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Editorial

Mental well- being and COVID -19: Are we ready?

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Difficult and uncertain situations like the current pandemic of COVID 19 which has swept away the world created uncertainties in life of any individual. This pandemic has brought upon situation which no-one in this century has encountered. Where social connection and physical touch was the norm, this virus has brought in social distancing and home confinement. Stringent measures like lockdown from the government indicates how dangerous is the infection and its high impact on every aspect of human life if not controlled at the earliest.

With all this, our mental preparedness is needed to face and bear up the consequences, but are we prepared? Health and infrastructure are always rated on the lower side in the mind of policy makers resulting that no country was ready for this large-scale calamity. India, a third world country, second most populated ranked very low in health sphere and invests only 4.7 percent[1] of GDP on it. Imagine our fears now. Epidemiologists have predicted that if India would not follow the measures like hand washing, safe hygiene practices, staying indoors, social distancing, avoiding crowds and overcrowding, India' s morbidity would not be in merely thousands as is the current ongoing numbers but in lakhs and that is scary as hell. This gruesome scenario, high mortality[2] in well developed countries like USA, Italy, Spain, rising numbers of our country along with coping difficulties of confinement, unemployment, lack of social connectivity, inability of migrants to go home could cause serious impact on mental well-being. Compliance to quarantine and distancing along with increased perceived mental health care needs in these tough times was reported by a recent study by Roy et al.[3] Mental health issues have been forecasted as the possible next wave of this pandemic and we need to be ready before it comes and overpowers.[4]

Isolation, depression, anxiety, fear, phobia "coronophobia" are some of the possible issues that can be seen due to COVID 19. Trauma due to loss of loved one and resulting grief will also be one of those things all mental health workers as well as physicians should be in look out for. Anxiety and fear among the frontline workers[5] those who are in direct contact with those tested positives with corona is there and they also do fear of contraction to their families and others but are also subjugated to stigma and violence from the community. Still the fight is on and each and every front-liners are doing their best to serve and protect. We need to honor their sacrifice and support without any discrimination so as to keep their morale up.

To deal with all the possible corona related issues we should first and foremost follow the stringent hygiene practices and follow the rules of lockdown. Due to the confinement, many are frustrated, irritated and itching to go out, but as the saying goes "jaan hai to jahan hai" (if there is life there is everything) people should avoid going out. Making a regular schedule which involves doing yoga at home, spending quality time with family members, picking up an indoor hobby like painting, cooking, dancing etc. helping family in daily chores etc. can be made so as to keep oneself busy and productive. AYUSH has released guidelines in boosting one's immunity by various methods and can be tried. Connecting to near and dear ones through social

media can help maintaining connectivity and ensure their safety. Avoid excessive media watching beyond the needed information, as it may sometime induce anxiety due to graphic images and catastrophization.[6] Government need to work closely with health and other essential services department to curtail the number of cases, maintain the decorum, make a policy for daily wagers as they are left high and dry in these situation and also those who are stranded now here in this lockdown. Also, due to novelty of the virus and its unknown effects multidisciplinary research is needed for the discovery, evaluation and refinement so as to address the bio-psycho–social aspects.[7] Mental health professionals need to be prepared and have strategies[8] in place to deal with issues arising due to pandemic immediately as well as to handle the long term impact. The new psychological challenges are going to arise due to clinical factors i.e. exacerbation of existing illnesses (due to lack of follow up, discontinuation of medication, stresses, isolation, quarantine, precipitation of medical comorbidity etc.), caregivers' morbidity and burden and other psychosocial factors like loss of job, financial burden, career related issues and stigma. The health workers may face chronic stress, depression and burnout.

Considering that one of the major prevention strategies advised is home confinement, accessibility to health care workers seems difficult, for this MCI[9] has approved and issued telemedicine guidelines so as to help the sick and needy in these difficult times. Telepsychiatry and tele-counselling have been there for quite some time now but has become the need of the hour and every psychiatrist should familiarize themselves so as to assist our clients as much as possible.

Stay Home Stay Safe

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Invited Article

Telemedicine with relevance to Psychiatry – A new paradigm during Covid Pandemic

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ABSTRACT

India begins a new era of Telemedicine during Covid 19 pandemic. Telemedicine services at the initial start enables clinicians to render teleconsulta-tion/telecounseling services to the public avoiding exposure of this infectious virus. There is a major drawback of lack of physical examination through this technique, limited prescription drugs allowed, not being applicable to emergency situation barring first aid and advise. Informed consent, confiden-tiality, privacy and security concerns should be kept in mind with all prevailing laws of land. Never-theless, authors highlight extreme usefulness of Tele-medicine by mental health experts in providing crisis intervention for Health Care Staff through Medical Education Unit, Telecounseling/ teleconsultation services to Delhi University, general public as well as health care staff in such a short span of time during the period of lockdown. Mental health professionals should build resilience in general population in times of adversity and necessarily in such challenging situation of Covid 19 out of box thinking, optimism and hope will help the nation as well as globe fight against the contagious virus. An efficient telemedicine services is the future vision that will provide benefit to the mankind, reaching the unreached.

Keywords: *Telepsychiatry, Telemedicine, Covid 19.*

Introduction

A new type of **Coronavirus** was found in Wuhan, China in late December, 2019. The virus belongs to the same genus as Severe Acute Respiratory Syndrome–related Coronavirus (SARS-CoV) and Middle East Respiratory Syndrome related Coronavirus (MERS-CoV). International Committee of Taxonomy of Viruses (ICTV) detected this new virus and was named SARS-CoV-2 on February 11, 2020.

This virus has spread all over the world rapidly in a very short span of time. World Health Organisation has declared a global pandemic of Coronavirus. Globally, Coronavirus confirmed cases were 3,090,445 of 213 countries, areas or territories with cases, deaths reported were 2,17,769 as on 30, April, 2020, 11:00 am.[1]

In India, currently 33,338 total Corona cases, 23,748 deaths, 8508 recovered cases, 1082 deceased as on 30, April, 2020. In India, total number of confirmed cases are 7600 among which 6,577 active cases, 249 deceased, 774 recovered till 11th April.[2]

In the wake of this global pandemic, Telemedicine Practise Guidelines were approved by the board of governors on March, 2020 for practise of Telemedicine for India.[3] **Telemedicine** as per the definition in the guidelines is "The delivery of health care services, where distance is a critical factor, by all healthcare professionals using information and communication technologies for the exchange of

valid information for diagnosis, treatment and prevention of disease and injuries, research and evaluation, and for the continuing education of healthcare providers, all in the interests of advancing the health of individuals and their communities."

Telemedicine Guidelines (Board of Governors)

Telehealth is defined as "The delivery and facilitation of health and health related services including medical care, provider and patient education, health information services, and self care via telecommunications and digital communication technologies'. The **main purpose** of these guidelines is to provide health care to the large section of unreached population residing in remote areas using digital platform. Technical expertise can be provided via digital mode to remote areas and thus will help to break the barriers. This will help us provide guidance, health education, preventive, diagnostic, treatment, research in health care sector throughout the country. The limited trained manpower concentrated in urban areas can provide their services via this modality (telemedicine) to remote, backward, rural areas throughout the length and breadth of the country with minimal investment of resources. Also, this will enable to provide better integration of health services available at primary health care centres with district hospital, state run medical colleges, premier institutions.

Telemedicine usage involves three **modes of communication** via **text messaging** (smartphone apps, websites, whatsapp, google hangouts, facebook, messenger, email, fax), **audio** (phone, apps), **video** consultation (Telemedicine facility, Apps, chat platform, skype, facebook) etcetera.

Informed consent, confidentiality and security concerns hold for telemedicine as they are in person consultation. Consent is implied if patients contact. However, if RMP or health worker contacts, explicit consent has to be taken in simple words and documented as well. Laws related to clinical practise like consumer protection act , Medical Council Professional Conduct Act, Information Technology Act are applicable to Telemedicine as well. All the other Indian laws are applicable for this new service (Telemedicine) as they already exist for routine, emergency services, research protocols, and all the services included under the umbrella of Telehealth.

Mandatory **Online training of Registered** Medical Practitioners (RMP) is to be provided so that they learn and deliver these services in an efficient manner.

Telemedicine services will provide **first/follow up** consultation for which the protocol includes patient complaints, laboratory reports, special investigations, images, prior prescription records. These services can connect patient, caregiver, another RMP, Health Care Worker (HCW) to RMP. Patient can consult for diagnosis, treatment, health education and counselling. Follow up visit through teleconsultation can be done within six months of in person consultation provided no new symptoms develop and RMP can recall the case.

The **prescription issued** by RMP should mention all patient related information such as name, age, gender, date, address, phone number, email id, what all prescribed, duration, frequency of administration, RMP (registration number, name, qualification, name of hospital etc). Another relevant and **peculiar point** is **time log as well as the records (email records, phone logs, chat or text records, etc.)** should be noted as well as stored.

Drugs to be prescribed via Telemedicine are "Over The Counter" like Oral Rehydration Solution, Paracetamol, Antacids in any tele-consultation. Video consultation is to be provided for skin conditions, conjunctivitis and Refill drugs for chronic conditions like Diabetes Mellitus, Hypertension, Asthma. Any mode of consultation can be used for add on drugs for example Hypertension. Schedule X of Drugs and Cosmetic Act and Narcotic and Psychotropic Drugs Act are **prohibited** for teleconsultation. Schedule H class of drugs have been avoided in Telemedicine guidelines. [4] An amendment permitted the use of psychiatric drugs such as Phenobarbitone, Clobazam, Clonazepam for teleconsultation dated 11/04/2020.[5]

Emergency consultation should be **restricted** to first aid or immediate assistance for referral, counselling. **Emergency consultation via telemedicine should be avoided. In person consultation** should be done in all emergency cases.

Advantages of Telemedicine

Telemedicine guidelines are especially beneficial in the wake of Coronavirus Pandemic as there is no exposure to health care worker as well as the patients who are offered consultation through this new digital

platform.

Often the patients travel long distances to seek opinion from tertiary care hospital/premier institutes. The technical expertise through telemedicine can provide consultation at the patient's doorstep thus minimising the cost of travel, booking travel tickets and other hassle of an accompanying person who also has to miss work to bring patient for consultation.

Digitally all the patient records can be sent and so is convenient procedure to seek an opinion without wasting precious time.

Privacy and confidentiality are protected and informed consent is applicable.

Prescription of a follow up patient of a chronic disease can be made for six months if there are no new symptoms and in person consultation has been done six months before. This will especially benefit senior citizens who can avail these services from home.

Counselling and advice in emergency situations is a boon through this technology. Timely advice in emergency setting will help the patient and caregiver take right informed decisions as to where and how they should seek emergency in person consultation. The lack of knowledge of what hospital deals with what kind of work at the patients and caregivers end often results in delay in reaching /seeking immediate intervention.

Teleconsultaion can be terminated anytime by patient or the RMP.

Disadvantages of Telemedicine

Physical examination cannot be performed which is a major drawback. Even if some other person (clinician) does it, still there is no guarantee of clinical acumen of other colleagues. More experienced clinicians note the relevant physical examination finding on their own. Psychiatrists also do mental state examination on their own. There are likely chances of missing out clinical signs. In order to overcome this limitation, in person consultation can be advised.

Internet connectivity is a major issue and a proper backup with efficient technical support staff to handle all devices such as computers, laptops, smart phones maintenance need to be in place.

Illiterate population who is not technology savvy may depend on others to assist them for availing such services. Also, dispensing of free drugs/ permitting free investigations via telemedicine can be a problem for government hospitals on which large sections of Indian society are dependent.

Cyber security related to breach in confidentiality by third party can be really very dangerous. Health Care workers as well as the patients and caregivers are not aware of the laws or the measures how to prevent such crimes.

24 x 7 backup framework with highly organised teamwork comprising of all dedicated staff rendering such services is required. It might increase the workload of already burdened health staff in busy hospitals. There are chances that because of busy in person consultation services, trained experts are not able to promptly respond for teleconsultation.

Telemedicine services specially for mental health needs

World Health Organisation during Covid 19 released mental health considerations for public in general, health care workers, caretakers for elderly, caretakers for children, people in isolation.[6] It is advised that the team leaders of health care minimise the stress among their medical staff so that they possess better immunity to fight battle against Covid 19 as frontline force. Better coping skills with regular exercise, healthy balanced diet, good quality sleep, not listening to news all the time, staying in touch with the latest updates on important websites like WHO, Ministry of Health and Family welfare, relaxation, providing emotional support to each other by talking, chats, messaging, positive thinking can keep the spirits of Health Care Staff high. A recent study by Chen et al. 2020 emphasized that better management of services can be rendered by HCW by managing their mental health.[7]

Innovative steps for addressing mental health

1. Authors developed an (online) **video via Telemedicine** as well as power point presentation **for crisis intervention** to address the mental health needs for dealing with **COVID 19** pandemic for all students, teaching, nonteaching staff, nursing staff and all the employees for internal circulation in the authors institute in collaboration with the Medical Education Unit, University College of Medical Sciences. **Hindi language version** of tips was made so that it can be easily understood and implemented

by all the HCW as listed in **Figure 1**. Guru Teg Bahadur Hospital, largest tertiary care teaching hospital of East Delhi had created facility for handling COVID 19 patients as well as suspects. **Crisis Intervention session (via Telemedicine)** highlighted the following facts: Global figures, Indian figures of COVID 19 Pandemic, brief update of common clinical presentations such as fever, shortness of breath, fatigue, dyspnoea, complications such as acute respiratory distress syndrome, arrhythmias, shock, respiratory failure. Severity of illness was explained and it was highlighted that the case fatality rate in a study by Verity et al. 2020 was 1.38% (1.23-1.53) with substantially higher ratio in older age groups as 6.4% (5.7-7.2) in those above 60 years and up to 13.4% (11.2-15.9) in those of 80 years and above.[8] A pictorial graph was explained to show that majority of cases belonged to asymptomatic and mild category. A pictorial representation by Ministry of Health & Family Welfare was shown for washing hands frequently with soap, avoid travel if fever and cough, helpline numbers was explained. All safety measures including wearing masks will help minimise the virus transmission, safe distancing, use of protective gears was explained. In order to minimise stress, leisure activities such as playing board/online games with family members, listening to music, engaging in house hold chores, especially helping children and elderly in daily routines and by talking with family members, engaging in yoga, relaxation exercises, regular physical exercises like skipping, walking, inculcating hobbies like painting, gardening, cooking, etcetera, learning new skills through online courses for skill upgradation and be flexible to seek new employment opportunities depending on the skill an individual possess.[9] The advise to stay connected with family, friends, colleagues by talking to them and also by social media will help alleviate stress and reduce anxiety. Clear message of no consumption of alcohol or smoking is being given during Corona Pandemic. The importance of balanced diet

यूनिवर्सिटी कॉलेज आफ़ मेडिकल साइंसेज और जी०टी०बी० हॉस्पिटल, दिल्ली

- COVID-19 के बारे में समाचार देखना, पढ़ना या सुनना कम करें जिसके कारण आप चिंतित महसूस करते हैं। केवल विश्वसनीय स्रोतों से जानकारी प्राप्त करें, दिन के दौरान विशिष्ट समय, एक या दो बार तथ्य प्राप्त करें । अफवाह और गलत सूचना नहीं, डब्ल्यूएचओ वेबसाइट और स्थानीय संगठन से नियमित अंतराल पर जानकारी इकट्ठा करें।
- स्वयं की रक्षा करें और दूसरों के लिए सहायक बनें । जरूरत में दूसरों की मदद करें। उदाहरण के लिए - अपने पड़ोसियों को टेलिफोन द्वारा यह जांचने के लिए कॉल करना कि उन्हें कुछ मदद की आवश्यकता है या नहीं ।
- सफल कहानियों को साझा करें, उदाहरण के लिए-उन लोगों के बारे में बात करें जो COVID-19 से उबर चुके हैं । COVID-19 से सफलतापूर्वक इलाज किए गए रोगियों की देखभाल करने वालों के बारे में बात करें और प्रशंसा करें । COVID-19 रोगियों के उपचार में शामिल स्वास्थ्य कर्मियों की प्रशंसा करें ।
- स्वास्थ आहार लें । घर पर योग, ध्यान, व्यायाम करें, किताबें पढ़ें, संगीत सुनें, फिल्में देखें । खाना बनाना, शिल्प, पेंटिंग, बागवानी आदि जैसे नए कौशल सीखें । बूढ़े और बच्चों का विशेष ध्यान रखें । बच्चों के लिए दैनिक दिनचर्या बनाएं । उन्हें नए कौशल सिखाएं ।
- फ्लू के रूप में कोरोना संक्रमण के बारे में सोचो । ज्यादातर लोगों में यह हल्के लक्षणों का कारण बनता है । ज्यादातर लोग दो सप्ताह में ठीक हो जाते हैं । सकारात्मक सोचो यह बीमारी से लड़ने के लिए आपकी प्रतिरक्षा और क्षमता को बढ़ाएगा।
- अगर आपको अत्यधिक घबराहट हो रही है - गहरी सांस लेने का अभ्यास करें और फोन पर दोस्त/परिवार के सदस्य से बात करें । आप मानसिक स्वास्थ्य पेशेवरों के साथ हेल्पलाइन नंबर पर भी बात कर सकते हैं । इस दौरान धूम्रपान, तंबाकू और अन्य पदार्थों से बचें ।
- पूरी दुनिया में इस स्थिति से निपटने के लिए हर संभव प्रयास किया जा रहा है, लेकिन इसमें कुछ समय लगेगा । आशावान और संयमशील रहें ।

Fig. 1: Hindi Pamphlet for COVID 19 Crisis Intervention

was explained as well as instillation of hope, optimism, positive outlook will boost immunity levels to fight against COVID 19. Advisory was given to minimise worries by limiting time of watching news or following updates. HCW are advised to recall the skills that enabled them to manage previous stressful situation or adversities in life. The nationwide campaign to praise Corona warriors through clapping, lighting lamps or torch-lights, showering flowers are all unique initiatives to boost morale of HCW by Indian government and the session ended with a pledge to serve humanity in the best possible manner by taking care of mental health of HCW.

2. Telecounselling/Teleconsultation to Delhi University students and staff: **First and second author** with a team of other mental health experts are being engaged by **Delhi University** in providing **Telecounseling** services to **students, faculty members, non teaching staff** vide notification on Delhi University website dated 08/04/2020.[10] During lockdown declared nationwide since 24th March 2020 by Central government, this unique facility of teleconsultation for Delhi University students and staff is being provided from a team of eminent mental health professionals. This service created by Delhi University on an emergent basis to provide mental health support to students and staff to tide over the crisis of COVID 19 pandemic.

3. **Teleconsultation to general public:** Team of experienced psychiatrists pooled all over the country from government as well as private sectors including **first and second author in efforts of Indian Psychiatric Society** to offer teleconsultation services to **general public** on free (without) charge basis.[11]

4. **Tele-consultation for health care staff:** Institute of human behavior and allied Sciences (IHBAS) started teleconsultation services for health care workers named "Samarthan" in collaboration with Delhi Psychiatric Society, State Mental Health Authority, Delhi Medical Council, Delhi Medical Association after approval of Delhi government in which first author is rendering services under leadership of Director IHBAS, Professor N.G. Desai.[12]

Conclusion

Mental health professionals should build resilience in general population in times of adversity and necessarily in such challenging situation of Covid 19 out of box thinking, optimism and hope will help the nation as well as globe fight against the contagious virus. An efficient telemedicine services throughout nation is the vision for the future.

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Review Article

Dissociative Disorders: Phenomenology and Management

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Introduction

Dissociative disorders are characterized by a disturbance or alteration in the normally integrative functions of identity, memory, and consciousness. These disorders varied from disturbances in memory to developing a feeling that one's own reality is lost and to manifest another personality. It is usually have some relationship to trauma, personal issue, and disturbed relationships with others. "Dissociation" is thought to be developed in person as self-defense against stressful situation whereby a person alters their consciousness in a way to deal with an inner emotional conflict or external stressor. Dissociative defenses' have played dual functions: 1st they helped to escape the human being from the stressful situation and 2nd they delayed the work through of the trauma. Amnesia is the most common dissociative symptom, which occurred in almost all type of dissociative disorders. Dissociative amnesia specially occurs more often in women than in men, and in younger than older adults.

Historical Context

In the earlier era the Conversion and Dissociative disorders were referred as hysteria, which was derived from the Greek word which means "**Uterus**". The concept was emerged during 1600 BC when Egyptian physicians explained the multiple somatic symptoms which occurred due to wanderingof theuterus within the body. But in the17th century these symptoms first time attributed as a disorder ofthe brain rather than any uterine dysfunction.

Charcot was a prominent neurologist in the 19th Century, who was believed that this disorder caused by functional disorder of the brain and i.e. the main factor that the people respond to hypnosis.[1] His thoughts were further elaborated by his pupil Pierre Janet. Janet said that the person with hysteria may be experienced a process of dissociation i.e. they didnot have adequate psychological energy to integrate the various aspects of their psychological functions e.g. sensations, memory etc.[2] Freud who was influenced by Charcot worked on hypnosis. Together with Breuer, Freud opined that "conversion" was the situation in which the distressing feelings or the emotion were changed into some type of somatic symptoms.[3] He was further explained that hysteria was results of repression of the painful memories and these memories further stuck in the person's unconscious mind and these were further omitted from conscious awareness. He successively emerged a technique of psychotherapy, in which the person described one's painful feelings in words, and the emotional pain hidden in one's unconscious (subconscious mind) would become to surface of conscious awareness.[3]

Classificatory Systems

Dissociative disorder is classified into two major classificatory systems.

S. No.	ICD-10	DSM-IV-TR
1	Dissociative Amnesia	Dissociative Amnesia
2	Dissociative Fugue	Dissociative Fugue
3	Dissociative Identity Disorder	Dissociative Stupor
4	Depersonalization Disorder	Trance and Possession Disorder

5	Dissociative Disorder Not Otherwise Specified (NOS)	Dissociative Disorders of Movement and Sensation (i.e., Dissociative Motor Disorder, Dissociative Convulsion and Dissociative Anesthesia and Sensory Loss),
6	————————	Mixed Dissociative Disorders (i.e., Ganser's Syndrome, Multiple Personality Disorder, Transient Dissociative Disorder occurring in childhood and adolescence and other specified dissociative disorders).

The ICD-10 classified the dissociative disorders of movement and sensation under somatoform disorders and in DSM IV-TR and these disorders are named as conversion disorder. DSM IV-TR mentioned the four sub-types of conversion disorders, i.e., (1) Conversion disorder with motor symptoms or deficit, (2) Conversion disorder with sensory symptoms or deficit, (3) Conversion disorder with seizure or convulsion, and (4) Conversion disorder with mixed presentation. ICD-10 classified the depersonalization and derealization syndrome under the heading of other neurotic disorders, whereas DSM IV-TR includes dissociative trance disorder in the chapter of "criteria sets and axes provided for further study" and doesn't mention separate entity of dissociative stupor (WHO, 1992; APA, 2000).[4,5]

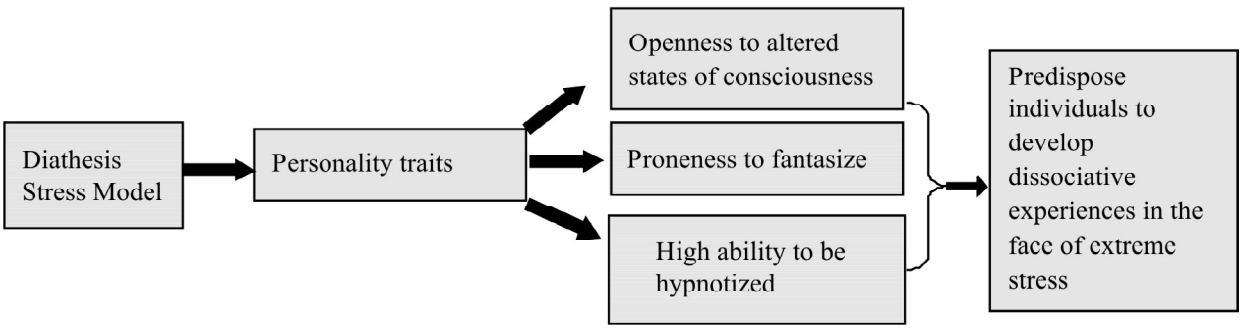
Theories of Dissociative Disorders

a) Psychodynamic Theory: According to this theory dissociative disorders involved the substantial use of repression, which results the "splitting off" from consciousness of unacceptable wishes and painful memory. It may serveas an adaptive function of disconnecting or dissociating one's conscious self from awareness of stressful experience or other sources of psychological pain or conflict[6]. In dissociative amnesia and fugue, the ego protects itself from anxiety by blotting out disturbing memories or by dissociating threatening impulses of a sexual or aggressive nature.

b) Social-Cognitive Theory: According to social-cognitive theory, the dissociation in the form of dissociative amnesia or fugue as learned responses which involved the behaviour of disturbed memory or emotions and these are negatively reinforced by the relief from anxiety, feelings of guilt or shame. **Nicholas Spanos**[7] who believed that the dissociative identity disorder is a form of role-playing and it is learnt through observational learning and reinforcement.

c) Diathesis–Stress Model: There isevidence of association between severe physical/sexual abuse during childhood and dissociative identity disorder.[8]

d) Brain Dysfunction: There is a persistent question which is "Might dissociative behaviour is related with underlying brain dysfunction"? In the research these lines is still is present, but there are preliminary evidence which showed that there are structural differences found in the some brain areas which involved in memory and emotion in persons with dissociative identity disorder (DID) and healthy controls.[9] A recent study showed the differences in brain's metabolic activity between people with depersonalization disorder and healthy subjects. The findings point out that a possible dysfunction in the parts of the brain which involved in body perception andit may be helped in interpretation of the feeling of being disconnected from one's body that is associated with depersonalization.[10]



Assessment

The assessment of this disorder involved a comprehensive model which includes medical, neurological, psychiatric and psychosocial aspect of the person. The key point is ruling out the physical illness, any co-morbid psychiatric and physical illness.

i) **Psychosocial problems or stressors :** The assessment should be done in systematically and identify the patient's psychosocial environment. The 1st to assess stressors and coping abilities and to handle stressful life situations, as well as secondary gains due to dissociative disorder. 2nd stressors in children and adolescents or during childhood in adult may include day to day problems like difficulty in school or family relationships, fights, scolding and punishment, some frightening experiences, educational difficulties in children with lower cognitive abilities, some kind of unwanted or disliked situation like marriage, job or studies and sex abuse. However, some Indian studies point out that stressors are found in only 62% to 82% of cases of dissociative disorder.[11-14]

ii) **Standardized measures:**

i) **Dissociative experience scale (DES)[15]:** This is one of the best screening scale among general dissociation screening scales. It is a 28-item self-report scale. It is based on visual analog technique. It has very good validity and reliability and good overall psychometric properties. This scale is used for severity assessment of the dissociative symptoms.

ii) **Somatoform Dissociative Questionnaire (SDQ-20)[16]:** It consists of 20-items. The scale composite somatosensory and dissociative symptoms including motor inhibitions, loss of functions, anesthesia and analgesia, pain and problems with vision, hearing and smell. The scale has good reliability and validity for discriminating dissociative disorder.

These are the most common and quick measure for assessing the dissociative phenomenon.

Special issues in assessment: It is a noticeable lack of concerns towards the symptoms, although the noticeable severity of disability is present. It was argued that as anxiety is changed into somatic symptoms and the conscious anxiety is 'warded off', presenting clinically as 'la belle indifference'. In fact, it is found that a majority of person with conversion disorder were highly aroused and anxious, as compared to normal controls or person with phobic or anxiety states.[17]

Management

The person with dissociative disorder often present with a challenging symptomatology than even a seasoned clinician can find overwhelming. With the dissociative patients the therapist must be flexible in their approach.

According to Sitholey et al., the treatment of dissociative disorder can be divided into two phase i.e. acute phase and chronic phase.[12]

Acute Phase Treatment

a) **Rapport and therapeutic alliance:** The cornerstones of successful therapy include establishment of good rapport and therapeutic alliance with the person.

b) **Psycho-education:** After ruling out the cause of dissociative symptoms, the patient and his/her family should be explained about symptoms of the illness, causes of the illness etc. Any suggestion of this possibility is met with resentment, anger and sometimes open hostility. Therefore, any confrontation should be avoided and all the members of the treating team should implement the same approach towards the disorder and the patient and the family.

c) **Solving the psychosocial problems:** Once thecause of the illness is known then focuses on solve that "problem". The problem should be discussed with the patient and with their family. It is also important to smooth the way of communication between the patient and his/her family. Throughout the treatment, the attention should be focused on the patient rather than on the symptoms to ensure fast recovery.

d) **Symptom substitution:** As the symptoms begin to subside, sometimes patient may apparent in other dissociative symptoms which is known as symptom substitution. Sometimes, this distress may be expressed in form of deliberate self-harm, demanding histrionic behaviour or depressive symptoms. In such a condition, consistent limit setting may be essential for continuation of psychological treatment.

Chronic Phase Treatment: Chronic cases are more difficult to treat and the management should always begin with a rational evaluation, and clear explanation to the patient and the family about the illness.

i) **Psychoanalytic therapy:** In three dissociative disorders-amnesia, fugue, and dissociative identity disorder, people behaves in a way that very assuredly indicate that they can't access to forgotten part of their lives. And since these people may at the same time be unaware of forgotten material, the hypothesis that they have repressed or dissociated massive portions of their lives is compelling.

ii) **Hypnosis:** The beginning of the hypnosis was with Mesmer's work in the late 18th century and Charcot in 19th century. Through the years the practitioners have used the hypnosis with the person diagnosed with dissociative disorders as a mean of helping them gain access to hidden portions of personality. Hypnosis is not treatment itself; rather, it is a set of techniques which facilitate certain psychotherapeutic goals. Person with Dissociative Identity Disorder is easy to hypnotize, and it is believed it is used by them as a coping mechanism with the stress by entering a dissociative, trance like state in an effort into ward off terrifying memories of stressful events.[18]

iii) **Free recall:** Patients with acute and chronic form of amnesia may respond well to free recall strategies, where they allowed memory to enter into consciousness. The Free association technique is helpful in understanding factors that interfere with recall and occur at a pace that the patient can tolerate.

iv) **Cognitive Behavior Therapy (CBT):** It helped the person to become aware, examine, and revise the way they think, respond rationally and behave in response to their symptoms. The aim is to maximize functioning and reduce the symptoms. In formal CBT the person meets a therapist every one or two times per week and practices new ways of thinking and responding to their symptoms between these sessions.

The following are the principles of CBT in chronic dissociative state:

- Give positive explanations for symptoms.
- Persuade the patient that change is possible, and they do have the potential to recover.
- Discuss the treatment rationale with the patient and the key family members.
- Encourage activity.
- Encourage the person to rationally reconsider unhelpful and negative thoughts.
- Negotiate a phased return to work and studies.

v) **Behavior therapy:** The person with dissociative disorders can be attention seeker and their symptoms increased with attention of others. These patients should be encouraged to not stay in a sick- role. Any little improvement in symptoms should be actively encouraged. If there is a sudden symptom present then it promote the deduction of symptoms and may be preventing the habituation and future disability. The following methods may be achieved.

1. **Strong suggestions for return to normalcy**.
2. **Aversion therapy:** Occasionally in resistant cases can be use liquor ammonia, aversive electrical stimulus, pressure just above the eye ball or tragus of the ear, closing the nose and mouth for treatment.

vi) **Psychotherapy with Abreaction:** Abreaction is bringing the thoughts, affects and memory into the conscious awareness. It may be achieved by some methods such as; Hypnosis, Free association, Intravenous thiopentone or diazepam etc. The main aim of the abreaction is brought the conflicts into consciousness and also made the person more suggestible to therapist advice. Once the conflict has become conscious and their affects (emotions) have been released, the conversion or dissociative symptoms disappears.

vii) **Supportive psychotherapy:** It is needed especially when the conflict have become conscious and have to be faced in routine life. It is an important adjunct to treatment.

viii) **Sensory motor integration therapy:** It is an approach developed to specifically address the resolution of the somatic symptoms. Bodily experience becomes the primary focused in the intervention, emotional expression and meaning making arise out of the subsequent somatic reorganization of habitual trauma related

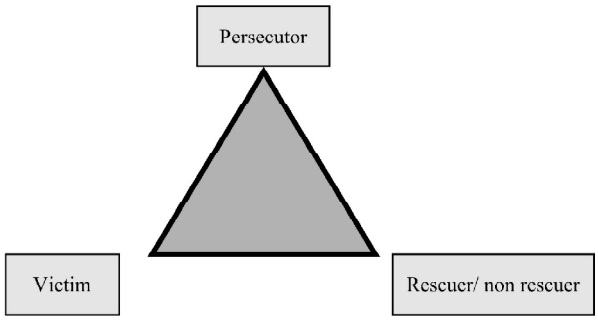
responses. Sensory motor approach work from the bottom up rather than the top down.

ix) **Pacing and Containment:** Pacing is a task shared by therapist and patient. The therapy must be planned and paced as much as possible – broadly over time and in individual sessions. Containment skills can be taught through education and imagery. Therapist must starts with the normalizing feeling as an important part of human being. It includes "affect modulation" that involved the identification of feelings, which is followed by the contextual relationship. In person with dissociative disorder the complex and mixed feelings such as love and anger are usually dissociated. In the 'Modulation' teaching the self-soothing mindfulness or distracting techniques also involved.

x) **Grounding Skills:** It is the process of being psychologically present. It is helpful in facilitating clear reality contact, reducing post traumatic experiences and reducing dissociative experiences, i.e. spontaneous trance, depersonalization, time loss and controlled switching.[27] It is a common struggle working with the patients of dissociative disorder that the patient continue to experience the symptoms from past events, although the present situation no longer poses danger or ongoing trauma. Grounding skills can be divided into two areas:

a) Sensory Awareness	b) Cognitive awareness
Encourages patients to focus in the present by using all five senses in awareness of their body position.	Grounding skills involve orienting the patient to name, age, date and location.

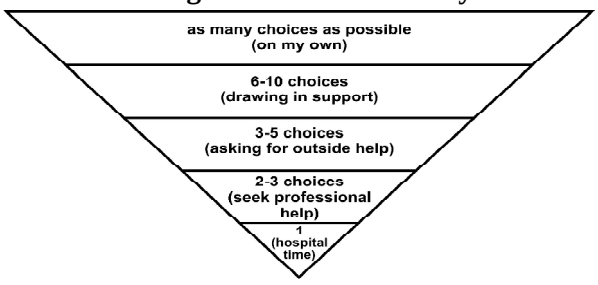
xi) **Traumatic Reenactment:** It can be external or internal and frustrating for the patients. These patients, despite their hypervigilance may place themselves in risky situations as a part of pull towards reenactment, indifference to consequences or acting out a wish to self-punishes or die. One of the best and simplest model to understanding traumatic reenactment comes from the alcohol literature, the Karpman Drama Triangle. Karpman envisioned a family system triangle of shifting roles, including the role of persecutor, victim and rescuer. A trauma triangle also includes the role of non-rescuer or by



stander that the patients commonly describe.

xii) **Safety Planning:** The person with DID often self- injure or attempt suicide because of lack of awareness. A useful model for assisting the patient in determining which steps should be taken before contacting the therapist is the "Triangle of Choices for Safety". It is described in figure presented below.

Triangle of choices for safety



The Triangle of Choices for Safety can be useful approach to encouraging the patient to first try out to use skills independently instead of immediately turning to the therapist for support. This method may be served as minimizing the therapist's burnout when a patient struggles frequently with safety issues.

xiii) **Healing place:** Healing place is a more viable concept because it is an active and creative concept that indicates the power of practice and hope. Clinical practice in the field of trauma and dissociation is replete with the creation of "safe place" imagery to manage fear and anxiety. The imagery itself has many variations and must be tailored to the individual. It may be a place of healing and deep relaxation to calm down the psychological and physiological distress.

Special issues in management

i) **Secondary gains:** Decrease in secondary gain is not worth while in the treatment to the family because of three reasons: **First**, the therapist

may not be confident about the origin of the symptoms. **Secondly**, the family may perceive the reduction in secondary gain as neglect of the patient. **Thirdly**, the family should be offered adequate explanations regarding secondary gains.

ii) **Need for hospitalization:** Hospitalization is required when there is doubt in the diagnosis, severe symptoms, family is very distressed or symptoms are recalcitrant and resistant to outpatient treatment.

iii) **Medication:** There is less role of medication in dissociative disorder except for simultaneous anxiety, depression or behavioral problems. The family should be tactfully made to understand that medications are not required for dissociative symptoms. However, there are families who persistently demand medication.

Conclusion

Dissociation or conversion disorder is most commonly found in Indian culture. It is significantly related with either traumatic stressful life events or the person have poor coping vs. attention seeking personality. It is treated by many methods including placebo medications, which indicates that there is no role of medication in the treatment of this disorder, whereas the psychological intervention had significant importance in the treatment. So, this disorder need significance and need to further research for proper diagnoses and treatment.

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Original Article

Cognitive deficits among HIV infected children: A systematic review

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ABSTRACT

Background: *HIV/AIDS is one of the most destructive diseases with profound social, economic and serious public health consequences. It adversely affects children's cognitive development with delay in cognition and performance and thus these children are at high risk of developing neurologic and neurodevelopmental impairments.* ***Objective:*** *Against this background, the following study aims to review and highlight the cognitive deficits among HIV infected children.* ***Methods:*** *To find out relevant studies, electronic databases PubMed, PsychINFO, Google, Google Scholar and Yahoo were searched. One hundred three articles related to children were found, out of these only fifteen articles fulfilled the inclusion criteria for review.* ***Results:*** *HIV infected children experience cognitive abnormalities like central nervous system dysfunction, ventricular enlargement, white matter abnormalities, brain atrophy, mass focal lesions and the basal ganglion calcification affecting their executive functioning and language.* ***Conclusion:*** *This study confirms that HIV virus affects the cognitive developments like executive functioning, visual-motor functioning, language, attention, motor functioning, fine motor performance, verbal learning and general intellectual functioning of HIV infected children.*

Keywords: *HIV/AIDS, HIV infected children, Cognitive deficits, Cognitive abnormalities, Neuroimaging abnormalities, Cognitive development.*

Introduction

HIV/AIDS pandemic has potentially reached catastrophic state and is one of the greatest challenges in the 21st century around the globe. In India, near about 50,000 newborns are perinatally infected with HIV/AIDS per year.[1] HIV/AIDS affected children or a child made vulnerable by HIV/AIDS below the age of 18 are known as HIV/AIDS children.[2] HIV transmission has three main routes: sexual route, blood transfusion and mother to child transmission. HIV infected children have maximum chances of the neurologic and neurodevelopmental impairments due to the presence of HIV virus, antiretroviral treatment (ART) and situational factors. They experience language impairments and psychomotor delays[3] are impulsive, hyperactive and have difficulty in attending, focusing and concentrating on stimuli. HIV virus affects different parts of the central nervous system e.g. frontal cortex, basal ganglia, and connecting structures thus affecting the neurologic functioning of the brain.[4]

Methodology

Rationale

Neuropsychological consequences of HIV infection in the adult brain have been studied widely, but their findings cannot be implemented directly on HIV/AIDS children because the HIV virus impacts differently on the adult brain and children in terms of disease progression, severity and developmental deficits. HIV infected children are more prone to CNS dysfunction and have a faster

disease progression comparatively. This research will be helpful in providing collective inference and increase sensitivity regarding cognitive deficits of HIV infected children among healthcare professionals, caretakers and policy makers while designing and making policies.

Objective

The present study aims to review the cognitive deficits among HIV infected children.

Search strategy and article selection

Empirical peer reviewed articles discussing the impact of HIV/AIDS on the cognitive development of HIV infected children published were searched. Electronic databases like PubMed, PsycINFO and the online publications of several organizations [(the Joint United Nations Programme on HIV/AIDS (UNAIDS), United Nations Educational, Scientific and Cultural Organization (UNESCO), United Nations Children's Fund (UNICEF) and World Health Organization (WHO)] were searched till date. The keywords used for search were 'HIV/AIDS', 'HIV infected children', 'cognitive deficits', 'cognitive abnormalities', 'cognitive development', and 'developmental delay in HIV infected children'.

Inclusion criteria

Studies were included in the review if (a) the sample were HIV infected children aged between 6 month - 18 years; (b) HIV infected children were directly infected through parents; (c) it was a peer reviewed article and (d) the language of the study was English. On the basis of these criteria, 15 studies were selected for review. Articles were initially screened on the basis of titles and abstracts then the full text of the articles was obtained for systematic review.

Method and Measures of Articles Reviewed

Several research designs, methodologies, variables and tools were represented within the 15 articles reviewed. All the 15 studies were quantitative in which 12 studies were cross-sectional and 3 studies were longitudinal.

