the students were unmarried and all belonged to Hindu religion and age range was 20-35 years. In other courses the participants included were those doing professional courses such as- BBA, B. Tec., LLB etc.

Table 2 found the correlation coefficient of self-esteem and personality various domains. A significant positive correlation was found between self-esteem and openness versus closeness to experience traits (this value considered as significant because it is around .40) , whereas there was a negative correlations between neuroticism versus emotion stability in males. There was also a positive correlation between self-esteem and extroversion versus introversion traits and a negative correlations between neuroticism versus emotion stability in females.

Table 3 shows that t-value of self-esteem and personality among males and females. The results

Table 1. Socio-demographic profile of participants

Sample size	Gender composition	Age range	Occupation and education	Marital Status	Religion
80	Male = 40 Females = 40	20-35 years Male (22.78 ± 8.16) Female (19.13 ± 10.69)	Students M.A.- Ph. D Male =24 (60%, MA), 8 (20% Other course) 2 (5%, Ph. D Scholar) 6 (15%, M. Phil) Female=14 (35%, MA), 22 (55% Other course) 4 (10%, Ph. D Scholar)	Unmarried = 72 (70%) Married = 8 (30%)	Hindu

Table 2. The correlation coefficient of Personality and Self-esteem among females and males

Variable	Neuroticism	Extroversion	Openness to experience	Agreeableness	Conscientiousness
Self-esteem (Females)	-0.064	0.502*	0.263	0.306	0.080
Self-esteem (Males)	0.115	0.257	0.393*	-0.019	0.157

Value equal .40 or more than considered as significant.

* Significant at 0.05 level ** Significant at 0.01 level

Table 3. Comparison of mean scores of male and female subjects on Personality dimension and Self-esteem among young adults

Variable	Males (M ± SD)	Females (M ± SD)	t-Test	P<
Neuroticism versus emotion stability	26.9 ± 5.79	22.82 ± 6.138	–3.053	0.001
Extroversion versus introversion	28.575 ± 5.53	26.6 ± 6.54	–1.457	N.S
Openness versus closeness to experience	22.8 ± 4.95	24.67 ± 6.06	1.515	N.S
Agreeableness versus antagonism	22.8 ± 6.307	25.97 ± 5.37	1.069	N.S
Consentaneous versus lack of direction	28.15 ± 6.432	28.425 ± 6.66	0.188	N.S
Self-esteem	130.85 ± 2.037	131.075 ± 22.08	0.047	N.S

Value expressed as Mean±1SD

p-value at 0.01 level is 2.71 & at 0.05 level is 2.02. All higher score than constant value considered as significant[12].

showed that the mean score of males was significantly greater than females in the extroversion versus introversion, neuroticism versus emotion stability, agreeableness versus antagonism. But mean score of the female was significantly greater than the male in the openness versus closeness to experience and agreeableness versus antagonism trait. Although, there wasn't significant difference between females and males in extroversion versus introversion, agreeableness versus antagonism, conscientiousness versus lack of direction, openness versus closeness to experience traits and self-esteem.

Discussion

In the present study results showed significant positive correlation between personality domains and self-esteem which signifies the positive relationship between personality and self-esteem. A research has convincingly demonstrated that self-esteem is strongly rooted in basic dimensions of personality, such as the "Big Five".[13] Self-esteem has been found to be positively correlated with each of the Big Five factors. Empirical associations between neuroticism, extroversion and explicit self-esteem are quite robust: self-esteem correlates negatively with neuroticism and positively with extroversion, agreeableness, conscientiousness, and openness.

In the present study, results indicate that positive correlation between self-esteem and openness versus closeness to experience traits and negative correlations between neuroticism versus emotion stability in males. It has seen that positive correlation between self-esteem and extroversion versus introversion traits, and negative correlations between neuroticism versus emotion stability in females. Whereas in research it was found that global self-esteem has also positively correlated with extroversion and negatively with neuroticism[14]. Another study showed that extroversion versus introversion, agreeableness versus antagonism, conscientiousness versus lack of direction and openness versus closeness to experience traits were significant positive predictor and neuroticism versus emotion stability was significant negative predictor of the self-esteem[15]. This result has been support to our study partially. Another study in which results indicated that strong correlation was found between subjects' self-esteem and complexity and frequency of behavioral patterns detected. Positive correlation was also found between subject's personality and complexity and frequency of patterns. Certain pattern types were found exclusively to be produced by extroverts and other by introverts.[16] A latest study showed that, positive affect and social support, significantly mediated the association between extroversion and self-esteem. Furthermore, in both the positive affect and social support path models, the direct effects of extroversion on self-esteem were small and non-significant. In contrast, for the negative affect and optimism path models, the direct effects of extroversion on self-esteem were statistically significant. These findings highlight the complex nature of the association between extroversion and self-esteem.[17] A study conducted by Richard showed that high self-esteem individuals were emotionally stable, extroverted, and conscientious and were somewhat agreeable and open to experience. Despite an extensive search for potential mediators and moderators of this general pattern, the relations between self-esteem and the Big Five largely cut across age, sex, social class, ethnicity, and nationality. High self-esteem individuals tended to ascribe socially desirable traits to themselves.[18]

When we compared self-esteem with personality domains among males and females it was found that they had significant difference in neuroticism versus emotion stability and slightly difference between extroversion versus introversion, openness versus closeness to experience, agreeableness versus antagonism and self-esteem. In the results males have higher score in extroversion versus introversion whereas females have higher score in openness versus closeness to experience, agreeableness versus antagonism and self-esteem.

It has found that on average, people who have low self-esteem are more neurotic and more introverted (less extroverted) than people with high self-esteem. It has also seen that people with low self-esteem are less agreeable (more disagreeable), less conscientious, and less open, on average, compared to people with high self-esteem. The strongest association between self-esteem and personality is between low self-esteem and neuroticism.[19] A study conducted having personality and self-esteem indicates that people who say they are conscientious, agreeable, not neurotic, open new

experiences, and extroverted have higher levels of self-esteem. Conversely, those people who are careless, disorganized, suspicious, self-pitying, conforming and reserved generally have lower levels of self-esteem.[20]

Conclusions

The present study provides information about personality traits and self-esteem among youth. Results of the study reveal that extroversion versus introversion and openness versus closeness to experience traits was a significant positive predictor and neuroticism versus emotion stability was a significant negative predictor of the self-esteem. Self-esteem definitely influences life in every domain.

Limitation and Future directions

The sample size was small. All participants were youth, educated and students. The socio-economic status and other variables may be influence the personality character. So it is difficult to generalize the findings. But the study is meaningful and provides a new idea for farther research in this domain. The study will be also informative the professional and policy maker those who have working having youth population.

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Original Article

Yoga and Exercise intervention study in psychiatry inpatients from a tertiary care teaching hospital

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ABSTRACT

Background. *Exercise has been advocated as a measure to eliminate stress in a physiological manner. The integration of Yoga and Exercise with pharmacological intervention will be really the amalgamation of ancient Indian society progressing towards 21st Century.* ***Aims and Objectives.*** *The aim of this study was to evaluate the adjunct intervention of Om chanting, Asana, Pranayama, and exercises in forty patients in an inpatient setting of a tertiary care teaching hospital.* ***Material and Methods:*** *Clinical Global Impression Scale, self report patient measures and an indirect assessment of motivation of the patients for this combined intervention were used.* ***Results:*** *Most of the in patients were clinically much improved after discharge, 94.11% of the patients attended the sessions. 46.87% showed high degree of motivation for the Exercise intervention. Patients Self report measures showed improvement in quality of life, two weeks after discharge-quality of life(76.47%), energetic(67.64%), sleep(79.41%),control/reduced craving(61.76%), concentration(63%).Though this is not a randomized placebo controlled trial for Yoga intervention, nevertheless the benefits of Yoga and Exercise as an adjunct in psychiatric inpatient setting has been demonstrated.*

Key words: *Yoga (asana), Pranayama, Om chanting, Psychiatry*

Introduction

Yoga has been related to positive mental health since ancient times in Indian culture. Government of India, Ministry of Health, has made a whole new wing, the department of AYUSH (Ayurveda, Yoga, Naturopathy, Unani, Siddha and Homeopathy) to provide facilities of free Yoga and other relaxation exercises in multidisciplinary tertiary care, teaching hospitals. Exercise has been advocated as a measure to eliminate stress in a physiological manner.[1] Recent studies found that both Yoga and Exercises are beneficial in healthy and diseased populations.[2] Several published studies have advocated Yoga and Exercises as an add on interventions in patients with depression,[3] psychosis,[4] anxiety disorders,[5] heroin dependence,[6] alcoholics,[7] smokers,[8] post traumatic stress disorders[9] and eating disorders.[10]

PUBMED search using key words Yoga, Exercise, mental illness revealed 88 articles, Yoga and mental disorders yielded 1736 articles. Few randomized controlled studies for specific mental disorders are available. However, an unanswered question yet to be understood regarding how much direct benefit occurs with the regular use of Yoga and Exercises in mental illness. Though, there are lots of articles in newspapers, magazines and talks on media, still the scientific evidence based studies in patients suffering from mental illness with Yoga and Exercises as therapeutic measure are meager.

Method

The present study is a pilot study to monitor the

effects of Yoga and Exercise intervention in psychiatry in-patients who were admitted in the Department of Psychiatry, Guru Teg Bahadur Hospital and University College of Medical Sciences, Delhi. The data was collected over a period of five months from October 2014 to February 2015.

The clinical diagnosis of psychiatric inpatients was made according to ICD-10 by experienced team of psychiatrists after detailed history taking and evaluation. Patients aged between 18- 60 years were recruited after taking informed consent. The medically unstable psychiatric in patients with deranged blood pressure, ECG changes, or other abnormal investigations, recent surgical or gynecological or medical procedures, violent, intoxicated, delirium , recent head injury and seizure disorder were excluded. A semi structured Performa for Yoga and Exercises intervention program was prepared to record the different kinds of intervention and to monitor the progress of the session. Yoga and Exercise intervention for psychiatric inpatients were specially tailored to the individual need of the inpatients. Forty minutes were allotted for each session once or twice a day around 11:00 am and 2:30 pm so that the intervention did not interfere with the nurses observation or clinical rounds. A brief Exercise and Yoga intervention helped in the activity scheduling of inpatients. A separate space has been allocated for Yoga and Exercise intervention within the premises of the complex where inpatients were taught the sessions by trained Yoga instructors.

Patients were taught Om chanting, loosening Exercises, breathing Exercises, asana , pranayamas that were commonly taught to the patients included Tadasana (Mountain pose, Standing Asana), Kati Chakrasana (standing spinal twist), ardhakati Chakrasana, Ardhachakrasana (half wheel pose) Uttana padasana (raised leg pose), Bhujangasana (Cobra,Backbend), Salabhasana (Locust, Back-bend), uttanamandukasana (extended frog pose), vakrasana (twisted pose). Shavasana (dead body poses) Pranayama includes nadishuddhi pranayama without retention of breath, and Bhramari pranayama. Shavasana was practiced by all the patients under study. The treating team of psychiatrists was observing for all necessary precautions and noting them on referral forms for Yoga and Exercise intervention before and after sending the patients for yoga. Along with that the pharmacological intervention was done depending on the clinical diagnosis by the experienced psychiatrists. The inpatients were advised to carry out Exercise and Yoga intervention at home after discharge along with the pharmacological interventions.

Clinical Global Impression (CGI) Scale[11] has two components: assessment of severity (baseline) and at the time of discharge CGI-Severity (CGI-S), improvement in the clinical state, CGI-Improvement (CGI-I).

The CGI-Severity was rated on the following seven-point scale: 1 = normal, not at all ill; 2 = borderline mentally ill; 3 = mildly ill; 4 = moderately ill; 5 = markedly ill; 6 = severely ill; 7 = among the most extremely ill patients. This rating is based upon observed and reported symptoms, behavior, and function in the past seven days.

A specially designed self reported Performa was prepared by the Department of Psychiatry in collaboration with the Yoga department. Patients were asked to self report their overall (subjective) experience with the sessions in the form yes or no questions. Self report measures of the patients were assessed two weeks after discharge in the form of yes/no /no change questions : (1) Did Yoga and Exercise intervention taught bring about a change in overall quality of life in any way? (2) Do you feel energetic after participating in these interventions? (3) Do you contribute any improvement in your quality of sleep pattern? (4) Do you feel these interventions have given you a sense of control or reduced craving (for substance dependence) (5) Do you notice any improvement in concentration over these few weeks?

Motivation for the intervention was noted indirectly by the following parameters: frequency of visits (actual attendance), reminder card required by the nursing staff on more than two occasions (negative scoring), two weeks post discharge whether the intervention was continued [scored as yes (1) or no (0)].

Results

Forty inpatients gave consent for the study irrespective of psychiatric diagnosis as shown. Six (15 %) were reluctant to undergo the intervention. 6 patients miss the sessions after leaving the ward. Out of remaining 34 patients, 32 patients on an

average attended 5 sessions and two attended less than 5 sessions. Average duration of admission was fifteen days. Two patients dropped out after initial two sessions and were suffering from substance dependence. The distribution of different asana and Exercises is as follows: Om chanting (5.41 sessions), loosening Exercises (5.37), asana (5.03 sessions), Pranayama-controlled breathing (5.81 sessions). Average time spent was 40 minutes.

Table 1. Pattern of Primary Diagnosis (N=40) inpatients according to ICD- 10

ICD Code	Number	%
F0-9	4	10
F10-19	11	27.5
F20-29	9	22.5
F30-39	4	10
F40-49	11	27.5
F50-59	1	2.5

Figure 1. Bhujangasana (Cobra, Backbend)

Figure 2. Ardhakati Chakrasana (Sideward bend pose)

Average Clinical Global Impression Severity in N = 32 patients at the time of admission (before intervention) was 4.94. At the time of discharge, average CGI-Severity was 2.09, Average CGI-Improvement was 1.5 (1-very much improved).

Two weeks after discharge, a subsequent assessment was planned to monitor their progress and note their outcome subjectively. 80% of the patients incorporated Exercise intervention in their daily routine, though not exactly in the same pattern as was taught. 46.87% showed high degree of motivation for the exercise intervention. Patients Self report measures showed improvement in quality of life two weeks after discharge-quality of life (76.47%), energetic (67.64%), sleep (79.41%), control/reduced craving (61.76%), concentration (63%).

Discussion

Previous randomized controlled trials have demonstrated the benefits of Exercise interventions in Schizophrenia, though had limitations of small sample size.[12] The motivation of psychiatric inpatients to undergo Exercise and Yoga intervention required constant efforts by the clinicians, nursing staff and Yoga staff. 94.11% of patients attended the sessions regularly in inpatient setting. The two drop outs from intervention arm consisted of substance dependence and schizophrenia patient. Yoga and Exercise bring about a decrease in cortical concentration, increase in neurotransmitters, immune mediator, thereby improves cognition, sleep, negative symptoms, uplifts mood, lowers anxiety and improves concentration.[13] Our study also reported improvement in self reported measures by the inpatients, in terms of quality of life, reduced craving and feeling energetic, improvement in sleep quality and appetite, restoration of self esteem and improvement of attention. Modern lifestyle and daily job hassles often has been cited as the main reason for discontinuation of regular Exercise or Yoga after discharge by the patients. Om chanting was practiced by all inpatients daily. In a previous Indian study, Om chanting has been shown to bring about therapeutic effects in a functional neuro imaging study by decrease in BOLD signal in limbic structures in healthy volunteers similar to vagal nerve stimulation[14]. An inpatient study by Lavey et al on 13 in-patients found improvement in mood which

corroborated with our findings of improved quality of life, improved concentration and feeling energetic.[15] Patients are aware of the beneficial effects and acknowledged the importance but doesn't seem to be motivated to translate it in daily activity. The pharmacological interventions provided in mental illness by psychiatrists is evidence based and often a confounding factor with the several outcome measures used to study the effects of Yoga and Exercise in mentally ill patients.

Limitation

Though this is not a randomized placebo controlled trial for Yoga intervention, nevertheless the benefits of Yoga and Exercise as an adjunct in psychiatric inpatient setting has been demonstrated. Further studies with different clinical groups, different types of intervention in a much larger clinical sample need to be carried out.

Conclusion

This study indirectly gives evidence for the positive effects of Yoga and exercises in patients with psychiatric disorder. Keeping in mind the limitations of this study, further studies are required to validate the findings after controlling for the various confounding factors.

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Psychomicrobiology

Infections, Depression and Suicidal Behaviour

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Introduction

Depression is one of the most commonly diagnosed psychiatric disorder. It is being diagnosed in increasing numbers in various segments of the population worldwide. Depressed patients are at increased risk of type 2 diabetes, cardiovascular disease and suicide. Within the next twenty years, depression is expected to become the second leading cause of disability worldwide and the leading cause in high-income nations, including the United States. In approximately 75% of completed suicides the individuals had seen a physician within the prior year before their death, 45%-66% within the prior month. Approximately 33% - 41% of those who completed suicide had contact with mental health services in the prior year, 20% within the prior month.[1] Many psychiatric disorders such as depression are diagnosed by allied health professionals with little or no medical training, and are made on the basis of presenting symptoms without proper consideration of the underlying cause, adequate screening of differential diagnoses is often not conducted. According to one study "non-medical mental health care providers may be at increased risk of not recognizing masked medical illnesses in their patients."[2]

Misdiagnosis or missed diagnoses may lead to lack of treatment or ineffective and potentially harmful treatment which may worsen the underlying causative disorder A conservative estimate is that 10% of all psychological symptoms may be due to medical reasons, with the results of one study suggesting that about 50% of individuals with a serious mental illness "have general medical conditions that are largely undiagnosed and untreated and may cause or exacerbate psychiatric symptoms.[3]

Suicide, also known as completed suicide, is the "act of taking one's own life". Attempted suicide or non-fatal suicidal behavior is self-injury with the desire to end one's life that does not result in death. Assisted suicide is when one individual helps another bring about their own death indirectly via providing either advice or the means to the end. This is in contrast to euthanasia, where another person takes a more active role in bringing about a person's death. Suicidal ideations is thoughts of ending one's life but not taking any active efforts to do so.[4]

The estimated global burden of suicide is one million deaths per year, with a great inter-country variability. Historically, suicide risk increased with age, with older men identified as the group at highest risk. However, in the 1970s, suicide became increasingly common in young adults, especially young men, in some high-income countries. Distal risk factors include genetic loading, personality characteristics (e.g., impulsivity and aggression), restricted fetal growth and perinatal circumstances, early traumatic life events, and neurobiological disturbances. Proximal risk factors include psychiatric disorders, including substance use disorders, physical disorders, psychological crisis, availability of means, and exposure to suicidality models. Heritability of completed suicide has been estimated at about 43%.[5]

Risk factors

Factors that affect the risk of suicide include psychiatric disorders, drug misuse, psychological states, cultural, family and social situations, and genetics. Mental illness and substance misuse frequently co-exist. Other risk factors include having previously attempted suicide, the ready availability of a means to commit the act, a family history of

suicide, or the presence of traumatic brain injury. For example, suicide rates have been found to be greater in households with firearms than those without them. Socio-economic problems such as unemployment, poverty, homelessness, and discrimination may trigger suicidal thoughts. About 15–40% of people leave a suicide note. Genetics appears to account for between 38% and 55% of suicidal behaviors. War veterans have a higher risk of suicide due in part to higher rates of mental illness and physical health problems related to war.[6]

Mental disorders

Mental disorders are often present at the time of suicide with estimates ranging from 27% to more than 90%. Of those who have been admitted to a psychiatric unit, their lifetime risk of completed suicide is about 8.6%. Half of all people who die by suicide may have major depressive disorder; having this or one of the other mood disorders such as disorder increases the risk of suicide 20-fold. Other conditions implicated include schizophrenia (14%), personality disorders (14%), bipolar disorder, and posttraumatic stress disorder About 5% of people with schizophrenia die of suicide. Eating disorders are another high risk condition.[7]

Drug abuse

Drug abuse is the second most common risk factor for suicide after major depression and bipolar disorder. Both chronic substance misuse as well as acute intoxication are associated. When combined with personal grief, such as bereavement, the risk is further increased. Additionally substance misuse is associated with mental health disorders.

Most people are under the influence of sedative-hypnotic drugs (such as alcohol or benzodiazepines) when they commit suicide with alcoholism present in between 15% and 61% of cases. Countries that have higher rates of alcohol use and a greater density of bars generally also have higher rates of suicide. About 2.2–3.4% of those who have been treated for alcoholism at some point in their life die by suicide. Alcoholics who attempt suicide are usually male, older, and have tried to commit suicide in the past. Between 3 and 35% of deaths among those who use heroin are due to suicide (approximately 14 fold greater than those who do not use). In adolescents who misuse alcohol neurological and psychological dysfunctions may contribute to the increased risk of suicide.[8]

Medical conditions

There is an association between suicidality and physical health problems such as chronic pain, traumatic brain injury, cancer, kidney failure (requiring hemodialysis), HIV, and systemic lupus erythematosus. The diagnosis of cancer approximately doubles the subsequent risk of suicide. The prevalence of increased suicidality persisted after adjusting for depressive illness and alcohol abuse. In people with more than one medical condition the risk was particularly high. In Japan, health problems are listed as the primary justification for suicide. Sleep disturbances such as insomnia and sleep apnea are risk factors for depression and suicide. In some instances the sleep disturbances may be a risk factor independent of depression.[9]

A number of other medical conditions may present with symptoms similar to mood disorders, including hypothyroidism, Alzheimer's, brain tumors, systemic lupus erythematosus, and adverse effects from a number of medications (such as beta blockers and steroids).

Psychosocial states

A number of psychological states increase the risk of suicide including: hopelessness, loss of pleasure in life, depression and anxiousness. A poor ability to solve problems, the loss of abilities one used to have, and poor impulse control also play a role. In older adults the perception of being a burden to others is important. Suicide in which the reason is that the person feels that they are not part of society is known as egoistic suicide.

Recent life stresses such as a loss of a family member or friend, loss of a job, or social isolation (such as living alone) increases the risk. Those who have never married are also at greater risk. Being religious may reduce one's risk of suicide. This has been attributed to the negative stance many religions take against suicide and to the greater connectedness religion may give. Muslims, among religious people, appear to have a lower rate of suicide; however the data supporting this is not strong. There does not appear to be a difference in rates of attempted suicide rates. Young women in the Middle East may have higher rates[10].

Some may commit suicide to escape bullying or prejudice A history of childhood sexual abuse and time spent in foster care are also risk factors Sexual abuse is believed to contribute to about 20% of the overall risk.

Poverty is associated with the risk of suicide. Increasing relative poverty compared to those around a person increases suicide risk. Over 200,000 farmers in India have committed suicide since 1997 partly due to issues of debt. In China suicide is three times as likely in rural regions as urban ones partly it is believed due to financial difficulties in this area of the country.[10]

Pathophysiology

There is no known unifying underlying pathophysiology for either suicide or depression. It is however believed to result from interplay of behavioral, socio-environmental and psychiatric factors.

Low levels of brain-derived neurotrophic factor (BDNF) are both directly associated with suicide and indirectly associated through its role in major depression, posttraumatic stress disorder, schizophrenia and obsessive–compulsive disorder.[11] Post-mortem studies have found reduced levels of BDNF in the hippocampus and prefrontal cortex, in those with and without psychiatric conditions Serotonin, a brain neurotransmitter, is believed to be low in those who commit suicide. This is partly based on evidence of increased levels of 5-HT2A receptors found after death. Other evidence includes reduced levels of a breakdown product of serotonin, 5-Hydroxyindoleacetic acid, in the cerebral spinal fluid. Direct evidence is however hard to gather. Epigenetics, the study of changes in genetic expression in response to environmental factors which do not alter the underlying DNA, is also believed to play a role in determining suicide risk.[11]

Aetiology

Autoimmune disorders

Celiac disease; is an autoimmune disorder in which the body is unable to digest gluten which is found in various food grains, most notably wheat, and also rye and barley. Current research has shown its neuropsychiatric symptoms may manifest without the gastrointestinal symptoms. Lupus: Systemic lupus erythematosus (SLE), is a chronic autoimmune connective tissue disease that can affect any part of the body. Lupus can cause or worsen depression.[12]

Dietary disorder

Fructose malabsorption and lactose intolerance; deficient fructose transport by the duodenum, or by the deficiency of the enzyme, lactase in the mucosal lining, respectively. As a result of this malabsorption the saccharides reach the colon and are digested by bacteria which convert them to short chain fatty acids, CO_2, and H_2. Approximately 50% of those afflicted exhibit the physical signs of irritable bowel syndrome[13] "Fructose malabsorption may play a role in the development of depressed mood. Fructose malabsorption should be considered in patients with symptoms of major depression...." Fructose and sorbitol reduced diet in subjects with fructose malabsorption does not only reduce gastrointestinal symptoms but also improves mood and early signs of depression.