Well-validated, reliable and tremendously used standardized measures, adapted standardized measures have been used in the studies. The empirical papers used qualitative and quantitative psychological assessment and neuropsychological measures to identify cognitive deficits in HIV infected children

Figure-1: The Selection method of the studies.

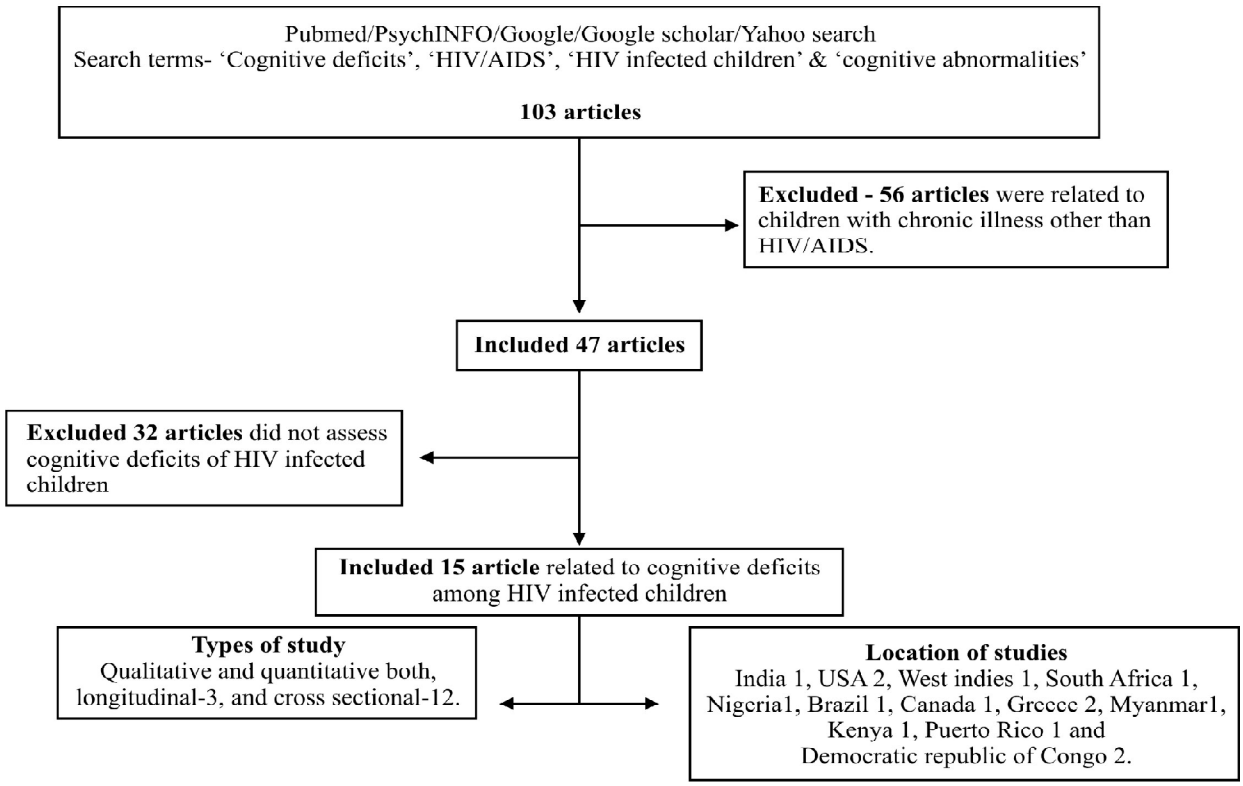

Table 1: Studies related to cognitive deficits among HIV infected children

Author/Year/ Country	Sample characteristics	Gender, cases and control	Measures/Tools	Major Findings
Linn et al.[14] Myanmar	59 children aged 6-16 years	28 HIV positive and 31 HIV negative	Visual scanning, Digit span, Design fluency, Motor speed, Grooved Pegboard, Trails A, Symbol search, Fluency, HVLT learning, HVLT delay, Beery VMI, Block design, Object assembly	HIV-infected children had poor performance on all the tests, with significant group differences in executive function, visuospatial reasoning, fine motor dexterity, and visual motor integration.
Ravindran et al.[15] India	40 children aged 8-12 years	Total 40 HIV positive (8 Male & 12 Female) HIV negative (8 Male & 12 Female)	Malin's Intelligence Scale for Indian Children	HIV infected children had impairments in the areas of attention, language, verbal learning, memory, visuo-motor functions, fine motor performance, and executive functions.
Boyede et al.[16] Nigeria	138 children aged 6-15 years	69 HIV positive, 69 gender matched controls	Ravens Progressive Matrices	Significant mean difference was found in the RPM score with the HIV positive children significantly lower than the HIV negative children.
Bruck et al.[5] Brazil	150 children aged 1-72 months	43 HIV infected, 40 HIV Uninfected and 67 control	Denver Developmental screen test (DDST) Clinical adaptive test/Clinical linguistics and auditory milestone scale (CAT/CLAMS)	The HIV infected group's developmental quotient was significantly lower than the other group. The same occurred for the DDST in comparison to control group.
Walker et al.[17] West indies	15 children aged 7-10 years	15 HIV positive	Raven's Coloured Progressive Matrices Corsi Block test Map Mission Search Movement Assessment Battery for Children, 1992 Wechsler Intelligence Scale for Children fourth edition (WISC-IV)	The encephalopathic group received lower test scores than their non-encephalo-pathic peers in the Raven's Progressive Colored Matrices, Corsi Block test, Map Mission Search Movement Assessment Battery for Children, Wechsler Intelligence Scale.
Jelsma et al.[8] South Africa	44 children aged 35–74 months	24 Males, 20 Females and 23 HIV positive 21 control	Peabody Developmental Motor Scale (PDMS-II)	HIV infected Children were significantly delayed in their cognitive developments as compared to their healthy counterparts.
Thomaidis et al.[12] Greece	60 children aged 3–18 years	24 Males, 36 Females, 20 HIV positive, 40 control	The Wechsler Intelligence Scale III (WSCI-III) Griffiths Mental Abilities Scales (GMDS-ER) CT/MRI scan	Cognitive developments of HIV children were lower than healthy control and CT and MRI scan shows abnormalities in the brain structures.
Bertou et al.[18] Greece	20 children aged 3-18 years	20 HIV positive (Male 12, Female 8)	Wechsler scale of Intelligence Scale III (WISC III) Greek standardized version	HIV infected children without neuroimaging abnormalities had equal cognitive development like their healthy peers, HIV children with neuroimaging abnormalities had lower scores on general and practical Intelligence.

Author/Year/ Country	Sample characteristics	Gender, cases and control	Measures/Tools	Major Findings
Abubakar et al.[9] Kenya	367 children aged 6–35 months	178 Males, 169 Females, 31 HIV uninfected, 17 infected, and 319 control	Kifi Developmental Inventory (KDI)	The children born to HIV positive mothers (infected or exposed but uninfected), would find it difficult to perform challenging and novel tasks.
Brackis et al.[6] USA	340 children aged 9–16 yrs	340 206 HIV positive 134 HIV Negative	Peabody Picture Vocabulary Test Third Edition (PPVT-III) Wide Range Achievement Test Third Edition (WRAT-3)	HIV positive children had lower vocabulary and achievement score in comparison to normal healthy controls on cognitive test.
Baillieu and Potterton.[20] South Africa	40 children aged 18–30 months	40 HIV positive	Bayley Scale of Infant Development, 2nd Edition (BSID-II)	Cognitive and motor development was delayed, 97.5% of the sample performed below expectation according to their motor and cognitive age.
Koekkoek et al.[10] Netherlands	22 children mean age 9.46 yrs	11 Males, 11 Females	Revised version of Snijders-Oomen Nonverbal Intelligence Test (SON-R) Global Intelligence Test Amsterdam's Neuropsychological Tasks Program tests (ANT) Verbal Fluency Task	HIV-infected children performed poorer on several neuropsychological tests compared with age-appropriate norms.
Rie et al.[7] Democratic Republic of Congo	160 children aged 18–72 months.	80 Males, 80 Females, 35 HIV positive 35 affected, 90 control	Bayley Scales of Infant Development 2nd Edition (BSID-II)Peabody Motor Scale (PDMS-II)Snijders-Oomen Nonverbal Intelligence (SON) Rossetti Infant-Toddler Language Scale (RITLS)	HIV infected children had the lowest developmental scores, the control children had the highest, and HIV affected children had intermediate developmental scores.
Nozyce et al.[2] USA	338 children aged 2- 17 yrs	338 HIV positive	Wechsler Preschool and Primary Scales of Intelligence-Revised (WPPSI-R), Wechsler Intelligence Scale for Children-3rd edition (WISC-III) CT/MRI	Mean Wechsler Intelligence Scale for Children-III scores, the verbal IQ, the performance IQ, and the full-scale score of HIV children were less as compared to the norms of the test. CT and MRI scan showed abnormalities in the brain structure.
Blanchette et al.[13] Canada	50 children aged 18-25 months	25 HIV positive (Male 12, Female 13) 25 HIV positive (Male 17, Female 9)	Bayley Scales of Infant Development 1994 CT scan	HIV infected group showed impairments in mental and motor development in comparison to normal control. CT abnormalities suggest developmental delays, particularly in context to motor development.

Amsterdam's Neuropsychological Tasks (ANT), Bayley Scales of Infant Development, Bayley Scales of Infant Development II (BSID-II), Clinical Evaluation of Language Functioning-Fourth Edition (CELF-4), CT/MRI scan, Global Intelligence Test, Griffiths Mental Development Scales (GMDS), Kilifi Developmental Inventory (KDI), Peabody Test, Third Edition (PDMS-III), Raven progressive matrices (RPM), Rossetti Infant–Toddler Language Scale (RITLS), Snijders–Oomen Nonverbal Intelligence Test (SON-R), Verbal Fluency Task, Wide Range Achievement Test, Third Edition (WRAT-3), Wong Baker FACES, Wechsler Intelligence Scale (WISC), Wechsler Preschool and Primary Scales of intelligence- Revised (WPPSI-R), Malins intelligence scale for Indian children (MISIC), computed tompgraphy scan (CT scan), Magnetic resonance imaging (MRI) & functional Magnetic resonance imaging (f-MRI).

Results

On the basis of the thorough review following themes emerged regarding the cognitive abnormalities and deficits of HIV infected children.

Delay in Language development

Bruck et al[5] assessed the language development of HIV infected children using CAT/CLAMS. Significant group differences were found at all ages. Insignificant differences were found in the language developments of seroverter and control group children.

Brackis et al[6] investigated the ability of receptive language and recognition of words and found HIV affected children lower at PPVT-III, WRAT-3 and word recognition than seroverter children.

Rie et al[7] reported delayed language expression and language comprehension among HIV infected children. Moderate to high delay in language development was found in maximum number of HIV-infected children as compared to HIV affected children.

Retarded Motor Development

Jelsma et al[8] assessed that HIV children performed poor than the normal children. They varied in the Gross motor quotient (GMQ) with the mean difference of 18.3. The differences in means were 12.7 and 16.0 for the Fine motor quotient (FMQ) and Total motor quotient (TMQ) respectively. Children with HIV performed better with regard to the Fine motor quotient than the Gross motor quotient, but not significantly. Institutionalized HIV children performed significantly better in the fine motor quotient and total motor quotient than those in foster care.

Rie et al[7] found that HIV infected children performed poor than the control groups (HIV affected and HIV unaffected) at all three time assessments for motor development. 90.9% of HIV-infected children (aged 18 to 29 months) had more deficits in comparison to 46% of HIV infected children (aged 30 to 72 months). 14.3% of HIV affected children, 28.6% of HIV- infected children had severe motor deficits. 40% of HIV infected children and 14.3% of HIV affected children had moderate motor deficits, whereas 18-29 months of HIV infected children had severe motor delay as compared to older ones.

Slow Executive functioning

Abubakar et al[9] conducted study with infants aged 6–35 months and found insignificant group difference in total correct scores, perseverative errors and maximum errors in executive functioning. Insignificant group differences were found in total correct, perseverative errors and maximum errors and participant became overtly distressed while completing the task.

Koekkoek et al[10] found that the HIV infected children did not perform according to the established developmental norms of the tool, although no significant difference in response speed stability between HIV infected children and the normative mean was reported. The HIV infected children were slow and inaccurate in pattern recognition, shifting set in both task condition and visuospatial memory as compared to the norms.In a study by Murthy et al,[11] 42 HIV-positive children and adolescents on ART were evaluated and compared with 40 matched controls not known to be HIV-positive. There were significant differences between the verbal, performance intelligence quotients (IQs), global IQ score, and several individual subtests between cases and controls. The HIV group was also found to have a significant functional impairment.

Presence of Neurological abnormalities

Thomaidis et al[12] did a study on HIV children with the mean age ± 4.94 years and control children mean age 4.80 years. CNS neuroimaging depicted that 25% (n = 5) of HIV children had neuroimaging abnormalities.

Nozyce et al[2] performed CT scans on 236 HIV children and MRI on 22 HIV children at baseline. CT scan and MRI scan report showed 6 had mild cortical atrophy; fourteen had loss in basal ganglia / subcortical calcification, 3 observed white matter abnormalities and 2 had major focal lesions.

Blanchette et al[13]performed CT scans for HIV children and found 50% children had abnormal scans: 1 had Brain atrophy, 1 had calcification, 4 had ventricular enlargement and 5 had white matter abnormalities. CT scan reported more than one specific brain abnormalities.

Delay in general intellectual functioning

Linn et al[14] found significant group difference in fine motor dexterity, visual motor integration,

visuospatial reasoning and executive functioning among HIV children and the control group. HIV infected children performed quite poor on all the tests.

Ravindran et al[15] assessed intelligence of HIV infected children using Malin's Intelligence Scale for Indian Children and comprehensive neuropsychological battery and found serious loss in all the domains of MISIC among HIV infected children.

Boyede et al[16] assessed the cognitive development through Raven's Standard Progressive Matrices (RPM) on 69 HIV positive children and 69 HIV negative control children. Two groups of the children were made according to Piaget's developmental stage, first were 6-11 years (concrete operation stage) and second were 12-15 years (formal operation stage) for assessment. HIV infected children scored lower 18.2 (8.0 - 47.0, SD 9.8) than HIV negative children 27.2 (8.0 - 52.0, SD 13.8). He concluded that HIV infected children had lower cognitive performance as compared to their controls.

Walker et al[17] assessed the neurocogitive ability of the encephalopathic and non-encephalopathic children, Encephalopathic children scored lower than non-encephalopathic peers at Raven's Progressive Coloured Matrices. They scored lower subsequently at the Map Search tests, Digit Span and Corsi Block and also took more time to complete the motor tests –like the hand pronation–supination tests, grooved pegboard and posting coins test. Two encephalopathic children had more motor deficits and severely spastic were incapable to complete the grooved pegboard.

Thomaidis et al[12] conducted a study on a sample (N = 60), which consisted of twenty vertically infected HIV positive children and forty controls matched for age and gender and assessed general IQ, practical IQ and verbal IQ. He found that HIV children with no neuroimaging abnormalities were evidenced hypoxia at birth. At the point of general IQ 40.0% (n = 6) of HIV children without neuroimaging abnormalities showed mild mental retardation. 46.7% (n = 7) of this case group had moderate mental retardation, in relation to Verbal IQ. One third of HIV infected children without neuroimaging abnormalities had moderate retardation. On the basis of general and practical IQ scores, HIV infected children without neuroimaging abnormalities had no severe retardation.

Baillieu and Potterton[20] studied 40, (aged 18–30 months) old HIV positive children and reported significantly lesser cognitive development than their normal healthy counterparts.

Bruck et al[5] assessed the cognitive development on the basis of Denver Developmental screen test (DDST), and found that HIV children showed more failures (50- 80%) at all ages as compared to seroverter groups (20-40 %) and the findings were statistically significant at ages under 13 and between 25 and 36 months.

Koekkoek et al[10] conducted study with twenty-two perinatally acquired HIV children (mean age 9.46 years) and found that the HIV-infected children with 95 mean IQ and 16.2 SD did not deviate significantly from the normative mean. 5 children had an IQ of 85 or lower, 9 had an IQ between 85 to 100 and 8 children scored upper an IQ of 100.

Rie et al[7] assessed cognitive ability by using the, Snijders-Oomen Nonverbal Intelligence Test, and Rossetti Infant-Toddler LanguageScale.60% of HIV/AIDS children had severe cognitive deficits.

Blanchette et al[13] found on general intelligence assessment that children without CT abnormalities performed equally as children with normal CT scans but performance IQ scale scores for both groups were significantly different. The mean score of children with and without evidence of CT brain abnormalities on measurements found significant difference in verbal IQ, performance IQ, visual–spatial processing composite score, visual–motor, the Block Design and Picture Arrangement from the WISC.

Cognitive deficits do not depend on gender

Ravindran et al[15] found no gender difference in cognitive deficits among 40 HIV positive children (8 males and 12 females) aged 8-12 years. Thomaidis et al[21] studied with 582 children (285 males, 297 females, 323 HIV positive and 259 controls), aged 6–17 years. He assessed cognitive development with Wechsler Intelligence Scale for Children-IV (WISC-IV) score and found no gender difference among them. Thomaidis et al[18] compared 24 male and 36 female children and assessed cognitive development and reported no significant gender difference on The Wechsler Intelligence Scale III (WSCI-III), CT/MRI scan. Nozyce et al[2]

reported no gender difference on cognitive measures and CT/MRI scans. Blanchette et al[13] compared 50 children (25 HIV positive male, 12 female 13, 25 HIV negative – 17 males, 9 females), aged 18-25 months and found significant gender difference with male participants scoring high on Bayley Scales of Infant Development.

Severity of cognitive deficits depend on the age of the HIV infected children

Rie et al[7] observed severe mental delay among younger HIV infected children. 90.9% of HIV infected children (aged 18 - 29 months) had severe delay as compared to 46% HIV infected children (aged 30 - 72 months). Motor delay was more prevalent among younger children (aged18–29 months), with 81.8% of HIV infected and 38.5% of HIV-affected young children with severe delay, as compared with only 4% of older HIV infected and 0% of HIV affectedchildren.

Discussion

The aim of present review to explore the cognitive deficits among HIV infected children. A significant ratio of HIV infected children shows deficits in cognitive development.

The impact of HIV on cognitive development has been well established, HIV virus destructively affects the central nervous system of HIV infected children in their developing age. As the infant or a child begins to develop with HIV disease, the loss of the CNS reaches a critical threshold and the neurological, neurodevelopmental, psychomotor and motor deficits become evident.

In terms of language development among HIV infected children, receptive language, expressive language, recognition of words and verbal learning were infected assessed. HIV infected children scored poor in comparison to HIV unaffected, normal healthy control children. Younger HIV infected children scores showed severe loss in all aspects of language development in comparison to older HIV infected children.

Assessment of motor development among HIV infected children has been done by researchers on the basis of gross and fine motor ability like precise movement co-ordination, eye hand co-ordination and manual dexterity. HIV infected children showedmoderate to severe delay in all these aspects of motor development. During the course of HIV disease most children experienced serious illness and some opportunistic infections which lead to the delay in the progress of motor development. Younger HIV infected children experienced more frequent and more severe delay in their motor development as compared to older HIV infected children. Institutionalized HIV infected children scored higher in motor development than children living in foster care or in family settings. The presence of skilled personnel and a large number of volunteers working at the institutions might have afforded these children greater attention and stimulation.

Planning, memory, executing the information and attentional flexibility are the key components of executive function. Executive functioning emerged as the most crucial cognitive deficit among HIV infected children. HIV infected children scored lower on the established norms for their age at measures of executive functioning. They were found less accurate and slower on tasks that were directly associated with executive function demands i.e. Manipulating and monitoring working memory content (Pattern recognition and Visuospatial tasks) and top-down control.

Neurologic deterioration is marked by delayed brain growth as measured by head circumference, computed tomography (CT) scan, magnetic resonance imaging (MRI) and functional magnetic resonance imaging (fMRI) etc. Computed tomography (CT) scans and magnetic resonance imaging (MRI) techniques were found as the primary measure for assessing neurological abnormalities.

HIV infected children showed CNS dysfunction, brain atrophy (mild cortical atrophy), ventricular enlargement, white matter low attenuation, mass focal lesions and calcification of the basal ganglia, and subcortical calcification. Majority of the HIV infected children's neurologic deterioration began as sub-acute and progressed steadily.

General Intellectual functioning was determined primarily through mental ability or intelligence in the reviewed studies. The impact of HIV virus on the CNS usually causes a sub-acute encephalopathy characterized by a global loss of cognition across areas of functioning including attention, concentration, memory, psychomotor speed, motor control, language, and visual/spatial. The virus

affects children cognitively and developmentally due to the immaturity of their nervous system and immune system and deteriorates further as HIV infection advances. The intellectual functioning of HIV children was found significantly lower than the normal healthy control children on all the subtests of Wechsler Intelligence scale for children (WISC III & WISC IV), Verbal IQ (VIQ), performance IQ (PIQ) and Full Scale IQ (FSIQ), Raven's Coloured Progressive Matrices, Mental developments of Bayley Scales of Infant Development (BSIDI & BSID II), Griffiths Mental Abilities Scales (General IQ, Practical IQ and Verbal IQ) and Snijders-Oomen Nonverbal Intelligence.

Significant gender difference in cognitive development has been reported among HIV infected children (Blanchette, et al[13] Whereas in some studies[12,15,18,21] insignificant gender difference has also been reported.

HIV virus invades the central nervous system (CNS) and affects the cognitive development. The rate of HIV infection is faster and more devastating among HIV infected children as compared to adult population living with HIV/AIDS. Mean cognitive developments like language, attention, memory, executive functioning and motor developments of younger HIV infected children was higher at baseline as compared to older children but declined with the increase in age, thus age makes a significant mark on the cognitive developments of HIV infected children.

Conclusion

This review paper provides clear evidence that HIV virus adversely affects the cognitive developments of growing HIV infected children. Neurologic and neurodevelopment of HIV infected children is vulnerable to HIV infection that leads to deficits in cognitive domains-executive functioning, visual-motor functioning, language, attention, motor development, fine motor performance, verbal learning and general intellectual functioning. Review affirms the potential risk HIV virus on the cognitive development of HIV infected children. Regular cognitive monitoring for HIV infected children from their birth and providing psychological training and interventions as per their needs can improve their cognitive developments.

Limitations

There are some limitations of this review. Electronic databases-PubMed, PsychINFO, Google, Google Scholar, Yahoo and several organization (WHO, USAIDS and UNAIDS) web searches were only searched to review the studies, which may have lead to omission of relevant studies from regional books, research papers in Hindi language etc. Articles which were available on web were only included whereas searching libraries were skipped. Data, documents from hospitals were inaccessible so they could be compiled. There were varied numbers of invalidated measures used in the studies so it was difficult to make conclusions accurately.

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Original Article

Burden of Care in Key Relatives of Patients with Bipolar Disorder

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ABSTRACT

***Background**: Bipolar Affective Disorder is one of the common psychiatric disorders causing a lot of impairment not only in the lives of the patients but also a significant burden in the lives of the key relatives of such patients. **Methodology:** This study is a non-invasive, cross sectional study of 96 patients of Bipolar Disorder aimed to assess the burden of care on their key-relatives. Assessment was done on semi-structured Performa, SCID-I, DSM-IV-TR and Burden assessment schedule (BAS). **Results:** Total adjusted burden score in our study was 65.96 which is suggestive of moderate burden. It was found that the burden of care was higher in male gender, married individuals, in joint families, among spouses, urban background, in the age group 41 to 50 years, low income group particularly on farmers and laborers. **Conclusion**: Key relatives of patients with Bipolar Affective Disorder have significant burden of care in different domains along the socio-demographic strata.*

***Key words**: Key relatives, Caregivers, Bipolar disorder, Burden of care*

Introduction

Bipolar disorder is a severe mental disorder which significantly affects the quality of life of an individual. Lifetime prevalence of Bipolar I disorder is about 1 percent and when Bipolar II, Bipolar NOS and Cyclothymic disorders are included the prevalence is about 6 percent.[1] Over 90 percent of people suffering from bipolar disorder have recurrences, often within 2 years of illness.[2] The course of this illness shows variability including slow or incomplete recovery, risk of recurrence and residual morbidity persisting even with continued treatment. The disorder also adversely affects the individual, causing high-level impairment in social interaction and vocational rehabilitation.[3]

In addition to the patient burden, the caregiver burden is also an important factor in the management of bipolar disorder. The term 'caregiver burden' is defined as "the presence of problems, difficulties or adverse events which affect the life of psychiatric patient's caregivers".[4] The term family or caregiver burden refers to the effect of the illness of an individual on the psychological health and well-being of the family members as well as effect on the use of monitory factors, time, social status and living conditions of the family.[5]

The concept of mental health care has undergone a shift from institutionalization home based care, causing increased exposure and involvement of family members with illness, thereby putting burden of caregiving on the family.[6-9] Earlier health care professionals did not pay attention and overlooked this aspect of illness.[10] However, researches have reiterated over time that support for the families play an important role in the treatment and caregiving of the patients.[11,12] Despite this, interventions for the family and support systems are lacking from health care perspectives and the family needs almost always go unmet.[13-16] Systematic reviews have also suggested that for developing psychosocial interventions for the families, an intricate understanding of their situation is necessary.[17,18] It was reported in a naturalistic prospective study that patients with

bipolar disorder were more likely to fulfil criteria for major affective episode at 15 months follow up when a higher level of burden was reported by the families at the baseline, during their acute episode.[19] The research existing on family perspectives of bipolar disorder is still limited when compared to diseases like schizophrenia.

Studies have shown that the families are affected to such an extent that the distress and the burden faced while caring for Bipolar illness, starts to have a negative impact on their own health and lives[20-24] and manifestations of anxiety and symptoms of depression.[25,26] Severe negative implications on family relations, social relations and capacity to work have been observed as also financial and legal implications.[20] The families with mentally ill members especially those suffering from bipolar disorder live a life of social isolation more often as compared to caregivers of patients with other mental illnesses.[14] Researchers have also noticed that more frequent occurrence of distress amongst families report more passive approach to the management of the patients with this illness.[27] Evidences exist that caring for a person with bipolar illness produces distress and burden in the social relations within the family and outside, posing long term negative consequences on the family member's physical and psychological health. Thus, the need for support to the family caring for patients of bipolar illness is extensive, but the actual support available from the mental health care setup is insufficient.[16]

Material and Methods

The study aimed to assess the Burden of care on key-relatives of patients suffering from Bipolar I Disorder and its relation with various socio-demographic, clinical variables and disability of the patient. This study was a non- invasive, cross sectional study of follow up patients of Bipolar I disorder along with their key-relatives. The study was conducted after the approval from institutional ethics committee of a tertiary care centre of North India. Subjects were included after taking written informed consent. The term "key relative" used for the present study has been operationally defined as 'someone living with the patient in the same household, spending time with him/her and shouldering responsibilities of caring for him/her majority of time'.

Sample of study comprised of all diagnosed cases of Bipolar I disorder in remission, as per DSM-IV TR diagnostic criteria, with age between 18 to 50 years, with a minimum duration of illness of 3 years, having at least 3 episodes in last 3 years and having a key relative. Patients with mental sub-normality, any other diagnosable psychiatric disorder, significantly disabling physical condition or any major medical/surgical illness were excluded from the study. Key relatives of patients, who were above 18 years age, ready to give informed consent and caring for the patient for a minimum duration of past one year were included in the study. Those key relatives who had mental Sub-normality or currently having any psychiatric illness or history of same during past one year were excluded. Key relatives having any physical illness that may significantly interfere with care giving were not considered in the study. For assessment of psychiatric condition Structured Clinical Interview for DSM IV Axis–I Disorders (SCID-I) and Diagnostic and Statistical Manual of Mental Disorders, 4th Ed., Text Revision. (DSM IV TR) were used. Burden Assessment Schedule developed by Thara et al (1998) was used for assessing the burden of care of the key relatives.[28] For this study, a Hindi version of the instrument prepared by translation and retranslation method was used. Out of forty items, which are rated on three-point scale, four items were to be answered exclusively by spouses. Thus, the maximum burden score was 120 for key relatives who were spouses and not the same for non-spouse key relatives. To overcome this discrepancy, we calculated an adjusted burden score for each patient using the formula: Score obtained/Maximum score x 100, which was taken as total burden score. With this arrangement as score of 33 means there is no burden.

Statistical analysis

Statistical analysis was done by using the software SPSS (16.0 version). Statistical tests such as mean, standard deviation, unpaired 't' test and Pearson's product moment correlation coefficient were used.

Results

A total of 164 patients were screened, out of

which 109 patients had satisfied the selection criteria. Out of these 109 patients, key relatives of 96 patients had met the selection criteria. So, the study sample was 96 patients and their 96 key relatives. The key relatives were mostly in the 41-50 years of age groups (39.58%), males (69.8%), Hindu (80.21%), belonging to rural background (64.5%), joint type of family (57.29%), married (95.83%), educated up to high school or above (57.3%), family income above 7500 rupees per month (39.58%) and mostly laborer or farmer (40.63%). Total adjusted burden score in our study was 65.96 that falls in the category of moderate burden. Maximum burden was found in the domains of physical and mental health (11.90 ± 1.62) followed by caregiver routine (9.67 ± 1.40), external support (9.41 ± 1.52) and spouse related (8.90 ± 1.70) domains.

The burden of care on key relatives according to age, gender, domicile, family structure, family income, occupation, relationship of patient to key relative, duration of illness is summarized in Table 1.

Significantly higher spouse related burden was found in the key relatives between 31-45 years age when compared to age group 46-60 years old (t= 4.342, $p < 0.0001$). Key relatives of 46 – 60 year age group had experienced significantly higher burden in area of patient's behaviour in comparison to the 31-45 years age group ($t = 3.177$, $p < 0.01$). Key relatives in age group 18-30 years experienced significantly higher burden than 46-60 years age group in the area of physical and mental health ($t = 5.377$, $p < 0.0001$). Across the gender, significantly higher burden was found among the male key relatives in areas of external support ($t = 3.549$,

Table 1: Burden of care on key relatives according to demographic variables

Burden of care according to age of key relatives

Sub group	A (n=11) 18-30 years Mean (SD)	B (n=48) 31-45 years Mean (SD)	C (n=37) 46-60 years Mean (SD)	Value of t A vs B D. f = 57	Value of t B vs C D.f. = 83	Value of t A vs C D.f. 46
Spouse related	7.48 (4.28)	8.68 (4.31)	4.54 (4.42)	0.8339	4.342 ($p < 0.0001$)	1.95
Physical and mental health	14.45 (3.22)	13.62 (2.64)	12.86 (2.4)	0.9027	1.368	5.377 ($p < 0.0001$)
Patient's behaviour	8.78 (1.72)	8.37 (1.54)	10.08 (1.42)	0.7122	3.177 ($p < 0.01$)	2.019
Total adjusted score	73.54 (6.73)	74.60 (7.44)	76.63 (7.22)	0.41	0.7680	1.084

Burden of care according to gender of key relatives

Sub group	A (n=67) Male Mean (SD)	B (n=29) Female Mean (SD)	t	Significance D.f	p
External support	10.26 (1.84)	8.86 (1.61)	3.549	94	$p < 0.001$
Taking responsibilities	9.17 (1.75)	8.42 (1.42)	2.034	94	$p < 0.05$
Total adjusted score	74.80 (7.80)	73.76 (7.92)	0.5971	94	NS

Burden of care on key relatives according to domicile

Sub group	A (n=62) Rural Mean (SD)	B (n=34) Urban Mean (SD)	t	Significance D.f	P
Physical and mental health	13.93 (2.51)	12.81 (2.36)	2.135	94	$p < 0.05$
External support	10.57 (1.34)	11.13 (1.16)	2.051	94	$p < 0.05$
Caregivers' routines	9.79 (2.02)	8.50 (2.10)	2.951	94	$p < 0.05$
Taking resposibilities	8.25 (0.60)	8.63 (1.01)	2.315	94	$p < 0.05$
Total adjusted score	72.27 (2.76)	74.18 (3.66)	2.882	94	$p < 0.05$

Burden of care on key relatives according to family structure

Sub group	A (n=55) Joint Mean (SD)	B (n=41) Nuclear Mean (SD)	t	Significance D.f	p
Spouse related	4.96 (3.80)	6.68 (3.58)	2.248	94	< 0.05
Physical and mental health	14.45 (2.42)	12.56 (2.32)	3.852	94	0.0002
Total adjusted score	77.65 (7.92)	71.72 (9.32)	3.364	94	0.0011

Burden of care on key relatives according to family income

Sub group	A (n=55) Joint Mean (SD)	B (n=41) Nuclear Mean (SD)	t	Significance D.f	p
External support	12.08 (1.18)	9.25 (1.06)	12.295	94	<0.0001
Support of patient	9.25 (1.20)	7.15 (1.12)	8.827	94	<0.0001
Taking responsibilities	10.56 (2.12)	8.94 (2.25)	3.630	94	<0.0005
Total adjusted score	73.78 (8.10)	72.62 (7.83)	0.7112	94	NS

Burden of care according to occupation key relatives

Sub group	A (n=24) Housewife Mean (SD)	B (n=22) Service Mean (SD)	C (n=50) Others Mean (SD)	Value of t A vs B D.f. = 44	B vs C D.f. = 70
Spouse related	7.25 (2.46)	4.22 (4.32)	6.22 (4.12)	3.604 p=0.0008	1.870
Physical and mental health	15.26 (2.43)	12.74 (3.48)	14.48 (3.54)	2.867 p=0.0063	1.931
Support of patient	10.22 (2.34)	8.26 (2.90)	9.32 (2.64)	2.532 p=0.015	1.523
Taking responsibilities	9.80 (2.41)	7.88 (2.07)	9.15 (3.07)	2.886p=0.006	1.768
Total adjusted score	75.59 (6.65)	72.23 (9.83)	74.21 (9.15)	1.368	0.8269

Burden of care according to duration of illness

Sub group	A (n=43) 18-30 years Mean (SD)	B (n=37) 31-45 years Mean (SD)	C (n=16) 46-60 years Mean (SD)	Value of t A vs B D.f=57	B vs C D.f=87	A vs C D.f.=57
Spouse related	6.12 (2.21)	8.42 (2.08)	7.22 (3.94)	4.769 p<0.0001	1.453	1.355
Total adjusted score	72.34 (4.32)	74.96 (5.45)	73.43 (6.65)	2.397 p=0.0189	0.8773	0.7387

$p < 0.001$) as well as in taking responsibilities ($t = 2.034$, $p < 0.05$). Key relatives of urban background experience significantly higher burden when compared to those from rural settings, in the areas of external support ($t = 2.051$, $p < 0.05$), taking responsibilities ($t = 2.315$, $p < 0.05$) and in total burden score ($t = 2.882$, $p < 0.05$), while key relatives from rural areas scored higher in areas of caregivers' routines ($t = 2.951$, $p < 0.05$) and physical and mental health ($t = 2.135$, $p < 0.05$).

Significant higher burden was observed in joint families when compared to nuclear families in area of physical and mental health ($t = 3.852$, $p = 0.0002$) and total burden score ($t = 3.364$, $p < =0.0011$). Assessment of burden according to family income revealed higher burden in income group of "up to Rs. 5000/- per month" when compared to income group of "more than Rs. 5000/- per month" in the areas of external support ($t = 12.295$, $p < 0.0001$), support of the patient ($t = 8.827$, $p < 0.0001$) and taking responsibilities ($t = 3.630$, $p < 0.0005$). When compared according to educational status, higher burden was found in less educated group i.e. educated upto class V in area

of external support. This group also experienced significantly higher burden than group educated from class VI-X in the area of other relations ($t = 2.099$, $p < 0.01$).

When key relatives were compared across occupational groups, housewives scored significantly higher burden in comparison to service class key relatives in areas of spouse related ($t = 3.604$, $p = 0.0008$), physical and mental health ($t = 2.867$, $p = 0.0063$), support of patient ($t = 2.532$, $p = 0.015$) and taking responsibilities ($t = 2.886$, $p < 0.006$).

Significantly higher burden was reported in key relatives in the domains of spouse related ($t = 4.769$, $p < 0.0001$) and the total burden score ($t = 2.397$, $p = 0.0189$) when duration of illness was between 5-10 years as compared to group with duration of illness up to 5 years. Compared across relationship of key relatives to the patients, spouses experienced significantly higher total burden in comparison to parents ($t = 2.895$, $p = 0.0049$); however, parents perceived higher burden in area of taking responsibilities than spouses ($t = 5\text{-}027$, $p < 0.0001$) and siblings ($t = 3.035$, $p = 0.0036$).

Correlation of scores on the disability assessment schedule and burden assessment schedule was carried out which revealed significant correlation of burden with physical and mental health in areas of dysfunctional overall behaviour ($r = 0.29$, $p = 0.0042$), dysfunction in socials role ($r = 0.22$, $p = 0.032$) and global evaluation score ($r = 0.39$, $p = 0.0001$). A significant correlation of burden with the caregivers' routine was found in the areas of dysfunction in social role ($r = 0.23$, $p = 0.0259$) and global evaluation score ($r = 0.26$, $p = 0.0097$) where as a significant correlation of burden in other relations were observed in global evaluation score ($r = 0.232$, $p = 0.0229$). A statistically significant negative correlation of burden with patient's behaviour was observed in areas of dysfunction in social role ($r = -0.21$, $p = 0.042$) and global evaluation score ($r = -0.27$, $p = 0.0082$).

Discussion

The current literature implies that a considerable degree of burden exists on the people caring for the mentally ill relatives, especially with chronic debilitating illness like schizophrenia, mood disorders, OCD etc.[29,30] and this burden seems to be related to patient's psychopathology, disability in performance of various roles and other socio-demographic and clinical variables.

In this study a mean total adjusted burden of 65.96, meaning thereby that a moderate degree of burden exists on the key relatives of Bipolar Affective Disorder patients. After computation of scores, maximum burden was observed in the area of physical and mental health, followed by caregivers' routines, external support, spouse related and other relatives. An extensive degree of burden, restriction of social activities, fear of social stigma, financial difficulties and feelings of anxiety, guilt and anger has been reported by the care providers, as found in some studies.[30-32] Caregivers of patients with bipolar disorder experience high burden, both subjectively and objectively.[18] The experienced burden and need for support for these caregivers depends on several factors. Higher burden is associated with the severity of illness rather than the diagnosis, difficulty in relationship with the patient, stigma and lack of support.[18]

This is of greater importance in Indian perspective as very few government or privately funded institutions provide quality care and Indian families seldom have the option of transferring this burden to an institution, this study was thus planned to evaluate the extent of burden of a patient with Bipolar Affective Disorder on key relatives and to study the effect of various socio-demographic and clinical variables on this burden.

A significantly higher burden in younger key relatives (18-30 years age group) in areas of physical and mental health. Significantly more burden found in key relatives of age group 46-60 years in the domain of patient's behaviour which might be due to the age-related decline in efficiency than the younger ones. The 31-45 age group key relatives experienced higher burden in spouse related domains as the ill spouse were unable to carry out the household responsibilities and also unable to fulfil sexual needs.

Although no significant burden existed on the total burden experienced by the male and female caregivers, male key relatives were found to have higher burden in two areas. These findings were opposite to findings of other studies, where the burden was found to be higher in females.[33] The higher burden in the area of external support could

be attributed to the fact that most of the female caregivers were either wives or mothers who were able to garner external support from other family members like siblings, in laws and also friends but the males failed to do so. Females also receive more appreciation for their efforts as compared to male counterparts. Higher burden in the area of taking responsibility might also be due to the fact that the male relatives are not only responsible for the physical and emotional support but also financial concerns as earning is their responsibility primarily.

In our study, families residing in urban areas scored statistically higher burden in areas of taking responsibilities, external support and also total score while scored lower than the rural counterparts in mental and physical health and caregiver's routines. This higher score in the urban setting could be attributable to the troublesome and problematic behaviour of the patients in an urban society, the caregivers' jobs, less availability of leisure time and a more competitive setup to be faced. Higher score in physical mental health and caregivers' routines among care givers of rural background could be because of late and often ineffective treatment in the rural areas, leading to more relapses and increased exhaustion, frustration and ill health on part of the family members.

The higher burden in physical and mental health and higher total burden score was reported in joint families than nuclear families, which was contrary to what was expected, but during study it was observed that negligible sharing of burden was present in joint families, as it was taken for granted that the patient was the sole responsibility of the key relative. Also, relatives in nuclear families were able to alter priorities and rearrange routines more freely than those in joint families which might be attributing to the findings of our study.

Significantly higher burden in areas of external support, support of patient and taking responsibilities were seen in key relatives with lower family income (up to Rs.5000 per month). Financial constraints are expected to adversely affect the burden on the care givers.