Endocrine disorders

Dysregulation of the endocrine system may present with various neuropsychiatric symptoms; irregularities in the hypothalamic-pituitary-adrenal (HPA) axis and the hypothalamic-pituitary thyroid (HPT) axis have been shown in patients with primary depression.

Adrenal gland

Addison's disease: also known as chronic adrenal insufficiency, hypocortisolism, and hypocorticism) is a rare endocrine disorder wherein the adrenal glands, produce insufficient steroid hormones (glucocorticoids and often mineralo-corticoids). "Addison's disease presenting with psychiatric features in the early stage has the tendency to be overlooked and misdiagnosed."

Thyroid and parathyroid glands

Graves' disease: an autoimmune disease where the thyroid is overactive, resulting in hyperthyroidism and thyrotoxicosis. Hashimoto's thyroiditis: also known chronic lymphocytic thyroiditis is an autoimmune disease in which the thyroid gland is gradually destroyed by a variety of cell and antibody mediated immune processes. Hashimoto's thyroiditis

is associated with thyroid peroxidase and thyroglobulin autoantibodies. Hypoparathyroidism; can affect calcium homeostasis, supplementation of which has completely resolved cases of depression in which hypoparathyroidism is the sole causative factor.[14]

Pituitary tumors

Tumors of the pituitary gland are fairly common in the general population with estimates ranging as high as 25%. Most tumors are considered to be benign and are often an incidental finding discovered during autopsy or as of neuroimaging in which case they are dubbed "incidentalomas". Even in benign cases, pituitary tumors can affect cognitive, behavioral and emotional changes. Pituitary microadenomas are smaller than 10 mm in diameter and are generally considered benign, yet the presence of a microadenoma has been positively identified as a risk factor for suicide.[15]

Cigarette smoking

There has been research which suggests a correlation between cigarette smoking and depression. The results of one recent study suggest that smoking cigarettes may have a direct causal effect on the development of depression. There have been various studies done showing a positive link between smoking, suicidal ideation and suicide attempts. In a study conducted among nurses, those smoking between 1-24 cigarettes per day had twice the suicide risk; 25 cigarettes or more, 4 times the suicide risk, than those who had never smoked. In a study of 300,000 male U.S. Army soldiers, a definitive link between suicide and smoking was observed with those smoking over a pack a day having twice the suicide rate of non-smokers.[16]

Medication

Various medications have been suspected of a having a causal relation in the development of depression; this has been classified as "organic mood syndrome". Some classes of medication such as those used to treat hypertension, have been recognized for decades as having a definitive relationship with the development of depression.

Monitoring of those taking medications which have shown a relationship with depression is often indicated, as well as the necessity of factoring in the use of such medications in the diagnostic process.[17]

Bipolar disorder

Bipolar disorder is frequently misdiagnosed as major depression, and is thus treated with antidepressants alone which is not only not efficacious it is often contraindicated as it may exacerbate hypomania, mania, or cycling between moods. There is ongoing debate about whether this should be classified as a separate disorder because individuals diagnosed with major depression often experience some hypomanic symptoms, indicating a continuum between the two.

Nutritional deficiencies

Nutrition plays a key role in every facet of maintaining proper physical and psychological wellbeing. Insufficient or inadeqaute nutrition can have a profound effect on mental health. The emerging field of Nutritional Neuroscience explores the various connections between diet, neurological functioning and mental health.

- ***Vitamin B_6:*** pyridoxal phosphate (PLP) the active form of B_6 is a cofactor in the dopamine serotonin pathway, a deficiency in Vitamin B_6 may cause depressive symptoms.[18]
- ***Folate (vitamin B_9) - Vitamin $_{B12}$ cobalamin :*** Low blood plasma and particularly red cell folate and diminished levels of Vitamin B_{12} have been found in patients with depressive disordersI n fact it is suggested that oral doses of both folic acid (800 µg/ (mcg) daily) and vitamin B_{12} (1 mg daily) should be tried to improve treatment outcome in depression

Infections

Lyme disease: is a bacterial infection caused by Borrelia burgdorferi, a spirochete bacterium transmitted by the Deer tick (Ixodes scapularis). Lyme disease is one of a group of diseases which have earned the name the "great imitator" for their propensity to mimic the symptoms of a wide variety of medical and neuropsychiatric disorders. Lyme disease is an underdiagnosed illness, partially as a result of the complexity and unreliability of serologic testing. "Because of the rapid rise of Lyme borreliosis

nationwide and the need for antibiotic treatment to prevent severe neurologic damage, mental health professionals need to be aware of its possible psychiatric presentations.[19]

Syphilis: the prevalence of which is on the rise, is another of the "great imitators", which if left untreated can progress to neurosyphilis and affect the brain, can present with solely neuropsychiatric symptoms. Neurosyphilis still has to be considered in the differential diagnosis within the context of psychiatric conditions and diseases. Owing to current epidemiological data and difficulties in diagnosing syphilis, routine screening tests in the psychiatric field are necessary.

Neurocysticercosis (NCC): is an infection of the brain or spinal cord caused by the larval stage of the pork tapeworm, *Taenia solium*. NCC is the most common helminthic (parasitic worm) infestation of the central nervous system worldwide. Humans develop cysticercosis when they ingest eggs of the pork tapeworm via contact with contaminated fecal matter or eating infected vegetables or undercooked pork. "While cysticercosis is endemic in Latin America, it is an emerging disease with increased prevalence in the United States." The rate of depression in those with neurocysticercosis is higher than in the general population.[20]

Toxoplasmosis

The tissue cyst-forming coccidium *Toxoplasma gondii* is one of the most polyxenous parasites known to date. It has a facultatively heteroxenous life cycle and can probably infect all warm-blooded animals (mammals and birds) and humans. *T. gondii* is prevalent in most areas of the world and is of medical importance, because it may cause abortion or congenital disease in its intermediate hosts. However, there are still many aspects of its biology, natural life cycle, and the epidemiology of infections of which we know relatively little. In the guts of cats, this single-celled protozoan lives and breeds, producing egg-like cells which pass with the cat's bowel movements. These find their way into other animals that come in contact with cat faeces. Once in this new host, the parasite changes and migrates, eventually settling as cysts in various tissues including the host's brain, where it can only continue its life cycle and end up as adult in a cat's gut.

The new problem associated with this tiny protozoan parasite is that it can influence our minds psychologically. Overall, though, the side effects of infection by toxoplasma are thought to be minor and relatively harmless it can still affect the personality of infected patient. Recently many evidences have been mounting that suggests that psychological consequences of infection are much darker than we once thought

Various studies showing a link between toxoplasmosis and suicidal tendencies

In 2003, E. Fuller Torrey of the Stanley Medical Research Institute in Bethesda, Maryland colleagues noted a link between Toxoplasma and schizophrenia – specifically, that women with high levels of the parasite were more likely to give birth to schizophrenics-to-be. The hypothesis given for this phenomenon is that while for most people who are infected, toxoplasma has minor effects, for some, the changes are much more pronounced. The idea has gained traction – a later paper found, for example, that anti-psychotics worked just as well as parasite-killing drugs in restoring normal behaviors in infected rats, affirming the similarities between psychological disorders and toxoplasma infection.

Continuing the work with mental patients, certain studies later discovered a link between suicide and parasite infection. But, of course, this link was in people who already have mental illness. Similarly, a study found that countries with high *toxoplasma* infection rates also had high suicide rates but the connection between the two was weak, and there was no direct evidence that the women who committed suicide were infected.

Another global study was performed in 2011 wherein data was collected from world bank .The main result of this study was that although the representative seropositivity rates used in the analysis were collected from women in their child-bearing years, the relationship between *T. gondii* and suicide rates reaches significance in older age groups, roughly corresponding to postmenopausal years. Even in the immunocompetent host, seropositivity persists throughout life, as *T. gondi*i successfully hides inside cells and cysts and avoids eradication by the immune system. Correspondingly, it is expected that older populations will have higher rates of seropositivity, and that a positive test at a younger age will remain positive with aging.

Additionally, established suicide factors such as the accumulation of personal losses (e.g. loss of spouse or companion, loneliness, joblessness, medical illness, not having dependents at home) may act in concert with *T. gondii* seropositivity to contribute toward higher rates of suicide later in life. Immunological changes related to aging could also act synergistically with immune activation necessary to contain *T. gondii* and possibly affect brain structures and function.

Pathophysiological aspects

It is suggested that our immune system may actually be playing a role in causation of psychological disorders in patients with toxoplasmosis. When we are infected with a parasite like *Toxoplasma gondii*, our immune system goes on the offensive, producing a group of molecules called cytokines that activate various immune cell types. Recent research studies have connected high levels of cytokines to depression and violent suicide attempts. The exact mechanism by which cytokines cause depression and other mental illnesses is poorly understood, but it is well known that they are able to pass the blood-brain barrier and alter neurotransmitters like serotonin and dopamine in the brain.

Another hypothesis proposed by various authors is that there could be reverse causality as there might be risk factors for suicidal behavior that also make people more susceptible to infection with *T. gondii*. But given the strong link between the two, there is real potential for therapeutic intervention. "If we can identify a causal relationship, we may be able to predict those at increased risk for attempting suicide and find ways to intervene and offer treatment." The next step will be for scientists to affirm if and how these parasites cause negative thoughts. Not only could such research help target at-risk individuals, it may help scientists understand the dark neurological pathways that lead to depression and suicide that the sinister protozoan has tapped into. But even more disconcerting is that scientists predict that *Toxoplasma* prevalence is on the rise, both due to how we live and climate change. The increase and spread of this parasitic cannot be good for the mental health of generations to come.

Inflammatory mediators produced in response to *T. gondii* infection may contribute to depression. Previous research has linked production of pro-inflammatory cytokines with depression, the most common psychiatric condition associated with suicidal behavior in humans, and depressive-like behaviors in animal models. Supporting a possible role between depression and *T. gondii* infection, especially severe and refractory depression, a case report described a conversion from an antidepressant treatment-resistant to treatment-responsive case after the patient was treated for *Toxoplasma* infection.[21]

In fact interferon gamma, a cytokine critical for immunity against viral and bacterial intracellular infections, blocks the growth of *T. gondii* by activating macrophages and lymphocytes and specifically activating the enzyme indoleamine 2, 3-dioxygenase (IDO) which restricts the amino acid tryptophan. And though tryptophan depletion inhibits the growth of the parasite, it also results in decrease in serotonin production in the brain. Potentially, as a consequence of lower serotonin production, experimentally-induced tryptophan depletion has been linked with reversal of antidepressant effects, increases in irritability, and increases in self-injurious behavior.

Thus immune response to infection with *T. gondii* exacerbates suicide risk factors such as depression – a potential precursor to suicide – and resultant cognitive deficits. Essential to containing infection from *T. gondii* is the production of proinflammatory cytokines. Proinflammatory cytokines, such as IL-6 in the cerebrospinal fluid and IL-6 and TNF in the plasma have recently been found to be associated with suicidal behaviour[22].

West Nile virus (WNV): which can cause encephalitis has been reported to be a causal factor in developing depression in 31% of those infected in a study conducted in Houston, Texas and reported to the Center for Disease Control (CDC). The primary vectors for disease transmission to humans are various species of mosquito. WNV which is endemic to Southern Europe, Africa the Middle East and Asia was first identified in the United States in 1999. Between 1999 and 2006, 20,000 cases of confirmed symptomatic WNV were reported in the United States, with estimates of up to 1 million being infected. "WNV is now the most common cause of epidemic viral encephalitis in the United States, and it will likely remain an important cause of neurological disease for the foreseeable future.[23]

Hepatitis C

In addition to its medical challenge, HCV also presents a psychiatric challenge. Patients with HCV are more likely to have psychiatric disorders, with depression being the most frequent and clinically important. Presently interferon (IFN)-based therapies (with or without ribavirin) is the standard treatment for chronic HCV. Although their mechanisms of action are not completely understood, preventing de novo infection of susceptible cells may be the most important. The actions that confer benefit may also be responsible for the side effects of IFNs, which are dose dependent and occur with any of the available preparations. Although most are minor, neuropsychiatric side effects can be serious, requiring dose reduction or discontinuation.

Two separate lines of evidence support an association between HCV and depression. First, patients with psychiatric disorders have a higher prevalence of HCV infection. Second, patients with chronic hepatitis C may have a higher prevalence of psychiatric disorders including depression. The prevalence of HCV is greater in patients with psychiatric disorders than in the general population. In intravenous drug users, 74% to 100% of individuals are infected with HCV.[24] Although not everyone using drugs qualifies for a psychiatric diagnosis (for example, one-time or occasional users), the majority of chronic users meet the criteria for substance abuse or substance dependence disorder (DSM-IV Diagnostic criteria). In patients abusing alcohol, the prevalence of HCV-positive serology ranges from 6.7% to 18.4%. Interestingly, in individuals with a history of alcohol abuse and underlying liver disease, HCV antibodies are twice as common as in those without liver disease.[20] In one large retrospective study, 6.7% of patients hospitalized for mental retardation, psychosis, or dementia were infected with HCV. Among these diagnoses, psychosis was the most important independent risk factor for HCV infection also the likelihood of infection appeared to increase with the duration of mental illness and the length of psychiatric hospitalization. These non-specific symptoms might or might not be related to HCV in individuals. Systemic vasculitis, which is the severe symptomatic manifestation of cryoglobulinaemia, although rare (1%), is the most frequent systemic inflammatory disease.

Four extrahepatic biological abnormalities have a prevalence of more than 5%: cryoglobulin, antinuclear antibodies, antibodies against smooth muscle, and a low thyroxine concentration. At least one biological abnormality is present in 50% of patients. Mixed cryoglobulinaemia is the main extrahepatic biological manifestation and is present in about 40% of patients with chronic hepatitis but severe symptomatic mixed cryoglobulinaemia with vasculitis is rare and has been noted in 2–3% of patients only. No association has been recorded between biological and clinical symptoms and a positive autoantibody state. 10% of patients have low thyroxine concentrations, but only 1% has high concentrations of thyroid stimulating hormone. 11% to 30% in this population. Almost one fourth of hepatitis C patients referred to a tertiary care center for treatment were found to be depressed, with the majority (60%) requiring therapy. Finally, after liver transplantation, depression is more frequent in patients with recurrent hepatitis C than in those without the virus. The reasons for the high rates of depression in HCV infected individuals are unknown, but two factors merit consideration. First, HCV-infected individuals are relatively young (the highest prevalence is in the third and fourth decades of life) and may suffer from a reactive depression related to excessive fatigue or concerns about their long-term prognosis; they have more somatic complaints than patients with other types of liver diseases.[25] Secondly, they tend to have additional risk factors for depression such as concurrent substance abuse. From these data, it is increasingly clear that depression, substance abuse, and HCV infection are intimately related and clinically important. Depression may impair health-related quality of life of patients infected with HCV. Also, IFN therapy may amplify the symptoms of those with underlying depression, reducing compliance, and preexisting depression may interfere with the assessment of de novo IFN-induced depression. These concerns notwithstanding, most of the work to date on depression in HCV disease originates from tertiary care centers and hence population based studies are needed further in this field.[26]

Prevention

Suicide prevention is a term used for the collective efforts to reduce the incidence of suicide

through preventive measures. Reducing access to certain methods, such as firearms or toxins reduces the risk. Other measures include reducing access to charcoal and barriers on bridges and subway platforms. Treatment of drug and alcohol addiction, depression, and those who have attempted suicide in the past may also be effective. Some have proposed reducing access to alcohol as a preventative strategy (such as reducing the number of bars. Although crisis hotlines are common there is little evidence to support or refute their effectiveness. In young adults who have recently thought about suicide, cognitive behavioral therapy appears to improve outcomes. Economic development through its ability to reduce poverty may be able to decrease suicide rates. Efforts to increase social connection especially in elderly males may be effective.

In those with mental health problems a number of treatments may reduce the risk of suicide. Those who are actively suicidal may be admitted to psychiatric care either voluntarily or involuntarily. Possessions that may be used to harm oneself are typically removed. Some clinicians get patients to sign suicide prevention contracts where they agree to not harm themselves if released.[21] Evidence however does not support a significant effect from this practice. If a person is at low risk, outpatient mental health treatment may be arranged. Short-term hospitalization has not been found to be more effective than community care for improving outcomes in those with borderline personality disorder who are chronically suicidal.[27]

There is tentative evidence that psychotherapy, specifically, dialectical behaviour therapy reduces suicidality in adolescents as well as in those with borderline personality disorder. It may also be useful in decreasing suicide attempts in adults at high risk. Evidence however has not found a decrease in completed suicides.

There is controversy around the benefit versus harm of antidepressants. In young persons, the newer antidepressants such as SSRIs appear to increase the risk of suicidality from 25 per 1000 to 40 per 1000. In older persons however they might decrease the risk. Lithium appears effective at lowering the risk in those with bipolar disorder and unipolar depression to nearly the same levels as the general population. Clozapine may decrease the thoughts of suicide in some people with schizophrenia.[28]

Conclusion

Depression in various infections leading to suicidal tendencies is a particular challenge to physicians because of its negative impact on the patient's quality of life, its interference with treatment adherence, and its serious complications, including suicide. Our current knowledge of the epidemiology, pathophysiology, and therapies of various infections and IFN-induced depression is limited. It is likely that in addition to IFN itself, other modifiable factors, such as concurrent substance abuse, contribute to the development of these neuropsychiatric disorders. Future research in this area should be directed at the mechanism of these neuropsychiatric problems and provide new and effective therapy for their psychiatric problems.

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Psychophysiotherapy

Psycho-physiotherapeutic treatment of Polycystic Ovary Syndrome

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Polycystic Ovary Syndrome (PCOS)

It is one of the most common endocrine disorders in women of reproductive age.[1-4] It is thought to be one of the major cause of anovulatory infertility.[1,3] PCOS affects 5 to 10 % of women of reproductive age.[2,4] The syndrome is multifactorial and diagnosed on the basis of presence of all three criteria formulated by the Rotterdam Consensus i.e. hyperandrogenism, chronic anovulation and polycystic ovaries.[1] Anovulation results in irregular menstruation, amenorrhea, and ovulation-related infertility. Hormone imbalance in PCOS causes acne and hirsutism. Insulin resistance is associated with obesity, Type 2 diabetes, and high cholesterol levels.[2,5] The symptoms are: amenorrhea, oligomenorrhea, hirsutism, obesity, infertility, chronic hyperandrogenic anovulation and acne.[2] Risk factors which may aggravate this condition are insulin resistance, obesity, hypertension, dyslipidemia, and subclinical cardiovascular diseases. The pathogenesis of PCOS is poorly understood, but the primary defect may be insulin resistance leading to hyperinsulinaemia.[6] Increased testosterone in women with PCOS results in high sympathetic nervous system activities which is risk factor for heart diseases and mortality.[2] PCOS has reproductive, psychological and cardio-metabolic features and is associated with adverse health problems including increased risk of obesity type 2 diabetes, metabolic impairments and cardiovascular risk factors.[3] Obesity is also strongly associated with the PCOS.[7] It is estimated that 40% to 60% of women with PCOS are overweight or obese with greater abdominal or visceral adiposity.[8]

PCOS can also lead to severe mental health issues including anxiety, depression, reduced quality of life and eating disorders.[2,3,5] In PCOS symptoms and co-morbidities increase the risk of adverse mental health consequences. Obese women with PCOS had a substantially greater risk of developing depressive disorders. Infertility, hirsutism, acne, and body dissatisfaction may increases the emotional disturbances in women with PCOS.[9] Due to chronically elevated inflammatory markers, PCOS women exhibit some sickness behaviour symptoms, including fatigue, social withdrawal, depressed mood and sleep disturbances.[9]

Treatment of PCOS includes addressing reproductive, metabolic, and psychological features.[8] The reproductive factor include correction of hyperandrogenism, regulation of menstrual cycle, restoration of ovulation and reproductive function. The metabolic factor addressinsulin resistance. The psychological factor address low self-esteem and dysthymia to enhance motivation for effective lifestyle change.[8]

Medical Management

Management comprises treatment of the presenting symptoms, as well as any other abnormalities.[6] Clomiphene citrate is the treatment of first choice for induction of ovulation in most anovulatory women with PCOS.[10] Hirsuitism is treated by use of oral contraceptive pills. Menstrual dysfunction, including irregular periods are treated by administration of progestins or oral contraceptive

pills[6].Metformin, an insulin-sensitizing agent, is frequently administered to both overweight/obese and normal weight women with PCOS. Metformin lowers plasma PAI-1 antigen levels in normal weight women with PCOS. In overweight/obese women with PCOS, sibutramine reduces plasma Plasminogen Activator Inhibitor-1 antigen levels.[11]

Life Style Modifications

Lifestyle changes and weight loss are considered to be a valid alternative to the first-line drug therapy.[12] Lifestyle modification is the first form of therapy, combining behavioral (reduction of psychosocial stressors), dietary, and exercise management.[3,8] Glucose intolerance can be managed by diet and exercise, weight control and oral antidiabetic drugs.[6] Reduction of weight results in decrease in insulin resistance, serum androgen concentrations, ovarian size, and the number of ovarian cysts; it also increases ovulation, fertility; and the concentrations of plasma lipids.[13] Lifestyle modification is defined as a structured diet and/or exercise intervention.[4] Reductions in depression and elevations in quality of life have been observed in combined physical activity and dietary interventions in PCOS.[3] After life style modification Ujvariet al observed an up-regulation of gene and protein expression of insulin signalling molecules (endometrial Insulin Receptor Substate1 and Glucose Transporter1) in the endometrium of overweight/obese PCOS women which improved the glucose homeostasis and functioning of their endometrium.[1]

Psychological Treatment

Mental health is vital to self-efficacy around a healthy lifestyle (including physical activity).[3] The Assessment and Management of PCOS should consider the mental health status of women with PCOS and the interactions with physical activity.[3] Females fear regarding infertility, loss of femininity and sexuality, body image and lower self-worth which contribute to poorer mental health outcomes.[3] Prior to treatment psychological features should be acknowledged, discussed and if needed counselling to be considered to enable lifestyle change which is unlikely to be successful without first addressing education and psychosocial issues.[14]

- Use of Motivational Interviewing(MI) strategies into the counselling sessions have been proven to enhance participant motivation in life style modification programmes. MI process activates participants to engage in self-actualizationbehaviours to improve health.[4]
- Rofey et al observed that a manual-based Cognitive Behavioural Training and Primary and Secondary Control Enhancement Training showed promising effects with significant reductions in obesity and depression in adolescents with PCOS. They also observed decreased rates of physiological comorbidities such as menstrual irregularity; high percent of fat mass, sleep-related breathing disorder; blood pressure and mid-region adiposity associated with PCOS.[15]
- Techniques such as relaxation and Cognitive Behavioural Therapy (CBT) to treat stress can be used to address the cortisol secretion abnormalities often present in PCOS women. It was observed that CBT intervention resulted in significant decreases in weight and depressive symptoms and significant improve-ments in menstrual regularity and sleep-related breathing.[9]

Exercises

Exercises improves strength, endurance, quality of life parameters, it helps to reduce stress, improves mood, health related quality of life and psychosocial factors depression and social support).[16] Exercise improves reproductive (reproductive hormones, menstrual cyclicity or ovulation) and metabolic features.[8] Physical exercise have an important impact on insulin resistance. A single instance of exercise can markedly increase rates of whole body glucose disposal.[7] Physical activity also decreases high sympathetic nerve activity in women affected by PCOS.[2] Physical activities determine weight loss which improve cardiovascular order and insulin cellular response and visceral adiposity.[2] It was observed that menstrual cycle regulation and insulin sensitivity have been improved in women with PCOS after a 3-month course of structured exercise.[4] Randeva et al found that 6 months of brisk walking resulted in significant reduction in total plasma homocysteine concentra-tions in overweight/obese

young women with PCOS.[17] They also observed that women who adhered to the exercise program had a significant increase in aerobic capacity (VO2 Max).[17] Homocysteine promotes atherosclerosis by inducing endothelial dysfunction through limited bioavailability of nitric oxide and altered blood vessel elasticity. Regular physical exercises improves endothelial function by increasing production of nitric oxide and thus improving vasculature shear stress.[17] It was observed that regular and moderate aerobic exercises (90 min per week at 60-70 % VO2 max) over a short period improve ovulation and menstrual frequency.[2] Lifestyle modification targeted at slower weight loss has been shown more effective for improving insulin sensitivity that restores ovulation in infertile obese women with PCOS.[4] Exercise may improve insulin resistance via increased muscle mass, as muscle contractions stimulate glucose uptake in the absence of insulin.[9]