Significantly higher burden was observed in area of external support in key relatives who had less than primary education, as this group primarily consisted of laborers or housewives who had inadequate financial resources and were forced to work extra to meet the needs in providing care for the patient. The other family members in this group also had less education; hence due recognition and appreciation of the caregivers' efforts was not present.

Significantly higher burden in areas of spouse related, physical and mental health, support of patient and taking responsibilities were found in housewives as compared to service class key relatives. This could be due to the fact that housewives were confined to home for almost the entire day while service class key relatives went out regularly, that used to give them a break from patient care, also they had a regular source of income.

Spouses reported significantly higher total burden compared to parent, as the patients were perceived to be the sole responsibility of their spouse. Hence, they might find it difficult to get more time and energy for other endeavours of life. The parents' group had experienced significantly higher burden in the area of taking responsibility as compared to spouse and siblings, this being due the parents' age and compromised physical health.

Significantly higher burden in the area of spouse related burden and total burden was reported in group with duration of illness 5-10 years. Key relatives of patients with illness less than 5 years were more enthusiastic and hopeful; hence perceived less burden while the key relatives of patients with illness of more than 10 years used to accept the illness and had also learned different ways of managing patient, solving acute problems by themselves to some extent. It has also been previously noticed that duration of morbidity affects the degree of burden only if the ill health exceeds two years.[33]

Conclusion

The key relatives (care givers) of patients suffering from bipolar disorder face significant burden of care, which adds to their stress levels. This area is understudied and needs further research. As stress in caregivers has not only implication on the key relative himself but has also been shown to be an important factor in the clinical outcomes of the patients. So, the stress of the caregivers of patients suffering from bipolar disorder needs to be addressed. Identifying the domain commonly affected due to burden of care

of their patient will help in finding a solution for it.

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Original Article

Study to assess the quality of life of head and neck cancer patients and the improvement in the same brought on by management of psychiatric comorbidities

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ABSTRACT

Introduction*: Patients with Cancer have significant psychiatric comorbidities and poor quality of life. This is brought on by the disease process, patients reaction, aggressive treatment options and of causes.* ***Objectives:*** *This study is an endeavour to add to the Indian literature by assessing the quality of life of head and neck cancer patients and the improvement in the same brought on by management of psychiatric comorbidities.* ***Method****: 100 patients with head and neck cancer who were undergoing concurrent chemo and radio therapy management at the Oncology department of a tertiary care hospital , both inpatients and outpatients were included in the study. 100 healthy individuals were taken as controls. The controls were matched according to age, sex, education, income, marital status and religion.. Their socio-demographic data, detailed history, clinical status and comorbid medical condition, current mental health status were recorded on a semi structured proforma. Detail psychiatric examination was conducted to elicit psychopathology and other psychiatric comorbid conditions. All the subjects were administered WHO Quality of life- BREF scale (WHO QOL BREF) and General health questionnaire 12 (GHQ 12)* ***Results:*** *Most of the patients were married, male of lower educational background and from economically weaker sections of society. These cancer patients had poorer quality of life. 60 % of the cancer patients were identified as having psychiatric morbidities. There was statistically significant reduction in psychiatric morbidities after treatment with 50 % response rate. After treatment of the psychological morbidities , there was overall improvement in quality of life of the cancer patients.* ***Conclusions****: Head and neck cancer is associated with significant psychiatric morbidities and poor quality of life. Addressing the psychiatric morbidities lead to an overall improvement in quality of life of cancer patients.*

Keywords*: Quality of life, Cancer, WHO QOL BREF scale.*

Introduction

The word "Cancer" evokes fear and desperation in most of us. Despite recent advances in securing remission and sometime cure, cancer is still equated with hopelessness, pain and death. The common fear associated with cancer are death, dependency, disfigurement, disability, disruption and discomfort.[1] Many a times the psychological distress and deterioration of quality in life of a cancer patient in not adequately acknowledged. Reasons may range from difficulty in assessing the psychological distress because of the physical symptoms and

sometimes it may be taken for granted that cancer patients will have some degree of psychological distress so it is not worthwhile taking psychotropic medications.[2] There are significant psychological morbidities associated with cancer. Adjustment disorder with depression and/or anxiety, major depression and delirium represent direct reaction to illness whereas others (personality disorders, primarily anxiety disorders and depressive disorders) are preconditions which are often exacerbated by the illness.[3] Cancer greatly affects the quality of life of the patients especially in domains like physical health, feelings, pain, daily and social activities. Mental health professionals may be instrumental in alleviating the emotional sequelae of cancer.[4] In recent times, psychiatrists have become an important member of the oncology team. Studies have shown that psychological interventions increased survival time,[5,6] increased compliance with medical care,[7] improved immune response[8] and enhanced quality of life.[9] This study is an endeavour to add to the Indian literature by assessing the quality of life of head and neck cancer patients and the improvement in the same brought on by management of psychiatric comorbidities.

Methods

Sample and population

100 patients with head and neck cancer who had undergone concurrent chemo and radio therapy management and were under regular followup at the Oncology department of a tertiary care hospital, both inpatients and outpatients were included in the study. The approval of the ethical committee was obtained. It was a case control study spanning over a period of 6 months. 100 healthy individuals were taken as controls. The controls were matched according to the age, sex, education, income, marital status and religion. Informed consent was obtained from all subjects. Their socio-demographic data, detailed history, clinical status and comorbid medical condition, current mental health status were recorded on a semi structured proforma. Detailed psychiatric examination was conducted to elicit psychopathology and other psychiatric comorbid conditions. All the subjects were administered WHO Quality of life- BREF scale (WHO QOL BREF) and General health questionnaire 12 (GHQ 12).

Inclusion Criteria:

1) Head and neck Cancer patients who were under regular followup after concurrent chemo and radio therapy.
2) Willing to participate with informed consent.

Exclusion Criteria:

1) Individual unwilling to participate with informed consent.
2) Individual with other serious medical comorbidity/ terminally ill patients .
3) Individual with previous history of head injury.
4) Individual with history of multiple drug dependence

Research tools used for the study

1. ***WHO Quality of life-BREF scale (WHO QOL-BREF)***
   WHOQOL-BREF is an **abbreviated generic Quality of Life Scale** developed by through the World Health Organization. It contains 26 questions, covering four domains i.e physical health (score range 7-35), psychological health (score range 6-30), social relationship (score range 3-15) and environmental domain (score range 8-40). Higher is the score better is the quality of life. WHOQOL-BREF is to be used when the responders had sufficient ability otherwise interviewer's assistance may be utilised when standardized instructions are given to all respondents. WHOQOL-BREF has significance in clinical practice in diseases where treatment is mostly palliative as it helps in treatment decision by highlighting areas in which the patient is most affected.
2. ***General Health Questionnaire 12 (GHQ 12)***
   GHQ 12 is a well validated, 12 item, self-administered questionnaire used in both clinical practice and community setting.[1,3,4] It helps to detect persons that are symptomatic or at risk of developing the common, non-psychotic mental health problems. Scoring may be done by likert scale (0, 1, 2, 3) or binary method (0, 0, 1, 1). In this study scoring was done using binary method

and 2 was kept as the cutoff score for both cases and controls. Assessment was done in 100 patients with head and neck cancer who were undergoing concurrent chemo and radio therapy management and were under regular followup at the Oncology depart-ment of a tertiary care hospital, both inpatients and outpatients were included in the study. In subjects with elevated scores, detail psychiatric evaluation was conducted to establish ICD 10 diagnosis. All subjects who were diagnosed with a psychiatric disorder were provided the benefits of treatment and were reassessed in detail after remission period to find out the effect of treatment to the quality of life.

Data analysis

Data were compiled and analysed by SPSS 20.0 version. Mann Whitney test, Wilcoxon test and chi-square tests were used for analysis of data. The p-value of less than 0.05 was considered as the minimum level of significance.

Results

Sociodemographic data

Age group of 45-55 yrs comprised 45% of the patients, followed by 34-44 yrs which comprised 19%, 15% in 20-25 yrs, 10% in 25-33 yrs, 5% in 50-60 yrs and 6% in 61-65 yrs. Males comprised 63% of the population and females 37%. 86% were married and 14% unmarried. 72% were Hindu, 15% Muslims and 13% were from other faith denominations. 62% were educated upto Vth and Xth standard, 31 % between XIth and below college education and 7% were educated below Vth standard. Monthly income of the cases ranged from Rs 7000 to Rs 18000, with a mean of Rs 7320 and the monthly income of the controls ranged from Rs 8500 to Rs 19000 with a mean of Rs 7980.

GHQ 12 questionnaire

60% (60) had cutoff score of more than 2. The GHQ 12 scores ranged from 0-11 and had a mean value of 4.3. The GHQ 12 score of controls ranged from 0-5 and had a mean score of 0.88. The difference was statistically significant (p=less than 0.01). All patients who qualified for a psychiatric diagnosis also had raised scores on GHQ 12.

Quality of life

Quality of life of the patients were evaluated under four domains. For cases the scores in the physical health domain ranged from 10 to 33 with a mean of 25.6 and for controls the scores ranged from 20 to 33 with a mean of 28.24. It was a statistically significant difference (p=0.002). For cases the scores in the psychological domain ranged from 10 to 29 with a mean of 20.1 and for controls the scores ranged from 19 to 27 with a mean of 23.8. Again, it was a statistically significant difference. Foe cases the scores in the social relationship domain ranged from 5 to 10 with a mean of 8.48 and for controls it ranged from 5 to 17 with a mean of 12.42. it was a statistically significant difference. In the environmental domain, the scores for cases ranged from 18 to 34 with a mean of 29.7 and for controls, it ranged from 20 to 39 with a mean of 28.34. This difference was not statistically different.

Effect of treatment of psychiatric disorders in the Head and neck cancer patients

60% of the patients had a score of more than 2 in GHQ 12 questionnaire. In subjects with elevated scores, detail psychiatric evaluation was conducted to establish ICD 10 diagnosis. All subjects who were diagnosed with a psychiatric disorder were provided the benefits of treatment and were reassessed in detail after remission period to find out the effect of treatment to the quality of life. In all, treatment was provided to 36 patients, out of which 4 had only depression, 12 only anxiety and 20 had both.

Comparison of GHQ scores in the head and neck cancer patients before and after treatment

GHQ 12 scores	Pretreatment group	Post treatment group
0	00	00
1-2	00	18
More than 2	36	18

Prior to treatment the mean GHQ 12 scores of cancer patients was 7.76 (SD = 3.12) and the mean post treatment score was 5.42 (SD = 3.22). Post treatment, 18 (50%) of the patients had scores of less than 2 on GHQ 12. Overall there was decrease in GHQ 12 scores and it was statistically significant

(Wilcoxon test, p = 0.001). The response to treatment was 50 % as assessed by scores on GHQ 12.

Comparison of physical health domain score (of WHO QOL) before and after treatment

Score in physical health domain	Pre treatment group	Post treatment group
7-10	04	00
11-15	08	08
16-20	08	12
21-25	12	08
26-30	00	04
31-35	04	04
11-15	08	08
16-20	08	12
21-25	12	08
26-30	00	04
31-35	04	04

Pre treatment scores ranged from 10 to 33 with a mean of 25.6 and post treatment scores ranged from 12 to 35 with a mean of 22.92. There was statistically significant (Wilcoxon test, p = 0.001) overall increase in the physical domain scores.

Comparison of psychological domain score (of WHO QOL) before and after treatment

Scores in psychological domain	Pre treatment group	Post treatment group
6-10	00	00
11-15	12	04
16-20	16	20
20-25	08	12
26-30	00	00

Pre treatment scores ranged from 11 to 25 with a mean of 18.1 and the post treatment scores ranged from 13 to 25 with a mean of 20.02. Following treatment, there was statistically significant (Wilcoxon test, p=0.002) overall increase in the scores.

Comparison of social relationship domain score (of WHO QOL) before and after treatment

Scores on social relationship domain	Pre treatment group	Post treatment group
3-5	00	00
6-10	20	20
11-15	16	16

Pre treatment scores ranged from 6 to 13 with a mean of 8.48 and the post treatment scores ranged from 9 to 15 with a mean of 11.01. Although there was an overall increase in the post treatment scores, it was not statistically significant (p=0.190)

Comparison of environmental domain score (of WHO QOL) before and after treatment

Scores on environmental domain	Pre treatment group	Post treatment group
8-10	00	00
11-15	00	00
16-20	04	04
21-25	12	12
26-30	20	20
31-35	00	00
36-40	00	00

The pretreatment score ranged from 18 to 26 with a mean of 26.62 and the post treatment scores ranged from 19 to 30 with a mean of 26.43. Although there was an overall increase in the post treatment scores, it was not statistically significant (p=0.190)

Discussion and conclusion

The present study was carried out to assess the quality of life of head and neck cancer patients and the improvement in the same brought on by management of psychiatric comorbidities.

100 patients with head and neck cancer who had undergoing concurrent chemo and radio therapy management and were under regular followup at the Oncology department of a tertiary care hospital, both inpatients and outpatients were included in the study. 100 healthy individuals were taken as controls. The controls were matched according to age, sex, education, income, marital status and religion. All were assessed by means of clinical interview and psychological tests. Most of the patients were married, male of lower educational and from economic weaker section of society. Similar findings were published by Ward et al.[10] 60% of the cancer patients were identified as probable psychiatric cases which was more than the findings of Ashraf et al[11] who found 44% probable psychiatric cases among cancer patients based on raised score on GHQ (more than 2). Cancer patients had poorer quality of life in all four domains in WHO Quality of life-BREF scale (WHO QOL-BREF) as compared to controls. It was statistically significant in three out

of the four of the domains (physical health, psychological health and environmental domains). Similar findings were published by Lovely et al[12] and Pathak et al.[13] After receiving treatment for the psychiatric morbidities there was a statistically significant decrease in the GHQ 12 scores (p= 0.001). The response to treatment was 50% as assessed by scores on GHQ 12. This finding was dissimilar to the findings of other studies. Valente SM[15] had quoted response rate of 80-90% and Fernandez et al[15] 77%. One reason for low response rate may be because all our patients had received chemo and radiotherapy. Both of which are known to increase risk of psychiatric morbidity and result in lesser response rate.[16,17] In addition, in studies with high response rate the drug of choice was a psychostimulant[5,6] unlike our study where none were exposed to psychostimulants. Our study showed that after treatment, there was overall improvement in all the domains of WHO Quality of life-BREF scale (WHO QOL-BREF) but it was statistically significant only in case of physical and psychological domain. This result was consistent with the findings of Pathak et al.[13]

Recommendations

Head and neck Cancer causes significant psychological morbidity which is compounded by the aggressive treatment protocols (Chemotherapy and radiotherapy). As modern medicine is increasing the survival rates of cancer patients, issues related to quality of life has become prominent. Mental health professionals can play a significant role as a member of the oncology team by providing specialised care which not only will mitigate the psychiatric morbidities but additionally improve the quality of life of the cancer patients.

Limitations of the study

- Relatively modest sample size
- Cross sectional design.
- We did not assess comorbid use of other substances (including nicotine), other effect of other physical illnesses and medications.

Conflict of Interest

No conflict of interest.

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Original Article

Domains of impairment in children with attention deficit hyperactivity disorder and their relationship with symptom severity

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ABSTRACT

***Background**: Attention-deficit/hyperactivity disorder (ADHD) is a neurobehavioral disorder diagnosed on the basis of the core symptoms of inattention, hyperactivity and/or impulsivity. These children have functional impairment in various domains of education, social relationships, behaviour and self-esteem. These functional impairments contribute to negative long-term outcomes and warrant early focussed characterisation individualised to each child. **Aims and Objectives**: To study the 6 impairment domains in children with ADHD and their correlation with the severity of the disorder. **Materials and methods**: 30 patients in the age group 6-17 years diagnosed with ADHD (as per DSM-5) were assessed for sociodemographic details using a semi structured proforma and ADHD severity and functional impaired scores using ADHD rating scale-5. **Results**: Impairment in the domains of family relations, peer relations, homework, academics, behaviour, self-esteem was found in 67%, 77%, 94%, 90%, 74% and 47% respectively; further, correlation coefficient with severity of ADHD was found to be 0.62, 0.61, 0.69, 0.54, 0.61 and 0.05 respectively. Correlation was statistically significant for all except self-esteem. **Conclusions:** Functional impairment was observed in all the domains, maximum in academics and homework. These impairments, except for self-esteem, showed a significant positive correlation with severity of ADHD. These impairments should be taken into consideration at the time of evaluation and management.*

Introduction

Attention-deficit/hyperactivity disorder (ADHD) is a neuro behavioral disorder with childhood onset.[1] It manifests in early childhood with symptoms of hyperactivity, impulsivity, and/or inattention and is diagnosed using diagnostic criterion specified in ICD-10 or more recently in DSM-5.

Along with the core symptoms of ADHD, the disorder affects cognitive, academic, behavioural, emotional, and social functioning.[2] It is related to poor long-term outcomes including depression, anxiety, delinquency, substance use and abuse. Evidence based treatments of ADHD improves short term functioning but have failed to normalise long term outcomes.[3] Recent findings suggest that treatment of core ADHD symptoms doesn't necessarily improve daily functioning and vice versa.[4] Subsequently, the functional impairments in ADHD have received greater emphasis in the last few years, with DSM becoming liberal and inclusive with the functional impairment criterion and introducing severity specifier on its basis.[5] It is now being suggested that functional assessment should routinely be done at baseline to individualise treatment and follow treatment outcomes.[4] Various domains of functional impairment have been suggested, namely, academic functioning, social relationships, self-esteem and behavioural problems.[6]

Educational impairment, one of the most common reasons for referral, is seen in 50-80% children with ADHD and is related to long term difficulties including delinquency.[7,8] In particular, children diagnosed with ADHD tend to show frequent homework problems, specifically, failure to write down or bring home assignments, working on time, easy distractibility, carelessness and conflict with their parents.[9]

Apart from academic impairment, social difficulties are extremely common in children with ADHD, with children having difficulty in both peer and family relations. Multimodal Treatment Study of Children with ADHD (MTA) assessed children aged 7-9 years and found that 52% fell in the rejected category (using Coie's classification system) and less than 1% were of popular status.[10-12] A recent study also showed similar results with peer victimization occurring more in children with ADHD compared to controls.[13] Rejection however is just one problem; these children were lower on social preference, less well-liked, and had fewer dyadic friendships; they also were disliked by children of higher status within the peer group.[14] The families of children with ADHD are characterized by increased family conflict, negative parenting practices, and parenting stress.[15] Aggression and disruptive behavior is yet another problem which contributes to negative psychosocial outcomes.[16]

Subsequent to the above problems, these children often face criticism and punitive feedback leading to low self-esteem.[4] Harpin et al. conducted a systematic review and found that untreated ADHD was associated with poorer long-term self-esteem and social function outcomes compared with non-ADHD controls.[17]

There have been few Indian studies assessing functional impairment in children with ADHD. This study was undertaken with the objective to study the pattern of functional impairments and their correlation with severity of ADHD.

Material and Methods

It was a cross-sectional descriptive study conducted on patients attending the OPD of Department of Psychiatry and Drug De-Addiction Centre, in an urban tertiary hospital. Thirty children (6-17 years) diagnosed with ADHD as per DSM-5 were enrolled in the study. Only the children whose parents gave consent for the study were included. Assent was taken from all children above 12 years of age. To maintain the homogeneity of the study population, children with history of other co-morbid developmental disorders, intellectual disability, or any other psychiatric illness were excluded from the study.

Semi-structured proforma was used to record the basic socio-demographic details and risk factors of ADHD. ADHD rating scale-5 was used for assessment of severity of ADHD and to rate the various impairment domains. ADHD rating scale 5 is the latest ADHD scale, published in 2016. It is keyed to the DSM-5 diagnostic criterion. It has two sub-scales-Inattention and Hyperactivity/ Impulsivity and additionally, it has items reflecting six domains of impairment. It has a high reliability with internal consistency- alpha coefficients of 0.89-0.96 and test–retest reliability of 0.80 to 0.87.

Ethical clearance was taken from Institutional Ethics Committee.

Aims and objective

To study the pattern of functional impairments and their correlation with severity of ADHD.

Outcome variables

1. Proportion of study subjects with impairment in each domain.
2. Relationship between the ADHD rating scale total score and the scores of impairment domains.

Statistical Analysis

Data was entered and analyzed using SPSS version 25. Descriptive statistics were used for the socio demographic variables, clinical correlates of ADHD and proportion of children with impairment in the studied domains. Shapiro Wilk test of normality was used to understand the distribution of data and subsequently Spearman's correlation coefficient (non-parametric) was used to analyze the relationship between the severity of ADHD symptoms and severity of impairment.

Results

The mean age of the study population was 9.96 years with a range of 7.06 to 12.86 years. The characteristics of the study population are described in Table 1.

Table-1: Characteristics of the study population

Characteristics of study population	N (% of total) or mean
Age	9.96 ± 2.90
Gender	
Male	29 (96.66%)
Female	1 (3.33%)
Birth order	
1st	18 (60%)
2nd	10 (33.33%)
3rd	2 (6.66%)
Demographic area	
Urban	27 (90%)
Semi-urban	3 (10%)
Religion	
Hindu	29 (96.66%)
Muslim	1 (3.33%)
Socio-economic status	
Upper	2 (6.66%)
Upper Middle	27 (90%)
Lower Middle	1 (3.33%)

Severity of ADHD

As per DSM-5, out of the 30 participants, 4 fulfilled the criterion for mild severity, 12 for moderate and 14 for severe.

Functional impairment

The various functional domains were assessed as per the ADHD Rating Scale-5 and the proportions of subjects having impairment in each are described in Table 2.

Table-2: Proportion of participants showing impairment in specific domains

Impairment domains on ADHD rating scale	Number of participants showing impairment, N (proportion)
Family relations	20 (66.66%)
Peer relations	23 (76.66%)
Homework	28 (93.33%)
Academics	27 (90%)
Behaviour	22 (73.33%)
Self-esteem	14 (46.66%)

Correlation of severity of ADHD with the various functional domains is described in Table-3.

The correlation coefficient came out to be positive and significant for family relations, peer relations, homework, academic and behavior functioning; the correlation coefficient was positive for self-esteem, however not statistically significant. These are represented with scatter plots from Figure 1.1-1.6.

Table-3: Impairment domain scores and their correlation with ADHD rating scale-5 score

Impairment domain score	Mean± SD	Correlation coefficient	Sig. (2-tailed)
Family relations	1.13 ± 1.00	0.62**	0.00
Peer relations	1.56 ± 1.07	0.61**	0.00
Homework	1.97 ± 0.93	0.69**	0.00
Academics	1.80 ± 1.03	0.54**	0.01
Behaviour	1.36 ±1.06	0.61**	0.00
Self-esteem	0.86 ± 1.07	0.05	0.78

*Significant at p value <0.05
**Significant at p value <0.05

Fig-1.1: Representation of correlation of ADHD rating scale total score with family relations impairment.

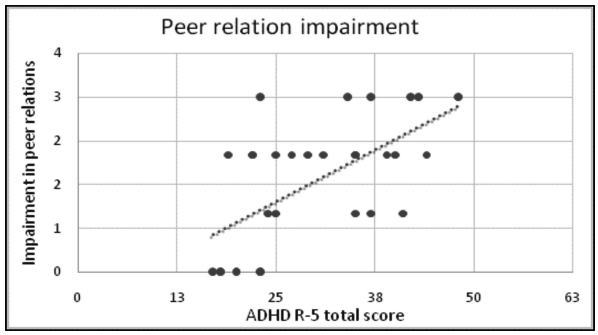

Fig-1.2: Representation of correlation of ADHD rating scale total score with peer relations impairment.

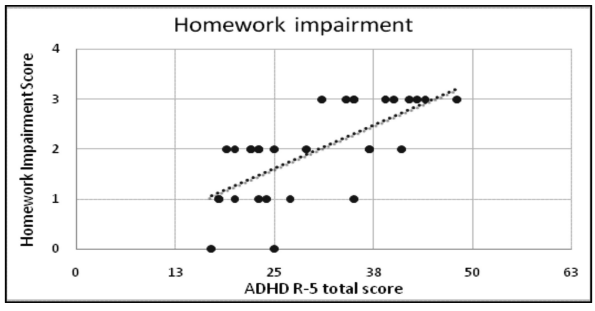

Fig-1.3: Representation of correlation of ADHD rating scale total score with homework impairment.

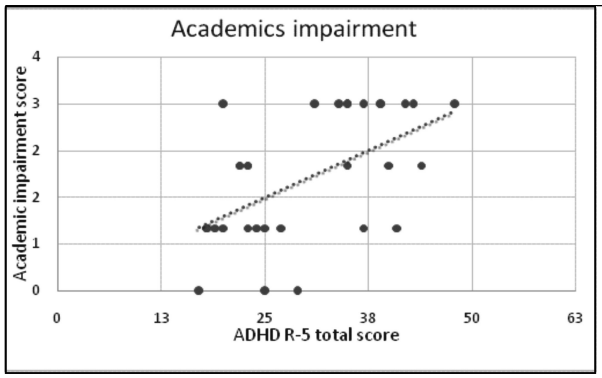

Fig-1.4: Representation of correlation of ADHD rating scale total score with academic impairment.

Fig-1.5: Representation of correlation of ADHD rating scale total score with behaviour impairment.

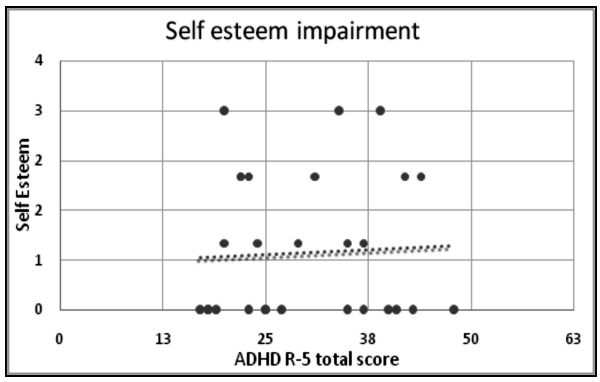

Fig-1.6: Representation of correlation of Total ADHD rating scale score with self-esteem impairment.

Discussion

The children with ADHD in the present sample exhibited impairment in all the domains, namely, academic functioning, homework performance, peer relations, relationship with family members, disruptive behaviour and self-esteem. Nearly 90% children showed impairment in the academic and homework functioning, which is a replication of findings from previous studies.[7,8] It also had a significant positive correlation with ADHD score, indicating that the more severe the ADHD core symptomatology, greater is the negative impact on the academic performance, as seen in previous studies.[18] Similarly, poor homework functioning has been noted in previous studies.[9,19] A recent RCT showed that behavioral treatment focused on homework problems results in clear benefits for children's homework completion and accuracy, whereas long-acting stimulant medication resulted in limited and largely nonsignificant acute effects on homework performance.[20] This finding reinstates the need for identifying the target problem areas in order to individualize treatment.

The social dysfunction was also evident in the study population with more children (77%) showing greater dysfunction in peer relations than in family relations (66%). The mean score was also greater for peer relation impairment (1.56) than family relation impairment (1.13). These findings suggest that peer relationship problems are evident in these children, as has been shown in previous studies.[11,14] The relatively lower dysfunction in family relations may reflect the greater tolerance of Indian parents and the scale being a parent rated one. Various reasons being studied to understand the faulty social functioning include potential neuropsychological deficits, biased perceptions of social ability, and deficits in encoding and processing social information.[21] The current pharmacological treatment modalities have limited effectiveness in improving the social dysfunction; therefore, it is necessary to include the appropriate behavioural intervention.

Behaviour problems, particularly disruptive and controlling behaviours were noted in 77% of the children. The average score was 1.36, the lower than expected score could reflect the fact that children have syndromic diagnosis of conduct disorder or oppositional defiant disorder were excluded from the study. However, the presence of sub-syndromic problems emphasise the need to identify these problems to retard negative consequences in the future.

Impaired self-esteem was noted in about 47% of the subjects, which is largely consistent with previous findings by Mazzone et al and Harpin et al.[18,22] The correlation coefficient with the total score came out to be 0.05, which is not statistically significant. This is different from the previous findings of Edbom et al., which showed that self-

esteem problems increase with increasing severity of ADHD.[23] The possible reasons for the poor correlation found in our study could be greater emphasis by the parents on the poor academic performance and problematic behaviors of their children and lesser focus on the emotional needs of the child. Furthermore, it was a parent rated scale and self-esteem perceived by the children is better assessed on a self-rated report.[24]

The authors conclude that it is important that each child with ADHD is approached holistically, conceptualizing and assessing behaviours as a whole instead of only focussing on the core symptoms. This will establish a foundation for understanding, interpreting, and addressing the child's needs across various domains of functioning. Repeated measurements of the functional impairments over the course of treatment can help monitor progress, modifying the treatment, and also deciding the treatment duration. It is suggested that more studies with larger sample size should be conducted to understand the pattern of functional impairments and their relationship with severity.

Limitations

The study had a small sample size. No controls were taken for the study. All the functional impairments were solely a measure of a parent rated scale.

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Original Article

Cross-sectional study to assess psychiatric comorbidities and socio-demographic profile of patients of Alcohol dependence syndrome and assessing the correlation of depression with severity of addiction

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ABSTRACT

Introduction*: Patients with alcohol dependence syndrome often have comorbid psychiatric disorders, especially mood disorders. Alcohol dependence is known to worsens the course and prognosis of the comorbid mental illness and vice versa.* ***Objectives:*** *This study is an endeavour to add to the Indian literature by assessing psychiatric comorbidities and socio-demographic profile of patients of Alcohol dependence syndrome and assessing the correlation of depression with severity of addiction.* ***Method****: 75 patients who met the ICD 10 criteria of Alcohol dependence syndrome were included into the study after obtained informed consents. Their socio-demographic data, detailed history, clinical status and comorbid medical condition, current mental health status were recorded on a semi structured proforma. Detail psychiatric examination in addition to psychometric evaluation was conducted to elicit psychopathology and evaluate the degree of depression, and other psychiatric comorbid conditions.* ***Results:*** *Depressive disorder was observed in 30.67%, Alcohol induced psychotic disorder was seen in 6.67% patients, Schizophrenia was seen in 4.0%, Generalized anxiety disorder/ panic attack was observed in 16.0% whereas BPAD (Bi-polar affective disorder) was seen in 5.33% cases and personality disorder was seen in 4.0% patients among enrolled. The severity of dependence was found to be related to severity of depression.* ***Conclusions****: The most common psychiatric co-morbidity was depression and it was found to be related to the severity of alcohol dependence.*

Keywords*: Depression, Alcohol dependence syndrome, Comorbidity*

Introduction

The term "Comorbidity" can be understood as the presence of a distinct clinical entity that has existed or may occur during the clinical course of a patient having the index disease.[1] Psychiatric comorbidities have a high prevalence among patients of alcohol dependence[2-4] and often pose challenges in their diagnosis and treatment. Comorbid psychiatric illnesses have been found to be a major contributor to relapses.[5] Comorbidities commonly reported in this population include unipolar depression, bipolar disorder, panic disorder, generalized anxiety disorder (GAD), antisocial personality disorder (ASPD), obsessive compulsive disorder (OCD) and schizophrenia.[6-8] Unfortunately, often only the symptoms of dependence get

sufficient clinical attention. Depression and alcoholism are associated with considerable morbidity, disability, and mortality, and co-occur more commonly than expected by chance.[6-8] The extent of comorbidity between depression and alcoholism was demonstrated by the results of several large epidemiological studies.[6,7] In The National Comorbidity Survey (NCS), a nationally representative survey in the US, about one-third of respondents with alcohol dependence had a comorbid mood disorder.[9] Prevalence of comorbid major depressive disorder (27.9%) and anxiety disorder (36.9%) were very high in the NCS. The presence of comorbidity in alcohol dependence often leads to chronic alcohol use, treatment resistance of the comorbid disorder, and high suicide rates and disability.[10] Moreover, presence of psychiatric comorbidities is associated with poor treatment seeking for alcohol dependence.[11] The National Longitudinal Alcohol Epidemiology Study demonstrated that amongst those with major depression, 32.5% met criteria for a lifetime diagnosis of alcohol dependence, compared with only 11.2% of those who did not meet criteria for major depression.[4] Rates of depression are more elevated among people who seek treatment for alcoholism.[8] This study is an endeavor to add to the Indian literature by assessing psychiatric comorbidities in patients of Alcohol dependence syndrome and also assessing the correlation of depression with severity of addiction.

Material and Methods

Sample and population

75 patients who directly reported to psychiatry OPD, specialty clinic of drug and substance abuse or referred by other department with alcohol related problem, and on detailed psychiatric interview fulfilled ICD 10 diagnostic criteria for the diagnosis of alcohol dependence syndrome were considered, both inpatient and outpatient were included in the study. The approval of the ethical committee was obtained. It was a Cross Sectional Study carried over a period of 8 months. The index patient diagnosed with Alcohol Dependence Syndrome as per ICD 10 criteria meeting the inclusion and exclusion criteria was interviewed and examined after obtaining their informed consent. Their socio-demographic data, detailed history, clinical status and comorbid medical condition, current mental health status were recorded on a semi structured proforma. Detail psychiatric examination was conducted to elicit psychopathology and evaluate the degree of depression, and other psychiatric comorbid conditions.

Inclusion Criteria

1) Satisfying the diagnosis of alcohol dependence syndrome as per ICD 10.
2) Willing to participate with informed consent.

Exclusion Criteria

1) Individual unwilling to participate with informed consent.
2) Individual with serious medical comorbidity.
3) Individual with previous history of head injury.
4) Individual with history of multiple drug dependence

Research tools used for the study

1. ***Short Alcohol dependence data (SADD) questionnaires***

The SADD questionnaire is derivative of the broader Alcohol Dependence Data (ADD) questionnaire. More narrowly focused than the ADD, the SADD was also intended to be easier and faster to use than previous measures. The SADD is "(i) helpful for patients, who are seeking help with a drinking problem; (ii) helpful in measuring the present state dependence; (iii) sensitive across the full range of dependence; (iv) sensitive to change over time; and (v) relatively free of sociocultural influence".[12]

It is a 15-item questionnaire use to measure the severity of alcohol dependence. It is relatively independent of socio culture influence. Scoring: The 15 items summed (scored on a 5-point scale, ranging from 0 = not present to 3 = severe) for a total score that can range from 0 to 45. Where: 1-9 is interpreted as low dependence, 10-19 as medium dependence, and 20 or greater as high dependence

2. ***Hamilton rating Scale for Depression (HAM-D) questionnaire***

The Hamilton Depression Rating Scale is to be administered by a clinician experienced in working with psychiatric patients. It determines a patient's

level of depression before, during, and after treatment. It is a 21-item observer related scale to assess presence and severity of depressive state. Although the HAM-D form lists 21 items, the scoring is based on the first 17. Eight items are scored on a 5-point scale, ranging from 0 = not present to 4 = severe. Nine are scored from 0-2.[13]

HAM-D Scoring: Sum the scores from the first 17 items. 0-7 is Normal range, 8-13 is indicative of Mild Depression, 14-18 score is indicative of Moderate Depression, 19-22 of Severe Depression and $\leq$ 23 is indicative of Very Severe Depression.

Data analysis

Data was compiled and analysed by SPSS 20.0 version. Proportions, chi-square tests and Pearson correlation were used for analysis of data. The p-value of less than 0.05 was considered as the minimum level of significance

Results

Out of 75 patients enrolled for study, 8 (10.66%) were in the age group of 18-28 years, 29 (38.67%) were in the age group of 29-38 years, 26 (34.67%) were in the age group of 39-48 years, and 12 (16.00%) were in the age group of 49-58 years. Greater number of patients i.e. 29 (38.67%) out of 75 enrolled were between 29 – 38 years of age. Among the 75 subjects, 8 patients i.e. 10.67% subjects were professionally educated, 9 (12%) were graduates, for middle class and primary literate patient, population was 15 (20%) and 25 (33.33%) respectively and 18 (24%) were illiterate. 14 (18.67%) patients were farmers, Unskilled Workers' were higher in number i.e. 31 (41.33%), whereas number of skilled workers were lowest to be 8 (10.67%), 13 (17.33%) were engaged in their own business and remaining 9 (12%) were unemployed. Regarding per annum financial status of patients, it was seen that the income of 15 (20%) patients was below Rupees 30 Thousand, number of patients whose income fall between Rupees 30 thousand to 60 thousand, were higher among enrolled subject i.e. 25 (33.33%) whereas population of 12 (16%) patients had income between 60 thousand to 1 Lac and most prominent income of rupees more than 1 Lac contains 23 patients i.e. 30.67% of enrolled. Married patients were 51 (68.00%), unmarried were 10 (13.33%) as well as 5 (6.67%) were divorcee. It was also recorded that 9 (12.0%) patients were widowed. 89.33% patients were Hindu, 4% were Muslims, and 6.67% patients were from other ethnic groups. 18 (24%) patients had a Family History of Alcohol use and 13 (17.33%) had a Family History of other Psychiatric problem unrelated to substance use. Comorbid psychiatric disorder like Depressive disorder was observed in 30.67%, Alcohol induced psychotic disorder was seen in 6.67% patients, Schizophrenia was seen in 4.0%, Generalized anxiety disorder/ panic attack was observed in 16.0% whereas BPAD (Bi-polar affective disorder) was seen in 5.33% cases and personality disorder was seen in 4.0% patients among enrolled. 25 patients (33.33%) didn't have any comorbidity. Mean score of Short Alcohol Dependence disorder (SADD) was 18.49 ± 7.26 and Hamilton Depression Rating Scale (HAM-D), mean value was 11.11 ± 7.04. Severity score of alcohol dependence on SADD scale was, Low dependence score 6.90 ± 8.09, Medium dependence score 15.78 ± 7.67 and Higher dependence score 26.21 ± 7.56. In Hamilton Depression Rating Scale (HAM-D), Mild depression score was 11.17 ± 7.54, that was seen in 12 patients. Whereas mean to moderate depression score was seen as 16.00 ± 8.36 that includes 10 patients, 8 patients were in severe depression whose mean score rating was 20.37 ± 7.96 as well as 5 patients were in very severe depression with mean score of 28.40 ± 7.07 and 40 patients were Normal with mean score of 5.85 ± 8.38.

Table-1. Relationship between severities of alcohol dependence as per SADD and its correlation with HAM-D

Sr. No.	Variable on SADD scale	Mean of Score ± SD on HAM-D scale	Pearson's correlation
1	Low dependence	5.40 ± 7.47	r = 0.62*
2	Medium dependence	7.32 ± 7.07	r = 0.69*
3	Higher dependence	18.14 ± 7.26	r = 0.7*

*Significant at 0.05 level

Table-2: Showing frequency of psychiatric disorder on the basis of ICD- 10 criteria, and its correlation with alcohol dependence and depression analyzed by various scales

Item	Problem	N	Mean of of Score ± SD	F Value	P Value
SADD	Depressive disorder	23	21.56 ± 7.30	65.384	0.135
	Alcohol induced psychotic disorder	5	18.00 ± 7.77		
	Schizophrenia	3	26.00 ± 7.81		
	Generalized anxiety disorder/ Panic Attack	12	16.67 ± 7.47		
	BPAD (Bi-polar affective disorder)	4	26.50 ± 7.91		
	Personality Disorder	3	19.33 ± 7.81		
HAM-D	Depressive disorder	23	13.35 ± 7.06	10.65	0.168
	Alcohol induced psychotic disorder	5	11.40 ± 7.44		
	Schizophrenia	3	13.33 ± 6.92		
	Generalized anxiety disorder/ Panic Attack	12	8.33 ± 7.10		
	BPAD (Bi-polar affective disorder)	4	23.75 ± 7.66		
	Personality Disorder	3	15.33 ± 7.51		

Discussion

In the present study, all the participants were male. Majority were in the age between 29-48 years (n=55, 73.3%). According to Katyal et al study, majority (29.2%) of the current drinkers belonged to 25-44 years of age group with least (10.4%) being above 55 years of age.[14] The other Indian studies like Gururaj et al,[15] Meena et al,[16] reported similar findings as seen in this study. Maximum numbers of subjects were married. Our findings are in conformity with the published literature. Jena et al have found no difference between users and non-users of alcohol in terms of marital status.[17] Similar findings have been reported by Verma et al who did not find any significant difference between alcohol usages among ever and never married.[18]

John et al.[19] showed in their study that alcohol use was found to be significantly associated with educational status, which is consistent with our findings. Barros et al,[20] Huu Bich et al,[21] gave evidence for a negative relationship between educational level and drinking, which is consistent with our findings.

Psychiatric comorbidity was found in 66.67% of studied patients. Similar results of 66.59% Psychiatric comorbidity was found in the study as reported by Kattukulathil et al.[22]

The most common psychiatric co-morbidity was depression (30.67%); this can be compared with the findings of Alec *et al*[23] (33%). Siddharth Aswal et al.[24] stated psychiatric morbidity was significantly more in alcohol dependent (54%) as compared to controls (12%). In various psychiatric diagnoses, depression was the most common diagnosis in alcohol dependent (28%) followed by anxiety disorder (10%). Jonas et al.[25] reported that the mild to moderate depression was detected in 39.6% individuals and major depression in 13.0% individuals. In a study by Blow and colleagues.[26] concurrent depression and alcohol dependence showed an age-related increase in comorbidity across the entire life cycle, thus making this issue particularly relevant in late life. Anxiety disorder/ panic attack was diagnosed in 16% of the patients. The prevalence of phobia in most other studies.[21] was higher (range: 20%–29%); this might be because their study samples included female subjects and some of the samples were taken from anxiety clinics only. Alcohol induced psychiatric disorder was seen in 6.67% patients in our study which is lesser than others as reported by Morgenstern J et al.[27] Many Indian studies had revealed a very low prevalence of bipolar disorder in alcohol dependence, from 0% to 16%,[28] but present study found bipolar disorder to be 5.33%. This should be viewed in light of the fact that comorbidity of bipolar disorder and alcohol dependence was the most common dual diagnosis detected in NCS.[29] this study showed a very low prevalence of schizophrenia in alcohol dependence (4.0%). It is also showed in Indian study in which Kattukulathil et al[22] observed a very low prevalence of schizophrenia in alcohol dependence (3.4%). In Epidemiologic Catchment Area (ECA) study, the lifetime rate of comorbid schizophrenia in the alcohol dependence group was 24%.[30] We included only

those patients who attended our de-addiction unit — many patients with schizophrenia-alcoholism comorbidity might have been attending our general psychiatry department for treatment of schizophrenia, and hence could have got excluded from this study. Another reason could be that many patients with alcohol dependence-schizophrenia comorbidity would have got admitted to any of the rehabilitation centres prevalent in the state, for life-long stay, due to the higher severity or chronicity of their illnesses. Severity score of alcohol dependence on SADD scale was, Low dependence score 6.90 ± 8.09, Medium dependence score 15.78 ± 7.67 and Higher dependence score 26.21 ± 7.56. Vignesh et al results showed that more than half of the population had either medium level of alcohol dependence (40%) or high level alcohol dependence on SADD (46%) which is comparable to our study.[31] This indicates that the higher SADD score increases the severity of depression. Shafe et al[32] reported the severity of depression was significantly associated with severity of alcohol dependence. Present study showed as severity increases in SADD scale the mean score of HAM-D scale are increased. As shown in Table 1 when dependence on alcohol was low, depression score of patients was 5.40 ± 7.47 on HAM-D scale. When alcohol dependence in patients was Medium, score was 7.32 ± 7.07 on HAM-D scale. However, for patients with higher alcohol dependence, mean score on HAM-D scale had risen to 18.14 ± 7.26.

Conclusion

This study highlights that psychiatric comorbidities are quite prevalent in alcohol dependence. Depressive disorder was observed in 30.67%, Alcohol induced psychotic disorder was seen in 6.67% patients, Schizophrenia was seen in 4.0%, Generalized anxiety disorder/ panic attack was observed in 16.0% whereas BPAD (Bi-polar affective disorder) was seen in 5.33% cases and personality disorder was seen in 4.0% patients among enrolled. It concluded that the most common psychiatric co-morbidity was depression. In SADD majority of patients scored indicating medium to higher dependence. A significant positive correlation was found between severity of substance dependence and level of depression.Those who scored higher on SADD also found to score more on HADD indicating relation of depression with severity of dependence. Among other psychiatric comorbidities generalized anxiety disorder was found to be more common followed by alcohol induced psychotic disorder, schizophrenia, bipolar affective disorder and personality disorder. Majority of patients were of low socioeconomic strata. However, socio demographic variables did not correlate to amount of psychiatric comorbidity which was most probably due to small sample size. More studies are required with larger samples to know the relationship. More than half of the population had either medium level of alcohol dependence (49.3%) or high-level alcohol dependence on SADD (37.3%).

Recommendations

- Studies with larger sample size, studies that include patients with remitted alcoholism, and studies on integrated interventions to treat both alcoholism and the comorbid psychiatric disorders are needed in the future.
- The prevalence of depression in individuals with Alcohol Dependence Syndrome is very high. Therefore, it is imperative for the treating psychiatrist to look for it.

Limitations of the study

- Small sample size
- Cross sectional design. This limit establishing causality and can only describe associations between the various variables and alcohol dependence.
- We did not assess comorbid use of other substances (including nicotine), physical comorbidity, or treatment parameters.
- Further the study was limited to one geographical location so the results of the study cannot be generalized.
- Also, the study included only males so the findings of our study may not be applicable to females.

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Original Article

Level of depression, Anxiety and self-esteem in patients planned for bariatric surgery: Cross-sectional exploratory study

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ABSTRACT

Background: *Candidates for bariatric surgery frequently have co-morbid psychiatric problems.* ***Objective:*** *The present study was designed to assess level of depression, anxiety and self-esteem among candidates planned for bariatric surgery.* ***Methods:*** *The authors collected demographic and clinical information including BMI, detailed history from 25 individuals planned for bariatric surgery. All participants were evaluated using the Hamilton Depression Rating Scale [HAM-D] and Hamilton Anxiety Rating Scale [HAM-A] and Rosenberg Self-esteem Scale.* ***Results:*** *The study group was mostly female (96%) Mean body mass index (BMI) of the group was 40.35 kg/m2 (SD=3.02), and the mean age was 43.05 years (SD=4.42). Mean HDRS-17 score was 10.9 (±5.92), Mean HAM-A score was 8.55 (±5.25) and mean Rosenberg self-esteem score was 23.5 (±7.3).* ***Conclusions:*** *Amongthe patients selected for bariatric surgery, more than 50% were suffering from depressive disorder and around 20% had mild to moderate anxiety. Patients also had low self-esteem associated with morbid obesity. This study points towards the importance of the continuous evaluation and need for the appropriate interventions for patients planned for bariatric surgery, even after weight loss. It is important to consider the need for continued treatment, emphasizing the idea that because obesity is a chronic disease, it requires multidisciplinary, long-term treatment, even for surgical cases.*

Keywords: *Depression, Anxiety, Self-esteem, Morbid obesity, Bariatric surgery.*

Introduction

The prevalence of overweight and obesity is increasing globally both in developed and developing countries.[1] There is widespread consensus among health care professionals that obesity can be attributed to physiological, psychological, and social factors. Whatever may be the cause, 'morbid obesity' when present, can dramatically decrease the life expectancy and quality of life.[2] 'Morbid obesity' is defined as body mass index (BMI) more than 40 kg/m² or more than 35 kg/m² associated with any of the several comorbidities such as Type-2 Diabetes mellitus (DM), obstructive sleep apnoea, cerebrovascular stroke.[3] National Institutes of Health Consensus Conference Panel, 1991 recommended bariatric surgery for well-informed motivated individuals with 'morbid obesity'.[4]

Although lifestyle modification and pharmacotherapy (ies) are considered first line of management, bariatric surgery has been effective in long-term marked weight loss and in bringing significant improvement to medical comorbidities. Psychiatric assessment prior to bariatric surgery has become a standard procedure, due to high rates of psychiatric comorbidities. It has been seen that individuals presenting for weight loss surgery report more disabling psychiatric symptoms than do obese individuals in the community.[5] Bariatric surgery

candidates are more likely to have a history of depression and anxiety than those seeking community-based behavioural treatment of obesity, even after control of BMI.[6] Many studies have shown that preoperative diagnosis of depressive or anxiety disorders as well as binge eating disorder is associated with lower weight loss after surgery,[7] therefore screening for depressive and other psychiatric disorders during assessment process and follow-up phases is recommended.[8] Psychopathology that is sufficiently severe to require treatment may be a negative predictor of surgical outcome which should be addressed prior to surgery. The severity of psychological disorders like depression, anxiety has been related to the degree of obesity, therefore there is a positive association between presence of psychopathology and BMI.[9] Obese individuals also reports significant pain in weight-bearing joints and impaired flexibility.[10] Multiple physical problems lead to difficulties in performing basic activities like as walking, climbing stairs and other activities of daily living leading to distress, negative feelings about self and low self-esteem.[11] Low self-esteem have been reported due to shame and guilt because of body shape which can lead to serious outcomes such as depression, suicidality, eating disorders, and substance abuse.[12] When these patients are planned for surgery they had poor weight reduction after treatment.[13] In Summary, amount of weight loss post bariatric surgery is variable, even among patients undergoing same procedure. Preoperative mental illness is one of the few known factors that may negatively affect post-operative weight loss in 'morbid obese' patients.[14]

Therefore, pre surgical psychiatric evaluation of patients planned for bariatric surgery should be mandatory, as identification of psychiatric comorbidities improves quality of perioperative management. They are an important predictor of post-surgical weight loss and its long term maintenance. To the best of our knowledge available results are inconsistent in Indian setting. Psychopathology may account for some of the variability in post-surgery weight loss but studies on this aspect are scarce.

Materials and Methods

It was an exploratory study to assess the level of depression, anxiety and self-esteem among morbid obese patients, who were already planned for operative intervention by the Department of Surgery of LHMC and were sent for preoperative psychiatric evaluation. The assessment involved detailed history taking and application of rating scale(s). Data collection was done from August 2018 to July 2019.

Inclusion criteria

- Age 18-60 years
- Already opted for bariatric surgery as per WHO criteria.
- Taking psychiatric consultation for preoperative assessment

Exclusion criteria

- Active substance use (in last 3month) as per history
- Any psychiatric diagnosis other than depression and anxiety

Assessment scale(s): Detailed history of presenting symptoms and past history of any psychiatric illness, treatment history and substanceuse were taken. Details were recorded in semi structured proforma including parameters like age, BMI, medical comorbidities. Additionally, motivational factors for bariatric surgery as well as willingness for postoperative lifestyle modification were evaluated. Depressive Mood was evaluated on 17-item Hamilton Depression Rating Scale (HDRS).[15] A review conducted by Bagby and colleagues (2004) evaluated psychometric properties of HDRS. It described internal reliability ranging from 0.46 to 0.97, an inter-rater reliability of 0.82 to 0.98, and a test–retest reliability of 0.81 to 0.98.[16] Hamilton Anxiety Rating Scale (HARS)[17] was applied to assess symptoms of anxiety. This is a 14-item questionnaire which was developed to assess physical, psychological and behavioural aspects of anxiety. It has good interrater reliability (0.74 to 0.93) and validity (citation clark 1994).[18] Rosenberg Self-esteem Scale[19] which is Self-rated 4 point Likert scale format having 10 items from strongly agree to strongly disagree to assess both positive and negative feeling for self was used. This scale has high internal consistency (0.77 to 0.88), test-retest reliability (0.82 to 0.85) and Criterion validity (0.55).

Ethical consideration: Written informed

consent was taken in understandable language from all the patients who met the selection criteria. Ethical clearance was obtained from institute ethical committee.

Statistical Analyses: Statistical evaluation was carried out using SPSS version 24. Values are presented as means and standard deviations.

Results

Recruitment: In the stipulated time period 30 patients were screened out of which two patients denied consent to participate in the study. One male patient was excluded due to regular alcohol use till one week prior to hospitalization, one female and one male patient due to continued use of chewable tobacco during the hospital stay. Finally a total of 25 patients were included in our study.

Table-1: Sociodemographic profile

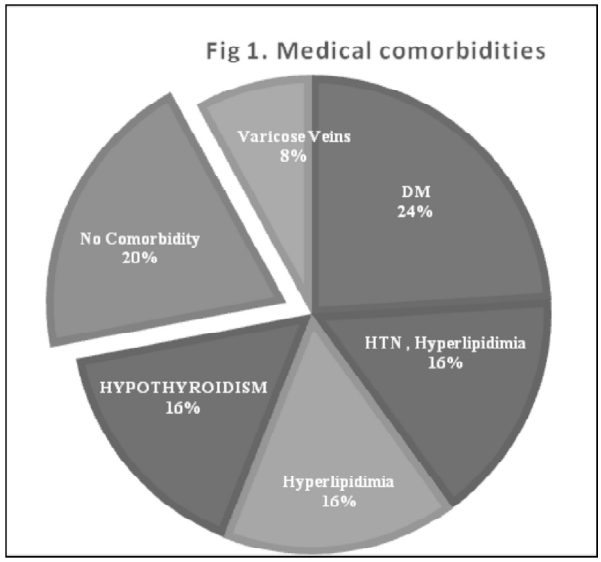
Gender	
Female	24(96%)
Male	1(4%)
Marital Status	
Married	22(88%)
Unmarried	2(8%)
Widow	1(4%)
Educational Status	
Illiterate	3(12%)
Below Primary	4(16%)
Up to 10th	2(8%)
Up to 12th	4(16%)
Diploma	5(20%)
Graduate	7(28%)
Occupational Status	
Accountant	1(4%)
Clerk	2(8%)
Computer operator	2(8%)
Cook	3(12%)
Data Entry operator	3(12%)
House Wife	9(36%)
Receptionist	1(4%)
Shop Keeper	1(4%)
Teacher	3(12%)
Type of Family	
Joint	12(48%)
Nuclear	13(52%)
Domicile	
Rural	6(24%)
Urban	19(76%)

Sociodemographic profile: Mean age of our study population was 43.05 (±4.42) years, with all except one female participants. Table 1 enlists details of sociodemographic profile of study population.

Medical comorbidities: Mean BMI of all participants was 40.35 (±3.02) kg/m^2. Among 25 participants, Diabetes mellitus was present in 6 (24%), hyperlipidaemia in 4 (16%), hypertension in 4 (16%) and hypothyroidism in 4 (16%) participants. No medical comorbidity was present in 20% patients (Fig. 1).

Table-2: Level of depression, anxiety and self esteem

HDRS	
Very Severe Depression	1 (4%)
Severe Depression	1 (4%)
Moderate Depression	6 (24%)
Mild Depression	6 (24%)
Normal	11(44%)
HAM-A	
Moderate Anxiety	2 (8%)
Mild Anxiety	3 (12%)
Normal	20 (80%)
Rosenberg Self Esteem Scale	
High Self Esteem	6 (24%)
Medium Self Esteem	6 (24%)
Low Self Esteem	13 (52%)



Level of depression, anxiety and self-esteem: Level of common psychiatric illness like depression and anxiety was assessed using HRDS and HAM-A respectively. Mean HDRS-17 score was 10.9 (±5.92), Mean HAM-A score was 8.55 (±5.25) and mean Rosenberg self-esteem score was 23.5 (±7.3).

In total clinical depression was found in 14 (56%) participants, clinical anxiety in 5 (20%) participants and low self-esteem in 13 (52%) participants (Table 2). We also analysed different components of depression and anxiety scale to assess individual symptom frequency. In HDRS, Depressed mood = 22 (88%), general somatic symptoms = 22 (88%), psychic anxiety = 16 (64%) and feeling of guilt = 17 (68%) were most frequently occurring symptoms. More importantly though, severe symptoms like suicidal ideas were present in 8 (32%) participants. All participants reported difficulty in work and daily routine activities. In HAM-A, 18 participants (72%) reported anxious mood. Somatic = 19 (76%), Gastrointestinal, genitourinary and autonomic symptoms of anxiety were reported by 13 (52%) participants each (Table 3 and 4).

Table-3: Depressive symptoms

Hamilton Depression Rating Scale	Present
Depressed Mood	**22 (88%)**
Feelings of Guilt	**17 (68%)**
Suicide	8 (32%)
Insomnia: Early in The Night	11 (44%)
Insomnia: Middle of The Night	4 (16%)
Insomnia: Early Hours of The Morning	1 (4%)
Work And Activities	**25 (100%)**
Retardation	6 (24%)
Agitation	1 (4%)
Anxiety Psychic	**16 (64%)**
Anxiety Somatic	14 (56%)
Somatic Symptoms Gastro-Intestinal	10 (40%)
General Somatic Symptoms	**22 (88%)**
Genital Symptoms	10 (40%)
Hypochondriasis	**16 (64%)**
Loss of Weight	1 (4%)
Insight	**19 (76%)**

Table-4: Anxiety symptoms

Hamilton Anxiety Rating Scale	Present
Anxious Mood	**18 (72%)**
Tension	9 (36%)
Fears	3 (12%)
Insomnia	10 (40%)
Intellectual	13 (52%)
Depressed Mood	**22 (88%)**
Somatic (Muscular)	**19 (76%)**
Somatic (Sensory)	7 (28%)
Cardiovascular Symptoms	11 (44%)
Respiratory Symptoms	6 (24%)
Gastrointestinal Symptoms	**13 (52%)**
Genitourinary Symptoms	**13 (52%)**
Autonomic Symptoms	**13 (52%)**
Behaviour At Interview	11 (44%)

It is observed in our study that most of the patients who needed to seek treatment were mostly females and then higher BMI was associated with increased risk of depressive disorder and significant association of HDRS score with BMI (p value = 0.016) and Rosenberg scale (p value = 0.037)

Discussion

Morbid obesity and related complications are global phenomena. Both pharmacotherapy and operative interventions along with lifestyle modifications shows improvement in the form of weight loss. Preoperative psychiatric assessment has been advised by various international consensus groups. When there is no doubt about need of management, diagnostic cut-off for western population was different from Indian cut-off. Obesity and Metabolic Surgery Society of India recommend bariatric surgery for patients with BMI

Table-5: Correlation between HDRS score and Age, Weight, BMI, Rosenberg scale:

ANOVA

		Sum of Squares	df	Mean Square	F	Sig.
Age	Between Groups	137.673	4	34.418	.894	.486
	Within Groups	770.167	20	38.508		
	Total	907.840	24			
Weight	Between Groups	227.869	4	56.967	.546	.704
	Within Groups	2086.169	20	104.308		
	Total	2314.038	24			
BMI	Between Groups	111.695	4	27.924	3.974	**.016**
	Within Groups	140.545	20	7.027		
	Total	252.240	24			
Rosenberg (Interpretation)	Between Groups	6.570	4	1.643	3.138	.037
	Within Groups	10.470	20	.523		
	Total	17.040	24			

>37.5 kg/m^2 without comorbidity and BMI >32.5 kg/m^2 with comorbidity.

We did an exploratory study to assess the level of depression, anxiety and self-esteem among morbid obese patients, as there is relative dearth in literature among Indian population. Socio-demographic characteristics of our study sample was similar to previous studies, in respect to gender distribution (three fourth or more female samples), median BMI and age. Krukowski et al.[20] found a similar BMI in predominantly female patients with a mean age of 43 years, but higher rates of depression in their investigation using Becks Depression Inventory in bariatric patients, possibly because they primarily focused on somatic symptom (e.g. pain) subscale assessment. In another study conducted by Cassin et al.[21] reported more than 50% participants with moderate depression (PHQ-9 $\geq$ 10), and more than 25% for moderate severe depression (PHQ-9 $\geq$ 15), with high proportion of female patients, as in our study. Similar results has been shown in various others studies.[20-23]

A positive relationship was found between depression and obesity in females, greater BMI was associated with elevated reports of depressive symptoms. This relationship remained significant after controlling for age, years of educationas mentioned by Istvan et al., 1995.[24] The similar pattern was observed in our study. Faith et al[25] found a positive relationship between neuroticism and BMI.

According to a study by Carpenter et al.,[26] relative body weight was associated with major depression, suicide attempts, and suicide ideation. Among women, increased BMI was associated with both major depression and suicide ideation. Carpiniello and her colleagues[27] in 2009 studied psychiatric co-morbidities in 150 patients planned for bariatric surgery attending specialist obesity unit. The highest prevalence rate was found for Anxiety Disorders (~35%), followed by mood disorders (~30%) and Eating Disorders (18%). Mood Disorders, in particular Major Depression (~20%), were significantly prevalent among female obese subjects.

A cross-sectional study by Jiwanmall et al.[28] was done to assess psychiatric burden in the morbidly obese and factors associated with development of psychiatric disorders in Multi-disciplinary Bariatric Clinic in South India, 33.3% had at least one psychiatric disorders, 50% among them had depression and dysthymia, factors associated with psychiatric disorders were current suicidal ideation, past self-injurious behaviour, perceived poor social support,andpast psychiatric history. Prevalence of at least one psychiatric diagnosis in bariatric surgery patients was 60% in our study and comparable to the respective literature.

Higher burden of psychiatric comorbidity may be because of obesity itself or other physical comorbidities associated with morbid obesity or their complex interaction with bio-psycho-social aspects (e.g. Low self-esteem, disturbed body-image or underline genetic vulnerability) of patients suffering from morbid obesity. Exact mechanism however remained elusive till date and deserves further research.

There are only few studies from India and none from north Indian population. In this study we assessed individual domains of depressive and anxiety symptoms and in addition the self-esteem of the participants using standardized scales, which can be an important predictor of treatment outcome. Our study had suffered from some limitations like: small sample size, lack of control group, lack of post-surgery follow-up assessment and poor generalizability of findings in general population.

Conclusion

The patients that were selected for bariatric surgery more than 50% were suffering from depression disorder and around 20% had mild to moderate anxiety. Patients also had low self-esteemed associated with morbid obesity. This study points towards the importance of the continuous evaluation and need for the appropriate interventions for patients planned for bariatric surgery, even after weight loss. It is important to consider the need for continued treatment, emphasizing the idea that because obesity is a chronic disease, it requires multidisciplinary, long-term treatment, even for surgical cases.The result clearly supports monitoring individuals with anxiety and depressive disorders for suboptimal weight loss prior to surgery. Close surveillance of patients might help to identify at-risk populations who would benefit from interventions that target

anxiety and depressive symptoms.A future standardized procedure for assessment of bariatric surgery candidates could split the evaluation rating from psychiatric diagnosis, leading to reduction of bias in self-reporting due to fear of rejection from surgery. Therefore further studies with larger sample size and follow up assessment will be helpful providing better insight to our understanding of role of psychiatrist in management of patients with morbid obesity.

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Original Article

A Study of Relationship of Social Functioning and Internalized Stigma with insight in Patients of Schizophrenia and Bipolar Affective Disorder

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ABSTRACT

Background: *Social functioning is significantly impaired in chronic mental illness, which can be further intensified by internalized stigma. Insight has been found to act as a moderator between internalized stigma and social functioning.* ***Aim:*** *The aim of our study was to study the relationship of social functioning and internalized stigma with insight in patients of Schizophrenia and Bipolar affective disorder (BPAD).* ***Material and method:*** *This was a cross sectional descriptive study, conducted in the Department of Psychiatry & Drug De-Addiction Centre, Lady Hardinge Medical College, New Delhi. Systematic Random Sampling technique was used with fifty patients in each group was taken. The scales used were, Positive and Negative Syndrome Scale (PANSS), Hamilton Rating Scale for Depression-17 (HAM-D 17), Young Mania Rating Scale (YMRS), Scarf Social Functioning Index (SSFI), Internalized Stigma of Mental Illness Scale (ISMI), Babs-Brown Assessment of Beliefs Scale (BABS). The data obtained were subjected to statistical analysis.* ***Results:*** *These three variables severely impaired in patients of Schizophrenia as compared to patients of BPAD.* ***Conclusion:*** *Our study concludes that, social functioning shows negative correlation with insight and stigma whereas insight was found to be positively correlated with stigma. This may be useful for better intervention and to improve management and social integration of patients.*

Keywords*: Social functioning, Internalized stigma, Insight, Schizophrenia, Bipolar affective disorder.*

Introduction

The burden of mental disorders continues to grow with significant impacts on health and major social, human rights and economic consequences in all countries of the world. According to National Mental Health Survey 2015-16 (NMHS) the overall weighted prevalence of mental morbidity was 10.6% for current and 13.7% for lifetime. Mental disorders may cause poor ability to function in life. Schizophrenia and BPAD are most common severe mental disorders. As per the NMHS 2015-16 the prevalence of Schizophrenia is 0.5% for current and 1.4% for lifetime; for Bipolar I disorder, it is 0-2% and for Bipolar II disorder is 0.3-4.8%.[1] In previous studies, it was found that Schizophrenia inevitably leads to social withdrawal and high level of Internalized Stigma which is influenced by factors like age, multiple hospital admissions, cognitive deficits, duration of the illness, level of perceived stress and Internalised stigma has significant impact on self-esteem, socio-occupational functioning, and quality of life.Studies also found that irritability, depression and other psychiatric co morbidities have a negative impact on the quality of life and functioning in BPAD, suggesting a risk for functional impairment among these individuals with social disadvantages.[2] Pal A

et al. found that there is considerable Internalized Stigma in patients with multiple psychiatric disorders. Substantial Stigma was experienced by patients with BPAD, which was found to be in intermediate levels between that experienced by patients with anxiety disorder (lower) and Schizophrenia (higher).[3] Classically, patients with these mental disorders are described to have poor Insight into the nature of their illness and this is associated with poor compliance to treatment and poor social functioning. In a comparative study of Insight in BPAD and Schizophrenia by Ramachandran et. al. found significant difference in Insight in both the groups, both retrospectively and currently.[4] Evidence suggests that social support can influence relapse rates, functioning and various clinical outcomes in these patients.[5-7]

Various comparative studies have been conducted in the past on these two mental disorders but there is a relative paucity of studies to understand and know the relationship of Internalized stigma and Social functioning, with Insight altogether Hence, our research attempts to address the relationship between these three variables.

Aims and Objectives

Our aim was to study the relationship of Social functioning, Internalized Stigma with Insight in patients of Schizophrenia and Bipolar affective disorder.

Materials and Methods

Study site and design

The study was a hospital based Cross-sectional descriptive study, conducted in the Department of Psychiatry and Drug De-Addiction Centre, Lady Hardinge Medical College & Smt. S.K. Hospital, New Delhi. Institutional ethical approval was obtained prior to commencement of the study. Subjects were recruited using Systematic random sampling. Study sample consisted of 50 subjects for each group, 18-60 years of age, fulfilling the DSM-5 criteria with 1-year duration of illness, given written informed consent. Subjects having any co-morbid substance use disorder except tobacco and caffeine, any other psychiatric disorder, major medical or surgical illness, were excluded from the study.

Procedure

Both inpatients and outpatients fulfilling the inclusion criteria were taken for the study. For Socio demographic data, semi structured proforma was filled for each patient. Patients were rated on Positive and Negative Syndrome Scale (PANSS), Hamilton Rating Scale for Depression-17 (HAM-D 17), Young Mania Rating Scale (YMRS), Kuppuswamy socio economic status scale, and Clinical global impression (CGI) Scale. Scarf social functioning index (SSFI) was used for measuring Social functioning, Internalized stigma of mental illness scale (ISMI) to assess Internalized stigma and Brown assessment of beliefs scale (BABS) was used to assess insight.

Statistical analysis

Statistical analysis was done using Statistical Package for Social Sciences (SPSS ver. 20). Descriptive Statistics were used for the Socio demographic variables. Chi square test and Independent sample T-test was used to make in between group comparisons for categorical and continuous variablesrespectively. Pearson's/Spearman correlation tests were applied based on the normality of distribution of data observed in our study. P value less than 0.05 was considered statistically significant.

Results

In terms of age and education, there were significant differences between the groups. Subjects in the schizophrenia group were younger with mean age of 32 (Standard Deviation-6.52) than the subjects of other group with mean age of 34.78 (Standard deviation-7.77). In BPAD group, 42% had education up to high school, whereas in Schizophrenia group, 28% had education up to high school (Table 1).

Table-1: Educational Level of Study Participants

Variable	BPAD	Schizophrenia
Age Mean age (SD)	34.78 (7.77)	32.00 (6.52)
Education		
High school (%)	21 (42.0)	14 (28.0)
Middle school	22 (44.0)	26 (52.0)
Primary school	7 (14.0)	10 (20.0)

No significant differences were found between the groups in terms of marital status, occupation and Socio-economic status. Most of the patients

were unemployed and from lower middle socio-economic status in both groups. Positive family history was present in more cases of Schizophrenia that was 48% (24/50) as compared to BPAD in which it was 36% (18/50) (Table 2, Table 3, Table 4, Table 5).

Table-2: Occupation of Study Participants

Occupation	BPAD	Schizophrenia
Skilled worker (%)	5 (10.0)	10(20.0)
Semi-skilled worker	16 (32.0)	9 (18.0)
Unskilled worker	7 (14.0)	4 (8.0)
Unemployed	22 (44.0)	27(54.0)

Table-3: Socio-Economic Status of Study Participants

Socioeconomic Status	BPAD	Schizophrenia
Lower (%)	6 (12.0)	2 (4.0)
Lower middle	31 (62.0)	32 (64.0)
Upper lower	10 (20.0)	15 (30.0)
Upper middle	3 (6.0)	1 (2.0)

Table-4: Marital Status of Study Participants

Marital Status	BPAD	Schizophrenia
Married (%)	31 (62.0)	27 (54.0)
Unmarried	17 (34.0)	21 (42.0)
Widow	1 (2.0)	0 (0.0)
Widower	1 (2.0)	2 (4.0)

Table-5: Family History of Study Participants

Family History	BPAD	Schizophrenia
Present (%)	18(36.0)	24(48.0)
Absent	32(64.0)	26(52.0)

Analysis of Social Functioning, Stigma and Insight in Study Group:

Social functioning was moderate (76%) to severely (24%) impaired in case of Schizophrenia with mean SSFI score of 42.64 as compared to BPAD where it was mild (76%) to moderately impaired (24%) with mean score of 60.18 (Table 6).

Table-6: Scarf Social Functiong Index (SSFI) Score

Social Function	BPAD	Schizophrenia
Mild(%)	38 (76.0)	0 (0.0)
Moderate	12 (24.0)	38 (76.0)
Severe	0 (0.0)	12 (24.0)
Mean SSFI Score (SD)	60.18 (4.11)	42.64 (9.79)

Mean ISMI score was high for Schizophrenia (2.63) than BPAD (2.27) which implicated high internalized stigma (86%) in cases of Schizophrenia than BPAD (18%) (Table 7).

Table-7: Internalized Stigma of Mental Illness (ISMI) Score

Internalised Stigma	BPAD	Schizophrenia
High (%)	9 (18.0)	43 (86.0)
Not High	41 (82.0)	7 (14.0)
Mean ISMI score (SD)	2.27 (0.21)	2.63 (0.15)

Poor insight was seen in patients with Schizophrenia (76%) with mean BABS score of 2.66 as compared to BPAD in which no patient had poor insight and 41% had good insight with mean score of 1.27 (Table 8).

Table-8: Brown Assessment of Beliefs Scale (BABS) Score

Insight	BPAD	Schizophrenia
Fair insight (%)	9 (18.0)	12 (24.0)
Good insight	41 (82.0)	0 (0.0)
Poor insight	0 (0.0)	38 (76.0)
Mean BABS Score (SD)	1.27 (0.20)	2.66 (0.27)

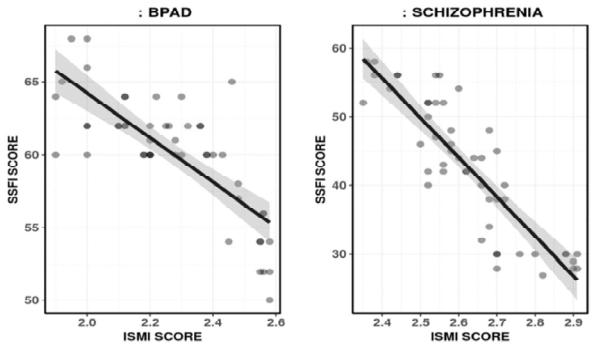

Fig.-1: Correlation between social functioning and stigma

- On a formal statistical linear regression analysis, line of best fit (blue line signifying line with least square difference) also has a negative slope implying a negative correlation.
- This relationship is more pronounced in Schizophrenia (-0.871) than BPAD (-0.771).
- On a formal statistical linear regression analysis, the best fit (blue line signifying line with least square difference) also has a negative slope implying a negative correlation.

Table-9: Correlation between social functioning and stigma

Diagnosis	Correlation	Confidence interval low	Confidence interval high	p. value
BPAD	- 0.871	-0.925	-0.782	< 0.001
Schizophrenia	- 0.771	-0.864	-0.628	< 0.001

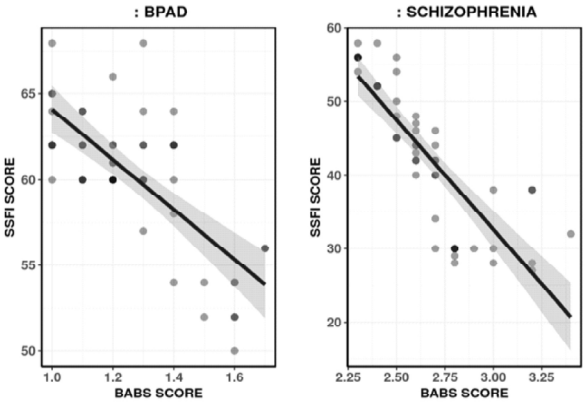

Fig.-2: Correlation between Insight and social functioning

- This relationship is more pronounced in Schizophrenia (-0.825) than BPAD (-0.719).

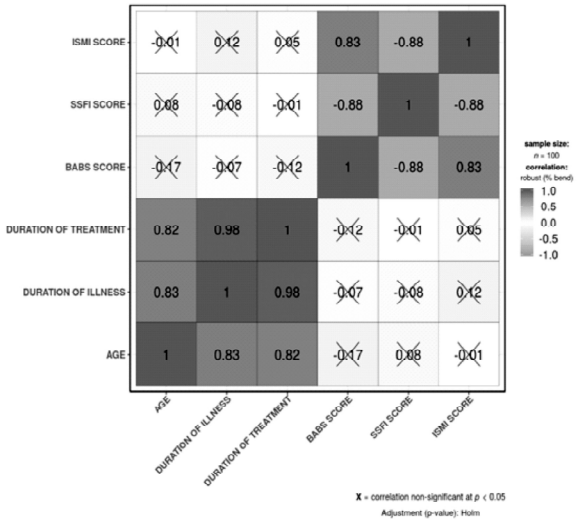

Fig.-4: Correlation matrix of study participants of both groups.

Table-10: Correlation between Insight and social functioning

Diagnosis	Correlation	Confidence interval low	Confidence interval high	p. value
BPAD	- 0.825	-0.897	-0.710	< 0.001
Schizophrenia	-0.719	-0.831	-0.551	<0.001

Table-11: Correlationbetween Insight and Stigma

Diagnosis	Correlation	Confidence interval low	Confidence interval high	p. value
BPAD	0.698	0.521	0.818	< 0.001
Schizophrenia	0.664	0.446	0.782	<0.001

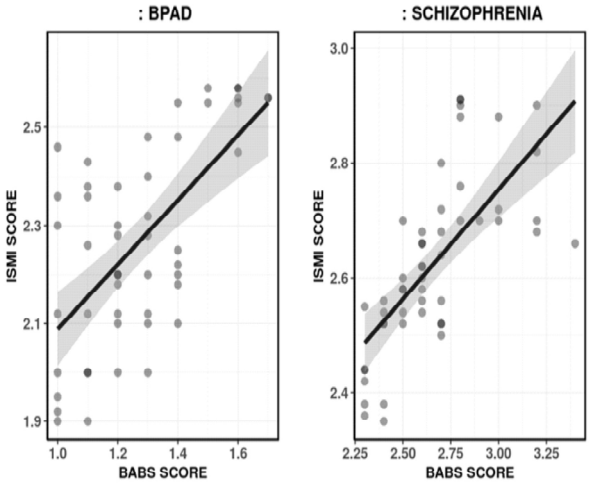

Fig.-3: Correlation between Insight and Stigma

- On a formal statistical linear regression analysis, we can see that line of best fit (blue line signifying line with least square difference) also has a positive slope implying a positive correlation.
- This relationship is more pronounced in Schizophrenia (0.698) than BPAD (0.644).
- The Correlation Matrix is based on the correlation coefficient, a number between 1.0 and -1.0.
- In the correlation matrix above, the coefficients in diagonal are 1 because they measure self-correlation; off-diagonal squares contain correlation coefficients of different variables with one another.

- The non-significant correlations have been crossed for better visualisation.
- We can see that ISMI score correlates positively with BABS score, while both ISMI and BABS score have negative correlation with SSFI scores.

Discussion

Schizophrenia and Bipolar affective disorder have a significant impact on the patients suffering from either of these.

According to the previous studiesSchizophrenia is typically diagnosed in the late teen years to early thirties. Similarly,in the study, the mean age of patients of Schizophrenia was 32 years which corresponds to the results observed in these previous studies.[8,9] In another study conducted on 100 patients of Bipolar affective disorder, socio-demographic data suggest mean age of presentation was 34 years, which also corresponds to the results observed in this study.[10]

Higher number of married persons can be attributed to better family care and concern about illness by the patient themselves and their family members. Better self-care and family care of these patients is found in various previous studies[11].

On studying the socioeconomic status, higher numbers of patients were belonging to poor socioeconomic status group which is suggested by higher number of unemployed patients and large number of patients belonging to lower middle and upper lower (25%) socioeconomic status[12].Deficit in Social functioning was recognised to be a core feature of Schizophrenia and it was found to be influenced both by social and demographic characteristics of the people with the diagnosis and clinical factors[13]. Bipolar affective disorder also carries severe impairment in social functioning.In previous studies, it was found that patients with Schizophrenia consistently performed worse than patients of Bipolar affective disorder[14,15].

In previous studies, the perceived and experienced stigma as well as self-stigma and poor insight was found in high percentage of patients with Schizophrenia and stigma was associated with poor insight.[16] Study done by Sarisoy et al. in 228 patients concluded that Internalized Stigma was more common in case of Schizophrenia than in Bipolar affective disorder with the incidence of one in three and one in five respectively[17]. These were related with poor treatment adherence, poor social functioning, and high level of depression, social anxieties, low self-esteem and lower quality of life[18].As in our study, when compared, we found that patients with Schizophrenia had insight score of 2.66 ± 0.27 and patients with Bipolar affective disorder had insight score of 1.27 ± 0.20. Schizophrenia patients more often exhibited poor Insight concerning their mental disorder[19].Patients of Bipolar affective disorder, greater impairments in Insight were observed during pure manic episodes than during mixed or depressive episodes or during euthymia[20]. Same results were found in the study done by Fennig et al. which used Wisconsin Card Sorting Test (WCST) to know the difference in Insight in both groups that patients with Bipolar affective disorder had better insight compared with schizophrenia as found in other previous studies[21,22].

These previous studies, thus, are in cohesion with the results of our study stating that both study groups are associated with poor social functioning, high stigma and poor insight but the severity is much higher in cases of Schizophrenia than in Bipolar affective disorder.

Poor insight and high stigma lead to poorer treatment adherence, poorer social functioning and rehabilitation, aggressive behaviour, higher level of depression, social anxiety, lower quality of life and self-esteem. In previous studies on the relationship of the level of Insight and self-stigma, statistically significant correlation was found in which 88.6% of the patients had high or moderate insight, with a mean value of 2.73 with self-stigma score of 2.13[18].

Mishra et al. in their study found that the level of stigma felt by patients with good insight was significantly higher than that felt by patients without insight[23].Good clinical insight had a positive effect on social functioning and it predicted a range of indices of higher levels of community function, including frequency of social contact and perceived social support. This study also found the similar results as previous studies[24,25].In a study conducted by Singh A et al. assessing stigma and its correlates in patients with Schizophrenia, they found that significant proportion of patients with Schizophrenia experienced stigma and it was associated with lower level of functioning, and better knowledge about illness was associated with lower level of stigma[26].

This is consistent with various other previous studies[27].Patients with Bipolar affective disorder experience substantial stigma, which was intermediate between that experienced by patients with Schizophrenia (higher) and anxiety disorder (lower), it had significant impact on self-esteem, socio-occupational participation and functioning, and quality of life. This suggests that that identifying and correcting Self-stigma could be beneficial[3].

There is a Positive correlation between Insight and Stigma which suggests that poor Insight is related to high Stigma which may be due to small sample size, family history, symptoms at the time of assessment, treatment and duration of illness, that may vary in different studies, while social functioning shows negative correlation with stigma and insight which suggest that high Stigma and poor Insight is poorly related to Social functioning.

Conclusion

On the basis of the available literature and results of the index study, substantiating the earlier findings, it can be concluded that:

Patients with Schizophrenia had poorer Insight, higher Internalized Stigma and poorer social functioning than patients of bipolar affective Disorder. Insight and Stigma are negatively correlated with social functioning, whereas Stigma and Insight had a positive correlation with each other. These factors may further aggravate mental illnesses leading to increase in DALYs and progressive worsening of illness. This point may be kept in mind for the purpose of a holistic management.