Due to potential role of obesity and Insulin resistance in the pathogenesis of PCOS, weight loss is important for treatment of PCOS.[11] Obesity is associated with anovulation, pregnancy loss and late pregnancy complications and it is also related to failed or delayed reponse to various treatments. Thus weight reduction is one of the important goal of treatment in PCOS.[10] Even a modest weight loss of 2–5% of total body weight can restore ovulation in overweight women with PCOS as well as improvement in insulin sensitivity. Weight loss improves the endocrine profile, menstrual cycle, and the likelihood of ovulation and healthy pregnancy.[18] Menstrual regularity, ovulatory patterns, and pregnancy rates have improved in women with PCOS after a modest 5% weight reduction.[4]

Exercises have proven to improvemental health by reducing anxiety, depression and negative mood by improving self-esteem and cognitive function. Exercise influences mental health outcomes such as depression through enhancement of self-esteem.[16] Exercise can be used as a form of behavioural activation, which may act as an important component of some effective psychotherapy interventions for depression.[16]

Exercise programs:

- Regular exercises can comprise sustained brisk walking for 20-60 min in week.[17]
- Stretching exercises can be done for flexibility and in warm up phase in exercise programs.
- Strengthening exercises that will help to build strong muscles and boost metabolism.
- Aerobic activities will help to keep heart healthy and strong.
- Running, swimming and cycling can also be performed to reduce weight and improve cardiovascular status.
- Structured Exercise Training programme are also effective in reducing weight in females PCOS. The exercise consists three training sessions per week. During each session, the patient should perform exercises for 30 min on a bicycle ergometer with the target of 60 –70% of the maximal oxygen consumption (VO2max). Exercise workload can be gradually increased until the achievement of the predefined target. Each session should be preceded by a 5-min warm-up and followed by a 5-min cool-down.[12]

Diet

Dietary-induced weight loss improves insulin resistance and hyperinsulinaemia.[7] Low carbo-hydrates, high-protein and low glycaemic index/ glycaemic load diets are being promoted because of their beneficial effects on satiety, lean body mass,and maintenance of weight and lipid markers.[9,13,14]

Alternative Treatment Methods

Acupuncture can also be used to treat PCOS. It decreases sympathetic activity and increase parasympathetic activity inhibiting the dorsomedial prefrontal cortex.[2] It was observed that acupuncture resulted in central sympathetic inhibition through a major release of endorphin, the change of uterine blood flow and motility, the stress reduction. Acupuncture regulates the hypothalamic-pituitary-ovarian axis (HPO) actions by modulating central opioids.[2]

Conclusion

Literature have proposed Lifestyle modification programmes as an effective treatment strategy for women with PCOS. Lifestyle modification combines

behavioural, dietary, and exercise management[3,8] Lifestyle modification program requires collaboration between gynaecologists, reproductive endocrinologists, psychiatrists, psychologists, physical therapists, nurses and dieticians in determining the best strategy to maximize outreach to the greatest volume of women affected by PCOS.[4]

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Commentary

Critical Thinking and its Promotion during Discussion Process in e-based Environment

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Collaborative critical thinking

The growth of asynchronous online discussion (AOD) in primary, secondary, undergraduate, and post-graduate contexts and courses has resulted in a growing body of literature that provides valuable insights into the issues surrounding the use of online writing, online discussion, and distance and blended learning in formal education worldwide.[1]

Cecezand Kecmanoric[2] in their article on critical inquiry into web-mediated collaborative learning have argued that collaborative learning involves groups working together, sharing and clarifying ideas, actively contributing to team work and cooperatively solving problems defined by a learning task.

As a constructivist, Dewey[3] considered that the main function of education was to improve the reasoning process. He also adopted his problem solving method to many subjects. A student who is not motivated will not really perceive a problem, so problems selected for study should be derived from learner interest.[4] Therefore, the methods of constructivism emphasize development of learner ability in solving their real life problems. As a result, problem solving and free discovery come together. In other words knowledge is dynamic and is built around the process of discovery. Dewey considered the teacher as a guide rather than a director since learning allowed for creative interaction with the teacher rather than outcome-based teaching.

Vygotsky[5] placed more emphasis on the social context of learning. His theory emphasizes the importance of the social cultural context in which learning takes place and how context has an impact on what is learned. Since Vygotsky emphasized the critical importance of interaction with people, including other learners and teachers, in cognitive development his theory is called "social constructivism".[6]

The concept of collaborative learning, the grouping and pairing of students for the purpose of achieving an academic goal has been widely researched and advocated through the professional literature. The term *collaborative learning* refers to an instruction method in which students at various performance levels work together in small groups toward a common goal. The students are responsible for one another 's learning as well as their own. Thus the success of one student helps the other student to be successful. Proponents of collaborative learning lead to the active exchange of ideas within small groups, not only increase interest among the participants but also promote critical thinking. According to Johnson and Johnson[7], there is persuasive evidence that cooperative teams achieve at higher levels of thought and information longer than students who work quietly as individuals. The shared learning gives students an opportunity to engage in discussion, take responsibility for their own learning, and thus become critical thinkers.

In spite of these advantages, most of the research studies on collaborative learning have been done at primary and secondary levels. As yet, there is little empirical evidence on its effectiveness at the collage levels. However, the need for non-competitive, collaborative group work is emphasized in much of the higher education literature. Also majority of the research in collaborative learning has been done in non-technical disciplines.

Olivares[8] identified Collaborative Critical Thinking (CCT) as a relatively unstructured social process that results in judgments being made or problems solved through the process of conversation and through the use of evidence, inference, interpretation, logic and reflection.

Thus, CCT can be thought of as critical thinking at the group level. That is, critical thinking that takes place within a social context whereby group members have a common goal and work toward this goal, but not necessarily in a harmonious, corporative way. Perhaps more often than not, this process takes place in the context of incomplete knowledge, time pressure and general uncertainty.

Aymos and Singley[9] in their research which is about "learning in a collaborative network environment" explained the types of strategies used by tutors. By using these strategies like leading, prompting, hinting, probing and diagnosing, the teacher helps students to be involved in class discussion. The researchers conclude that the techniques which are applicable in CSCL (Computer Supported Collaborative Learning) environment are different from interactive learning environment and should be privileged. They emphasize their finding and explain that not only does individual learning need to be supported but the interaction between participants is to be strongly encouraged and facilitated because outside of the social context of the classroom, it is easy for the students to become disengaged.

Gokhale[10] studied the process of CCT and its effects in comparison with learning individually. He concluded that group learning can foster cognitive skill in two forms: some argue that in group performance certain cognitive skills such as problem solving or decision making is better than individual performance; others assert that group learning helps students develop certain cognitive skills.

Oliver and Stephenson[11] in his research explored the development of critical thinking skills in the group in comparison with individual learning through a web-supported learning. His research was designed on the basis of development of the critical thinking skill and the use of web-supported learning environment. The research was based on three main subjects:

- Group effects on students learning;
- Group leading to better participation;
- Using a special method for developing student's critical thinking skills

He concluded that, in order to create opportunities to develop these skills, the setting needs to provide more scaffolds for the development of these skills, for example, more meaningful feedback, more reflection on the part of the learners and more engagement for all students in the process of articulating and developing the problem solutions.

Richardson and Ice[12] investigate about the effect of using different strategies on the students' level of critical thinking in online discussions. For the purpose of the study three instructional strategies used in the development and implementation of online discussion questions were examined open-ended (or topical) discussion. The finding of their research on critical thinking achievement levels indicated that students generally scored lower on the open-ended discussion. They suggest that a crucial factor in effective use of online discussions for higher-order thinking resides with students' comfort levels and to foster critical thinking, instructors need to assist learners in gaining comfort and confidence in the online discussion format.

Campos[13] presented a method in his paper. He believes that it is possible to assess conceptual change, collaborative learning and knowledge building through the study of networked cognitive communication. In his research nurses were engaged in an ill-defined problem solving process. A problem implies a hypothetical structure that needs human inferring (consistent use of conditional reasoning through hypotheses formulation or inference) to be solved. The nurses participated, engaged in reading and writing, formulated hypotheses and made inferences about what others meant in the message. He explained that his method enabled researchers to verify logical instances of knowledge building with a view to capturing progressive communication through argumentation processes in electronic conferencing.Khoshneshin[14]had an approach to the process of collaborativecritical thinking by using several disciplined questions from students during virtual classes and leading them on to have discussion through discussion board. It is found that the mentioned process help students to promote their learning abilities at different levels and also in critical thinking ability which has been

shown as the sum of all abilities.

Transcript analysis method

As explained by Evans, Over and Handley[15] human beings engage in a kind of thinking that requires consideration of hypothetical possibilities. For example, we may imagine a possible world resulting from some action or choice that is before us. We may entertain a hypothesis and consider its implications, or we may attempt to forecast the most plausible states of affairs given some scenario. Hypothetical thinking is assumed as a uniquely human facility that is a distinguishing characteristic of our intelligence. The ability of hypothetical thinking helps to hypothesize the process of meaning construction.

As Jones and his colegues[16] explain, teaching of how to think is possible through infusion teaching for thinking into regular classroom instruction and restructuring the traditional curriculum materials. The process which they suggested to finalize thinking process which is being explained as subject-oriented infusion is used in the same way in this experiment as the first and main steps of the study. This process requires the following steps:

1. During two semesters the researcher and the teacher (who taught the course named Company Law[2]) reviewed and categorized the content's text in advance to formulate and hypothesize thinking and teaching process in the virtual class.
2. As a second step the researcher and the teacher designed the process of discussion in the virtual class. The teacher's role as an expert in law science was to analyze the process of meaning construction. The researcher's role as ateacher's consultant was to remind the kind of questions based on SQPs.
3. The findings of the study such as hypothesis about meaning construction, the process of asking and answering in the virtual class and leading the teacher to conduct students' discussions together makes the theoretical framework of the main experiment. As it has been noted, to hypothesize the Framework of meaning in law as a subject, the researcher along with two teacher professionals in Company Law reviewed and analyzed the topics of the courses during two semesters.

The study has been done to reveal three objectives of the research in experiment about CCT through:

- Designing the teacher role during teaching process to give prompts according to SQP style
- Designing the style of group cooperation dynamism
- Designing and confirming the hypothetical framework of meaning in research.

During discussion the teachers were supposed to ask the questions which lead the students to develop their abilities in different skills.

The kinds of question the teacher asked students helped them to progress through the learning process. For example, it was supposed that the question which asked students about any articles of law needs inductive reasoning and the question which asked the students to evaluate a case referred to any articles of law needs deductive reasoning. The rationality of the framework of meaning construction is thus revealed through the study. Meanwhile the researcher could recognize and design the teacher's role in this process. The teacher was enabled to ask questions and to give prompts according to the SQP model.

The content of discussion in one of the virtual classes and the process of leading discussion on the basis of research method (asking by teacher through SQP) is demonstrated as an example in Table 1.

Table 1. Example of using SQP method in the virtual class

Course subject: Commercial Law (2)
Topic: Article of law No 102 and 148-9
***Question*:** Refer to article of law No. 102 and 148-9. What might be the process of accepting someone in the company as a member?
***Student1*:** Any kinds of membership should be permitted by all members, so the other members' confirmation is necessary.
***Student 2*:** (Proposed another question)
Private to the teacher: Please ask the meaning of .....
***Teacher*:** What is the meaning of membership in a company with limited liability?
Nobody answers.
Teacher: Suppose someone inherits properties.
***Student 3*:** Membership is possible and he or she will be a member as a creditor.
***Private to the teacher*:** Please refer them to the related article of law.

Teacher: Is this a logical decision if you consider any body as creditor without any authorities?
Student 4: Referring to the article of law No 102, it is not possible.
Teacher: Could you explain the reason to us? How do you make a relation between this decision and law article No 102?
Student 5: In the case of inheritance, according to No 102 partnership is possible.
Teacher: Please take a look at the article of law No 102 and 148-9. There is a difference between the possibilities to generate this case (partnership) in different kinds of companies. You have an opportunity to discuss the questions and send them to the group leader or individually to me.

Note: Refer to the article of law No149-in a company with limited partnership, only partnership, which includes benefit and loss, is transferable.
Refer to No 102 transference is not admitted but inheritance is excused.

To design the dynamism of group functioning, it was revealed through the study that group members are motivated to have cooperation among themselves and the leader if the teacher considers some incentives like scores.

It is postulated that the teacher in the virtual class is always ready to give answers to questions directly. It means that students do not have an opportunity to have a discussion. This opportunity to begin a discussion in the class would become less when a student is invited to have discussion (ask something) but this process is not managed (teacher leaves the subject at any reason in the class). Referred to the table 1the outcomes of having a predesigned method to discourse in online environment are described.