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Original Article

Assessment of Psychiatric Manifestations among Hypothyroid Patients in Tertiary Care Hospital

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ABSTRACT

Context: *The Connection between hypothyroidism and depression is well known, and almost every psychiatrist will test patient's level of thyroid hormones before prescribing antidepressant medications, believing that mild cases of low thyroid function can cause major depression.* ***Aims/ Objectives****: Assessment of psychiatric manifestations among hypothyroid patients in tertiary care hospital.* ***Materials and Methods:*** *100 diagnosed patients of hypothyroidism presenting to DMC & H Ludhiana were assessed on HRDS and HARS. They were assessed on socio-demographic profile, type of hypothyroidism and the data was analyzed on different domains. Inclusion criteria- Patients above the age of 20 years. Exclusion criteria- patients already on psychotropic drugs.* ***Statistical Analysis:*** *t-test was applied to determine the difference between the variables.* ***Results:*** *55% of patients of hypothyroidism had co-morbid depression. Females were showing high percentage of depression (57%) as compare to males (50%) while mild anxiety was more in males (56.66%) as compared to females (42.8%). Moderate to severe levels of depression and anxiety was found more in females (41.11%) as compared to males (23.07%). The severity level of depression was more in sub clinical hypothyroidism group than the clinical group irrespective of sex.* ***Conclusions:*** *Thyroid hormone plays an important role in the regulation of mood , behaviour and cognition and literature also has supported that thyroid dysfunction leads to psychiatric manifestation as anxiety, depression, phobias, memory impairment. So, such patient should be examined both by psychiatrist and primary care physician.*

Keywords: *Hypothyroidism, Anxiety, Depression.*

Introduction

Psychiatric manifestations are often the first sign of hypothyroidism occurring as the initial symptoms in approximately 2-12% of the reported cases.[1-3]

Low levels of L-tryptophan are associated with depression and low levels of T3 are also associated with hypothyroidism. The same protein of RBC that takes thyroid hormone T3 also takes up L-tryptophan - which is critical in depression. So the co-relation between the two exists at the cellular level and many studies have supported the augmentation of antidepressant treatment with thyroid hormone in alleviating the symptoms of depression.[4,5] Prevalence of depression in hypothyroid patients ranges from 20.5% to 60%[6,7] and anxiety disorder occurs in between 30-40% of the patients suffering from acute hypothyroidism.[8,9] While going through the sub types of anxiety, literature has reported the prevalence of panic disorder - ranges from 5.0% - 45.6%, social phobia 7.8% - 8.7%, OCD 7.4% and G.A.D. 41.2%[10,11]. Patient with subclinical hypothyroidism usually shows increased anxiety and irritability, slowed information processing speed, poor learning and cognitive impairment and such patients should be

treated with thyroid hormone if TSH turns out to be normal.[12,13]

Aims/ Objectives

To assess the psychiatric manifestations among hypothyroid patients in tertiary care hospital.

Materials and Methods

The study was done on 100 diagnosed patients of hypothyroidism presenting to Dayanand Medical College & Hospital Ludhiana. After taking an informed consent, assessment was done by: HRDS and HARS. They were assessed on socio-demographic profile, duration of illness, type of hypothyroidism and the data was analyzed on different domains. Inclusion criteria- patients above the age of 20 years, known case of hypothyroidism. Exclusion criteria-Patient already on any psychotropic medications.

Results and Discussion

Table 1 shows the demographic profile of the patients where 70% of the females were diagnosed a case of hypothyroidism in comparison to males (30%) and majority of the patient were in the age group of 31-50 : Females (45%) and males (22%). This finding supports the findings of Redmond et al (2007)[14] which concludes that hypothyroidism is 10 times more common in females than in males, and also more in the older age than younger age groups.

Table-1: Socio Demographic Profile of the Patients

Age (in years)	Male (N-30)	Female (N-70)
< 30	02	11
31-50	22	45
> 50	06	14
Educational Level	**Male**	**Female**
Upto Matric	10	24
Matric-Graduation	13	30
> Graduation	07	16

Table 2: shows 55% of patients of hypothyroidism had co-morbid depression. This is supported by the findings of other researchers where the depression reported is 28 to 50%.[15]

Females were showing high percentage of depression (57.2%) as compared to males (50%). While the severity level of depression i.e. moderate to severe level of depression was found to be more in females (41.11%) as compared to males (23.07%).

Table 3: on the symptom checklist of HDRS, males usually report more of the depressed mood (66.6%) and Genital symptom (26.6%) as compared to females (50%) and (7%) respectively. While anxiety (64.28%) and somatic symptoms (67.14%) were predominantly reported by females as compared to males (33.33% and 33.33% respectively).

Table-3: Comparative Distribution of Positive Rating on Symptoms checklist of HDRS between Male and Female

Symptoms	Male (N = 30)	Females (N = 70)
Depressed Mood	20 (66.6%)	35 (50%)
Suicide	08 (26.6%)	12 (17.14%)
Insomnia	15 (50%)	20 (28.57%)
Anxiety	10 (33.33%)	45 (64.28%)
Somatic Symtoms G.I	12 (40%)	40 (57.14%)
Somatic Symptoms General	10 (33.33%)	47 (67.14%)
Genital Symptoms	8 (26.6%)	07 (7%)
Hypochondriasis	10 (33.33%)	40 (57.14%)
Loss of Weight	6 (20%)	355 (50%)

Table 4: Shows Mild anxiety was more in males (56.66%) as compared to females (42.8%) while moderate to severe level of anxiety was found to be more in females (61.53%) as compared to males (43.4%). This is consistent with the findings of many researchers where anxiety disorder reported in 30-40% of patients developing acute hypothyroidism.[8,9,16,17]

Table-2: Scores on Hamilton Depression Rating Scale (HDRS)

Scoring	Male (N = 30)	Females (N = 70)	Total
No Depression (<8)	15(50%)	30 (42.85%)	45%
Mild depression (8-13)	05 (16.66%)	11(15.71%)	26%
Moderate depression (14-18)	05 (16.66%)	10 (14.28%)	15%
Severe depression (19-22)	04 (13.33%)	15 (21.43%)	19%
Very severe depression (>23)	01 (3.33%)	04(5.7%)	5%

Table-4: Hamilton Anxiety Rating Scale

HAR-S Scoring	Males (N=30)	Females (N=70)	Total
< 17 (Mild)	17 (56.66%)	30 (42.85%)	52%
18-24 (Moderate)	11 (43%)	28 (40%)	34%
25 (Severe)	02 (43%)	12 (17.4%)	14%

Table 5: On symptom checklist of HARS, females predominantly report more of Anxious mood, Tension and somatosensory symptom while males more of the depressed mood and genito-urinary symptoms. Similar findings were reported in our previous study also.[18,19]

Table-5: Comparative Distribution of Positive Rating on Symptoms checklist of HARS between Male and Female

Symptoms	Male (N=30)	Females (N=70)
Anxious Mood	12 (40%)	47 (67.14%)
Tension	10 (33.33%)	45 (64.28%)
Insomnia	14 (46.6%)	25 (35.71%)
Depressed Mood	19 (63.33%)	37 (52.85%)
Somatic (Sensory)	09 (30%)	45 (64.28%)
G.I symptoms	14 (46.6%)	42 (60%)
Genitourinary Symptoms	09 (30%)	10 (14.28%)
Autonomic symptoms	10 (33.33%)	38 (54.28%)

Table 6: Among the males, mean HDRS was 21.2 ± 2.69 and 17.2 ± 2.22 in subclinical and clinical hypothyroidism respectively and difference observed was found to be highly significant ($p < 0.001$). Similarly females having subclinical hypothyroidism had higher mean HDRS 21.9 ± 2.24 than those having clinical hypothyroidism with Mean HDRS 19.1 ± 2.14 ($P<0.001$) (Table 7). Mean HDRS was observed to be higher among females in comparison to males with subclinical ($p=0.391$) and clinical hypothyroidism ($P<0.001$) (Table 8) Similar findings were reported by Valeria et al, 2007.[20]

Table-6: Severity of depression in different categories of hypothyroidism in males (N=30)

Hypothyroidism	No. of subjects	Mean HDRS
Sub-clinical	10	21.2 ± 2.69
Clinical	20	17.2 ± 2.22

*t = 4.33. df = 28, p <0.001

Clinical Implication

For Psychiatrist: Any patient who is either on anti-depressants or anxiolytics, not responding to the standard dosages of the medicines should be screened for hypothyroidism. Even if they turn out to be euthyroid, augmentation with thyroxine can be done for alleviating the symptoms. STAR* D trial has proven this.[21]

Table-7: Severity of depression in different categories of hypothyroidism in females (N=70)

Hypothyroidism	No. of subjects	Mean HDRS
Sub-clinical	46	21.9 ± 2.24
Clinical	24	19.1 ± 2.14

* t = 5.04 df = 68, p <0.001

Table-8: Severity of depression in different categories of hypothyroidism as per Gender of subjects (N=100)

Hypothyroidism	Mean HDRS in Males (n=30)	Mean HDRS in Females (n=70)	p-value
Sub-clinical (n=56	21.2 ± 2.69	21.9 ± 2.24	0.391
Clinical (n=44)	17.2 ± 2.22	19.1 ± 2.14	<0.001

For Primary Care Physicians: Any diagnosed case of hypothyroidism who is already on treatment and not able to attain premorbid lifestyle and also having mood changes, cognitive and memory impairment should be screened for psychiatric morbidity and managed accordingly.

Conclusions: Thyroid hormone plays an important role in the regulation of mood, behaviour and cognition and literature also has supported that thyroid dysfunction leads to psychiatric manifestation as anxiety, depression, phobias, memory impairment. So such patient should be examined both by psychiatrist and primary care physician. So as to decrease the morbidity and health care burden.

Limitations: The present study has assessed only anxiety and depression but the other psychiatric manifestation should be taken into consideration. The level of TSH, duration of hypothyroidism and severity of anxiety and depression could have been assessed.

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Original Article

Mobile Phone Usage During Bedtime: Implication for Sleep Hygiene

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ABSTRACT

Background*: The use of communication technology is being associated with the disturbance of sleep pattern as well as the problematic use of communication technology. There is a need to assess the association of communication technology usageat the bedtime with sleep pattern.* ***Material & Methods:*** *2000 subjects in the age group of 18-40 were approached and assessed by using a self-report Single item Sleep quality scale to assess the sleep quality and the pattern of mobile phone use.* ***Results****: It showed that 65.5% of participants kept the mobile phone near them while sleeping. It was high among males. However, 34.5% did not sleep with mobile phone. Among those who slept with the mobile phone, 70 % of males got a poor quality of sleep However, in comparison, 54% females reported decreased or poor sleep quality. 8.89% to 12.38% subjects also reported poor quality of sleep than those who did not sleep with the mobile phone.* ***Conclusions****: It has implication for psycho education for mobile phones users about their usage pattern, its impact on quality of sleep and need to follow sleep hygiene.*

Keywords: *Mobile phone; Sleep; Bedtime*

Introduction

Mobile use has been associated with sleep disturbances (e.g., delay in initiation of sleep, decreased hours of sleep and poor quality of sleep). Problematic use of mobile phone leads to reduced duration of sleep as well as it is associated with fatigue and insomnia symptoms.[1,2] Mobile phone use has become an unstructured leisure activity during night time, with no fixed starting and stopping point, leading to the displacement of sleep and other activities. Smartphone ownership was related to higher consumption of electronic media in bed before sleep and later bedtimes.[3] It has been observed that the use of information and communication technologies such as mobile phone, television and video/ online gaming were prevalent during bedtimes. It led to a delay in the initiation of sleep.[4] They reported on association of problematic use of the internet, mobile phone use or internet addiction with computer game addiction as well.[5] It has also been observed that persons who wake up early in the morning , are found to be using traditional media, whereas, people who sleep late in the night and get up late in the morning are reported to havemore inclination for use of new media with more varied forms and locations.[6] The disturbing pattern of sleep would further lead to mental health problems in users with problematic mobile use.[7] There was a significant correlation observed between mobile phone usage and stress, sleep disturbance and symptoms of depression.[8] There are not many empirical-based finding on bedtime mobile phone use and pattern of sleep.

Material & Methods

2000 subjects in the age group of 18-40 were approached for assessing their use of mobile phone and sleeping patterns. 3700 subjects were appro-

ached at the selected sites. 2000 participants consented were included in this stratified random sampling survey i.e., college students, staff, workers in the Government and the private sector, those who were using mobile phone within the age group from 18 to 40 years were recruited for the study. Subjects showing unwillingness to participate were excluded from the study.The study explored the quality of sleep among mobile phone users who slept with their mobile phones using a self-report Single item scale to assess the quality of sleep and the pattern of mobile phone usage.[9] The questionnaire instructions directed the respondents to rate the overall quality of sleep over a 7-day recall period on a discretizing Visual analog scale (VAS), where by the respondent marked a whole number score from 0 to 10, according to the following five categories: 0 = terrible, 1–3 = poor, 4–6 = fair, 7–9 = good, and 10 = excellent Single item, Sleep quality scale has got Test-retest reliability (intra class coefficient) of .62 during a 4-week period of sleep stability in patients with insomnia and .74 in stable patients with depression (1 week).The work has got approval from the ethics committee of the institute.

Results

The result indicated that 50.4% were male (n=1008) and 49.6% were females (n=992). Most of them i.e. 49.4 % were from middle-class socio-economic status and majority were married i.e. 69%. 35.2% were graduated, 73.2% were working in different fields, and 64.5% belonged to the nuclear family set up. 52.7% (N=1054) carried a mobile phone in pocket whereas 22.6% (N=452) carried a phone in purse.10.2% (N=206) kept the phone in hand.

Table 1 showed that 65.5% reported using mobile phone at bedtime. In this group 70 % of male and 54% of female reported poor sleep due to use of mobile phone at bedtime. Whereas 34.5% reported that they did not sleep with mobile phone. 12.38% of male and 8.89% of female reported poor quality of sleep.

Discussion & Conclusions

The study showed that 65.5% kept the mobile phone near them while sleeping. A higher number of males kept mobile phones with them while sleeping. 34.5% did not sleep with mobile phone. Among mobile user who sleeps with mobile phone, 70% of male hadpoor quality of sleep whereas 54% of female also reported poor sleep quality. 8.89% to 12.38% subjects also reported poor sleep among those who did not sleep with mobile phone (Table 1). It was corroborated with available findings. 61% used mobile during night hours, 72.4% of them had poor sleep quality.[10] The sleep quality was poor more among male students who use gaming application. Significant factors for poor quality of sleep among female undergraduates was the use of multimedia applications and the social networking sites. The mobile phone use at bedtime influences the quality and outcome of sleep.[11] An increased use of mobile phone around bedtime was associated with more fatigue and insomnia.[2] The present study got limitation of not having information about the type of mobile phone used during the bedtime, minimum and maximum duration of use around bedtimes as well as assessing the sleep in last 7 days. It did not assess the relationship with other psychosocial variables like depression, anxiety, fatigue, academic and occupational performance as well as reasons of poor sleep who do not use mobile during bedtime. The study has implicated a trend for excessive use of mobile phone during bedtime and its effects on quality of sleep. The study findings have implications for creating awareness among mobile phone users about the patterns of mobile phone usage, its impact on quality of sleep and the role of sleep hygiene habits.

Table-1: Distribution of bedtime mobile browsing

Using mobile at bed time	Percentage	Gender	Quality of sleep
Yes	65.5% (N=1310)	Male: 890 (67%) Female: 420 (32%)	Male: 630 (70% expressed poor) Female: 227 (54% expressed poor)
No	34.5% (N=690)	Male: 218 (31.59%) Female: 472 (68.40%)	Male: 27 (12.38% expressed poor) Female: 42 (8.89% expressed poor)

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Original Article

Non-compliance to psychopharmacological treatment and rehospitalization

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ABSTRACT

Background: *Frequent hospitalization is common in psychiatric patients. One of the contributory factors for re-hospitalization is non-compliance to treatment. Although various studies in the past have brought to knowledge about various factors associated with non-compliance to psychiatric medication but few studies have been conducted focusing on reasons of non-compliance leading to hospitalization.* ***Aims and Objective:*** *To study the factors associated with non-compliance to psychopharmacological treatment in psychiatric patients leading to hospitalization.* ***Materials and Method:*** *Study was conducted at department of Psychiatry of tertiary care teaching hospital of North India. It was a cross-sectional, questionnaire based study. All the patients admitted to psychiatric ward with history of non-compliance being the precipitating factor in the current admission and patient who were already on treatment from department before current admission with any of the psychiatric illness (F00-F99) were included in this study. Socio-demographic and Clinical variables were recorded. Reasons for non-compliance were explored using non-compliance checklist prepared for the current study. This checklist includes Social reasons, Personal Reasons, Drug related reasons, Health Care Related reasons and Illness Related Reasons.* ***Results:*** *A total of 100 patients were included in this study. Results shows that most common reason for non-compliance in these patients is Illness Related factors and among which "Improvement with the Treatment" is found to be most prevalent (37%). Other common reasons for non-compliance were sedation, patient felt no need for treatment (i.e. Absent Insight) and Craving for substance in case of Substance use disorder.* ***Conclusion:*** *Results suggest that majorly non-compliance is influenced by individual factors which are modifiable. Sustained efforts must be made during pre-admission counselling and pre-discharge counselling regardingthe need of regular follow up and compliance to treatment and also psychoeducate the patient and family about the course of illness and common side effects of medication.*

Key Words: *Non-compliance, psychopharmacological, hospitalization*

Introduction

For a successful outcome in psychiatric illness, pharmacological intervention plays a major role. With a response rate of 52-81% with antipsychotics and 47% with antidepressants, pharmacological management have proved its valuable role in management of psychiatric disorders.[1,2] However, the management is limited by one of the most important factors i.e. non-compliance to psychiatric medications. Issue of non-compliance is important as it effects clinical status of the patient and also leads to frequent hospitalization. Green et al found a highly significant correlation between non-compliance and frequent hospitalization.[3] It has been found that non-compliance is the most common cause of rehospitalization in psychiatric patients leading to around 88% of all the rehospitalization.[4] According to the recent national mental health survey the prevalence of

severe mental disorder (SMI) is 0.8 % i.e. around 1 crore people are suffering from SMI[5] and according to WHO estimate there are around 26000 beds for psychiatry patients in India.[6] Even if we consider 1% hospitalization of SMI patients, there is requirement of around 1 lakhs bed. Now as Non-compliance is being the common reason for rehospitalization and being a preventable factor, if addressed adequately, it can reduce the rates of hospitalizations significantly which ultimately leading to reduced economic burden. Studies have highlighted various reasons for the non-compliance. Omranifard et. al. reported absent insight and feeling of cure as most common causes for non-compliance.[4] Roy et. al. highlighted the importance of poor infrastructure at health care centre.[7] Feeling of cure was also found to be a prevalent factor for non-compliance.[8] Sultan et al highlighted the lack of knowledge as an important factor for non-compliance.[9] A study comparing factors for compliance versus non-compliance found that illness-related and economic factors are more correlated with non-compliance.[10]

Although various studies in past have brought knowledge about various factors associated with non-compliance to psychiatric medication but few studies have been conducted focusing on reasons of non-compliance leading to hospitalization. Moreover, the available literature is limited to either particular psychiatric illness or group of psychiatric illnesses. Thus this study was planned to fill this gap of knowledge.

Aim and Objectives

To study the factors associated with non-compliance to psychopharmacological treatment in psychiatric patients leading to hospitalization.

Methodology

Study was conducted at department of Psychiatry of tertiary care teaching hospital of North India. It was a cross-sectional, questionnaire based study. All the patients admitted to psychiatric ward from November 2018 to February 2019 with history of non-compliance being the precipitating factor in the current admission and patient who are already on treatment (OPD and or past history of admission in psychiatry ward) with any of the psychiatric illness (F00-F99)[11] and willingness to participate in the study were included. For the purpose of study, non-compliance to treatment as a precipitating factor for hospitalization was considered in those patients who developed symptoms within 4 weeks of discontinuation of medicines. For the patients with substance use disorders, discontinuation of treatment led to craving and relapsed and subsequent hospitalization. Socio-demographic (Age, Sex, Education, Employment, Marital Status, Type of Family, Social Support, Locality and Residence) and Clinical variables (Diagnosis, Duration of Illness, Family history of psychiatric illness, Co-morbidity, Number of episodes/exacerbations, History of any intolerable side-effects) was recorded. Patient and his/her family members were enquired about the reasons for non-compliance using non-compliance checklist. This information from patient was gathered both at the time of admission and once patient's clinical symptoms are reduced and he gains a fair insight into his disease. Preference is given to the latter however in cases where patient doesn't gain a fair insight in to his disease then the former information was used. This included Social reasons, Personal Reasons, Drug related reasons, Health Care Related reasons, Illness Related Reasons. Results was analyzed to find out the important determining factor for non-compliance in these patients.

The checklist for reasons fornon-compliance to treatment was prepared by the investigators from the available literature and inputs from the investigators. Then this checklist was administered to 5 patients and family members who were admitted in the psychiatric ward as non-compliance to treatment being the precipitating factor under the pilot project. Additional inputs from these patients and family members were incorporated in the checklist and final checklist was administered to 100 patients who were admitted in the psychiatric ward secondary to non-compliance to treatment as precipitating factor. The study was approved by institutional ethics committee.

Results

A total of 100 patients were included in this study. Socio-demographic details of these patient showed that majority of the patients were male (70%), were in age group 20-40 years (68%), married (56%), were graduate or above (28%), unemployed (45%), belonged to nuclear family

(74%) with urban background (70%) as shown in Table 1.

Clinical profile of the patients revealed that most of the patients were of Bipolar Affective Disorder depicted in Table 2.

In reasons for non-compliance; it was found that most common reason for non-compliance was Illness Related factors (79%) followed by Drug

Table 1- Sociodemographic details of patient with non-compliance to psychiatric treatment

Variable	Category	n=100	Percent
Gender	Male	70	70%
	Female	30	30%
Age group	<20 years	0	0
	20-40 years	68	68%
	40-65 years	31	31%
	>65 years	1	1%
Marital Status	Married	56	56%
	Unmarried/single/divorced	44	44%
Education	Illiterate	7	7%
	Primary	6	6%
	Middle	17	17%
	Matric	16	16%
	+ 2/Diploma	26	26%
	Graduate and above	28	27%
Occupation	Employed	34	34%
	Unemployed	45	45%
	Household	21	21%
Income	<3500	3	3%
	3500-7000	5	5%
	>7000	92	92%
Family type	Nuclear	74	74%
	Joint	26	26%
Locality	Urban	70	70%
	Rural	30	30%
Distance from hospital	<50 Km	56	56%
	50-100 Km	14	14%
	>100 Km	30	30%

(47%) with duration of illness 10-20 years (32%) with majority having no family history of psychiatric illness (78%) and with no comorbidity (76%) as

Related (28%). In Illness related factors; most common reason reported that patient improved with treatment

Table-2: Clinical Profile of Patients with non-compliance to psychiatric treatment

Variable	Category	N=100	Percent
Diagnosis	Bipolar Affective Disorder	47	47%
	Psychosis	28	28%
	Substance Use Disorder	19	19%
	Depressive Disorder	5	5%
	Personality Disorder	1	1%
Duration of Illness	<5 years	26	26%
	5-10 years	29	29%
	10-20 years	32	32%
	>20 Years	13	13%
Family History	Yes	22	22%
	No	78	78%
Co-morbidity (Psychiatric and Medical)	Yes	24	24%
	No	76	76%

Table-3: Reasons for non-compliance to psychiatric medications

Factors (Broad)	Factors (Specific)	Frequency
Illness Related Factor	Paranoia to medications (Drugs harming them)	4
	Felt no need for treatment (Patient who despite being repeated told about the need for treatment refused to accept it for short term as well as long term basis)	22
	Unaware of the need for treatment (Patient who were not aware of the course of illness and need for treatment but accepted it after psychoeducation)	15
	Improvement with treatment (Patient who only agreed for acute treatment but not for long-term requirement of the treatment)	38
	Total	**79**
Personal	Hopeless of cure	1
	Financial Problem	3
	Swallowing difficulty	0
	Fear of addiction to medicine	0
	Forgetfulness	4
	Hectic Job	2
	Fear of injection	0
	Total	**10**
Drug Related	Too many medications	2
	Frequent Dosing	0
	Felt no improvement	9
	Sedation	14
	Weight gain	3
	Tremors	0
	Sexual Dysfunction	0
	Other Side effects	0
	Total	**28**
Health Care Related	Long waiting hours for consultation	1
	Waiting in Queue for taking medicine	0
	Drugs not available in hospital supply	0
	Not satisfied with competence of doctors	22
	Total	**23**
Social	Lack of care giver	9
	Non-availability of drug in hospital	0
	Hospital at increased distance	1
	Critical opinion of faith healers towards treatment	0
	Critical opinion of local doctors/chemist towards treatment	0
	Critical opinion of family members towards treatment	2
	Social Stigma	0
	Total	**12**

Discussion

The results of this study show that non-compliance to psychopharmacological treatment is more common in patients belonging to particular section of the society which have good educational background, living in a nuclear family and belonging to an urban background. This is in contrast to earlier research which shows that lower education status being more likely to be associated with non-compliance.[8]Unemployment was found to be prevalent in such patients (38%) which is consistent with previous studies.[8,12]This suggest that how financial constraints may be affecting the compliance to the treatment. Findings related to marital status

was found to be in contrast to earlier findings of unmarried being more commonly associated with non-compliance.[8,13]

The results of this study show that non-compliance is found commonly in patient with mood disorder. Illness related factors are most common reason associated with it, as patient would discontinue the medicine after getting improved leading to recurrence of episode and finally readmission. Although psychoeducation and pre-discharge counselling is done in every case but still discontinuation is seen in such patients. This implies that need for long term treatment in psychiatry is not an acceptable option by patient as despite being aware of recurrence of disease, they still discontinue the medicine. Majority of the patients were of bipolar affective disorders which suggest that how medication related decisions gets affected in affective disorders. This finding is in contrast to earlier studies in which schizophrenia was most likely associated with non-compliance.[4,8]

Among the reasons for non-compliance; Illness related factor was found to be the most common cause of non-compliance.This finding is consistent with findings of previous studies.[8,14] As most of the patients reported that due to improvement, they left the medicines, this suggest the role of poor insight in medication compliance.

Side effects leading to non-compliance was found to be very less which is inconsistent with previous studies.[7,15] Among various side effects, sedation was found to be the most common reason for non-compliance which is in contrast to earlier finding of Extra-Pyramidal side effects being the most common reason for non-compliance.[16] As this study didn't look into the types of medication and its association with side-effects therefore the class of antipsychotic used might have led to this contrary finding.Among substance use disorder,craving for the substance was found to be primary reason for non-compliance to medication.

Although the study has all-inclusive approach for determining the factors for non-compliance by studying various aspects-social, family, heath care related, Illness related etc. but still the study has certain limitations that it didn't include the perspective of patients who are compliant to medicines and further the comparison in these two groups.

Conclusion

The findings of the index study highlight that predominately patient related factors (i.e Illness) influence compliance predominately. This further suggest that we have to work on a limited and an easily modifiable factors, dealing with which we can improve compliance in majority of the patients. Sustained efforts must be made during pre-admission counselling and pre-discharge counselling regarding the need of regular follow up, compliance to treatment and psychoeducation of the patient and family about the course of illness and common side effects of medication. This will ultimately decrease the number of hospitalizations and also the health care cost which is an important issue for any developing country.

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Original Article

Influence of Parental Rearing on the Personality Traits and Mental Health Status of Adults

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ABSTRACT

Background: *Human infant has an essential need for secure relationship with adult caregivers. Studies on parental rearing give an insight in understanding the relational needs of child and adolescent. It provides unprecedented opportunity to empirically evaluate theoretical views of the importance of parenting for personality development and psychological wellbeing. The study is an attempt to explore the effect of parental rearing on personality traits and mental health status of adults.* ***Method:*** *Hundred subjects (50 males and 50 females) aged between 18 to 40 years giving written informed consent were included purposively in the study. Parental bonding instrument to assess perceived parental rearing; temperament and character inventory to assess personality traits and general health questionnaire (GHQ)-60 to assess mental health status were administered to all subjects. Subjects scored < 12 on GHQ-60 were included. Data was analysed with Pearson's correlation, chi-square and t-test using SPSS-version 13.* ***Results and conclusion:*** *Mental health status of the subjects on GHQ found to be significantly negatively correlated with parental care and positively correlated with parental overprotection. Parental care found to have positive impact on mental health, self-direction and cooperation whereas; parental overprotection found to have negative impact on these, and associated with high harm avoidance. Perceived personality traits of parents especially harm avoidance, self directedness and cooperation found to be correlated with parental (maternal/paternal) rearing. All personality dimensions except cooperation and self transcendence were influenced by parental rearing amongst males; however in female subjects, harm avoidance, self-directedness and cooperation dimensions were significantly affected by parenting.*

Key words: *GHQ, Parental rearing, Personality traits, Mental health status*

Introduction

It presumed that, when a child opens his eyes in this enormous world he is nothing but just an unprocessed piece of clay. Parents/family members are the first source, by the help of which it started taking form and gradually convert in to the unique personality. Freud described parent infant relationship as "unique, without parallel, established unalterably for a whole life time as the prototype of all later love relations".[1] But he was not the first to describe the importance of parent child relationship for psychosocial growth. It has long been proposed that the early parent-child relationship is a major determinant of the child's growth, personality development[2] and eventual psychological health in adulthood.[3] A study reported that democratic, authoritarian and permissive child rearing styles have significant influence on depression and extrovertism of students.[4]

Various researches in this field suggest that individuals who receive a high level of acceptance show an elevated perception of their self-worth and

competence. In contrast, those who are subject to less accepting parenting practices show low self-confidence, poor self-perception, and low self-esteem.[5-9] Personality traits especially harm avoidance and self direction is found to be associated with parenting.[10]

Another study[3] reported that boys have significantly more rejection from father as compared to girls and girls have shown significantly better emotional warmth in comparison to boys from father. The comparison of boys and girls on anxiety, depression, somatic problems, anger hostility and self-esteem indicated significantly higher anxiety, more somatic problems and higher anger hostility among boys, and high self-esteem in girls. Adolescents with Internet Addiction Disorder consistently rated parental rearing behaviors as being over-intrusive, punitive, and lacking in responsiveness.[11]

Research based on the proposition of relationship between mental health and parental rearing have focused on the qualitative aspects of the parent-child relationship as a vulnerability factor in adult psychopathology, particularly depression. Perceived parental warmth a negative and parental rejection found to be a positive predictor of mental health.[12,13] High parental over protection and low care has been reported to be a risk factor for a number of psychiatric diseases.[14-16] Some studies demonstrated that parenting, personality dimensions, and mental health are culturally dependent.[17,18] Thus in spite of rich literature and body of research in this field there is a scarcity of studies done on Indian population and so further researches on Indian population are warranted. Therefore, the study was conducted to explore influence of parental raring on the personality traits and mental health status of adults.

Methods

This was a cross sectional study approved by Central Institute of Psychiatry (CIP), Kanke, Ranchi review committee in which 100 volunteers (50 males and 50 females) with age range of 18 to 40 years, were recruited according to inclusion/exclusion criteria from the staff and students of CIP, Kanke, Ranchi and Ranchi University and also from the community. The technique of purposive sampling was applied in the study. Inclusion and exclusion criteria for the study were as follows:

Inclusion Criteria

- Subjects giving written informed consent
- Age range of 18 to 40 years.
- Score of 12 or less on GHQ-60[19].

Exclusion Criteria

- Subjects with any neurological and significant psychiatric condition.
- Subjects whose parents divorced, diseased or died before turning 16 years old.
- Subjects younger than 18 and above 40 years of age.

Assessment tools

Semi-structured Socio-Demographic Data Sheet: This was a semi structured proforma specially prepared for noting down the socio-demographic variables of the subjects including name, age, sex, education occupation, habitat and socioeconomic status.

General Health Questionnaire 60: GHQ is a widely used measure of psychological health. It was developed by Goldberg.[19] GHQ is a self-administered test, which is sensitive to the presence of psychiatric disorders. It is not designed to detect symptom that occur with specific psychiatric diagnosis rather, provide a measure of overall psychological health or wellness. In order to assess this, the GHQ focuses on two major classes of phenomena: Inability to continue to carry out normal healthy functions and symptoms of distressing nature. There are several version of the GHQ. The original GHQ containing 60 items was derived from factor analysis of a checklist of 140 items. The test retest reliability of GHQ range from .85 to .90.

Temperament Character Inventory (TCI): Temperament Character Inventory developed by Cloninger *et al.*[20] is battery of tests designed to assess personality in terms of seven basic dimensions of temperament and character. Temperament refers to automatic emotional responses to experience that are moderately heritable and stable throughout life, the four temperament dimensions are novelty seeking (NS), harm avoidance (HA), reward dependence (RD), and persistence. In contrast, character refers to self concepts and individual differences in goals and values, which influences voluntary choices, intentions, and the meaning of what is experienced in life. The three

measured character dimensions are self-direction (SD), cooperativeness and self-transcendence (ST). The test retest reliability of the quantitative scores of over six months is .85 for the TCI scale.

Parental Bonding Instrument (PBI): This scale was developed by Gordon Parker, Hilary Tupling and L.B. Brown [21] by analysing the attitudes as well as behaviours of parents. It is a self-report scale with 25 items to measure the attitude and behaviour of parents during first 16 years of their child's life. Two scales termed "care" and "over-protection" or "control" measure fundamental parenting as perceived by the child. In addition to generating care and protection scores for each scale, parents can be effectively "assigned" to four additional quadrants that are "affectionate constraint", "affectionate constraint", "optimal parenting" and neglectful parenting. Split-half reliability of the test was 0.88 for the care scale and 0.74 for the protection scale in the non-clinical sample.

Procedure: Informed consent was taken from all the subjects by explaining the purpose of the study. The socio-demographic data-sheet was filled after getting informed consent. The subject meeting the inclusion criteria were selected and were screened for psychiatric morbidity using General Health Questionnaire.[19] TCI[20] and PBI[21] tools were administered on the individuals, who had GHQ[19] score 12 or less than 12.

To explorethe relationship of parenting dimensions (care and protection) with GHQ scores and dimension (temperament and character) of the TCI, Pearson's correlation was done. Group differences for sample characteristics were examined with chi-square and t-test. All the statistical analysis was done using the statistical package for social science-version 13.

Results

Sex wise comparison of socio-demographic characteristics of the study subjects is summarized in the Table 1.

Table 1 shows the socio-demographic characteristics of the sample. No significant difference was found on various socio-demographic variables except occupation. Significantly higher number of male subjects were employed compared to females, whereas significantly higher number of females were students.

Table 2 shows the association of paternal and maternal care and overprotection with GHQ and personality variables of TCI. Parental care shows strong negative correlation with GHQ scores (r = -.261) and positive correlation with self direction (r = .301) and cooperation (r = .266). Parental overprotection found to have strong positive correlation with GHQ scores (r = .335) and harm avoidance (r = .316) however, negative correlation was found with self direction (r = -.421) and cooperation (r = -.251).

Table 3 and 4 shows the relationship of parental rearing with personality variable and mental health status in two groups of males and females. Sex wise significant difference was found in terms of influence of parenting on personality. Parental

Table-1: Demographic profile of the study subjects

Variable		Male Gr M ± SD/n(%)	Female Gr M ± SD/n(%)	X^2/t	df	p
Age		25.06 ± 4.72	24.88 ± 3.43	.22	98	.82
Marital Status	Married	7 (14)	4 (8)	.92	1	.52
	Unmarried	43 (86)	46 (92)			
Religion	Hindu	38 (76)	38 (76)	.00	1	1.00
	Others	12 (24)	12 (24)			
Education	12th and above	49 (98)	49 (98)	.00	1	1.00
	Below 12th	1 (2)	1 (2)			
Occupation	Employed	14 (28)	2 (4)	10.86	2	.00
	Unemployed	8 (16)	9 (18)			
	Student	28 (56)	39 (78)			
Socio-economic status	Middle	47 (94)	46 (92)	.15	1	1.00
	Upper	3 (6)	4 (8)			
Habitat	Urban	4 (86)	48 (96)	3.05	1	.16
	Rural	7 (14)	2 (4)			

Table-2: Relationship of parental care and overprotection with GHQ scores and personality variables of TCI in total sample (n=100)

Variables	Maternal		Paternal	
	Care	Overprotection	Care	Overprotection
General Health Questionnaire (GHQ)	-.42**	.42	-.26**	.33**
Novelty Seeking	.09	-.10	.08	-.14
Harm Avoidance	-.14	.32**	-.16	.32**
Reward Dependence	.10	-.11	.10	-.07
Persistence	.10	-.11	.09	-.01
Self Direction	.31**	-.46**	.30**	-.42**
Cooperation	.29**	-.36**	.27**	-.25**
Self Transcedence	-.03	.12	-.16	.07

Significance level: *$p < .05$; **$p < .01$

Table-3: Relationship of parental care and overprotection with GHQ scores and personality variables of TCI in sample of males only (n=50)

Variables	Maternal		Paternal	
	Care	Overprotection	Care	Overprotection
General Health Questionnaire (GHQ)	-.45*	.48**	-.17	.36*
Novelty Seeking	.30*	-.33*	.17	-.41**
Harm Avoidance	-.16	.31*	-.19	.31*
Reward Dependence	.32*	-.29	.03	-.31
Persistence	.18	-.31*	.26	-.22
Self Direction	.50**	-.58**	.22**	-.37**
Cooperation	.20	-.28	.02	-.06
Self Transcedence	-.08	.26	-.14	.16

*$p < .05$; **$p < .01$.

Table-4: Relationship of parental care and overprotection with GHQ scores and personality variables of TCI in sample of females (n=50)

Variables	Maternal		Paternal	
	Care	Overprotection	Care	Overprotection
General Health Questionnaire (GHQ)	-.41**	.36**	-.36**	.30*
Novelty Seeking	.03	-.11	-.04	-.11
Harm Avoidance	-.12	.39**	-.16	.35*
Reward Dependence	.03	-.04	.21	.18
Persistence	.03	-.08	-.03	.14
Self Direction	.18	-.35	.37**	-.45**
Cooperation	.37**	-.43**	.54**	-.42**
Self Transcedence	.01	-.02	-.19	.02

Significance level: *p<.05; **p<.01

influences were significantly more prominent in the male subjects than female. Females were significantly more affected by paternal parenting on the other hand males were more influenced by maternal parenting. In terms of mental health, paternal care in males was not found significantly related to GHQ scores whereas paternal overprotection is positively correlated with GHQ scores.

Discussion

The present study found that the temperament dimensions especially harm avoidance, was found to be influenced by parenting. Results showed that high harm avoidance was found to be correlated with high parental over protection. When we consider the character dimensions in TCI, results indicate that individuals who were getting more care

and low protection from their parents are more self directed and cooperative than those with high parental overprotection and low care. This finding is supported by the psychoanalytical point of view and attachment theory[22] which states that a child learns the first lesson of cooperativeness from his parents and a better parenting makes the child more self-reliant and also helps in developing a sense of autonomy in the child. These finding are also congruent to previous studies of parental rearing.[10]

While considering the sex difference it was found that influences of parenting on personality were more prominent in the male subjects than in the female subjects. These results can be explained by the Rutter's[24] notion, that boys are more vulnerable to psychosocial stressors as compared to girls. Another possibility is that other factors are more important than parental rearing in female subjects. As, a study[25] states that, the genetically determined oxidation capacity affected personality dimensions in female subjects but not those in male subjects. Implication of sex hormones is suggested by him in this result. The another dimension that came to forefront while considering sex difference that females were more affected by paternal parenting, and males were more influenced by maternal parenting. This finding is supported by the Freud's developmental theory[26] according to which, during oedipal stage a child has a desire for exclusive love of the parent of opposite sex, coupled with feelings of rivalry and aggression toward the same-sex parent. Therefore, a child at this stage may be particularly sensitive to attitudes of the opposite-sex parent. Recently, similar sex differences were also concluded..[10, 27]

Many personality theorists described the various deficits of the personality which in turn contribute to the adjustment problems later in life and make the individual more vulnerable to the mental health problems.[28] Several studies also have found significant connections between dysfunctional parenting and psychiatric disorders, e.g., as depression,[16] anxiety[14] and parental deprivation in pre and post adulthood and psychiatric morbidity.[29] This study also coin side with the earlier studies and suggest that individuals who receive higher parental care are having better mental health than those who receive lesser care from their parents. On the contrary high parental overprotection is associated with poorer mental health status. Except for paternal care, which was not significantly associated with mental health status in males, no other sex difference was found in terms of relationship of parenting with mental health. Thus, further supported Freud's view that parent of the opposite sex has greater impact on the child than the parent of the same sex.