Table 2: Efficiency of teaching-learning process before and during the study in the virtual class

Conclusion

In the virtual class, in prevalent model of treatment, interaction procedure is always confused because of internet disconnection or bad quality of connection. It leads student to leave the subject or even the class. In this environment learning outcome will be something which student would understand by chance. And they do not have opportunity to follow the subject on all dimensions.

Finally there will be a process consequence which means several students still remain in the class without knowing what happened to the main subject and some others leave without finding any conclusion.

During the study it was revealed that the proposed process removes these boundaries in several aspects as it is explained in the table1. There is an example of discussion in the virtual class presented the Table 1.

During the study it was presumed that discussion in the virtual class or through discussion board it helps to activate and lead students. The effects of group functioning or functions in the class on the basis of the study's main assumptions in this regard are visible in the sections that belong to its findings. But the study helped to know how the effects of these process might be on students or are whether they were excited to have discussion, there were questionnaires given to them and to the teacher as presented in the next figure.

The researchers at the end of semester asked the students and the teacher about the process weather they are satisfied to have discussion instead of receiving of the answers directly. The data

Table 2: Efficiency of teaching-learning process before and during the study in the virtual class

Teaching learning Process	Virtual class in the prevalent model of treatment	Virtual class during experiment
Interaction method	One way interaction, question-answer orientation, student asks and teacher gives answer (without discussion).	Two way interaction, discussion oriented discussion process is forwarded by Socratic Questioning Prompt.
Interaction procedures	Irregular-with interferer, several students lost the subject.	Students participated in discussion process and also to follow the case.
Learning outcome	Indirect by accident, student is not led to find the answer.	Level of learning and its final section is controlled.
The process consequences	Some students leave class, some others lost the subject	Discussion outcome will be followed after the class.

analysis showed that 80%of student agreed with discussion during the class and prefer this process. The teacher noted agrees with the process. The questions are presented in the Table 3.

Table 3: Questionnaires to the students and the teachers about the efficiency of discussion in the virtual class

Questions to Students:
During the last semester in your classes, the teacher lead you and your classmates to have more discussions with each other and it was anticipated that it excited you to study and to be more ready to come to class.
Several questions are designed to know your ideas about this process:
How much: Do you prefer that the teacher give correct answer immediately?
Do you prefer to have discussion about question's answer during discussion with other students?
Do you prefer to participate in group discussion on the basis of teacher leading?
Do you believe that there are good facilities in virtual classes for group discussion?
Are you persuaded to continue the class discussion subject in discussion board or group chat (after class)?
This kind of discussion excited you to more group discussion?
Does it have effect on your learning?
Questions to the Teacher:
Do you prefer to give correct answer immediately?
Do you prefer to lead students to have discussion about answers to questions?
Do you prefer to share each one of students in class discussion?
Do you believe that there is a good facility in virtual classes for group discussion?
Do you prefer to lead students to more discussion in discussion board or group chat?
Do you believe that this kind of leading excited students to more discussion?
Do you believe that it has more effect on students' learning?

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Commentary

Does Criticism of Electroconvulsive Therapy undermines its benefits: A Critical Review of its Cognitive Adverse Effects

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Introduction

Convulsive therapy for major psychiatric illnesses is in use since around fifteenth century [1,2]. Electrically induced seizures or Electroconvulsive therapy (ECT) was introduced in 1938 by Lucio Cerletti and Ugo Bini. Electroconvulsive therapy is an effective therapy for a variety of psychiatric disorders which includes severe depression, acute psychosis and suicidal patients and is known to be quicker compared to other modes. It is considered the most effective antidepressant treatment, with medication resistance its leading indication. 85% patients receiving ECT have major depression as diagnosis.[3] Though there is inadequate evidence to suggest that ECT causes brain damage and it is aptly known that the ECT in fact stimulates neuro-plasticity; use of electricity to, trigger a seizure has held the treatment with criticism despite decades of its successful use.[4]

Electroconvulsive therapy and cognitive deficits

Recently considerable research have been done to validate the efficacy and safety of ECT; as well as; in the improvements of current ECT techniques, equipment or standards.[5-10] There have been conflicting accounts of severity and duration of memory and other cognitive difficulties.[1,11-14]

Acute disorientation following treatments has been well documented but are usually brief. Extent of short-term and long-term cognitive deficits remains controversial. Meta-analysis and systematic reviews have differed in the categorization of side effects in terms of time after ECT as acute, sub-acute and long term. Period of manifestation of acute effects have been mentioned from 24 hours in some reviews to 3 days after last ECT in others. According to a systematic review, differences in ECT modalities may account for variations in cognitive impairment, with bilateral ECT method producing greater deficits than the unilateral, thrice weekly treatment more than the twice weekly and high-dose ECT more than the low-dose ECT.[7] As for long-term side effects, reviews agree that after 6 months no deficits persist.[15-17] No significant differences have been noted between real or simulated ECT, between sine-wave or brief-pulse ECT,[7] or between ECT or pharmacotherapy.[15]

Cognitive impairment post ECT can be divided intoimpairment in orientation immediately following ECT administration and anterograde/retrograde memory changes that may follow ECT and may around six months. There is limited albeit conflicting evidence that the effects of ECT on memory and cognitive function may not last more than six months.[18]

According to Pascal Sienaert,[19] post ECT patients can experience difficulties in ability to acquire and retain new information (anterograde memory impairment) which mostly recover to baseline by 1 month. Retrograde amnesia (inability to recall past events and information learned)

reported especially after bilateral ECT are relatively short lived (less than 6 months post-treatment). Nature and extent of retrograde memory impairment often remains to be systematically examined. A recent review has shown that the use of a stimulus with ultra-brief pulse (0.3 milliseconds) produced no deterioration in cognitive measures. However, patients needed additional treatment sessions to achieve results comparable to those achieved with the standard pulse ECT.

As there is lack of Randomised Controlled Trials (RCTs) utilizing appropriate standardized scale, comparison groups and sufficient reporting of results; meta-analyses could only be conducted in three domains: time to reorientation, global cognition (MMSE), and retrograde autobiographical memory (AMI). Additionally, a meta-analysis was conducted of non-randomized data (reported within RCTs) which compared the change in AMI pre-treatment and post-treatment.[18] Conclusions drawn are described below.

1. ***Time to reorientation:*** Bilateral ECT was associated with longer disorientation than the right unilateral, left unilateral, or unilateral non-dominant electrode placement. There was also evidence to suggest that bifrontal ECT is associated with longer periods of disorientation than the bitemporal ECT. .There was no evidence that the disorientation following ECT is long-term or persistent. Meta-analysis revealed that the electrode placement significantly affected time to reorientation in bilateral more than unilateral, increasing it by 18 seconds (unilateral medium vs. bilateral low) to 29 seconds (unilateral low vs. bilateral high). It implied that patients receiving bilateral ECT at high doses had around 29-second longer time to reorientation compared to those receiving unilateral low dose ECT. . Effect of energy level seemed less relevant than the electrode placement.

2. ***Executive function:*** Data suggest no significant change immediately following ECT from baseline. Evidence that bilateral ECT is associated with greater executive dysfunction than the unilateral ECT is inconclusive. Differences were not found between bifrontal and bitemporal ECT. Brief pulse ECT showed larger acute executive dysfunction than the ultrabrief pulse. There was limited evidence that the sine wave stimulation was not significantly different from pulse wave or the high energy from low energy. One study suggested left unilateral ECT to be associated with greater executive dysfunction than the right unilateral.

3. ***Global Cognitive Function:*** There is limited evidence to suggest that bilateral ECT is significantly worse than unilateral ECT immediately post ECT. Sub-acutely there was limited evidence of bitemporal ECT being worse than bifrontal ECT. Results were equivocal regarding electrode placement, difference in energy dose and change from baseline in the global cognitive function. In medium term, no differences in global cognitive function were seen between ultrabrief pulse bifrontal and ultrabrief pulse unilateral ECT; both modalities were seen associated with improvement from baseline at six weeks. On longer-term effects, evidence suggested either improvement or no change in global cognitive function from baseline. Meta-analysis demonstrated that immediately post-ECT, the bilateral ECT was associated with around 10% worse MMSE scores than the unilateral. There was no statistical difference in unilateral electrode placement with low energy compared to the medium energy or in the bilateral electrode placement comparing low energy to the high energy. Disparity continued (and increased) at two months post-ECT. Patients receiving bilateral high dose ECT had around 12% worse performance on MMSE compared to unilateral low dose ECT.

4. ***Global Memory:*** Data regarding changes in global memory immediately following the treatment are limited. In sub-acute period, no significant differences were seen between unilateral and bilateral electrode placement, or high versus low dose energy dosage. Results were equivocal regarding change from baseline. For medium term, limited evidence was there that the bilateral ECT thrice weekly was associated with significantly more global memory loss than twice weekly. .No data existed on difference between electrode placement, waveforms and energy dose. At six months, limited data suggested that there was no significant difference in global memory between ECT and sham, and change from baseline to six months.

5. ***Anterograde Vérbal:*** There were equivocal findings regarding verbal anterograde memory impairment in studies comparing effect of ECT vs. sham ECT. Literature suggested sine wave ECT when compared with brief pulse ECT; had greater

anterograde verbal memory impairment. A week following ECT therapy, verbal memory function following right unilateral electrode placement and low/moderate energy dose ECT may return to baseline and might even improve. 2 weeks after ECT therapy, verbal memory function following bilateral electrode placement may return to baseline and might improve. Finally at 6 months of ECT, no differences were present between ECT and sham ECT or between bilateral and unilateral non-dominant hemisphere electrode placement.

6. ***Anterograde Non-verbal:*** Immediately post-ECT, ECT was associated with more decline than the sham. Though there were no differences with respect to electrode placement; brief pulse may be worse than the ultrabrief pulse. Subacutely, no differences were noted among any ECT treatment parameters. Two weeks post-ECT, there was inconclusive evidence to support any differences among ECT treatment parameters with regards to decline. Conclusive evidence suggested that there was no change from baseline.

7. ***Retrograde Impersonal Memory:*** Immediately following ECT, the data appeared equivocal regarding changes. One study suggested poorer retrograde impersonal memory with sham treatment compared to ECT; which improved eight hours following treatment in both the groups. Some evidence suggest that bilateral placement resulted in poorer performance compared to unilateral. Sub-acutely, equivocal evidence suggested impairment with respect to electrode placement, pulse or energy dose. For medium term, there were equivocal findings among ECT treatment parameters. In one study, bilateral (not unilateral) group showed significant improvement in retrograde impersonal memory from baseline. There were no studies on retrograde impersonal memory from three to less than six months following ECT. At six months, there were no differences seen between ECT and sham ECT, electrode placement or pulse wave. Data did not show a significant change at six months compared to baseline.

8. ***Retrograde Personal (Autobiographical) Memory:*** Immediately post ECT, limited evidence suggested that bilateral electrode placement had greater impairment. ECT was associated with decline in autobiographical memory immediately post-ECT (compared with baseline). Sub-acutely, conclusive evidence supported the finding that the bilateral ECT had greater impairment compared to unilateral, right unilateral or unilateral non-dominant ECT samples. Limited evidence were to suggest sine wave ECT to be worse compared to brief pulse ECT and high energy dose ECT worse than the low energy dose ECT. There was decline from baseline with ECT (except for ultrabrief pulse stimulus which did not show significant change from baseline). For the medium term (2 weeks to less than 3 months), there were limited data towards the effects of electrode placement, pulse or energy dose. Studies reviewed appear to suggest no significant differences with respect to treatment parameters. Additionally, there were limited data with respect to change from baseline suggesting no change. At three months, limited studies yielded conflicting results. At six-month time period one study examines autobiographical memory, comparing pre-ECT course scores with that of post-ECT. Scores improved since the three-month time period.

9. ***Subjective Memory:*** Several methodological issues were there with regard to use of self-reported, subjective complaints of memory impairment. These relied heavily on self-report scales and were highly dependent on the time these scales were completed. Subjective reports of memory impairment may be associated with degree to which the depressive symptoms resolve. Patients in general, were more likely to report memory impairment immediately after ECT. There were no randomized trials on subjective memory within first 24 hours of ECT. Sub-acutely, sufficient data conclude that bilateral ECT is associated with more subjective memory complaints than the unilateral. In terms of change from baseline, strong evidence suggest that the subjective memory did improve after a course of ECT. Medium term study reported no difference between unilateral and bilateral ECT at one month. There were limited data on function at six months. Overall, no difference appeared to be there in subjective memory assessment between ECT and sham, or any ECT treatment factors. Some evidence do show improvement or no change in subjective memory compared to the baseline.

Semkovska and colleagues[20] conducted a meta-analysis of unilateral ECT effects on cognitive performance relative to: (a) bitemporal electrode placement, (b) electrical dosage, and (c) time interval

between final treatment and cognitive reassessment. Thirty-nine studies (1415 patients) were included. Primary findings indicated that up to three days after the final treatment, unilateral ECT was associated with significantly smaller decreases in the global cognition, delayed verbal memory retrieval, and autobiographical memory, vis-a-vis bitemporal ECT. Higher electrical dosage led to larger decreases in verbal learning, visual recognition, delayed verbal memory retrieval, and semantic memory retrieval. Retested more than three days after completing ECT, no significant differences did remain between the two electrode placements.

Hihn et al.[21] assessed twenty severely depressed, drug-treatment resistant, elderly patients with Wechsler Memory Scale-Revised (WMS-R) before and at the end of the ECT series. It was seen that Prefrontal cortex-related memory processes, especially immediate memory encoding, improved after the ECT. Long-term memory on the other end remained impaired, indicating that severely depressed patients do remain cognitively inferior to the normal subjects despite a clinically successful treatment.

Thus there appear a lack of consensus in the literature as to whether number of ECT's or Dose of ECT, whether unilateral or bilateral ECT (given equivalent efficacy), regarding subtypes of memory which are affected by ECT and if affected as to how long they last. In addition these studies used a variety of scales, with each of these scales having their own plethora of subtests thereby making it difficult to arrive at a prudent consensus. These have been aptly brought out by the various review articles and meta-analysis.[3,18] Studies in general have dampened the undue curiosity, chaos or criticism which abounds the use of ECT; thus indirectly highlighting the merit or the advantage of the therapy called Electroconvulsive therapy.

A review of the psychiatric literature on ECT over the past seven decades illustrates that, the issue of memory and ECT is much more complicated than just one of inside versus outside profession, scientific findings vis-a-vis subjective complaints and pro-psychiatry versus anti-psychiatry.[22-23]

Conclusions

ECT promises to be an effective therapeutic modality regardless of the controversies surrounding its use. Adverse cognitive effects debated have not found it solid footings in the evidence of literature; thereby it should, in no way, undermine the significant therapeutic benefit ECT has.

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Viewpoint

Undetermined Pathways to Psychosis from Cannabis Abuse

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Introduction

Cannabis use is common amongst individuals who are Ultra High Risk (UHR) and those who have already developed psychosis. It has also been reported that 15% of cannabis users, that do not fit into these two categories, experience acute psychotic symptoms.[1] Therefore, the question still remains whether or not cannabis use is a factor for the development of psychosis in any persons, or if its abuse leads to psychosis in individuals already vulnerable to becoming psychotic. This paper will explore this issue and suggest possible directions of research on this subject.

Throughout the last few years, a plausible model has been proposed in which a number of factors are considered for the causes of the development of schizophrenia.[2,3] This model emphasizes the interaction between genetic and environmental variables, and their influence on neurodevelop-ment.[4] From an environmental perspective, there is growing evidence that suggests both early, and heavy cannabis use increases the risk for the development of a psychotic disorder such as schizophrenia,[5,6] which occurs in a dose dependent manner and is especially true for adolescents.[7] Individuals who have exhibiteda first episode of psychosis (FEP) or are in the UHR population, and those who are at an increased risk for developing psychosis are more susceptible to cannabis abuse, and have more neuro-psychological changes.[8,9]

Many of the explanations for how the risk of cannabis unfolds to cause symptoms stems from neurobiological and epigenetic research, but there are some studies in the field of neurochemistry, imaging, cognition and genetics that offer possible alternative mechanisms. In spite of these explanations, it is not clear how these changes are inter-linked to produce the psychotic symptoms, and the small number of longitudinal follow-up studies available do not allow for a greater understanding of the long term neurological changes. Nevertheless, the main factors which appear to be involved in cannabis related psychosis are the cannabinoid system, the primary psychoactive component Delta-9-tetrahydrocannabinol (THC) and neuronal development. Studies from the acute effects of cannabis, cannabis users and schizophrenic subjects that abuse and do not abusecannabis have provided exciting information. In addition to this, both human and animal studies have contributed to this body of information, lending itself to a comprehensive overview of the development of psychosis.

THC, the main metabolite of cannabis, is associated with transient exacerbation in core psychotic and cognitive deficits in patients already diagnosed with schizophrenia.[10] Furthermore, THC might differentially affect schizophrenia patients relative to control subjects; however, it is not yet confirmed if enhanced sensitivity to the cognitive effects of THC affects neuronal cannabinoid

receptors or not.[11] THC reaches the brain easily where it stimulates CB1 receptors and their ubiquity underlies a wide variety of effects. Neurocognitive studies suggest that THC inhaled from smoking cannabis is linearly associated with a slower response time in all tasks (simple reaction time, visuo-spatial selective attention, sustained attention, divided attention and short-term memory tasks) and motor control impairment in motor control tasks.[12] Similarly, the number of errors increases significantly with increasing doses in the short-term memory and the sustained attention tasks; however, some subjects show no impairment in motor control even at higher level of THC serum concentrations.[13] The endo-cannabinoid system modulates neurotransmission at inhibitory and excitatory synapses in brain regions relevant to the regulation of pain, emotion, motivation, and cognition.[14] As such, this system represents a critical player in the maintenance and modulation of synaptic plasticity.[15] During frequent cannabis use, a series of poorly understood neuroplastic changes occur which can lead to the development of dependence. Early onset of cannabis use has been found to be related to increased risk of development of schizophrenia later in life, and leads to impairments in cognitive processes reliant on the circuitry of the dorsolateral prefrontal cortex (DLPFC).[16] Animal models strongly emphasize the long-term influence of prenatal cannabinoid exposure on behavior and mental health.[17] Prenatal, as well as developmental exposure to cannabinoids induces subtle neurofunctional alterations in the offspring.[18,19] Approximately 4% of women in the United States abuse substances, with marijuana being by far the most common drug used during pregnancy (75%).[20]

Recent evidence suggests that the mesocortico-limbic neuronal circuits remain vulnerable to dysfunction later in life and thus could be sensitive to developmental events and environmental stressors that can influence the onset and course of neuropsychiatric disorders.[21] THC and cannabinoid agonists enhance striatal and mesocorticolimbic dopamine levels, and affect the maturation of the dopamine system which directly regulates motor function, cognition, motivation, and emotional processes.[22,23] There is ample evidence that cannabis use has a heritable component, yet the genes underlying cannabis use disorders are yet to be completely identified. The evidence of high heritability comes from twin studies. Significant areas for studies are gene-gene and gene-environment interactions. Recent studies indicate the involvement of regions on chromosomes 1, 3, 4, 9, 14, 17 and 18, which harbor candidates of predicted biological relevance.[24,25] Twin studies have also reported evidence for both genetic and environmental influences on vulnerability, but due to considerable variation in the results it is difficult to draw clear conclusions regarding the relative magnitude of these influences. Studies of systematic literature search show that vulnerability to 'cannabis use initiation' as well as 'problematic use' was influenced significantly by bothshared andunshared environments.[26,27,28] The Val158Met polymorphism of the Catechol-O-Methyltransferase (COMT) gene which is involved in dopamine regulation and related to negative symptoms has been previously thought to interact with cannabis use in the modulation of risk of psychosis.[29] The cannabis-COMT interaction showed a significant effect on both duration of untreated psychosis, and age of onset. There are several endophenotypes of cannabis use, for example, cannabis craving and cannabis withdrawal types which have different mechanisms underlying expression of genetic material. Some of the chromosomes involved in these endophenotypes have been identified. It is likely that cannabis suppresses the 'delay effect' in gene-environment interactions in vulnerable subjects, more so at an early age and specifically in early onset psychosis. A number of studies have been carried out on patients consuming cannabis with and without psychosis in order to find possible anatomical or structural changes, as well as changes occurring in physiological activity. These studies have also helped in confirming neurochemical changes occurring at receptor sites and neurotransmissions. Long-term users who started regular use in early adolescence have exhibited cerebral atrophy as well as a reduction in gray matter volume.[30] Functional neuroimaging studies have reported increases in neural activity in regions that may be related to cannabis intoxication or mood altering effects such as the orbital and medial frontal lobes, insular cortex, and anterior cingulate cortex.[31] There have also been observed decreases in activity of regions related with cognitive functions during acute intoxication resulting

in impairments.[32] These functional studies suggest that resting global and prefrontal blood flow is lower in cannabis users than in controls which is consistent with the observed impairments. Modulation of global and prefrontal metabolism is reduced both during the resting state and after the administration of THCor marijuana but only minimal evidence of major effects of cannabis on brain structure has been reported.[33] Studies of acute administration of THC or marijuana report increased resting activity and activation of the frontal and anterior cingulate cortex during cognitive tasks.[34] The anterior cingulate and amygdala play key roles in the inhibition of impulsive behavior and affective regulation, and studies using PET and fMRI have demonstrated changes within these regions in marijuana smokers.[35]

A family history of schizophrenia may render the brain particularly sensitive to the risk-modifying effects of these substances. Furthermore, light users of cannabis have lower basal BDNF levels, which has been implicated in development of psychosis in general. As proposed by the neuroprotection theory, THC produced psychotomimetic effects, perceptual alterations, and spatial memory impairments; however, the results of several reviews regarding connection between cannabis and cognition remain inconclusive in subjects who go on to develop psychosis.[36,37]

Cognitive dysfunction associated with long-term or heavy cannabis use is similar in many respects to the cognitive endophenotypes that have been proposed as vulnerability markers of schizophrenia. The theoretical and clinical significance of further research in this field is enhancing our understanding of underlying pathophysiology and is improving the provision of treatments for substance use and mental illness.An interesting issue is that adolescent cannabis use, childhood trauma and general predictors of later psychosis are intricately related. In fact, a recent study has shown that there is a greater incidence of Childhood Sexual Abuse (CSA) in the schizophrenic population.[38] Of particular interest is that the risk for schizophrenia increases with urban birth and/or upbringing, especially among males.[39] The mechanism of association is unclear but may be related to biological, social/environmental factors or both, and may have considerable impact before psychotic symptoms manifest. Several psychosocial and environmental factors have synergistic synergetic effects on genetic vulnerability in light of gene-environment interactions. Some of these factors are: urbanicity in developing countries, cultural variables and geographical location. These factors together suggest a relationship between urban city and neural maldevelopment.[40]

In summary, it appears that cannabis does not cause any structural changes per seay but deficits in areas of the brain responsible for memory and emotion do show some changes. Despite these findings, it is still not known if these changes are transitory or permanent, and whether or not they contribute to the pathophysiology of schizophrenia. The mystery of the neural effects in cannabis abusers developing schizophrenia remains in spite of these advancements. Many studies now show a robust and consistent association between cannabis consumption and the development of psychosis, but this may not be the case for schizophrenia specifically. Our better understanding of the biological correlates of cannabis use allows for the proposal of a plausible hypothetical model, based notably on possible interactions between cannabis and dopaminergic neurotransmission.[41]

Schizophrenia is increasingly viewed as a subtle neurodevelopmental disorder characterized by disrupted brain connectivity and altered circuitries.[42] It is clear now that periods of brain development are particularly important in adolescence. It has been suggested that the illness may result from either an early (pre- or perinatal) static brain lesion with a long latency or a late brain disturbance of limited duration and short latency during adolescence.[43] Therefore, the alleged role played by the endocannabinoid system in later developmental phases such as the adolescent one, prompted speculation that alterations in the endocannabinoid tone, induced by cannabis consumption during the adolescent developmental window, might represent a risk factor for developing schizophrenia.[44] The data so far do not provide a reason to explain why schizophrenia patients use or misuse cannabis. Furthermore, THC might differentially affect schizophrenia patients relative to control subjects. Finally, the enhanced sensitivity to the cognitive effects of THC warrants further investigation into whether neural cannabinoid receptor dysfunction contributes to the pathophysiology of the cognitive

deficits associated with schizophrenia.[45] Recent studies suggest that cannabinoids such as CBDhave a pharmacological profile similar to that of atypical antipsychotic drugs.[46] The mechanisms by which cannabinoids produce transient psychotic symptoms, while unclear, may involve dopamine, GABA, and glutamate neurotransmission; however, only a very small proportion of the general population exposed to cannabinoids develop a psychotic illness. It is likely that cannabis exposure is one variable that interacts with other factors to "cause" schizophrenia or other psychotic disorders, but is neither necessary nor sufficient for the development of psychosis. Nevertheless, in the absence of known causes of schizophrenia, the role of component causes such as cannabis use is important and warrants further study. Dose, duration of exposure and age of first exposure to cannabinoids may be important factors. The genetic factors that interact with cannabinoid exposure to moderate or amplify the risk of a psychotic disorder are beginning to be understood. In this connection, novel hypotheses including the role of cannabinoids on neurodevelopmental processes relevant to psychotic disorders are being studied.[47]

In conclusion, there have been significant advances in the understanding of cannabis with respect to transition to psychosis in vulnerable individuals that is similar to what has been reported in schizophrenia. Although the direct pathway of causation from cannabis consumption to development for psychosis is not known, pharmacological as well as behavioral studies intendto develop better intervention and prevention of psychosis which remains critical.