Mental health status of the subjects on GHQ found to be significantly negatively correlated with parental care and positively correlated with parental overprotection in our study. An other study reported that mental health status was found to be better of those children whose parents have 'trusting', 'nondepressive', and 'emotionaly stable' personality charecteristics.[30]

Parental care found to have positive impact on mental health, self-directedness and cooperativeness of the adults whereas; parental overprotection found to have negative impact on mental health, self-directedness and cooperativeness, and associated with high harm avoidance. Patients with affective disorder were found to be harm avoidance and novelty seeking in a previous study.[31] However, harm avoidance trait of the parents was found to be significantly correlated with problem behaviours in children in another study.[32] Studies reported that authoritative parent's children enjoy significantly better mental health[33] and abusive parents had a negative impact on their children's mental health.[27]

Perceived personality traits of parents especially harm avoidance, self directedness and cooperation found to be correlated with parental (maternal and paternal) rearing. All personality dimensions except cooperation and self transcendence were influenced by parental rearing amongst males; however in female subjects, harm avoidance, self-directedness and cooperation dimensions were significantly affected by parenting. A study[27] reported significant positive correlation between abuse parenting style of father and anxiety in adolescent female. Regarding the over controlling parenting style of mothers is concerned similar study[27] reports a significant positive relationship exists with stress; anxiety and depression among adolescent females.

The major limitation of the study is small sample size and the risk of biased response as some of subjects of the study were mental health professionals. Personality of the parents and mental

health status was not assessed in detail. But inspite of these limitations this study pave the way for better studies in this field.

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Original Article

Association of postpartum depression with early breast feeding and other factors

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ABSTRACT

Introduction: *Post-Partum depression (PPD) is common among Indian mothers with prevalence of 22%. Its association with breast feeding (BF) is so far unclear. Decreased BF rates increase the risk of PPD, and similarly PPD may lead to reduces breast feeding. Initiation of breast feeding in first week of delivery is crucial not only to child health but also to maternal mental health. So the early diagnosis and treatment of PPD may help to prevent bad outcome.* ***Objectives:*** *To check the association of BF with PPD and role of other cofactors.* ***Method:*** *This cross-sectional study was conducted in a tertiary care centre. Pregnant women were screened by Brief Symptom Rating Scale (BSRS-5) at the time of admission. After fulfilling inclusion and exclusion criteria, total 100 subjects were recruited. The Edinburgh Postnatal Depression Scale (EPDS) was completed within 1 week before discharge to predict the depression in postpartum women and was used to divide patients into two groups for further analysis: non-depressed and depressed.* ***Results:*** *Prevalence of PPD was observed in 23% of mothers. It was noticed that high EPDS score was associated with significantly high BSRS-5 score (p=.001), high rate of caesarean section (C/S) (p=.009) and low BF rate (p=.014). Lower rate of BF is associated with female gender of baby (p=.024) and C/S (p=.013).* ***Conclusion:*** *Vaginal delivery and BF presented a lower risk of PPD in the first week postpartum. Therefore the government and medical providers should provide prompt guidance and BF support.*

Key Words: *Postpartum depression; Breast feeding; Risk factors; Prevalence; North India.*

Introduction

Postpartum psychiatric disorders can be divided into three categories: postpartum blues; postpartum psychosis and postpartum depression (PPD).[1] As per the DSM-5, postpartum depression is defined as a "major depressive disorder, with postpartum onset". In Asian countries, PPD is seen in around 3.5%–63.3% of women in the postpartum period.[2] A prevalence of 22% of PPD was noted among Indian mothers in a meta-analysis.[3] Postpartum depression often leads to chronic or recurrent depression in mother, which in-turn affects the mother infant relationship, child growth and development.[1,4] Children born to mothers with postpartum depression have higher risk of being underweight and stunted, and also have greater cognitive, behavioural and interpersonal problems as compared to children of non-depressed mothers.[4] According to a study by Ghubash and Eapen, poor bonding with the baby is one of the factors which contribute to development of PPD. This lack of bonding is linked with various factors, including lack of breastfeeding.[5]

During the first week postpartum, breastfeeding is essential; and it not only affects the mother's mental health but also contributes as a vital role in the newborn's development. It also has a protective role against infections in children via the secretary IgA antibodies.[6] The interaction between BF and PPD is unclear. However, both pain and depression have been linked to certain neurotransmitters in the brain. Hence, pain or stress, which may be associated with breastfeeding difficulties, can cause a decline

in serotonin levels resulting in anxiety and depression.[7] PPD may reduce BF rates and not engaging in BF might raise the risk of PPD.[8] There is scarcity of literature, to identify association of PPD with BF and other factors in North Indian population, which shows different culture and beliefs as related to other regions of India.

The aim of the study was to investigate the association between breast feeding and postpartum depression and to analyze the other cofactors associated with postpartum depression.

Methods

This cross-sectional study was conducted in the Department of Obstetrics and Gynecology of tertiary care centre from July 2019 to August 2019. The aim and the procedures of the study were explained to the participants. An informed consent was taken. The Sociodemographic Questionnaire and the five-item Brief Symptom Rating Scale (BSRS-5) were administered to screen antepartum depression. The females in normal vaginal delivery (NVD) group were discharged after 3 days post-delivery, and the females of caesarean section (C/S) group were discharged after 5-7 days post-delivery. After exclusion criteria, total 100 subjects were applicable for the study. The Edinburgh Postnatal Depression Scale (EPDS), which is a 10-item questionnaire, was applied and assessed within 1 week before discharge to predict the depression in postpartum women. In our study, the cut-off value of 10 was used to divide patients into two groups for further analysis: non-depressed and depressed group.

Inclusion criteria

1. Pregnant women visiting our hospital from July 2019 to August 2019.
2. Willing to give written consent and participate in the study.
3. Only pregnant females who were comfortable and were able to complete questionnaires.

Exclusion criteria

1. Newborn hospitalized in the pediatric intensive care unit (PICU)
2. Antepartum suicidal tendency showed in BSRS-5 (total score for suicide assessment ≥ 1)
3. Total BSRS-5 score ≥ 6

Statistical analysis

Kolmogrov-Simrov test was used to determine whether the data was normally distributed. For nominal variables mean ± SD and (%) were used as the descriptive statistics. To assess the significance of the difference among mean values, Student's t-test was applied and for nominal variables Pearson's Chi-square test was used. Pearson's correlation test was used to find any relation between the continuous variables.Point-Biserial Correlation test was used to find relation between continuous and categorical variables.

Results

In the present study prevalence of PPD was found to be 23%. The mean age of depressed and non-depressed groups was 33.1739 ± 5.05 years and 32.3377 ± 4.61 years respectively, which have no significant difference. The mean scores of BSRS-5 (3.4783 ± 1.16 v/s 2.3506 ± 1.26, $p < 0.001$) and EPDS (12.8261 ± 2.01 v/s 5.1039 ± 2.17, $p < 0.001$) were significantly higher in depressed group compared to non-depressed group. Non-depressed group were more likely to have normal vaginal delivery (72.7% v/s 43.5%, p=0.009) and breast feeding (67.5% v/s 39.1%, p=0.014) than depressed group. While in other parameters like mother age distribution, gestational age, mother education, baby birth weight and baby gender, there was no significant difference was observed between both the groups. (Table-1)

Significant positive correlation observed between EPDS and BSRS-5 scores (r=0.325, p=0.001). Breast feeding (r_{pb} =0.406, $p \leq .001$) and normal vaginal delivery (r_{pb} =0.387, $p \leq .001$) had significantly lower EPDS score than formula feeding and caesarean section. Mother's age, gestational age, baby birth weight and baby gender did not show any statistically significant correlation with EPDS score. (Table-2)

Out of 100 mothers, 61% initiated breast feeding, while 39% started formula feed to new-born. Normal vaginal delivery (p = 0.013) and male baby (p = 0.024) had significant association with breast feeding, whereas mother's education did not affect the type of feeding initiated in baby. (Table-3)

Discussion

It was seen that 23% of women had PPD on

Table-1: The maternal and new born characteristics in both groups

Variables		Non depressed (n=77)	Depressed (n=23)	P value
Age (Mean ± SD)		32.3377 ± 4.61	33.1739 ± 5.05	.457* NS
Gestation age (Mean ± SD)		38.0779 ± 1.33	38.1304 ± 1.18	.865* NS
BSRS-5 (Mean ± SD)		2.3506 ± 1.26	3.4783 ± 1.16	**<.001* SIG**
EPDS (Mean ± SD)		5.1039 ± 2.17	12.8261 ± 2.01	**<.001* SIG**
Baby birth weight (Mean ± SD)		3.0299 ± 0.33	3.0130 ± 0.37	.834* NS
Age distribution	< 35 yrs.	42 (54.5%)	10 (43.5%)	.351** NS
	≥ 35 yrs.	35 (45.5%)	13 (56.5%)	
Education	Up to 12th	28 (36.4%)	11 (47.8%)	.323** NS
	>12th	49 (63.6%)	12 (52.2%)	
Delivery method	NVD	56 (72.7%)	10 (43.5%)	**.009** SIG**
	CS	21 (27.3%)	13 (56.5%)	
Baby gender	Male	40 (51.9%)	10 (43.5%)	.476** NS
	Female	37 (48.1%)	13 (56.5%)	
Feeding	BF	52 (67.5%)	9 (39.1%)	**.014** SIG**
	FF	25 (32.5%)	14 (60.9%)	

*Independent samples t-test; **chi-square test;
BSRS-5-Brief Symptom Rating Scale; EPDS-Edinburgh Postnatal Depression Scale; C/S-Caesarean Section; NVD-Normal vaginal delivery

Table-2: Correlation of EPDS with variables

Variables	Correlation coefficient	P value
Age	-0.009*	.928 NS
BSRS-5	0.325*	**.001 SIG**
Gestation Age	0.03*	.764 NS
Baby birth weight	-0.025*	.808 NS
Delivery type	0.387**	**<.001 SIG**
Baby Gender	0.088**	.386 NS
Feeding	0.406**	**<.001 SIG**

* Pearson's Correlation coefficient (r);
** Point-Biserial Correlation coefficient (r_{pb})

depressed group were more likely to have Normal vaginal delivery (P=.009) and breast feeding (P=.014) than depressed group, which was statistically significant. EPDS score had significant positive correlation with BSRS-5 score and was much lower in normal vaginal delivery and breast feeding population.

Skin to skin contact between mother and infant is promoted by BF. Several studies showed that PPD symptoms might be prevented by the same.[9,10] Also the anxiolytic and antidepressant effects of lactogenic hormones, oxytocin and prolactin, might explain these benefits.[11] Total cortisol and free cortisol stress responses are attenuated in lactating as compared to non-lactating mothers.[12] Regulation of diurnal basal cortisol secretion appears to be tighter in breastfeeding[12] and also the stability of diurnal cortisol secretion across days seems to reduce the risk of postpartum depression.[13] The sleep wake pattern regulation for both the mother and the infant

Table-3: Relation of feeding of baby with variables

Variables		Breast Feeding (n=61)	Formula Feeding (n=39)	P value
Education	Up to 12th	28 (45.9%)	11 (28.2%)	.077 NS
	>12th	33 (54.1%)	28 (71.8%)	
Delivery Method	NVD	46 (75.4%)	20 (51.3%)	**.013 SIG**
	CS	15 (24.6%)	19 (48.7%)	
Baby Gender	Male	36 (59%)	14 (35.9%)	**.024 SIG**
	Female	25 (41%)	25 (64.1%)	

* Chi-square test

applying EPDS within first week of postpartum among the total 100 women recruited. This finding is consistent with a meta-analysis conducted in India.[5] When comparing the two groups (depressed and non-depressed) on the basis of maternal and new born characteristics it was seen that ante-partum BSRS-5 score was significantly higher in depressed group (P<.001). We also observed that non-

is also an important change in BF, and helps the mother to feel less tired, thereby preventing depressive symptoms. Parents of infants who were exclusively breastfed slept an average of 40–45 minutes more and reported less disturbance of sleep than parents of infants on formula feeds.[14]

According to research, breastfeeding is beneficiary in psychological conditions and processes that reduce postpartum depression. Breastfeeding is seen to enhance mother's emotional involvement with the infant,[15] whereas it is negatively correlated with postpartum depression.[16] A woman's intentions need to be understood in order to explain the interaction between BF and women's psychological state. Recent evidence suggests that the key factors that may influence the development of PPD are mothers' intention and expectation to breastfeed. Borra et al. (2015) noted that a risk of PPD was lowest in women who planned to breastfeed and actually breastfed their babies, while risk was found to be higher among women who planned, but failed to breastfeed.[17]

Similar results between BF and the risk of PPD were depicted in previous some other studies also.[9, 18-20] However, some studies didn't find any association between the pattern of feeding and depressive symptoms in postpartum.[21,22]

In our study, we also noted that women with caesarean section had a significantly higher risk to develop PPD than those women with vaginal delivery. Local pain and systemic inflammation due to the surgical wound might be an important factor in PPD, triggering biological and psychosocial stress. A study done in 2011 in China reported 21.7% PPD in women with caesarean delivery, and women who delivered vaginally had 10.9% PPD. Moreover, the study concluded that caesarean section was associated with an increased risk of PPD in Chinese women, a result similar to our study.[23] However, no significant association was seen between caesarean section and PPD, as per a meta-analysis article review.[24]

In this study, several risk factors associated with PPD were evaluated; the maternal and new-born status such as age, education level, gestation weeks, baby gender, and birth weight; and reported no significant association. These results were similar to a Taiwan study.[9] On the other hand, a meta-analysis article in India found that low maternal education and female child born in the current pregnancy were associated with PPD. This included 38 studies with 20,043 women.[3]

Breast feeding had significant association with male baby and normal vaginal delivery. Some other studies also supported our finding of gender biasness.[25, 26] It is believed that the attitude of the family and the society is very important and there is a general assumption that the Indian society prefers males. While Figueiredo et al found no association of baby gender with exclusive breastfeeding initiation or early cessation and duration. They performed this study on Portugal population.[20]

The result of this study revealed that mothers who had vaginal delivery were more likely to breastfeed as compared to mothers who had caesarean section and this finding is comparable to other studies.[27,28] The explanation for difference between the two groups could be the morbidity associated with caesarean section, anaesthesia effect, the emotional adjustment to the fact that the mother was unable to deliver normally and the exhaustion due to a difficult labour that may have included many other interventions.[29,30]

In our study, the maternal education and age distribution of mother was not associated with BF. This result is supported by various other studies.[9,27] This was opposite to the findings in various studies which indicate that maternal education had significant effect on BF.[31,32] Many studies show varying results, which can be due to mother's decision to commence and continue breastfeeding and is in turn determined by the perceived breastfeeding culture of her environment.

Conclusion

Our results concluded that various factors influence maternal mental health including mode of delivery and breast feeding. Women with breast-feeding difficulties should be screened for post-partum depression and women with depressive symptoms should be offered breastfeeding support. The government and medical providers should not only provide prompt guidance and BF support, but also evaluate mothers with higher EPDS scores in order to detect depression early. Early intervention for these mothers is a vital health issue. Apart from this, higher BSRS-5 scores identify the subjects who are predisposed to PPD.

Screening and treatment of women with early breastfeeding difficulties may reduce not only the severity of postpartum depression and enable women to meet their breastfeeding goals, but also improve health outcomes across two generations.

Limitations

It is difficult to distinguish PPD from baby blues by merely a single high EPDS score done in the first week postpartum.

The background of maternal history, including social status and family support, was difficult to quantify.

Future Direction

Additional efforts are required in the future, including a multi-institutional prospective study with a long follow-up period with multiple records of EPDS scores.

It will be interesting and crucial to investigate whether BF itself is a protective factor for PPD and also when to exclude the effect of mothers' intention and self-efficacy to breastfeed.

Abbreviations

PPD-Postpartum depression; BF-Breast feeding; BSRS-Brief Symptom Rating Scale; EPDS-Edinburgh Postnatal Depression Scale; C/S-Caesarean section; NVD-Normal vaginal delivery.

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Original Article

Study of the Clinical and Social correlates in patients of untreated psychosis

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ABSTRACT

Background: *Duration of untreated psychosis (DUP) is the time interval between the onset of the first psychotic symptoms and the initiation of adequate treatment. A longer duration of untreated psychosis (DUP) is associated with greater morbidity in the early course of psychosis. Short DUP has been associated with an earlier and better level of remission, a greater chance of recovery, lower relapse rates, less cognitive deterioration, less positive and negative symptoms and better social functioning.* ***Aims and objectives:*** *To assess the socio demographic and clinical profile in patients of untreated psychosis and the relationship of these factors with the duration of untreated psychosis.* ***Materials and Methods:*** *This was a cross-sectional observational study carried out in tertiary care teaching hospital. All the subjects were recruited from the outpatient and inpatient unit of Department of Psychiatry and De-addiction, S.P. Medical College and associated group of hospitals, Bikaner. After the approval of the institutional research ethics committee and applying the screening criteria,100 such subjects were included in the study. Socio demographic and clinical data including the DUP was recorded. SAPS and SANS were used to assess the presentation.* ***Results:*** *The minimum age of patients was 20 years and maximum was 49 years with mean age of the study subjects being 28.58. Majority (76%) of them were males, belonging to Hindu religion (78%),more than half of them being illiterate(54%). Almost half (42%) of them were diagnosed as having Acute and transient psychotic disorder, 26% as having schizophrenia, 16% as Unspecified nonorganic psychosis, 9% as Schizoaffective disorder and 7% as Persistent delusional disorder. An association was found between ATPD with brief DUP and Schizophrenia with long DUP. The patients had a mean SAPS score of 29.09 with a S.D. of 18.5. The mean total SANS score was 25.97. There was found an association between the SAPS score and brief DUP.* ***Conclusion:*** *ATPD and Schizophrenia are the most common psychotic illness presenting as untreated psychosis. Male gender, having current employment, belonging to nuclear family and residing in urban locality are the factors associated with significantly shorter DUP. Diagnosis of ATPD, Acute onset of illness and more total score of SAPS are clinical factors associated with shorter DUP.*

Keywords: *Duration of untreated psychosis; First episode psychosis; Positive symptoms; Negative symptoms; Untreated psychosis*

Introduction

Duration of untreated psychosis (DUP) is defined as the time interval between the onset of the first psychotic symptoms and the initiation of adequate treatment.[1] Understanding the causes and consequences of untreated psychosis in the first episode is essential for planning preventive and therapeutic strategies.

It has been hypothesized that prolonged duration of untreated psychosis may lead to worsening of the

neurodegenerative process that is implicated in the pathophysiology of psychosis and to poor clinical outcome.[2,3] Short DUP has been associated with an earlier and better level of remission, a greater chance of recovery, lower relapse rates, less cognitive deterioration, less positive and negative symptoms and better social functioning.[4,5] So identifying factors that may delay the initiation of treatment in the first episode of psychosis and building specific strategies that possibly modify this duration of untreated illness, could enhance the likelihood of secondary prevention and reduce the risk of foreseeable morbidity.

Individual and family factors shown to be associated with a longer DUP include coping styles used by the individual,[6] the family's perception of onset,[7] families not recognizing psychotic symptoms until they approached a crisis,[8] substance use, homelessness,[9] poor premorbid adjustment,[10] more insidious mode of onset of psychosis and severity of negative symptoms.[11] Three components of delay have been described in seeking treatment in 1st episode psychosis: delay in help-seeking, delay in referral and delay in recognition by health-care providers.[12,13] Families and significant others commonly play an integral role in the help-seeking process.[14]

There are many studies on the untreated psychosis worldwide and in our country as well but studies assessing these factors were lacking in north western Rajasthan. So this study was planned to assess the socio demographic and clinical profile in patients of untreated psychosis and the relationship of these factors with the duration of untreated psychosis.

Materials and Methods

After getting approval from the ethical committee of the institution, a cross sectional, observational study was conducted at Department of Psychiatry, PBM Hospital, S.P. Medical College, Bikaner. Subjects having age between 18 and 65 year who were Meeting the ICD-10 criteria for any disorder of Schizophrenia, schizotypal and delusional disorders (F-20 6F-29) and not taking treatment from a psychiatrist were included in the study. Subjects having neurological, medical or endocrine disorder which are related to psychotic symptoms, having intellectual disability, Subjects and caregivers who do not give consent to participate in the studyor having diagnosis of a substance use disorder and related psychosis were excluded from study. Consecutive patients from OPD and IPD were taken based on inclusion and exclusion criteria until the sample size (100) reached. After screening 139 patients, 100 patients along with their caregivers were recruited in the study. For each participant recruited into the study, a main caregiver was identified who had the knowledge of course of illness till the interview. Patients and caregivers were assured that information revealed by them would be kept confidential and used for research purpose only. After obtaining informed written consent and providing clinical information about the study, Socio demographic and Semi structured clinical proforma was filled for each participant. Detailed history including clinical profile and duration of untreated psychosis was assessed from the caregiver. Mental status examination was done and assessment of positive and negative symptoms was done by using SAPS and SANS respectively. Statistical analysis was done using SPSS version 21.

Tools of the Study

1. **Screening proforma** containing the inclusion and the exclusion criterion.
2. **Semi structured Socio demographic proforma** which included:
   Identification data: including name, father's or spouse's name, age, gender, religion.
   Socio demographic data: including patients' education, occupation, current employment status, marital status, economic status, type of family, domicile.
3. **Semi structured clinical proforma which included** chief complaints, past history, medical history, family history, Mental status examination, Diagnosis of patient (according to ICD-10) and Duration of untreated psychosis in months.
4. **Scale for assessment of positive symptoms (SAPS) –** is a rating scale to measure positive symptoms in schizophrenia. The scale was developed by Nancy Andreasen and was first published in 1984. The SAPS consist of 34 items belonging to four subscales: hallucinations, delusions, bizarre behavior and positive formal thought disorder. Each of the four areas includes

ratings for specific symptoms as well as global rating, all scored on a scale from 0 = none to 5 = severe. The scale includes the following domains Hallucinations, Delusions, Bizarre Behavior, Positive Formal Thought Disorder.[15]

5. **Scale for assessment of negative symptoms (SANS)** - is a rating scale to measure negative symptoms in schizophrenia. The scale was developed by Nancy Andreasen and was first published in 1984. SANS is split into 5 domains, and within each domain separate symptoms are rated from 0 (absent) to 5 (severe). The SANS is comprised of 25 items grouped into 5 subscales: affective flattening or blunting, alogia, avolition-apathy, anhedonia-asociality and attention.[16]

The data analysis was performed using SPSS (Statistical package for the social sciences) version 21.0 software. Descriptive statistical measures (mean, median, standard deviation and range) were estimated for summarizing the quantitative characteristics and percentage and proportion for the qualitative variables. Student's t-test was applied for all quantitative data and Chi-square test was applied for qualitative data. The two-sided $p < 0.05$ was considered statistically significant.

Results

Table 1 shows that the mean age of the patients was 28.58 with a S.D. of 5.45 (Minimum-20, Maximum-54). 76% of them were males and 24% were females. 81% of them were Hindus and 19% were Muslims. Regarding the marital status 54% of them were married and 46% were unmarried / widower/separated/divorced. Regarding the educational status more than half of them (54%) had never been to school, 22% had studied till the middle school, 12% till the higher secondary level, 12% were graduates/postgraduates. Regarding the employment status 34% of them were currently employed, 41% were currently unemployed and 25% of them had never been employed. Regarding the occupation 50% of them were self-employed (business/farming), 15% of them were unskilled workers/laborer, 7% were homemakers and 3% were students. Most of them (36%) were having family income between 31,591-47,262, 18% were having in range of 18,953-31,589, 15% were having family income between 6323–18,949, 18% were having income <6323 and 13% were having income >47,262. 54% of them were living in joint/ nuclear extended families and 45% in nuclear families. 59% were residing in rural areas while 41% were residing in urban areas.

Table-1: Socio-demographic profile of the patients

Variable		N=100 n(%)
Age (Mean)	28.58±5.45 years.	
Gender	Male	76 (76)
	Female	24 (24)
Religion	Hindu	81 (81)
	Muslim	19 (19)
Marital Status	Married	54 (54)
	Unmarried/widower/ divorced	46 (46)
Education	Illiterate	54 (54)
	Upto middle school	22 (22)
	Upto higher Secondary	12 (12)
	Graduation / Post graduation	12 (12)
Employment status		
	Currently employed	34 (34)
	Currently unemployed	41 (41)
	Never been employed	25 (25)
Occupation		
	Self employed [business/farming]	50 (50)
	Student	3 (3)
	Homemaker	7 (7)
	Unskilled worker/labourer	15 (15)
Monthly family income	>47,262	13 (13)
	31,591-47,262	36 (36)
	18,953-31,589	18 (18)
	6323– 18,949	15 (15)
	<6323	18 (18)
Family Type	Joint/Nuclear extended family	54 (54)
	Nuclear family	46 (46)
Residence	Urban	41 (41)
	Rural	59 (59)

Table 2 depicts that almost half (42%) of them were diagnosed as having Acute and transient psychotic disorder, 26% as having Schizophrenia, 16% as Unspecified nonorganic psychosis, 9% as schizoaffective disorder and 7% as Persistent delusional disorder. Brief DUP was seen in 63% of the patients while long DUP was present in 37% of them. Family history of psychotic illness was present in 23% of them. Mode of onset was acute in 70% of them while it was insidious in 30% of them.

It is evident from table 3 that the mean DUP of the patients was 5.26 with a S.D. of 4.64 and Median DUP was 4 months. The minimum and maximum

Table-2: Clinical profile of the patients

Variable		N=100 n(%)
Diagnosis	Schizophrenia	26 (26)
	Persistent delusional disorder	7 (7)
	Acute and transient psychotic disorder	42 (42)
	Schizoaffective disorder	9 (9)
	Unspecified nonorganic psychosis	16 (16)
DUP	Brief DUP (<6 Months)	63 (63)
	Long DUP (>6 Months)	37 (37)
Family history	Absent	77 (77)
	Present	23 (23)
Mode of onset	Acute	70 (70)
	Insidious	30 (30)

Table-3: Duration of untreated psychosis on differential timeline in months

Parameter	N=100 n(%)
Mean ± S.D- 5.26 ± 4.64	
Median (Minimum, Maximum)- 4 (1,20)	
≤1 month	21 (21)
1-6 months	42 (42)
7-11 months	28 (28)
12-24 months	9 (9)
>24 months	0 (0)

DUP of the patients was 1 and 20 months respectively. 21% of them were having DUP ≤1 month, 42% were having DUP between 1 and 6 months, 28% were having DUP between 7 and 11 months and 9% were having DUP between 12-24 months. None of them had DUP > 24 months.

Table 4 depicts that the brief DUP group comprises of majority of males (85.7%) while the percentage of females is more in the long DUP group (40.5%) and the difference is statistically significant (p=0.003). There is a statistically significant difference between 2 groups regarding the employment status. Those who had never been employed being more in long DUP group (43.2%) while who were currently not employed being more in Brief DUP group (49.2%) and the difference is statistically significant (p=0.004). The percentage of patients living in nuclear family are more in the brief DUP group (60.3%) while the ones or who were living in joint/nuclear extended are more in long DUP group (78.3%) and the difference is statistically significant (p=0.00).

Table 5 shows that there is a statistically significant difference between the patients of different diagnosis in the two groups (p=0.00). The percentage of ATPD patients being more in the Brief

Table-4: Comparison of socio-demographic profile of patients with brief or long DUP.

Variable		Brief DUP (<6 Months) N = 63 n(%)	Long DUP (>6 Months) N = 37 n(%)	Chi-square value	df	p value
Gender	Male	54(85.7)	22(59.5)	8.809	1	**0.003**
	Female	9(14.3)	15(40.5)			
Education	Illiterate	34(53.9)	20(54.0)	2.915	4	0.40
	Upto middle school	12(19.0)	10(27.0)			
	Upto higher secondary	7(11.1)	5(13.5)			
	Graduation/Post graduation	10(15.8)	2(5.4)			
Marital status	Married	33(52.4)	21(56.8)	0.18	1	0.67
	Unmarried/widower/divorced	30(47.6)	16(43.2)			
Religion	Hindu	53(84.1)	28(75.6)	1.082	1	0.29
	Muslim	10(15.8)	9(24.3)			
Employment status	Currently employed	23(36.5)	11(29.7)	10.93	2	**0.004**
	Currently unemployed	31(49.2)	10(27.2)			
	Never been employed	9(14.2)	16(43.2)			
Occupation	Self employed[business/farming]	29(65.9)	21(67.7)	0.734	4	0.86
	Student	2(4.5)	1(3.20)			
	Homemaker	5(11.3)	2(6.40)			
	Unskilled worker/labourer	8(18.18)	7(22.0)			
Family Type	Joint family/nuclear extended	25(39.6)	29(78.3)	14.051	1	**0.000**
	Nuclear family	38(60.3)	8(21.6)			
Residence	Urban	31(49.2)	10(27.0)	4.740	1	**0.029**
	Rural	32(50.8)	27(73.0)			

Table-5: Comparison of clinical variables of patients with brief or long DUP

Variable		Brief DUP (<6 Months) N = 63 n(%)	Long DUP (>6 Months) N = 37 n(%)	Chi-square value	df	p value
Diagnosis	Schizophrenia	6 (9.52)	20 (54.05)	49.40	4	0.001
	Persistent delusional disorder	2 (3.17)	5 (13.51)			
	Acute and transient psychotic disorder	42 (66.6)	0 (0.0)			
	Schizoaffective disorder	3 (4.76)	6 (16.21)			
	Unspecified nonorganic psychosis	10 (15.87)	6 (16.21)			
Family history	Absent	51 (80.82)	26 (70.2)	1.50	1	0.22
	Present	12 (19.17)	11 (29.7)			
Mode of onset	Acute	60 (95.2)	10 (27.27)	51.64	1	0.001
	Insidious	3 (4.7)	27 (72.9)			

DUP group (66.6%) as compared to long DUP group while the percentage of patients with schizophrenia (54.05%), schizoaffective disorder (16.21) and persistent delusional disorder is more in the long DUP group (13.51%). There is no difference in the two groups regarding the family history of psychiatric illness in the patients. However, the percentage of patients with acute onset of symptoms is more in the brief DUP group (95.2%) and with insidious onset is more in the long DUP group (72.9%) and the difference is statistically significant (p =0.001).

Table 6 shows that the patients had a mean total SAPS score of 29.09 ±18.5. The mean global rating score of hallucinations, delusions, bizarre behavior and positive formal thought disorder was 2.18, 3.50, 3.16 and 2.21 respectively.

Table-6: Scoring of patients on SAPS scale

Positive symptoms	Mean	S.D.
Total SAPS score	29.09	18.5
Global rating of hallucinations	2.18	1.55
Global rating of delusions	3.50	1.88
Global rating of bizarre behavior	3.16	1.20
Global rating of positive formal thought disorder	2.21	1.94

Table 7 shows that the mean total SANS score was 25.97 ± 5.88, mean global rating score of affective flattening, alogia, avolition-apathy and anhedonia-asociality score was 2.12, 1.74, 3.08 and 3.01 respectively.

Table-7: Scoring of patients on SANS scale.

Negative Symptoms	Mean	S.D.
Total SANS score	25.97	5.88
Global rating of Affective flattening	2.12	1.70
Global rating of Alogia	1.74	1.76
Global rating of Avolition-Apathy	3.08	1.38
Global rating of Anhedonia-Asociality	3.01	1.48

Table 8 depicts that there is a statistically significant difference between the means of total SAPS score in the two groups (p=0.007), higher mean of the total SAPS score being in the brief DUP group (32.90 ± 21.236). The mean SANS score is more in the long DUP group (26.95 ± 4.013) however there is a no statistically significant difference between the means of total SANS score of the two groups (p=0.975).

Discussion

In this study the mean age of the patients was 28.58 (5.45) which corresponds to the age of onset of major psychotic illnesses. Similarly, in previous study conducted in Singapore by Peket althe mean age of the patients was 28.2(6.6) year.[17] Males represented 76% of the sample and females were 24% of the patients. Similarly in another study by Shrivastava et alalso males represented 73% of the total sample.[18] But in contrast to this in another studies males represented 50-55% while females were 40-45% of the sample.[19,20] This shows that in our study the number of males were more as

Table-8: Comparison of positive and negative symptoms of patients with brief or long DUP.

Symptom Profile	Brief DUP(Mean+S.D)	Long DUP (Mean+S.D)	T Value	p value
Total SAPS score	32.90 ± 21.236	22.59 ± 9.836	2.779	0.007
Total SANS score	24.98 ± 2.776	26.95 ± 4.013	0.031	0.97

compared to other studies. This may be because of a greater number of male patients being brought for treatment than females. In our study 54% of the sample were married. Similarly, in other studies also 60% of patients were married. In contrast to this in another study only 19% were married.[17]

In our study Hindus constituted majority of study sample (81%) and Muslims being only 19%. This only indicates the population makeup of area where Hindus are majority in number. Similarly in another study from India also Hindus represented majority of the study sample.[19] Majority of the patients were illiterate (54%) which is consistent with another study in India.[20] In our study 59% were from rural background while 41% were from urban background which is in contrast to previous studies in which 75-80% were from rural background.[19,20] Half of the total patients (50%) were involved in farming and business which is in line with the previous Indian study.[19]

In our study ATPD was the most common diagnosis in the patients of untreated psychosis (42%), followed by Schizophrenia in 26%, Unspecified nonorganic psychosis in 16%, Schizoaffective disorder in 9% and Persistent delusional disorder in 7% of the patients. Lenciuet al also found that ATPD was the most common diagnosis (42.85%) followed by Schizophrenia (17.85%), Persistent delusional disorder (10.71%), Schizoaffective disorder (7.14%).[21] Similarfindings were seen in another study conductedby Kini et al ATPD was the most common diagnosis followed by schizophrenia.[20] In contrast to this in another studies 65-80% were having schizophrenia.[19,21] In our study family history was present in only 23% of the patients. There are variable results of presence of family history in different studies ranging from 10% to 90%.[19-21]

In our study the mode of onset was acute in 70% which is in line with previous study done by Kini et al.[20]

The mean DUP of the patients was 5.26 months with a S.D of 4.64. 21% of them were having DUP $\leq$ 1 month, 42% were having DUP between 1 and 6 months, 28% were having DUP between 7 and 11 months and 9% were having 12-24 months. None of them had DUP >24 months. In another study done by Shrivastava et al the mean DUP was 12.7 weeks, 19.8% presented within 6 months, 33.7% in 6-11 months, 39.6% in 12-24 months and 6.9% in >24 months. This shows the patients in our study presented earlier as compared to this study.[18] The median DUP in another study was 22.5 weeks which is comparable to median DUP of our study.[21] In a study done by Pek et al the mean DUP was 16 months while median DUP was 4 months.[17]

The finding of 5.26 months DUP in the present study is not surprising from a developing country where stigma is rampant, awareness is poor, accessibility of care is limited and resources for mental health are less than sufficient. A DUP as much as 796 weeks has been reported from India which is primarily because of lack of availability and accessibility of mental health services rather than the psychosis remaining 'unidentified'.[22,23] Mental illness remains untreated despite recognition. There are several cultural, social, religious, economic and personal factors which determine approach to mental healthcare, which obliviously leads to longer DUP.[24] Long DUP has also been reported in western literature e.g. a Canadian study observed duration of untreated psychosis as 84 weeks.[25] The comparisons across studies are fraught with complexities-with different methodologies, different criteria and different characteristics of study population might have resulted in variation of DUP.

In this study significant association has been found between male gender and brief DUP. This shows the more caring attitude of the society towards the males, which may be because the males being the main earning members of the families. Our study also found that the patients belonging to rural areas present late for the treatment as compared to urban areas, this may be due to various cultural factors prevalent in rural regions which delay the presentation to a mental health facility. Those who had never been employed were more in the Long DUP group while those were employed or currently not employed were more in the brief DUP group and the difference was statistically significant. In another study also being employed was found to be associated with a shorter DUP.[17] However no statistical difference has been found in educational status, occupation and religion of the patient. In contrast to our study significant association was found between patients who had an education above 7th standard and DUP.[26]

In our study it was found that those living in nuclear families had a shorter DUP as compared to

those living in joint and nuclear extended families as increased cohesion between family members, community tolerance and simple ways of life lead to easier accommodation of the patients with mental illness, well without seeking any medical help for years. Similar results were found in previous studies also.[27,28] There are variable results in different studies regarding the sociodemographic variables and the DUP. In a study conducted in Hyderabad by Nallapaneni et al significant association was found between rural and urban background and DUP while the other socio demographic variables did not show any association.[19] In some studies longer DUP has been associated with male gender.[29,30-32]

Madianos et al in their study found that females have a shorter DUP.[31] Mackenzie et al in their study found that females exhibited more favorable intensions to seek help from mental health professionals than men, which was opined to be due to their positive attitudes concerning psychological openness. Negative attitudes related to psychological openness was opined to men's underutilization of mental health services.[32]

In a study done by Pek et algender did not prolong DUP while being married does.[17] In contrast to this in another studies gender differences were associated with varying DUP.[33-35]

However, Craig et al suggest that there was inconsistent evidence in this regard.[36]

This study shows that patients with schizophrenia have a greater DUP. Similar findings have been seen in previous studies also.[17,37] This may be due to poor insight into the illness and social withdrawal of patients of schizophrenia which in turn could have resulted in a delay in help seeking and thus prolonged DUP. The patients with diagnosis of ATPD had brief DUP which can be due to rapid escalation of features in ATPD.

Acute onset had significant association with brief DUP. Any sudden change in the behavior of the patient is more likely to be noticed by family and hence reduce treatment delays. Acute onset has been found to be significant predictor of shorter DUP in the study by Thomas et al too.[38]

There is no difference in the two groups regarding the presence or absence of family history of psychiatric illness in the patients which is in line with previous study conducted by Lenciuet al.[21] This shows that a positive family history is not always associated with delay in treatment.

In this study the patients had a mean total SAPS score of 29.09 with a S.D. of 18.5. The mean global hallucination score was 2.18, mean global delusions score was 3.50, mean global bizarre behavior score was 3.16 and mean global positive formal thought disorder score was 2.21.

The mean total SANS score was 25.97, mean global affective flattening score was 2.12, mean global alogia score was 1.74, mean global avolition-apathy score was 3.08 and mean global anhedonia-asociality score was 3.01.

In another study conducted in Montreal, Quebec in 2012 comparison of clinical presentation of first episode psychosis across different migrant groups showed the mean total SAPS of different groups in range of 29-35, mean global hallucination score 2.5-3, mean global delusions score was 3.5-4.5, mean global bizarre behavior score was 1.6-3 and mean global positive formal thought disorder score was 1.5-2.5 which is in line with our study.

Similarly, for negative symptoms the mean total SANS score was 25-30, mean global affective flattening score was 2-3, mean global alogia score was 1.5-2.5, mean global avolition-apathy score was 3-3.5 and mean global anhedonia-asociality score was 2.5-3 which is in line with our study.[39]

In our study it was seen that those patients with a higher mean score on SAPS presented earlier for the treatment. This shows that more positive symptoms could have led the relatives of the patients to bring the patient for treatment. However, our study could not establish any association between the negative symptoms and DUP. there are variable results of different studies in this regard.

A study from Pakistan reported that patients with positive symptoms have a shorter DUP and that patients with more negative symptoms have longer DUP.[40] However, in another study patients with brief DUP had higher PANSS.[17]

Pek et al neither found correlation between DUP and total PANSS score nor with the scores for the positive and negative subscales.[17]

Conclusion

ATPD and Schizophrenia are the most common psychotic illness presenting as untreated psychosis and in about 2/3rd of cases DUP was less than 6 months. Male gender, having current employment,

belonging to nuclear family and residing in urban locality are the factors associated with significantly lesser DUP. Diagnosis of ATPD, Acute onset of illness and more total score of SAPS are clinical factors associated with lesser DUP.

Limitations

This is a small-scale cross-sectional study, only 100 patients were included in the study. So, the results cannot be generalized. Premorbid functioning was not assessed for the patients which can directly affect the DUP although the employment and marital status are also part of premorbid functioning. Estimation of DUP which is the main variable of interest is based on recall by the relatives. So, there are chances of recall bias.

Clinical Implications

Increasing the ability of general practitioners to recognize the early signs of the prodromal and psychotic stage and to develop a good referral system may contribute in reduction in duration of untreated psychosis (DUP).

Future Direction

A longitudinal study can be conducted to see the outcome in these patients and how various factors affect the outcome.