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View Point

Impact of rapid urbanization on women's mental health: a review of literature

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Introduction

Urbanization is a continuous process. By the year 2008, more than fifty percent of total world population were living in urban areas.[1] The process of urbanization is very fast in developing countries. It is projected that by the year 2025, more than half of Indian population will be living in urban areas.[2] It has coloured the life and changed the civilization. It has led to migration of people from villages to cities. Though it has contributed to better quality of life, increased tolerance and better socio-cultural stimulation, at the same time; it has devastated mental health of people by heightened social tension, increased conflicts and has caused an increase in overall stress.[3] The final outcome is an increase in psychiatric morbidity in urban population. This phenomenon has been observed not only in poor and backward countries but also in developed parts of the world.[4]

Impact of Urbanization

Due to urbanization, a lot of changes occur in every individual, family, society as well as the country as a whole. As we have already mentioned that urbanization have both, a positive and a negative impact on the society and on the individual itself. Therefore some of the important and authentic impacts of urbanization can be summarized as below:[5]

Impact of urbanization

- Change of family dynamics
- Increased burden on female members
- Immigration
- Unemployment
- Poverty
- Crime
- Increased stress
- Disturbance of biological rhythm
- Stressful life events
- Poor social network

Mental Health Issues Related to Urbanization

Many studies comparing rural and urban population revealed, that mental illness are higher in urban areas.[6-11] When the urbanization proceeds rapidly, the likelihood of psychosocial maladjustment is more likely.[12]

Meta analysis of population surveys by Peen et al regarding difference in mental illnesses in rural and urban population, found that mental illnesses, in particular mood disorders, substance use disorders, anxiety disorders were more common in urban areas as compared to rural areas.[13] Blazer et al, in his study found that major depressive disorder was more common in urban population but subsequent studies by Kessler, et al did not establish this finding.[14-16] Variation in demographic parameters is one of the possible reasons of difference in the prevalence of psychiatric disorder in urban and rural regions.[17-19] Reddy and Chandrasekhar in their meta-analysis of Indian epidemiological studies on mental disorder, found that the prevalence of mental disorders in urban areas is as high as 80.6% in comparison to that of rural areas, where it was 48.9%.[20] Sundquist et al in their follow up study on 4.4 million men and women in Sweden found that psychosis and depression is more prevalent in urban population, irrespective of gender.[21]

Two main hypotheses (Breeder hypothesis and Drift hypothesis) describe the rural – urban

differences of psychiatric disorders. Breeder hypothesis reasons environmental stressor in the urban settings as the cause of high prevalence of psychiatric disorders in urban population where as drift hypothesis explains that selective migration leads to accumulation of patients with psychiatric disorder in urban population.[22-25]

Even in the urban setting, the distribution of psychiatric disorders may also vary according to some demographic variables. An epidemiological study conducted on urban German population found that people of low socio-economic status living had more somatoform disorder and those who were unmarried had more anxiety disorder.[26] Mental illnesses related to urbanization are summarized below.[27, 28]

- Psychoses
- Depression
- Socio-pathy
- Alcoholism & other substance use disorders
- Crime
- Delinquency
- Vandalism
- Conduct disorder
- Relational disorder

It is a universal phenomenon that the most vulnerable groups of the society i.e., women, children and elderly, bear the maximum brunt of any assault, and the same is true even with impact of urbanization on mental health.

One important impact of urbanization is "loneliness". Loneliness is a 'silent killer'.[29] Urbanization results in migration of younger population from rural settings to the urban setting leaving behind the elderly, helpless population in a lonely state, which is a strong attributing factor for depression, in this specific population.[29] Loneliness of elderly population also leads to suicide and even dementia.[30, 31] Migration resulting from rapid urbanization is not solely responsible for loneliness and other factors like – struggle of day to day life in urban areas, busy work schedule, involvement in multiple responsibilities also attribute to loneliness of dependent persons at home. Urbanization facilitates the process of migration which results in separation from family, lack of support and many other situational stressors attributing to depression.[32]

Urbanization also attributes to air pollution, water pollution, noise pollution and many more hazards which increase the risk of many physical illnesses.[1] Increased incidence of physical illnesses increases the level of stress and risk of psychiatric disorders.[1]

Impact of Urbanization on Women's Mental Health

In most of the societies, women have a subordinate role to men. Gender inequality is a worldwide issue. The women have to play the role of mother, wife, daughter etc which are stressful roles in the context of any society. Each role is affected by the process of urbanization. In addition, women also become part of labor force and contribute to household income. While the roles played by women in social framework have been expanding like anything, their rise in hierarchy in society, that should rightfully accompany this increased demand on them is still missing. The changes have positive as well as negative impact on women. The positive impact of urbanization can be summarized as - Improve in the literacy rate, increased self dependency, increased liberty, more opportunity for public employment.[33]

Due to urbanization, the literacy rate of women has been improved. They have become more aware of their rights. Improved literacy and education has created the opportunity for self-employment and self-dependence. Urbanization has also facilitated the process of empowerment of women.

The negative impact however, far outweighs the apparent positive impact. Urbanization, particularly in the developing countries, significantly affects the social support system of women belonging to low socio-economic status, which makes them more vulnerable for anxiety and depression.[34]

Women in urban areas have significantly higher prevalence rates for neuroses, affective disorders, and organic psychoses than men. The rate of prevalence of mental disorders in women in urban India is estimated to be around 64.8 per 1000.[20] A study in Bangladesh showed that women had a higher psychiatric morbidity than men, with a sex ratio of 2:1 for mental disorders and 3:1 for suicide.[35]

Women in urban settings face a unique set of problems. These include increased risk of assault at hands of intimate partners as well as close relatives, poor reproductive health, increased sexual

violence and increased use of addictive substances.

The risk of domestic violence and assault (both physical and sexual) is increased in urban settings.[36] These are often accompanied by acts of emotional abuse (e.g. humiliation in front of others, intimidation on purpose, threat to harm) and controlling behaviours (e.g. keeping from meeting people, restricting social contacts, restricting access to health care, etc.). Such women have been reported to have increased frequency of symptoms like not being able to enjoy life, fatigability and frequent suicidal thoughts.

Poor reproductive health is another important issue of concern. Unplanned pregnancies and unsafe abortion practices have increased. Unplanned pregnancies add to burden of family, result in conflict between the partners and result in increased stress levels. Forced and unsafe abortion practices are also equally detrimental. Inadequate care and poor nutrition during pregnancy have important bearing not only on the fetal well-being and positive outcome of pregnancy but on mental health of the mother too. The care and attention given to a pregnant lady in rural settings simply goes missing in the urban settings. Urban background has been found to be closely associated with post-partum depression.[37]

In developed and developing countries, where urbanization is in rapid progress, many lactating mothers leave for work and the process of breast feeding is interrupted. Premature termination of breastfeeding hampers the fertility control as breast feeding regulates the fertility naturally.[38] It is a universal fact that breast feeding leads to strong mother-child bonding. As expected, this also gets hampered due to early termination of breast feeding.

Increased sexual violence to women in urban setting is something that is too obvious. One reads about such incidences every other day in the newspapers. It is not difficult and at the same time, agonizing to imagine what impact they have on mental health of a victim as well as her family.

Increased use of addictive substances by women is another important negative impact of urbanization. The prevalence has increased in women of both higher as well as lower socio-economic strata. Substance use by women was considered a taboo in rural settings. Now, it is a symbol of social status for those in higher strata of society and stress buster by those in lower strata. Harms of substance use are anybody's guess.

Women in urban settings face additional gender discrimination, malnutrition, overwork and poorer pay scales. Many of the ladies working at the construction sites face abuse at the hands of contractors. A study conducted by Bordoloi and Sarmah on women working in coal fields of Assam revealed that working women are often employed in petty jobs, do not tend to get united and bargain for their rights, and stay in poor conditions. Also, there is lack of supportive facilities like proper sanitation, drinking water, effective medical facilities and in long term, they suffered from physical diseases due to exposure to coal dust,[39] which was not attended adequately. It is a universal fact that women are often paid less for same amount of work as men.[40] The gap is noticed not just in unorganized sector or unskilled workers but also among those holding professional and post-graduate degrees. The gap has been reported to be as high as 44% in the salary of male and female counterparts.[40] The impact of these factors needs to be explored adequately.

Association of urbanization and migration is also important. Unplanned migration can have detrimental impact on a person's mental health. Women are no exception. While sudden change of environment is a great stress in itself, additional burden of change in roles (as discussed above) and loss of protective mechanisms has negative consequences.

Migration is an integral part of women's life in many societies. In most of the patriarchal societies, a woman has to leave her maternal house after her marriage and to live with her spouse and his family who are nearly strangers to her. Women living in urban and rural areas have difference in their life styles. A rural woman, who has to migrate to urban areas after marriage has to face lot of difficulties in adjustment and similarly when a urban woman migrate to a rural society after her marriage, she also faces difficulties in adjustment. Urbanization has brought a significant difference in the styles of living, which led to difficulty in adjustment and this maladjustment may result in relational problems, depression, dissociative disorder, somatization and anxiety disorders. Silove et al in their study, emphasized on the impact of migration on the psychological wellbeing of the individual and

described it through an explanatory model which has five essential elements[41]–

- Personal safety
- Attachment and bond maintenance
- Identity and role functioning
- Justice
- Existential meaning

Affection of these factors due to migration results in psychological disturbances.[41] Another important effect of migration is acculturation which also attributes to psychological problems.[42] Studies also reveal the adverse impact of husband's migration on the mental health of their spouses.[43]

Pregnancy is a landmark event in a woman's life. Migrant women are subjected to a lot of challenges and adversities in the management of maternity care. The stress of pregnancy and child rearing, difficulty in adjusting to the new situation and scarcity of support has significant adverse impact on the psychological well-being of the women.[44]

Urbanization disproportionately increases the female gender specific risk factors like – gender-based violence, earning inequality, subordinate status in society and increased responsibility of care.[45] These gender based risk factors adversely affect the mental health of women. Isolation and loneliness are more commonly seen in women than men.[29,46] As per reports, in the year 2004, there were 1.23 million men and 3.68 million women who were living a lonely life in India.[47,48] Urbanization is a strong attributing factor of loneliness in women.

Unfortunately, while the stressors have significantly increased, the protective mechanisms have become weak with urbanization. The social support and presence of close relationships which is protective and is commonly observed in rural societies has disappeared in urban context. Nuclear families, lack of proper peer group and decreased frequency of social gatherings only add fuel to the existing fire.

Conclusion

Urbanization is a continuous process and cannot be stopped. Coming years shall further witness expansion of cities and all the associated problems. Rapid urbanization, has stolen the focus of policy makers to invest in the cities, keeping the rural development aside, even though a larger chunk of population still reside in the rural areas.[49] This also increases the stress of rural population.

A few more might add to the list. The need of the hour is to pause and to have a look at the problems that are likely to trouble us the most. Women are the most important pillars of the society. Compromise of health of women shall compromise the health of entire family and society as a whole. In the current society, the social role of a women is quite different from what it is expected from them decades back. Expectations have been changed to a greater extent by the process of urbanization which attribute to increasing stress.

Gender is an important determinant of mental health and is significantly affected by the process of rapid urbanization attributing to a spectrum of mental illnesses.[50] In the race of development, we must not lose what we have in our hands. There cannot be any progress without health and needless to say, mental health is as important as physical health. We must focus on the changing structure of society and its impact on mental health of women. Policy makers need to be made aware of this issue and appropriate plans need to be formulated. Increasing general awareness of the society and mental health professionals about this burning issue shall go a long way in finding a lasting solution to this problem.

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