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Original Article

A Comparative Study of First Episode of Schizophrenia and First Episode of Bipolar Disorder (Mania) Patients on Measures of Cognition

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ABSTRACT

Background*: Cognitive deficits in schizophrenia have been the focus of psychiatric research in recent years. Most researchers have reported deficits in the areas of executive functioning, episodic memory, working memory, learning and attention abilities in schizophrenia and bipolar I disorder. Recently, a number of neuropsychological studies comparing First Episode Bipolar Disorder (FEBP) with healthy controls and First Episode Schizophrenia (FES) were conducted. Some of these studies have supported the hypothesis of relative preservation of cognitive abilities in FEBP and specificity of such deficits to schizophrenia.* ***Method:*** *The study was carried out between September 2016 and August 2017 on patients of first episode of Schizophrenia and Bipolar Disorder (mania) attending at psychiatric centre, department of psychiatry, SMS medical college & hospital, Jaipur. Study included cases of first episode of Schizophrenia and Bipolar Disorder (mania) [diagnosed as per ICD-10 criteria] satisfying inclusion criteria and exclusion (via screening Performa) and healthy controls. Prior to participation in the study informed written consent was taken then after applying exclusion and inclusion criteria participants were screened with a specially designed Performa for the study. Those patients who satisfied the screening process were recruited in the study, followed by recording of socio-demographic profile, clinical data.* ***Results:*** *The results showing that three groups were comparable to each other according to the socio-demographic data as no statistically significant difference was found among these three groups (P >.05).First episode of Schizophrenia patients performed poorly on all the neurocognitive parameters as compared to both control and bipolar patients.* ***Conclusion:*** *Present study results concluded that a poorer neurocognitive performance was found amongst First Episode Schizophrenia and First Episode Bipolar patients as compared to the healthy controls in all the cognitive domains.*

Keywords: *First Episode Schizophrenia, First Episode Bipolar disorder, Cognition*

Introduction

"*It is becoming increasingly obvious that we cannot satisfactorily distinguish these two diseases (dementia praecox and manic depression).*" **Emil Kraepelin, 1920**

Schizophrenia (SZ) and bipolar disorder (BP) are frequently occurring conditions that are recognized as leading causes of lifetime disability.[1] Both disorders are characterized by abnormalities of thought, behaviour, cognition and mood. Based on careful clinical observations of differences in the clinical course and outcome of psychiatric cases

presenting to asylums over a century ago, Kraepelin distinguished dementia praecox (currently SZ) from manic depression (currently BP). In modern times, there is increasing awareness that a greater understanding of the similarities between these two highly prevalent and disabling conditions can teach us as many lessons about the pathophysiology of severe mental disorders as does the pursuit of differentiating factors.[2]

Cognition in Schizophrenia and Bipolar Disorder

Cognition is what enables humans to function in everyday life: Personal, social, and occupational.

Cognitive deficits may result in the inability to:

1. Pay attention
2. Process information quickly
3. Remember and recall information
4. Respond to information quickly
5. Think critically, plan, organize and solve problems
6. Initiate speech[3]

Cognitive dysfunction is a common and robust feature of schizophrenia.[4-6] Although cognitive deficits are not yet included in the diagnostic criteria for schizophrenia (American Psychiatric Association, 2000), they are considered a core feature of schizophrenia symptomatology.[7] Neurocognitive ability is not strongly correlated with severity of psychotic symptoms in patients with schizophrenia.[8] Most of the studies that have assessed cognition have focused on standardized measures of neuropsychological function. However, the identification of the true relation between cognitive impairment and psychosis may require more specific assessments of the processes that lead to these symptoms.[9] Cognitive deficits persist during the stable phase of schizophrenia.[10]

Bipolar disorder (BP) is also associated with cognitive deficits in a number of domains including executive functions, attention, and memory. These deficits persist in remission.[11] Many neuropsychological studies have been performed on bipolar disorder that attempted to separate it from other psychiatric disorders, such as unipolar depression[12,13] and schizophrenia[14] and also to define the cognitive profile across the three distinct phases of the illness *viz.*, mania, depression and euthymia.[15,16] Although it has previously been assumed that euthymia equates to 'recovery', there are emerging trends of disruptions in verbal memory,[17] phonemic verbal fluency, complex problem solving, abstract concept formation and attentional set-shifting**.** In chronic samples, cognitive dysfunction is less severe in BP than schizophrenia but the magnitude of cognitive dysfunctions between schizophrenia and BP are modest[18,19].

Cognitive deficits in schizophrenia have been the focus of psychiatric research in recent years. Most researchers have reported deficits in the areas of executive functioning, episodic memory, working memory, learning and attention abilities in schizophrenia and bipolar I disorder[20,21]. Recently, a number of neuropsychological studies comparing First Episode Bipolar Disorder (FEBP) with healthy controls and First Episode Schizophrenia (FES) were conducted. Some of these studies have supported the hypothesis of relative preservation of cognitive abilities in FEBP and specificity of such deficits to schizophrenia[22]. A recent meta-analysis found that cognitive function is significantly impaired in FEBP in comparison to healthy controls[23].

As neurocognitive dysfunction is among the strongest predictors of clinical and functional outcomes in patients, efforts to better detect and treat these deficits, which have shown promise in SZ, should be extended to all patients with psychosis,[24] even though it is possible there is a different genesis of cognitive deficits in the two disorders. Cognitive dysfunctions in SZ are very likely to be neurodevelopmental as they present in childhood and detectable premorbidly.[25] On the other hand, BP (especially non-psychotic BP) shows less impairment premorbidly with clearer deficits emerging over time probably indicative of neuroprogression with the toxic effects of mania being particularly associated with cognitive impairment.[26]

Aims and Objectives

Aims:

The proposed hospital based observational study would be carried out with a specific aim to study cognition,in patients of schizophrenia and bipolar affective disorder (mania).

Objectives

1. To assess cognition, in patients of schizo-

phrenia, bipolar (mania) and healthy controls.

2. To compare cognition, in patients of schizophrenia, bipolar (mania) and healthy controls.

To achieve Aim and Objectives following hypothesis was derived for the study:

Hypothesis H_0 – There is no significant differences of cognition, in first episode of schizophrenic patients, first episode of bipolar (mania) and healthy controls.

Methodology

Selection criteria for Patients (First episode only)

Inclusion Criteria

- Age 18–45 years, either sex
- First episode only
- Meeting the ICD-10 criteria for schizophrenia disorder and bipolar disorder (mania)
- No history of any psychoactive drug.
- Literate enough to understand and perform the questionnaires.
- Willing to participate in the study.

Exclusion Criteria

- Violent and agitated
- Having a physical disability (e.g. Blind, deaf, speech problems, paralysis, amputation)
- History of significant substance abuse, in last 3 months, except nicotine (ICD-10)
- History of electroconvulsive therapy in the previous six months
- History of neurological disorder/ significant head injury
- Mental retardation
- History of any chronic medical illness

Selection Criteria for Controls

Inclusion Criteria

- Age 18–45 years, either sex
- Literate enough to understand and perform the questionnaires.
- Willing to participate in the study.

Exclusion Criteria

- Past history of psychiatric illness
- Having a physical disability (e.g. Blind, deaf, speech problems, paralysis, amputation)
- History of significant substance abuse, in last 3 months, except nicotine (ICD-10)
- History of neurological disorder/ significant head injury
- History of any chronic medical illness

The study setting

The study was conducted at the Psychiatric Centre, SMS medical college, Jaipur, is a government run tertiary care Centre providing highest level of care and treatment of the state.

Study Design

A cross sectional hospital based Analytic type of Observational study was carried out between September 2016 and August 2017 on patients of first episode of Schizophrenia and Bipolar Disorder (mania) attending at psychiatric centre, department of psychiatry, SMS medical college and hospital, Jaipur. Ethical Consideration was taken from research review board and ethical committee of the institution. Study included cases of first episode of Schizophrenia and Bipolar Disorder (mania) [diagnosed as per ICD-10 criteria] satisfying inclusion criteria and exclusion (via screening Performa) and healthy controls. Control group included normal and healthy persons who were taken from hospital staff and bystanders of hospitalized patients (not first degree relatives) and was screened for psychiatric illness by two psychiatrists independently.

Prior to participation in the study informed written consent was taken then after applying exclusion and inclusion criteria participants were screened with a specially designed Performa for the study. Those patients who satisfied the screening process were recruited in the study, followed by recording of socio-demographic profile, clinical data.

Instruments of study

1. **Consent form** – This form would be formatted in Hindi language & would be given to patient. The written consent would be taken after screening procedure.
2. **Screening Performa** – The Performa will include all inclusion and exclusion criterions with the Yes / No option before each question.
3. **Socio-demographic profile** – This will

include name, age, sex, address, marital status, education, type of family, monthly income, Family H/O of psychiatric illness and other relevant information of the patient.

4. **Clinical Profile Performa:** This will include detailed history of the psychiatric illness.
5. **Positive and Negative Syndrome Scale Score (PANSS)[28]:** It is a clinician-administered rating scale used to measure severity of psychotic illness, mainly on 3 domains- Positive (7 items), Negative (7 items) and General (16 items).
6. **Young Mania Rating Scale (YMRS)[29]:** The Young Mania Rating Scale (YMRS) is one of the most frequently utilized rating scales to assess manic symptoms. This scale has 11 items and is based on the patient's subjective report of his or her clinical condition over the previous 48 hours.
7. **Neuropsychological tests[30]:**

a) ***Digit Span Test:*** This test measures short term memory and concentration. This test is from the Wechsler adult intelligence scale (1981). It has two parts - digit forward test and Digit backward test. In digit forward test the subject is asked to repeat the digits called by examiner. The maximum number and digits correctly repeated by the subject is the score. In digit backward test the subject is asked to repeat the digits read out by the examiner backward. The maximum number of digits the subject can repeat back and correctly is the score on this test.

b) ***Verbal Learning and Memory Test:*** This is a verbal complex memory test. In this test subject is asked to pay attention to the story that is being read by Examiner. The passage containing 23 bits of information is read out to the subject 4 times. After each trial the subject is asked to recall the passage immediately. In fourth trial the subject is asked to recall after 10 minutes. The total numbers of correct responses on each trial are noted qualitatively, confabulatory responses, perseverance, poor logical memory are elicited on this test.

c) ***Stroop Color Test:*** Susceptibility to interference and inability to inhibit inappropriate automatic responses are assessed more specifically by tasks that provoke competing responses, such as Stroop procedure.

d) ***Trail Making Test:*** This test measures perseverance, shifting attention, response inhibition of vulnerability to interference. It has two parts. On part A - on a sheet containing an irregular assay of 25 numbered circles, the patient draws a line connecting them in a sequence (1, 2, 3 and so on). On Part B numbers are intermixed with letters and must be connected in alternating sequence (1- a, 2-b and so on). Errors of perseverance may lead the patient to connect only numbers or only letters on part B. Performance on the Trail making Test is influenced by IQ and age. On average, high school-educate 20 years old complete part A in approximately in 27 seconds and part B is 59 seconds while similarly educated 60 years old require approximately 36 seconds and 81 seconds respectively. The various neuropsychological variables assessed in this present study are as mentioned below:

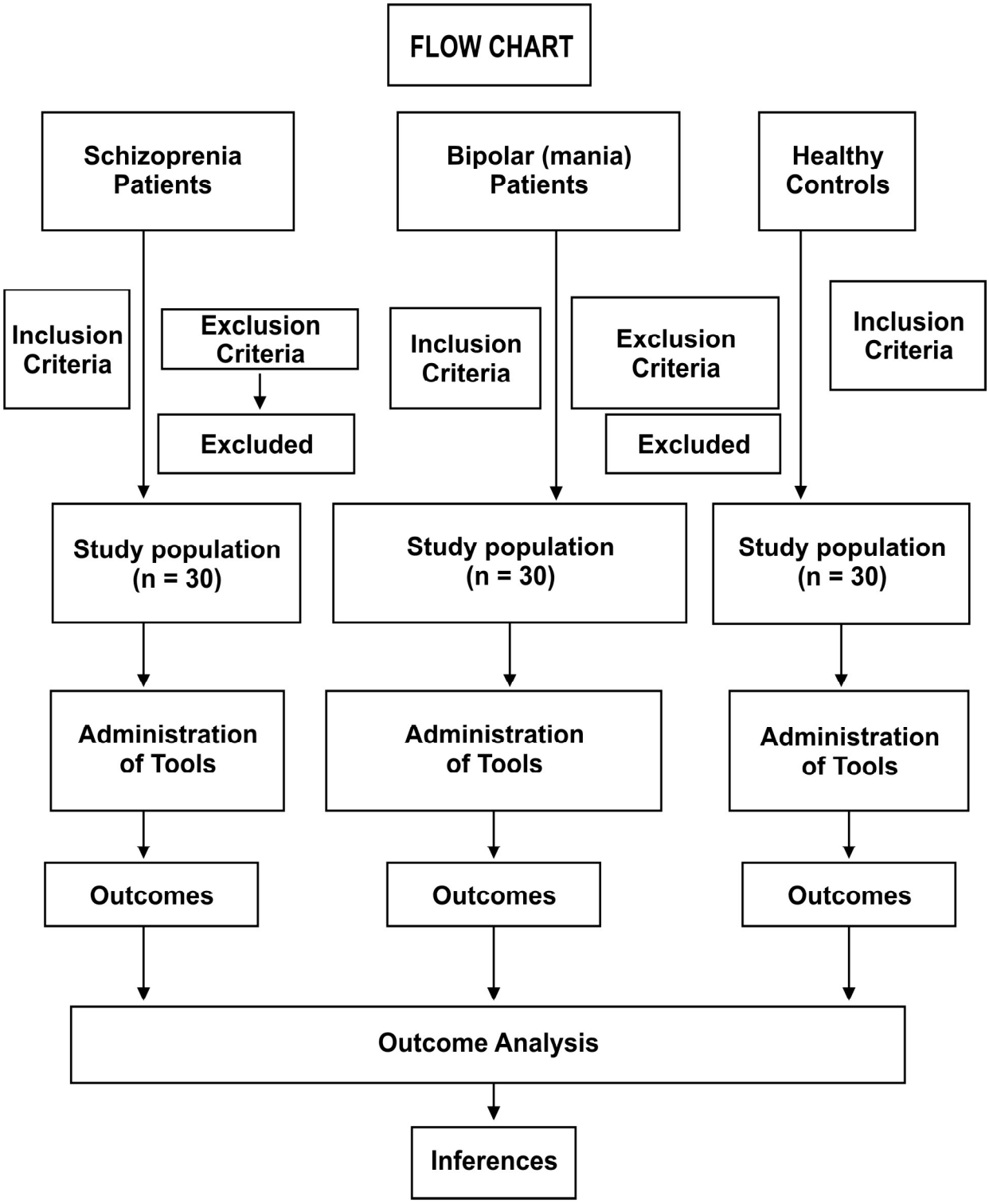
Test	Neuropsychological variable
Forward digit span test	Attention
Backward digit span test	Working memory
Verbal learning and memory test	Verbal learning, immediate recall and delayed recall
Trail making A test	Attention, visuomotor speed. Processing speed
Trail making B test	Attention, visuomotor speed and executive function, Set shifting
Stroop Color Word test	Attention, Processing speed, Response inhibition, and executive function

Statistical Analysis

Statistical analyses were done using computer software (SPSS version 20 and primer). The qualitative data were expressed in proportion and percentages and the quantitative data expressed as mean and standard deviations. The difference in proportion was analysed by using chi square test and the difference between mean values of the three groups was analysed using ANOVA one way test, which were further analysed by using post hoc test

(Tukey test). Correlation analyses were performed using Pearson correlation coefficient (r=at least 0.8 very strong, 0.6 up to 0.8 moderately strong, 0.3 to 0.5 good and <0.3 is poor). Significance level for tests were determined as 95% (P< 0.05). For significance cut off values are as follows '!

- $p > 0.05$ = not significant
- $p < 0.05$ = significant
- $p = 0.05$ = just significant
- $p < 0.01$= highly significant



Results

Table 1 is showing that three groups were comparable to each other according to the socio-demographic data as no statistically significant difference was found among these three groups (P > .05). Majority of the patients were married, Hindu males of rural background belonging to lower socioeconomic class and living in a nuclear family.

Table 2 showing that First episode of Schizo-

Table-1: Comparison of Socio-demographics between groups

Parameter	FES Patients (N=30) Mean (SD)	FEBP Patients (N=30) Mean (SD)	Healthy Controls (N=30) Mean (SD)	P value
Age	56 (7.84)	32.80 (7.29)	32.63 (7.21)	0.815
Gender				
Male	24	25	23	0.812
Female	6	5	7	
Maital Status				
Married	22	20	21	0.853
Unmarried	8	10	9	
Education				
Illiterate	6	8	8	0.990
Primary	16	14	14	
Secondary	4	5	4	
Graduate or P.G	4	3	4	
Religion				
Hindu	25	22	26	0.39
Muslim	5	8	4	
Locality				
Rural	26	26	22	0.149
Urban	4	4	8	
Family Type				
Nuclear	14	18	19	0.214
Nuclear Extended	6	2	2	
Joint	10	10	9	
Socioeconomic Class				
Lower	25	22	26	0.39
Middle	5	8	4	

Table-2: Comparison of the Performance of groups A (Schizophrenia patients), B (Bipolar patients) and C (healthy controls) on tests of cognition

Cognition tests	Group A (N=30)		Group B(N=30)		Group C(N=30)		Significance between groups (p value)
	Mean	SD	Mean	SD	Mean	SD	
Forward digit span test	4.77	.971	5.80	.61	6.53	.507	<0.001
Backward digit span test	3.33	.61	3.20	.55	5.37	.490	<0.001
Verbal learning and memory test VLMT-I	10.57	1.77	9.90	1.605	13.13	1.332	<0.001
Verbal learning and memory test VLMT-20	6.07	.94	7.00	.87	9.87	.776	<0.001
StroopColor Test							
1	30.43	10.36	29.17	9.12	23.17	4.07	0.002
2	52.03	14.03	41.43	9.17	31.43	4.61	<0.001
3	71.17	17.13	53.60	14.00	40.27	2.59	<0.001
Trail making test							
A	116.90	24.39	100.43	13.45	79.47	9.001	<0.001
B	254.17	89.19	192.60	71.21	97.63	11.025	<0.001

phrenia patients performed poorly on all the neurocognitive parameters as compared to both control and bipolar patients.

Table 3 showing that FES patients as compared to healthy control showed significant deficits on tests of cognition (P<0.05). FEBP patients as compared to healthy controls showed significant deficits on tests of cognition (P<0.05). FES patients as compared to FEBP showed significant deficits on tests of cognition (P<0.05) except backward digit span test, VLMT-I and Stroop Color test 1 (P = .619, .237 and .826 respectively).

Table 4 showing that NSS were not significantly correlate with all neurocognitive tests in FEBP patients.

Table-3: Inter group comparison of the groups A (Schizophrenia patients), B (Bipolar patients) and C (healthy controls) on tests of cognition

	Group A VS B		Group A VS C		Group B VS C	
Cognition tests	**Mean diff.**	**P Value**	**Mean diff.**	**P Value**	**Mean diff.**	**P Value**
Forward digit span test	-1.03	<0.001	-1.767	<0.001	-0.73	.001
Backward digit span test	.133	.619	3.20	<0.001	5.37	<0.001
Verbal learning and memory test VLMT-I	.667	.237	-2.56	<0.001	-3.23	<0.001
Verbal learning and memory test VLMT-20	-0.933	<0.001	-3.8	<0.001	-2.87	<0.001
StroopColor test						
1	1.27	.826	7.27	.003	6.00	.017
2	10.60	<0.001	20.60	<0.001	10.00	.001
3	17.56	<0.001	30.90	<0.001	13.33	<0.001
Trail making test						
A	16.47	.001	37.43	<0.001	20.967	<0.001
B	61.57	.001	156.53	.001	94.967	.001

Table-4: Correlation of total NSS scores with cognition tests among Group B

Cognition tests		**Digit span test**		**Verbal learning and memory test**		**Stroopcolor**			**Trail making test**	
		Forward	**Backward**	**VLMT-I**	**VLMT-20**	**1**	**2**	**3**	**A**	**B**
Total NSS score	Pearson Correlation Sig. (2-tailed)	.164 .387	-.290 .121	.091 .634	.219 .246	-.147 .437	-.160 .398	-.010 .960	.056 .767	-.232 .217

Discussion

Major focus of the present study was to assess the Cognition, in first episode of Schizophrenia and first episode of Bipolar Disorder (Mania) patients and compared the findings with healthy control group. The selection criteria were made stringent to minimize the confounding factors in evaluation of cognitive functions. Such confounding factors could have been extremes of age, co-morbid psychiatric or significant physical disorders, significant substance use, use of medications associated with cognitive changes.First, all the three study groups were compared upon socio-demographic profile and then upon tests of cognition.

Socio-demographic profile

Table 1 is showing that three groups were comparable to each other according to the socio-demographic data as no statistically significant difference was found among these three groups. Majority of the patients were married, Hindu males of rural background belonging to lower socioeconomic class and living in a nuclear family. The mean age of the SZ, BP patients and healthy controls were 32.56 (7.84), 32.80 (7.29) and 32.63 (7.21) respectively, which were not significantly different on statistical analysis (P=0.815). There was no statistically significant differences in gender composition of three groups in this present study (P=0.812).There were overall 63 (70%) married, 27 (30%) were unmarried. All three groups did not differ significantly in terms of marital status (p value=.853) and educational status (p=0.99).

Cognition in Schizophrenia and Bipolar Patients

Performance of the three groups and the individual scores of each test in different groups is shown in Table 2 and 3. Table 2 showing that First episode of Schizophrenia patients performed poorly on all the neurocognitive parameters as compared to both control and bipolar patients. Findings of this present study are largely consistent with those of previous Studies,[27] including recent studies from India.[31,32]

The Schizophrenia patients as compared to healthy controls showed significant deficits on tests of cognition. The mean scores on Forward digit span test (4.77 ± 0.97), Backward digit span test (3.33 ± 0.61), Verbal learning and memory test VLMT-1(10.57 ± 1.77), Verbal learning and memory test VLMT-20 (6.07 ± O.94), Trail making A (116.90 ± 24.39), Trail making B test (254.17 ± 89.19), Colorstroop test1 (30.43 ± 10.36), Colorstroop test 2 (52.03 ± 14.03) and Colorstroop test 3 (71.17 ± 17.13)were found statistically significant on comparison with healthy controls.Findings of this present study showed that patients of first episode of schizophrenia had persistent cognitive deficits in all the domains *viz.*, executive functions, sustained attention, Processing speed, visuomotor speed, Response inhibition and working memory. The impaired performance on cognitive tests is the strong evidence for the importance of cognitive deficits in schizophrenia.

A recent study from India compared the cognitive functioning of chronic schizophrenia with normal controls found that people with schizophrenia performed worse on all cognitive tests involving memory, attention and executive function.[33] Poor performance on 1 min verbal delayed recall and 20 min recall suggests a deficit in circuits involving delayed memory. Poor performance by the patients on digit span and immediate recall of sentences suggests a deficit in working memory model as proposed by Baddeley.[34]

Findings of this present study suggest that bipolar disorder patients as compared to healthy controls showed significant deficits on tests of cognition. The mean scores on Forward digit span test (5.80 ± 0.61), Backward digit span test (3.20 ± 0.55), Verbal learning and memory test VLMT-1 (9.90 ± 1.605), Verbal learning and memory test VLMT 20 (7.00 ± O.87), Trail making A (100.43±13.45), Trail making B test (192.6 ± 71.21), Colorstroop test 1 (29.17 ± 9.12), Colorstroop test 2 (41.43 ± 9.17) and Colorstroop test 3 (53.60 ± 14.00) were found statistically significant on comparison with healthy controls.In comparison with controls, FEBP patients were significantly impaired in all cognitive domains and individual tasks investigated.The limited longitudinal neuropsychological studies in BP do not provide evidence of cognitive decline after onset of illness.[35,36] Overall, these findings suggest that most cognitive deficits are already evident in the first manic episode.These findings suggest that most of the cognitive impairment in FEBP, like in chronic samples, is not explainable by the effect of mood symptoms. Findings of present study consistent with previous studies[31,37] which suggested that Patients with bipolar disorder, have neuropsychological impairment in attention, memory and executive functioning.

In this present study when compare FES and FEBP on performance of neuro-psychological tests, FES patients have more cognitive impairment in all cognitive domains, executive functions, sustained attention, Processing speed, visuomotor speed, Response inhibition. These findings are consistent with the previous study,[38] where stable schizophrenia patients demonstrated a generalized cognitive impairment across most domains compared with control subjects, while euthymic bipolar subjects were significantly impaired compared with control subjects only in executive functioning (Wisconsin Card Sorting Task) and verbal memory (California Verbal Learning Test) domains. The degree of impairment was greater in the schizophrenia group compared with the bipolar subjects, in that study as well as in this present study. The deficits highlight the impaired ability for planning, set shifting and problem solving in schizophrenia and bipolar patients, even during their first episode, thus affecting their daily life. The Bipolar patients were less affected than the Schizophrenia patients. The deficit may be associated with a functional neuropathology in the lateral prefrontal cortex. The extra dimensional shifting stage is selectively impaired by lateral prefrontal cortex lesions[39]. More in detail, attention represents the ability to focus on a specific task. When this function is impaired (as we found in FES

and FEBP who had impairment in Forward Digit Test) patient are easily distracted. An impaired working memory, as underlined by the worse results at Digit Backward Test, indicates FES and FEBP patients less able to plan strategies and organize solutions to everyday life problems. Patients showed lower scores than controls in tests of verbal memory (VLMT). The FES and FEBP group retained less words than controls (learning task, trials 1–4), and had greater difficulty recalling information immediately (short recall) and after 20 min (delay recall), in free and cued forms. Moreover, deficits in the recognition task were also found. These results suggest that encoding or consolidation of information as well as retrieval was impaired, which involves frontal and temporo-hippocampal structures. Cognitive impairments and associated deficits reduce the ability to perform everyday living skills (referred to as functional capacity). Cognitive functions also associated with medication adherence and are the strongest predictors of patient's ability to manage medications and contribute to patterns of medication mismanagement that are associated with poor adherence and risk of relapse.

Taken as a whole, these findings might be useful to guide research on specific cognitive domains potentially impaired in FES and FEBP, memory and attention, in particular, given that our results were obtained from a group of young adults. In addition, reported results may be particularly useful in order to assess the epoch of onset of cognitive symptoms in FES and FEBP patients and early identification and treatment of these symptoms are important in order to improve patients' overall prognosis and quality of life.

Limitations

1. Recruitment of patients took place exclu-sively in a psychiatry centre and so are not representative of whole psychiatric population as only moderate to severe cases have chance to be selected.
2. Using exclusively hospitals employees as healthy controls may lead to a selection bias. Then, the ratters were not blind to the groups to witch participants belong.
3. Total duration of illness was not consider in both patients groups, while duration can affects neurocognition and neurological signs.
4. Only 4 tests applied to assess the neurocognition in subjects based on previous study data, a neurocognitive battery would have given more robust results.

Conclusion and future directions

According to the socio-demographic data no significant difference was found among the three study groups.

A poorer neurocognitive performance was found amongst FES and FEBP patients as compared to the healthy controls in all the cognitive domains.

The evidence showing that cognitive deficits are already evident at FEBP suggests that neurodevelopmental factors play an important role in the development of cognitive deficits not only in schizophrenia but also in BP.

Future studies investigating premorbid trajecto-ries of cognitive functions in BP from childhood to first-episode are important to clarify potential differences and similarities of developmental trajectories of BP and schizophrenia.

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Original Article

Attitude of Medical Undergraduates Towards Psychiatry and its Role in Choice of Psychiatry as a P.G. Subject

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ABSTRACT

Introduction*: Most of the people affected by psychiatric disorders that is around 75% in many low-income countries do not have access to the treatment they need (World Health Organization: MHGAP: Mental Health Gap Action Programme 2008). The gap in burden of psychiatric illness and the care that the patients receive can be attributed to stigma attached to psychiatric illnesses or towards patients with psychiatric illnesses which is not only limited to the general public, but also extends to medical professionals.* ***Aim****: To find the attitude of medical undergraduates towards psychiatric illness and psychiatry as a subject and its role in choice of psychiatry as a postgraduate subject.* ***Materials & Methods****: 295 medical undergraduates were included in the study. Two validated scales called "Attitude Towards Psychiatry-30 (ATP-30)" & "Attitude to Mental Illness (AMI)" were used. According to the scores attitude was compared. Anonymity and confidentiality maintained.* ***Results****: Majority of medical Undergraduates had a positive attitude towards psychiatric illness (86.78%) and psychiatry as a subject (55.94%). Females had significantly ($p<0.01$) more positive attitude than males.* ***Conclusion****: There was an increase in positive attitude towards psychiatry as a subject after students were exposed to psychiatric training in their 2nd year which declined in their 3rd year when there were no lectures or clinical posting; the attitude again became more positive during their final year when they had their lectures. Thus, there is a need to allot more hours of teaching to psychiatry and provide standard weightage during undergraduate examination.*

Keywords*: Medical graduates, Attitude, Psychiatry, Choice, Postgraduation.*

Introduction

Most of the people affected by psychiatric disorders that is around 75% in many low-income countries do not have access to the treatment they need (World Health Organization: MHGAP: Mental Health Gap Action Programme 2008).[1] The gap in burden of psychiatric illness and the care that the patients receive can be attributed to stigma attached to psychiatric illnesses or towards patients with psychiatric illnesses which is not only limited to the general public, but also extends to medical professionals.

Medical students undoubtedly represent a considerable part of the professional health workforce, and their attitudes towards psychiatric illnesses play an important role in determining their future choice of psychiatry as a possible career and in dealing with psychiatric complaints in their clinical practice once they enter their profession. Accordingly, they play a critical role in shaping the impact of stigma on the quality of life of the mentally ill.[2]

The attitude of medical students towards psychiatry has been studied worldwide over the past decades, with a negative attitude towards various

aspects in psychiatry being observed in different developed and developing countries, such as the UK,[3,4] France,[5] Australia,[6] Saudi Arabia[7] and Nigeria.[8]

On the other hand, results from other global studies show a positive attitude of psychiatry medical students towards psychiatry in developing and developed countries.[9-11]

Low rates of recruitment to psychiatry have been a cause of concern worldwide, though this trend has shown some signs of reversal in the recent past. On the average, between 2% to 4% of a graduating class take up psychiatry as a career.[12] This problem is much more serious in developing countries such as India, where current rates of psychiatric specialization are short of the needs of the community; moreover, undergraduate training in psychiatry and behavioral sciences in most medical colleges in the country is unsatisfactory.[1] Attitude changes as new knowledge is acquired. Studies have shown that as medical students undergo training in psychiatry, their attitude toward it becomes less negative.[13-16]

In India, the negative Attitude Toward Psychiatry (ATP) is graver, owing to:

- Prevailing stigma toward mental illness in society at large and also in other health care professionals.[17]
- Less scientific, more religious, magical and supernatural etiological and treatment approaches for mental illness, particularly significant in rural areas.[18]
- No standardized weightage to psychiatry as per Medical Council of India guidelines as far as M.B.B.S. exams are considered, which is far below as compared to scenario in other countries like America and Britain[19] where 60–80 hours of teaching followed by around a month of clerkship is mandatory. Hence, an undergraduate doctor from India has only a minimal exposure to clinical psychiatry. This is the only psychiatry learnt (except during 15 days of internship) if the student chooses other specialty apart from psychiatry.

Considering the aforementioned facts, although there is awareness among the medical fraternity but there is relatively little research in Indian context. This study makes an important step towards understanding attitude of students who are the future of healthcare system. Therefore, the study is among initial steps towards better understanding and thereby better implementation of healthcare services to the less privileged psychiatric patients.

Aim and Objectives

Aim:

- To find out and compare the attitude of medical undergraduates towards psychiatry as a subject and psychiatric illness.

Objectives:

1. To find out any gender difference in attitude of medical undergraduates towards psychiatry as a subject and psychiatric illness.
2. To find out and compare the attitude of medical undergraduates with various sociodemographic variables.
3. To find out their attitude in their choice of psychiatry as a post graduate subject.

Material and Methods

Study Area

Department of Psychiatry, Santosh Medical College and Hospital, Ghaziabad, Uttar Pradesh

Study Population

Undergraduate Medical Students Studying in Santosh Medical College.

Study Design

Cross Sectional Study

Sample size

A total of 295 students satisfying the inclusion and exclusion criteria were taken in the study. Medical undergraduates receive a series of 12 lectures and a 2-week clinical attachment of about 42 hours, usually in their second year and a series of 12 lectures in their final year. During this attachment, students work up and present cases to consultants, and are tutored by postgraduate students as well. They also attend clinical discussions of cases worked up by postgraduates. The content of the teaching program is wide ranging.

Inclusion Criteria

- Undergraduate medical students studying in Santosh Medical College and Hospital.

- Those who gave written informed consent.

Exclusion Criteria

- Students not giving written and informed consent for participation in the study.
- Students already suffering from psychiatric illness.
- Students submitting incomplete form.

Methodology

The study was conducted between May 2018 and April 2019, two validated questionnaires were administered to medical undergraduates belonging to 4 batches (total of 295 students). The first-year batch was recruited for the study within 6 months of enrolling for the course, while second year medical students were administered the questionnaires on the first day of their psychiatric clinical attachment. These two batches of students had not received any prior formal exposure to psychiatric theory or practice. The remaining two batches comprised of third year medical students (III prof part 1) and final year (III prof part 2) medical students. The third-year students were approached towards the beginning of their prof when had completed their lectures and 2-week clinical attachment in their second year. The final year students had completed their lecture series on psychiatry and were recruited on the last day of their attachment in psychiatry. All respondents were assured that their responses would not form part of their internal assessments and third and final year students were included in the study after ensuring that they had adequate attendance during their postings and lectures.

The ATP (Attitude Towards Psychiatry-30) questionnaire is a 30-item Likert scale which has been validated for assessing the attitudes of different populations towards psychiatry and was developed by Burra et al. It can be answered in around ten minutes by each participant. The Scale examines the attitude of a participant and his knowledge to various areas of psychiatry. An average score of 90 indicates a neutral attitude towards psychiatry. Score higher than 90 goes in favor of positive attitude but scores less than 90 implies negative attitude towards psychiatry.

The AMI (Attitude to Mental Illness) questionnaire is a 20-item Likert scale that examines attitudes towards the causes, treatment and consequences of psychiatric illness and its impact on individuals and society. The scale was constructed by SP Singh using feedback received from students. A total score of 60 represents a neutral score. Total score greater than 60 goes in favor of positive attitude but scores less than 60 means negative attitude towards psychiatry.

The Semi-structured proforma contained socio-demographic details like name, age, gender, year of education, residential background, family and personal history of psychiatric illnesses, a separate question to evaluate the top three subjects as career choice etc.

Data was collected and tabulated using Microsoft excel. Frequency and percentages were calculated for all quantitative measures. Mean and standard deviation (SD) were calculated for qualitative measures. Chi-square test was used to analyze categorical values. The total scores of male and female students were compared by unpaired t tests after ensuring normality of distribution of scores. p-value of <0.05 considered as statistically significant. Data was analyzed using the Statistical Package for Social Scientists version 24.0 (SPSS Inc.).

Table-Screening of Study Sample

Total number of students screened during the period of study	400
Number of students included in the study	295
Number of students excluded from the study	105
Reason for exclusion	
• Students not giving written and informed consent.	58
• Personal history of Psychiatric disorder.	15
• Students submitting incomplete form	32

Results

Table-1: Sociodemographic Profile of the Study Sample

Variables		Number	Percentage
1) Age (in Years)			
	<=20	96	32.54%
	21-25	194	65.77%
	26-30	5	1.69%
2) Sex			
	Male	137	46.45%
	Female	158	53.55%
3) Socioeconomic Status			
	Upper	136	46.11%
	Upper Middle	159	53.89%

4) Place of Residence			
	Rural	25	8.47%
	Urban	270	91.53%
5) Type of Family			
	Extended Nuclear	9	3.05%
	Joint	58	19.66%
	Nuclear	228	77.29%
6) Family History of Psychiatric Illness			
	Yes	9	3.06%
	No	286	96.94%

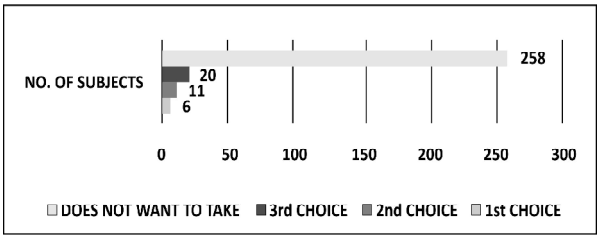

Fig. 1: Distribution of subjects according to inclination to take Psychiatry as a Post Graduate (P.G.) Subject

Table-2: Attitude of Medical Students towards Psychiatric Illness and Psychiatry as a Subject

	Variables	Negative	Neutral	Positive	Total
1)	Attitude towards psychiatric illness				
	AMI score	< 60	= 60	> 60	P > 0.05
	No. of subjects	115 (38.98%)	15 (5.08%)	165 (55.94%)	295 (100%)
2)	Attitude towards psychiatry as a subject				
	ATP-30 score	< 90	= 90	> 90	P > 0.05
	No. of subjects	35 (11.86%)	4 (1.36%)	256 (86.78%)	295 (100%)

Table – 3: Comparison of Medical Students on attitude towards Mental Illness (AMI) Scale

AMI score	1st year MBBS	2nd year MBBS	3rd year MBBS	4th year MBBS	Total 295 (100%)
Negative (<60)	25 (43.86%)	30 (36.59%)	25 (31.65%)	28	80 (36.70%)
Neutral (=60)	8 (14.04%)	4 (4.88%)	7 (8.86%)	3	19 (8.72%)
Positive (>60)	24 (42.11%)	48 (58.54%)	47 (59.49%)	46	119 (54.59%)
Statistical significance	1st year vs 2nd year P>0.05		2nd year vs 3rd year P>0.05	3rd year vs 4th (final) year P>0.05	

P >0.05
X^2= 6.79

Table – 4: Comparison of Medical Students on attitude towards Psychiatry (ATP-30) Scale

ATP-30 score	1st year MBBS	2nd year MBBS	3rd year MBBS	4th year MBBS	Total 295 (100%)
Negative (<90)	8 (14.04%)	5 (6.10%)	13 (16.46%)	9	26 (11.93%)
Neutral (=90)	1 (1.75%)	2 (2.44%)	0 (0.00%)	1	3 (1.38%)
Positive (>90)	48 (84.21%)	75 (91.46%)	66 (83.54%)	67	189 (86.70%)
Statistical significance	1st year vs 2nd year P>0.05		2nd year vs 3rd year P>0.05	3rd year vs 4th (final) year P>0.05	

p>0.05
X^2= 6.07

Table – 5: Distribution of subjects according to inclination to take Psychiatry as a Post Graduate (P.G.) Subject

Inclination to take psychiatry as a P.G. subject	1st choice	2nd choice	3rd choice	Does not want to take up	Total
No. of subjects	6 (2.03%)	11 (3.72%)	20 (6.77%)	258 (87.48%)	295 (100%)

Discussion

The study, "Attitude of Medical Undergraduate and Postgraduate Students Towards Psychiatry" was conducted at Santosh Medical College and Hospital, Ghaziabad (U.P.) in the Department of Psychiatry over a period of 1 year from May 2018 to April 2019.

A total of 295 medical students of Santosh Medical College who gave informed consent and fulfilled the inclusion and exclusion criteria, were included in this study.

Out of the total 295 medical students' majority i.e. 55.94% had Positive attitude towards psychiatric illness (AMI score >60) while 38.98% had a Negative attitude (AMI score <60) while only 5.08% students had a Neutral attitude (AMI score =60) (Table-2). As indicated by individual statements of the Attitude towards Mental Illness (AMI) scale, we found a positive attitude of students towards etiology of psychiatric disorders, their treatment including knowledge of ECT and psychotherapy and the consequences of psychiatric disorders and their treatment. These findings were similar to studies conducted by Tharyan et. al. from India[20] and Reddy et. al. from Malaysia[16] where they also found an overall positive attitude of medical students towards Psychiatric disorders and Psychiatric treatment on AMI scale.

Similarly, we found that out of the total 295 medical students' majority i.e. 86.78% had Positive Attitude to Psychiatry as a Subject (ATP-30 score >90) while 11.86% had a Negative attitude (ATP-30 score <90) while only 1.36% students had a Neutral attitude (ATP-30 score =90) (Table-2). The Attitude to Psychiatry (ATP-30) scale indicate a positive attitude of students towards psychiatric patients their illness, knowledge in psychiatry and towards psychiatrists, their teachings and regarding Psychiatric Institutions. Our findings are supported by other studies[1,10,13,15,16,20-25] who all also found an overall positive attitude of medical students to psychiatric patients, psychiatric illness, psychiatric knowledge, psychiatrists, psychiatric career choice, psychiatric institutions and psychiatric teaching.

The comparison of attitude towards psychiatric illness of 1st, 2nd, 3rd year (III professional part-1)and final year (III professional part-2) MBBS students overall found no significant difference (p>0.05). However, there was increasing Positive attitude (AMI score >60) as 1st year MBBS had only 42.11% students with positive attitude which increased to 58.54% in 2nd year MBBS which further increased to 59.49% during 3rd year MBBS and to 59.74% during final year (Table-3). The findings were similar to studies done by Kuhnigk et. al.[10] and Singer et al.[26] These findings were not in conformation to a study by David et al[24] who found an overall positive attitude and no significant difference in the attitude of medical students in different years but there was still a negative shift from earlier to latter years. Our findings can be correlated with educational and clinical material presented in lectures and with clinical patient interactions; students developed more positive attitudes and intention when they feel they had been encouraged by senior psychiatrists, had direct involvement in patient care, had seen patients respond well to treatment, and had felt influenced or encouraged by someone during the attachment.[27]

Comparison of attitude to psychiatry as a subject among 1st, 2nd, 3rd and final year MBBS students overall found no significant difference (p > 0.05). However, there was increasing Positive attitude (ATP-30 score >90) as 1st year MBBS had only (84.21%) students with positive attitude which increased to (91.46%) in 2nd year MBBS, but then there was significant (<0.05) decline in positive attitude (83.54%) during 3rd year MBBS as compared to 2nd MBBS (Table-4). The attitude again increased positively (87.07) in final year MBBS students who were again exposed to psychiatric training. The findings were similar to a study by David et al[24] from Kenya who found an overall positive attitude and no significant difference in the attitude of medical students in different years but there was still a negative shift from first year to final year. It is possible that several intervening factors could have influenced the change from favorable attitudes toward psychiatry during the earlier years of medical school to less favorable attitudes during the latter years. Negative comments from teachers and professionals in other clinical disciplines, the observed "recovery" of psychiatric patients compared with other medical conditions, and the more scientific and objective approaches such as laboratory investigations used with patients suffering from physical conditions compared to the approaches used with patients with psychiatric conditions may

all create negativity towards psychiatry as a subject in medical students.[24-28] Creed et. al.[3] in their study also found out that during the third year, when students are exposed to general medical and surgical teaching, the overall ATP score changes little. During this time the students seem to feel increasingly positive about the importance of teaching in psychiatry but adopt a more negative view of the efficacy of treatment in psychiatry and of the image of psychiatrists.

The study found no significant difference ($p>0.05$) between the age groups in terms of attitude towards psychiatric illness. However lower percentage of negative attitude (AMI score <60) was found in age group 21-25 years (36.30%) as compared to 42.71% in age group of $\leq$ 20 years and lower percentage of negative attitude (ATP-30 score <90) 7.29% was found in age group $\leq$ 20 years as compared to 15.19% in age group of 21-25 years. These findings are similar to a study conducted by Jihad Abdullah; "attitude of medical students towards psychiatry: a transcultural perspective" conducted in Egypt and Germany they also found no significant difference between the various age groups.[2]

A significant difference ($p<0.05$) in attitude towards psychiatric illness was found with female medical students having more positive attitude (AMI score >60) 62.38% as compared to male medical students with only 48.36% having positive attitude and a significant difference ($p<0.01$) in attitude to psychiatry as a subject with female medical students having more positive attitude (ATP-30 score >90) 90.59% as compared to male medical students with only 77.93% having positive attitude. This conforms with results found in other Indian studies[13,20,22] as well as in other developing countries[29,30] and in developed countries.[10,31] Some studies found no significant differences between attitudes of female and male medical students. These include an Indian study by Mohammed et. al.,[21] as well as studies in other developing countries[24,25] and in developed countries in study by Abdullah in Germany.[2] Contrary results, with male medical students having more positive attitude then female medical students, were reported in studies by Reddy et. al[16] and Parikh et. al.[32]

Significant difference ($p<0.05$) was found in different socioeconomic status with 59.78% medical students belonging to Upper socioeconomic class having positive attitude (AMI Score >60) as compared to 52.19% medical students belonging to Upper Middle socioeconomic class when students were compared for attitude towards psychiatric illness but no significant difference ($p>0.05$) was found when students were compared for attitude to psychiatry as a subject. We could not find any other studies which compared the attitude of medical students towards psychiatric illness and socio-economic status.

The different types of families i.e., nuclear, joint, and extended nuclear, had no significant difference ($p>0.05$) in terms of attitude towards psychiatric illness but a significant difference ($p<0.05$) in this study in terms of attitude to psychiatry as a subject with only 79.78% medical students belonging to Joint family having positive attitude on ATP-30 (score >90) as compared to 81.82% medical students belonging to Extended Nuclear family and 85.40% medical students belonging to Nuclear family. We could not find any other studies which compared the attitude of medical students towards psychiatric illness and type of family.

The Family History of psychiatric illness in medical students did not contribute to any significant difference($p>0.05$) in attitude towards psychiatric illness or attitude towards psychiatry as a subject ($p>0.05$). These findings are similar to a study done by Mutaliket al[22] who also found no difference in attitudes of medical students with or without family history of psychiatric illness. However, other studies[2,10,29,33] observed that having a history of a personal/familial mental illness was associated with a higher likelihood of considering psychiatry as a career. In Indian society, families and friends still play an important part in caring for the psychiatric patient, which may explain the clear positivity in this group and no change in attitude regardless of family history of psychiatric illness.

When the rural and urban medical students were compared only 28.00% medical students belonging to Rural areas had a positive attitude (AMI score >60) as compared to 56.92% medical students belonging to Urban area which was statistically significant ($p<0.05$). These findings were similar to other Indian studies[21,22] which also found the attitude of medical students belonging urban areas to be more positive when compared with students belonging to

rural areas. In contradiction, a study by Jihad Abdullah 2016 in Germany and Egypt[2] found no significant difference in attitudes of medical students belonging to Urban and Rural areas. Our findings can be attributed to lower education levels in rural areas as compared to urban areas and the prevailing stigma towards psychiatric illness in rural areas. No significant difference ($p>0.05$) was found when medical students belonging to rural and urban areas was compared with attitude to psychiatry as a subject.

Despite the positive attitudes towards psychiatry among medical students, the wish to take up psychiatry as a career was not proportionate. This was observed in the direct question about the top three career preferences. In our study, only 6 (2.03%) students mentioned psychiatry as their first career choice, 11 (3.72%) students mentioned psychiatry as their second career choice, while 20 (6.77%) students mentioned psychiatry as their third career choice (Table-5). We observed a good potential wish to go into psychiatry as 12.54% (37/295) of the students intended to choose psychiatry as one of their top three career choices. The findings were better than other studies in India as in a study by John and Kumaraswamy[15] only 3.9% of senior medical students considered psychiatry as their choice for future specialization. Our findings were comparable to a study by Tharyan et. al.[20] where 20.6% stated that they would like to be psychiatrists and to another study by Animesh et al[34] where 11.2% wanted to pursue Psychiatry as a career. In other developing countries studies by David et. al.[24] found 14.3% rating of Psychiatry as a preferred career choice in the Kenyan students and similar study by Laugharne et. al. from Ghana[11] found that about 15% medical students were considering psychiatry as a career option. Whereas in developed countries studies by Jihad Alabdullah Germany[2] found that 12% students wanted to take up psychiatry as a career choice which was similar to our findings, in another study by Balon et. al.[35] where only 2.1% students were sure they will take up psychiatry as a career choice while 17.1% were considering psychiatry now, but were not sure if they will enter it which was similar to our findings. Nonetheless, a preference for psychiatry as a specialty at the time of study does not necessarily translate into eventual choice of psychiatry as a career. As seen in the Israeli study by Abramowitz and Bentov-Gofrit[36] found that even though 32.8% of the students considered residency in psychiatry as a future career, only 6% entered residency in psychiatry. The challenge, which is not unique to India, is how to reduce the dissonance between positive attitude to psychiatry as a specialty, and the actual choice of psychiatry as a career. The fact that psychiatry was a preferred career choice for 12.54% of the students suggests that psychiatry is a significant option for students. In Developing countries, stigma still acts as a hindrance factor for those who wish to recruit into psychiatry, which makes it difficult to translate the positive attitude towards psychiatry into recruiting. Another possible reason may be the lack of opportunities to train in psychiatry in developing countries, including many Arab countries.[11] A recent study in Germany by Baller and Ludwig[33] indicates to the factors that facilities specializing in psychiatry among German students such as flexible working hours, career prospects and a good work–life balance. Other factors that may help are increase in clinical postings, lectures, contact with psychiatric patients and faculty psychiatrists may lead to a positive impact on the majority of students.

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Original Article

Prevalence of Psychiatric Disorders in Burn Patients in a Tertiary Care Hospital

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ABSTRACT

***Background**: Burn injury is a devastating event with long term physical and psychological effects. The psychological aspects have been long neglected in comparison to physical outcomes which have severe impact on health and quality of life of burn patients. This study aims to evaluate the prevalence of psychiatric disorders in burn patients. **Methods**: This clinical study was conducted in Dayanand Medical College and Hospital, Ludhiana on 60 burn patients after taking their informed consent. Patients were evaluated using semi structured proforma and BPRS was applied. The clinical diagnosis was made using ICD-10. The data collected was statistically analysed using percentage, mean, standard deviation and chi-square test. **Results:** In our study psychiatric disorders were present in significant number (60%) of patients. Dual diagnosis (18.4%) was the most common followed by Depression (15%), Substance abuse (15%) Anxiety (8.3%) and PTSD (3.33%). There was significant correlation between the subtype of psychiatric diagnosis with gender of subjects (p=0.001). Statistically Significant difference was observed between psychiatric morbidity and percentage of burn indicating higher morbidity, with higher percentage (p=0.035). **Conclusion:** Significant number of burn patients suffer with psychiatric disorder and this study highlights the importance of the routine psychiatric assessment in all burn patients which will help to address their mental health needs at an early stage of intervention thereby improving their mental health in comprehensive management of burn patients. This will speed up their recovery in burns and assist in post burn rehabilitation.*

***Keywords**: Burn patients, Psychiatric disorders, Depression, Anxiety*

Introduction

Burns are a global public health problem accounting for an estimated 1,80,000 deaths annually. India has an estimated annual burn incidence of 6-7 million which is the second largest group of injuries after road accidents.[1]

Burn scars are cosmetically disfiguring and force the scarred person to deal with an alteration in body image or appearance.

There are many distressing factors that elicit psychological problems in burn patients. Firstly, psychological responses subsequent to the burn accident are not simply due to the burns but because of what the patient has witnessed or experienced during the accident. It elicits psychological responses that become enduring and pathological such as depression and anxiety disorders. Secondly, the treatment of a burn injury is extremely painful. The pain arises from the injury itself and superposed on it by treatment of the burns e.g. wound dressing changes, medical operations, physical and occupational therapy. Depression and anxiety related to pain are often reported. Moreover, patients with burns are isolated to prevent infection which contributes to a sense of social deprivation for the patient which contributes to further mental and emotional disorders. Thirdly, there is significant alteration in body appearance in burn injury from unremarkable

to conspicuous and adjustment is complex as the affected person has to deal personally with the alterations of body but also other people notice and react to disfiguring conditions.[2]

The risk factors for psychiatric morbidity include excessive pain, visibility and percentage of burn, female gender, poor social and financial support, and past history of psychiatric illness.

In the past literature the psychological consequences of sustaining burn injuries from minor to severe are well documented.[3,4]

The Neuropsychiatric manifestations such as anxiety reaction, mild depression, fear of deformity are found to be commonly associated with burns. Potentially pathological reactions during hospitalization which occur in burn patients include depression, anxiety and delirium.[5]

Moderate to severe symptoms of depression have been found in 18-45% of burn survivors, years after their physical injuries have healed.[3,6-8] Other psychiatric disorders prevalent in burn patients are anxiety disorder in 8-10% of patients.[9] PTSD has been seen with frequency varying between 2% and 26%and substance abuse have found in 3-5% of the burn patients admitted to the hospital.[10,11]

It is also recognised that psychological difficulties such as symptoms of PTSD, anxiety and depression can persist for some time after the injury and may develop into chronic problems. It was observed that a significant number of burn patients especially the severely burned had psychological difficulties after the discharge from the hospital.[12] The visibility of the burn was found to be a useful factor in the prediction of psychological outcome.[13]

The extent of burn was found to be associated with psychological impairment. Logistic regression analysis revealed that face disfigurement was significantly associated with the presence of psychiatric morbidity.[14]

The emotional needs of patients with burns have long been overshadowed by the emphasis on survival. Very few similar studies have been done in the past in India. This study aims to fill that lacunae by assessing the prevalence of psychiatric disorders in the burn patient.

Aims and Objectives

To explore the prevalence of psychopathology and psychiatric disorders among burn patients.

Material and Methods

The study was conducted on 60 burn patients between age 15-65 years who were admitted in the Department of Plastic Surgery at Dayanand Medical College and Hospital, Ludhiana, Punjab, a tertiary care hospital to evaluate the prevalence of psychiatric disorders in them. Among 60 burn patients, 30 patients were included with burn upto 40% Total Body Surface Area (TBSA) and 30 patients with burn >40% TBSA to avoid any bias in the outcome of the study on the basis of severity of burn injury.

Those patients who were unable to speak or gesture, were too physically ill to undergo detailed interview and who were physically fit but were not willing to co-operate for detailed interview were excluded.

Instruments

1) Semi structured proforma

It was used to obtain the socio demographic details of the patient and other features encompassed in the same were type of burn, percentage of burn, past history and family history of psychiatric illness and personal history of any substance abuse.

2) Brief Psychiatric Rating Scale (BPRS)

The BPRS, developed by Overall and Gorham, is a very widely used, relatively brief scale that measures major psychotic and non-psychotic symptoms in individuals with a major psychiatric disorder. It is a widely used instrument for evaluating baseline psychopathology, clinical outcome and treatment response with the frequency of repeat administrations at the discretion of the clinical investigator. It is based on the clinician's interview with the patient and observations of the patient's behavior over the previous 2-3 days. The patient's family can also provide the behaviour report.[15]

3) **ICD-10:** The clinical diagnosis was made using ICD-10 by a qualified and experienced psychiatrist.[16]

Statistical analysis

The data collected in respect of various variables was statistically analysed. Percentage, mean and standard deviation were compared. Chi square test was applied.The p value <0.05 was taken significant and statistical analysis was done using Intercooled stata 9.2 licensed software.

Results

There were 83.3% (50/60) males and 16.7% (10/60) females in the study. Majority (58.3%) of the patients in the present study were from 26-45 years age group. (Table 1) Majority of the patients (63.3%) had educational qualification of less than higher secondary and only 8.3% (5/60) patients were illiterate. 85% of the patients were married and 15% were unmarried. (Table 1)

Table-1: Socio demographic details of the patient (n=60)

Character	Category	Number	Percentage
Gender	Male	50	83.3
	Female	10	16.7
Age group (years)	15- 25	7	11.7
	26- 35	23	38.3
	36- 45	12	20
	46- 55	8	13.3
	56- 65	10	16.7
Occupation	House-wife	8	13.3
	Semi-skilled worker	19	31.7
	Skilled worker	18	30
	Shop owner	7	11.7
	Farmer	6	10
	Unemployed	2	3.3
Education	Illiterate	5	8.3
	Below Matriculate	15	25
	Upto Matriculate	23	38.3
	Higher secondary	6	10
	Graduate	10	16.7
	Post Graduate	1	1.7
Type of burn Injury	Thermal Burn	37	61.7
	Electrical Burn	19	31.7
	Chemical Burn	2	3.3
	Others	2	3.3

61.7% of the patients were skilled or semi-skilled workers from peripheral factories of Ludhiana and only 3.3% were unemployed. It could be because of the fact that majority of the males suffered burn injury at their work place (factory or electrical work) due to inadequate safety measures. The most common type of burn was found to be thermal burn, present in 61.7%patients (37/60) followed by electrical burn in 31.7% (19/60). There were only 2 case of chemical burns.Past history of psychiatric illness was present in 35% (21/60) burn patients and family history of psychiatric illness was present only in 3.33% patients. (Table 1)

In the present study we observed psychiatric disorder among 60% (36/60) burn patients, thus highlighting the fact that psychiatric disorders are quite prevalent in burn patients and hence a crucial area of concern. (Figure 1)

The most commonly seen psychiatric morbidity

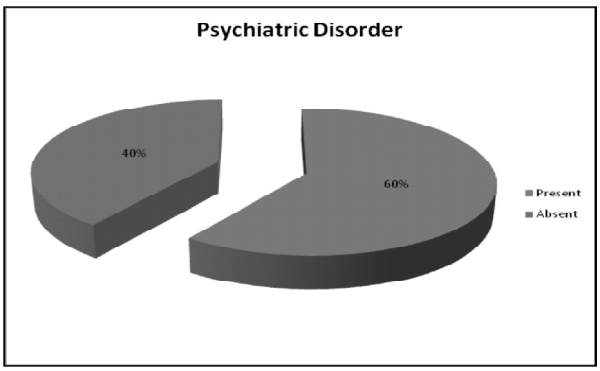

Fig. 1: Distribution of subjects according to psychiatric disorder

in burn patients was Dual diagnosis (18.4%) followed by Substance abuse (15%), Depression in (15%), Anxiety NOS (8.3%)and PTSD (3.3%) (Table 2)

Table-2: Distribution of subjects according to subtype of psychiatric diagnosis (n=60)

S. No.	Psychiatric Diagnosis	Number	Percentage
1	**Depression**	9	15
1.1	Moderate	6	
1.2	Severe	3	
2	**Anxiety NOS**	5	8.3
3	**PTSD**	2	3.3
4	**Substance Abuse**	9	15
4.1	Alcohol dependence	4	
4.2	Opioid dependence	1	
4.3	Alcohol & Tobacco dependence	2	
4.4	Alcohol & Opioid dependence	1	
4.5	Opioid & Tobacco dependence	1	
5	**Dual Diagnosis**	11	18.4
5.1	Depression with Alcohol dependence	3	
5.2	Depression with Alcohol & Tobacco dependence	3	
5.3	Anxiety with Tobacco dependence	1	
5.4	Anxiety with Alcohol & Tobacco dependence	1	
5.5	Anxiety with Opioid & Tobacco dependence	1	
5.6	PTSD with Alcohol dependence	1	
5.7	PTSD with Alcohol & Tobacco dependence	1	
6	**None**	24	40
	Total	60	100

On evaluating the burn patients on BPRS the most common symptoms observed were somatic concern, anxiety and depressive mood seen in all the patients ranging from very mild to extremely severe.

Statistically no significant difference was observed between the subtype of psychiatric diagnosis with age group of subjects (p>0.05). Although non- significant, we observed increased prevalence of psychiatric disorder among middle age subjects.

In the present study we observed significant results (p=0.001) on assessing the relationship of subtype of psychiatric diagnosis with gender of burn patients such that psychiatric illness was present in 70% females (7/10) and 58% males (29/50) which is because of higher reactivity of females towards injury than males.(Table 3)

evaluating the relationship of subtype of psychiatric diagnosis with educational qualification of subjects (p=0.009).Higher prevalence of psychiatric disorder was seen in burn patients with lower education status (Table 4)

No significant difference was obtained betweern subtype of psychiatric diagnosis and type of burn injury (p >0.05). Although higher prevalence of depression and anxiety disorder was seen in patients with thermal burn injury in our study.

Significant difference was observed between psychiatric morbidity and percentage of burn indicating higher morbidity, with higher percentage (p=0.035). It can be seen that 73.3% (22/30) patients with burn more than 40% (>40%) TBSA suffered with psychiatric disorder in comparison to 46.7% (14/30) in patients with burn upto 40% of TBSA. (Table 5)

Table-3: Relationship of subtype of Psychiatric diagnosis with Gender of subjects (n=36)

Psychiatric Diagnosis	Gender		Total	Chi-square value	df	p- value
	Male	Female				
Depression	5	4	9	13.536	4	0.001
Anxiety NOS	4	1	5			
PTSD	0	2	2			
Substance Abuse	9	0	9			
Dual Diagnosis	11	0	11			
Total	**29**	**7**	**36**			

Table-4: Relationship of subtype of Psychiatric diagnosis with educational qualification of subjects (n=36)

	Education qualification									
Psychiatric diagnosis	Illiterate	Below matricu-late	Matricu-late	Higher secondary	Graduate	Post-graduate	Total	Chi-square	Df	p-value
Depression	1	0	7	1	0	0	9	23.79	16	0.009
Anxiety NOS	1	0	2	1	1	0	5			
PTSD	0	0	0	0	2	0	2			
Substance Abuse	0	4	5	0	0	0	9			
Dual Diagnosis	1	5	2	1	2	0	11			
Total	**3**	**9**	**16**	**3**	**5**	**0**	**36**			

Depression was seen more in females with prevalence of 57.14% (4/7) and 17.24% (5/29) in males. Substance abuse and dual diagnosis was exclusively seen in males, with most common being alcohol dependence which is more prevalent in males due to the social culture. (Table 3)

Statistically significant results were obtained on

Prevalence of depression, anxiety and PTSD was higher in patients with > 40% TBSA. Although on statistical analysis no significant results were obtained while comparing the percentage of burn (TBSA) with subtype of psychiatric diagnosis.

Discussion

The present study was conducted on 60 burn

Table-5: Relationship of psychiatric disorder with percentage of burn (TBSA) (n=60)

Psychiatric disorder	Percentage of burn (TBSA)		Total	Chi-square value	df	p- value
	Upto 40 percent TBSA	More than 40 percent TBSA				
Present	14	22	36	4.444	1	0.035
Absent	16	8	24			
Total	**30**	**30**	**60**			

patients admitted in Department of Plastic surgery, Dayanand Medical College and hospital, a tertiary care hospital in Ludhiana. On evaluating it was seen that 60% (36/60) had significant psychiatric morbidity that resonates with the prevalence rates of previous studies varying between 28-75%.[17-19] It can be explained as the burn survivors struggle with the physical pain and the limitations due to their injuries. As a result, they experience a host of emotional disorders like depression, anxiety, PTSD and substance abuse. During the acute phase presence of components of stress like pain, itch and grief exacerbates the psychiatric disorder. Low self esteem, shame proneness and appearance consciousness are also important mediators of post burn psychiatric disorder. Madianos et al[14] and Manzoor et al[4] reported psychiatric co-morbidity in approx 45% of burn patients.[4] (Figure 1)

The most commonly observed psychiatric morbidity was Dual diagnosis (18.4%). Hudson et al also reported the prevalence of dual diagnosis in 40% burn patients.[20] This is especially prevalent in males who had past history of substance abuse who after the burn injury due to poor adjustment were prone to suffer with depression and anxiety along with continuation of substance abuse. (Table 2)

Even after the discharge from the hospital those patients who had past history of substance abuse due to poor adjustment and bad coping strategies continued their abuse of psychoactive substances. Substance abuse was seen in 15% (9/60) burn patients, with most common being alcohol dependence (6.7%). Similar findings were reported by Malik et al [21] and Dyster-Aas et al.[22] (Table 2)

Moderate to severe depression was seen in 15% burn patients, which can be well understood on the pretext of undergoing significant stress due to distortion in appearance and disfigurement, functional impairment, social isolation, associated pain and restricted movement. Results from the previous studies observed moderate to severe symptoms of depression in 15–45% of burn survivors.[3,6-8,23,24] (Table 2)

Anxiety was seen in 8.3% (5/60) of the subjects in our study where the potential factors that contributed to post burn anxiety were fear of disfigurement, worries about the future and return to work along with high cost of treatment. (Table 2)

No statistically significant difference was obtained between psychiatry morbidity and age group of subjects although 61.11% patients (22/36) suffering with psychiatric disorder belonged to 26-45 years age group ($p>0.05$).

Statistically significantly higher prevalence of psychiatric illness was found among female burn patients that is because of their higher reactivity towards injuries. Women are also more vulnerable to the consequences of disfigurement like social shyness, an acceptance within the family of dependence so there is increased prevalence of psychiatric disorders among them.Women are poorly entitled to social support, have poor emotional and avoidant coping styles which negatively affects adjustment after burn injury.

Our results were in consonance with the findings of Manzoor et al [4]and Palmu et al.[25] (Table 3)

In our study depression was seen more in females with prevalence of 57.14% (4/7) and 17.24% (5/29) in males. The findings were in concordance to findings of Fukunishi et al[26] and Wiechman et al[27] who reported depression more often in females.

Anxiety disorder and PTSD were more common in young females which was in consonance to findings of Manzoor et al.[4]

Substance abuse and dual diagnosis was exclusively seen in males, with most common being alcohol dependence which is more prevalent in males due to the social culture. (Table 3)

We found prevalence of psychiatric disorder in illiterates and in subjects with educational status upto

higher secondary was 60% (3/5) and 63.6% (28/44) respectively after burn injury. Whereas in the patients with higher educational status (graduate and post-graduate) the prevalence of psychiatric disorder was 45.5% (5/11), which was significant on statistical analysis. This can be explained because of the fact that the patients with higher educational status are less likely to stigmatize due to enhanced skills, better coping strategies like emotional support, optimism/problem solving which lead to better mental health than the less educated burn survivors as observed in our study significant difference was seen based on educational qualification of subjects (p=0.009). (Table 4)

All types of burn injuries significantly affect the patient with alteration in body appearance and limitations in physical functioning being an independent risk factor for psychiatric disorder. Hence no statistically significant difference was obtained in our study with the type of burn injury (p >0.05). Depression and anxiety disorder was seen in patients with thermal burn injury in our study. Similar findings were reported by Manzoor et al who observed that GAD and major depression were significantly seen more in patients with flame burns.[4]

Statistically significant difference (p=0.035) was obtained on comparing the relationship of psychiatric disorder with the percentage of burn (TBSA). It was observed that 73.3% (22/30) patients with burn more than 40% (>40%) TBSA had psychopathology in comparison to prevalence of 46.7% (14/30) in patients with burn upto 40% of TBSA. It can be explained due to the fact that massive burn injury alters both physical appearance and functional ability of the burned patients. This changed body image necessitates concomitant alteration of the internal self-image influencing feelings of self-esteem. Thus it took longer for the disfigured patient to cope with and overcome the psychiatric consequences resulting in higher prevalence of psychiatric disorder in patients with burn injury involving > 40% TBSA. Madianos et al also reported that the extent of burns was found to be significantly associated with psychological impairment.[14] Prevalence of depression, anxiety and PTSD was higher in patients with > 40% TBSA. Although on statistical analysis no significant results were obtained while comparing the percentage of burn (TBSA) with subtype of psychiatric diagnosis. These findings were in consonance with the results of Jain et al who found no significant correlation between anxiety and depression and TBSA involved in burn injury.[3] (Table 5)

Limitations

1. This study is limited by a modest sample size.
2. As the study was conducted in a tertiary care hospital in Ludhiana, there may be a regional bias since this study included patients predominantly from Northern India.

Conclusion

By analysing the burn patients, we observed that significant number of burn patients suffer with psychiatric disorder because the burn survivors struggle with the physical pain and alterations in both physical appearance and functional ability such that it takes longer for the disfigured patient to overcome the psychiatric consequences like depression, anxiety, PTSD and substance abuse. Quality of life of these burn patients post treatment is significantly affected. According to our results, relatively early analysis of psychiatric comorbidity should be done in the course of treatment so as to prevent the chronification of comorbid psychiatric disorders. The routine psychiatric assessment in all burn patients will help to address their mental health needs at an early stage of intervention thereby improving their mental health in comprehensive management of burn patients.

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Original Article

A Cross-sectional Study on Sexual Dysfunction in Females with Depression

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ABSTRACT

Background: *Sexual dysfunctions are fairly common among the general population affecting 43% of women and 31% of men. Even though sexual dysfunctions are more common among the females, they are rarely reported due to attached stigma and shame.* ***Aim****: To assess the prevalence and severity of sexual dysfunction in a clinical sample of female patients with depression.* ***Material and Methods:*** *95 female patients diagnosed with depression according to ICD-10 criteria were included in our study. HAM-D17 scale for severity of depression and FSFI for severity and subtype of sexual dysfunction scales were applied on them after informed consent and acquiring socio-demographic details.* ***Results****: Out of total 95 female subjects of depression 65.2% patients reported of sexual dysfunction and most common sub type was found to be lubrication dysfunction (87.1%) followed by anorgasmia (64.5%) and pain (51.6%). Sexual dysfunction was significantly associated with higher age, urban background and education. Clinically, it was significantly associated with duration of current episode, number of episodes and severity of depression.* ***Conclusion:*** *Sexual dysfunction appears to be a common entity among female patients of depression. Depression not only leads to worsening of sexual dysfunction but also deteriorates the overall well-being of the individual. The condition if addressed properly improves the prognosis and quality of life in such patients.*

Keywords: *Sexual Dysfunction, Depression, Female patients.*

Introduction

Good sexual health is an integral part of well-being of an individual. Proper sexual functioning is one of the important components of quality of life and of maintaining satisfying interpersonal relationships.[1]

Sexual dysfunctions can be vaguely defined as impairments in the sexual response cycle or the presence of pain associated with sexual intercourse.[2] They are fairly common among the general population affecting 43% of women and 31% of men.[1] Even though sexual dysfunctions are more common among the females, they are rarely reported due to attached stigma and shame.

Female sexual dysfunctions (FSD) can take the form of hypoactive sexual desire disorder, sexual aversion disorder, female sexual arousal disorder, female orgasmic disorder, dyspareunia, and vaginismus.[3] It is a multifactorial and a multi-dimensional condition with biological, psychological and interpersonal determinants.[2]

A review by Basson et al reported that impairment of mental health is the most important risk factor for female sexual dysfunction. Women with psychiatric illness, despite their frequent sexual difficulties, consider sexuality to be an important aspect of their quality of life. Antidepressant and antipsychotic medication, the neurobiology and symptoms of the illness, past trauma, difficulties in establishing relationships and stigmatization can all contribute to sexual dysfunction.[4]

Depression is one of the most common

psychiatric illnesses to be associated with poor sexual functioning. The prospective Zurich cohort study showed that the prevalence of sexual problems in depressed subjects was approximately twice that in controls.[5]

Various studies both in India and western countries reported sexual dysfunction as a part of depressive psychopathology in females. Abhivant et al reported a high prevalence of FSD (67.34%) with all components of sexual functioning being affected in depression.[3] Similarly, Reema Nair et al also found a fairly high prevalence of FSD in depressed females (90%) regardless of type and severity of depression.[2] Roy et al in their study found that female sexual dysfunction was 70.3% in the study group when compared to 43.3% in the control group population.[6]

Moreover, depressed female patients have shown 2-3 times more sexual dysfunction than non - depressed individuals.[1,3] Low sexual desire is strongly linked to depression both as a part of symptomatology and with antidepressants. Lack of subjective arousal and pleasure are commonly linked with somatic symptoms of depression. The anhedonia of depression has been shown to be particularly linked to blunting of desire and response as well as to the risk of sexual pain.[7]

Many previous studies have glanced into sexual dysfunction in depression, but those reported from India are scanty. Despite high prevalence, sexual dysfunction in patients with depression is often neglected, unexplored and unattended in routine clinical practice. Sexual dysfunction in depression, although more common in females, is under-reported owing to the social boundaries and lack of proper sex education. Therefore, we decided to undertake this study and attempted to find the association between sexual dysfunction and depression in the female population.

Materials and Methods

This cross-sectional study was conducted in the Department of Psychiatry, Era's Lucknow Medical College, Lucknow, over 18 months after obtaining approval from the Institute's ethical committee. 95 female patients with a diagnosis of depression according to the International Classification of Diseases 10th revision (ICD-10) from both OPD and IPD were recruited in the study. All female patients fulfilling the inclusion and exclusion criteria and giving informed consent were assigned to the study group. They were subjected to a detailed psychiatric interview and assessed on different scales.

Socio-demographic and clinical data regarding depression and sexual dysfunction were recorded in a semi-structured proforma designed for this study. ICD-10 criteria were used to diagnose Depression and sexual dysfunction. The severity of Depression was assessed using HAM-D scale. Subtypes and severity of sexual dysfunction were quantified using FSFI. The data so obtained was statistically analyzed by SPSS 10 software.

Inclusion criteria of patients

1. Age: 25-45 years.
2. Female patients diagnosed as a case of Depression according to guidelines laid down by ICD-10.
3. Drug naïve patients for the current episode
4. Patients giving the informed consent.

Exclusion criteria of patients

1. Patients with other co-morbid psychiatric illness or substance use
2. Patients with co-morbid chronic medical and surgical illness
3. Patients diagnosed with mental retardation
4. Pregnant and lactating females
5. Patients on any drugs known to cause sexual dysfunction

Assessment Tools

The following tools were used in this study for proper assessment and analysis of the results.

(a) ***ICD-10:*** ICD-10 Classification of mental and behavioral disorders (clinical description and diagnostic guidelines) has been designed by World Health Organization Geneva in 2006 for diagnosis of psychiatric disorders.[8]

(b) ***Hamilton Depression Rating Scale (HAM –D):*** is the most widely used clinician-administered depression assessment scale. The original version contains 17 items (HDRS-17) pertaining to symptoms of depression experienced over the past week with emphasis on melancholic and physical symptoms of depression. The scoring was done as per the severity with 0-7 being

normal; 8-16 mild; 17-23 moderate; ≥ 24 severe depression. Total scores can range between 0-52.[9]

(c) ***The Female Sexual Functioning Index (FSFI)*** is a brief, multi-dimensional, self-reported instrument to assess key domains of sexual function in females. It assesses 6 domains of sexual function; desire, physical arousal – sensation, physical arousal – lubrication, orgasm, satisfaction, pain. The total score ranges from 2-36. The individual domain scores and total score of FSFI were recorded.[10]

Results

Table-1: Socio-Demographicand Clinical Characteristics of Subjects

Socio-Demographic Characteristics	Number
Age	
>35yrs	53(55.8%)
<35yrs	42(44.2%
Education	
Uneducated	26(27.3%)
Educated	69(72.6%)
Background	
Rural	36(37.9%)
Urban	59(62.1%)
Family Income	
<15000 Rs per month	65(68.4%)
>15000 Rs per month	30(31.6%)
Religion	
Muslim	57(60%)
Hindu	38(40%)
Others	0(0%)
Clinical Characteristics	
Mean duration of current episode	4.0 Months ±1.8
No. of Episodes	
Single Episode	41(43.1%)
2 or more episodes	54(56.8%)
HAM-D Scores	
Mild	27(28.4%)
Moderate	19(20%)
Severe	49(51.6%)

Table 1 illustrates the socio-demographic and clinical profile of the study subjects. The mean age of the patients was 35 years. Out of the 95 patients in our study sample, majority belonged to age group more than 35 years (55.8%), were educated (72.6%), belonged to the urban background (62.1%), had family income <15000 Rs. per month (68.4%) and were Muslims (60%). The mean duration of illness in current episode was 4.0 months ± 1.8. Majority of the patients had more than one episode of depression (56.8%) and severe depression on HAM-D scores (51.6%).

Table-2: Sexual Dysfunction as per FSFI Scores

Variable	Number (%)
Prevalence	62(65.2%)
Single domain affected	28(45.1%)
Multiple domains affected	34(54.8%)
Type of Variables	
Desire	20(32.2%)
Arousal	28(45.1%)
Lubrication	54(87.1%)
Orgasm	40(64.5%)
Satisfaction	29(46.7%)
Pain	32(51.6%)
Mean FSFI Score	19.2

Table 2 illustrates Prevalence of sexual dysfunction which was found to be 65.2% (n=62). Majority (54.8%) complained of sexual dysfunction in multiple domains and 45.1% subjects reported of sexual dysfunction in a single domain. As per FSFI Scores, highest prevalence was seen for lubrication dysfunction (87.1%), followed by an orgasmia (64.5%) and pain (51.6%). Dysfunction in satisfaction, arousal and desire were seen in 46.7%, 45.1% and 32.2% subjects respectively. Mean FSFI score was 19.2.

Table 3 shows the association of sexual dysfunction with various socio-demographic characteristics and clinical variables of our study population. Among socio-demographic variables, a significant association of sexual dysfunction was found with three socio-demographic variables, that is, age, education and background. Sexual dysfunction was significantly higher (p value = 0.041) with advancing age and in subjects > 35 years. Sexual dysfunction was also significantly higher (p value =0.003) in patients who were educated (72.6%) than uneducated (27.3%) and in patients who belonged to urban background (p value = 0.012).

No significant association was found between sexual dysfunction and religion and family income per month in our study.

Longer duration of illness and severity of depression appeared to be significantly associated with sexual dysfunction. The mean duration of current episode was significantly higher (p=0.002)

Table-3: Association of Socio-Demographic and Clinical Characteristics with Sexual Dysfunction

Variable	Sexual Dysfunction Present (N=62)	Sexual Dysfunction Absent (N=33)	P-value
Age			0.041
>35yrs	42(44.2%)	11(11.5%)	
<35yrs	28(29.4%)	14(14.7%)	
Education			0.003
Uneducated	15(15.7%)	11(11.5%)	
Educated	47(49.5%)	22(23.1%)	
Background			0.012
Rural	23(24.2%)	13(13.7%)	
Urban	39(41.1%)	20(21.1%)	
Religion			0.054
Hindu	20(21.1%)	18(18.9%)	
Muslim	42(44.2%)	15(15.8%)	
Others	0		
Family Income			0.054
<15000	33(34.7%)	32(33.7%)	
>15000	14(14.7%)	16(16.8%)	
Mean duration of illness in current episode	4.4 months ±1.4	3.6 months ± 2.3	0.002
No. of Episodes			0.004
Single episode	27(28.4%)	14(14.7%)	
2 or more episodes	35(36.8%)	19(20%)	
HAM-D Scores			0.044
Mild	18(18.9%)	9(9.5%)	
Moderate	10(10.5%)	9(9.5%)	
Severe	34(35.8%)	15(15.8%)	

in patients with sexual dysfunction (4.4 months ± 1.4) when compared to patients without sexual dysfunction (3.6 months ± 2.3). A strong association was found between the number of episodes of depression with sexual dysfunction (p value = 0.004). Sexual dysfunction was significantly higher in patients with multiple episodes of depression (56.8%) when compared to patients with single episode of depression (43.1%). Moreover, sexual dysfunction was also significantly higher (p value =0.044) in the subjects with severe HAM-D scores (51.6%).

Discussion

In our study 65.2% of the patients with depression reported of one or more sexual dysfunction, which is comparable with previous studies where the prevalence has ranged from 40-90%.[2,3,6]

Abhivant et al also found a prevalence of 67.34% sexual dysfunction in their study.[3] However, in another study by Reema Nair et al a higher prevalence of 90% sexual dysfunction was observed in their depressed subjects.[2] Similarly, Mahmoud et al also reported a higher prevalence with 77.6% of their study subjects complaining of sexual dysfunction in one or more domains.[11]

The most common sexual dysfunction reported by our study group was in the domain of lubrication, which was present in 87.1% of the patients, followed by anorgasmia in 64.5% and pain in 51.6% of patients. Dysfunction in satisfaction, arousal and desire were seen in 46.7%, 45.1% and 32.2% subjects respectively.

Abhivant et. al. also revealed similar results, who found majority patients complaining of lubrication dysfunction followed by anorgasmia.[3] Another study by Shah et al found that majority of the depressed patients had complains of loss of libido.[12] This difference in the results could be attributed to the use of ASEX scale in their study thereby leading to varying results.

When compared to the western data, studies by Frohlich and Meston found that depressive symptoms reduced the desire for sexual relationships causing difficulties in arousal, lubrication, satisfaction and orgasm.[13]

In our study, significant association was found between various socio-demographic characteristics and clinical variables of our study population and sexual dysfunction. Higher age, education and urban

background were significantly associated with sexual dysfunction.

Patients of higher age group had significantly more sexual dysfunction compared to younger age group (p value = 0.041)

The above findings of our study could be due to the synergistic effects of both depression and hormonal changes in females with age thereby leading to worsening of sexual functioning.

In contrast to our study, Roy et al observed that there was an early age of onset of female sexual dysfunction in women with depression when compared to the control group, and the dysfunction started as early as 18 years of age.[6]

Our study also found a strong co-relation between sexual dysfunction with education and background. Patients who were educated reported of significantly highersexual dysfunction when compared to the patients who were uneducated (p value = 0.003). Similarly, sexual dysfunction was higher (p value = 0.012) in females belonging to urban background than rural background.

This can be fairly well explained by the fact that better education leads to better self-awareness and lesser stigma associated with seeking professional psychiatric help for sex related symptoms. Educated women are more open to discuss their sexual problems compared to uneducated women who prefer either to stay quiet or discuss these problems with older women of their house, who in turn advise them to either tolerate the ongoing dysfunction or provide age old house hold remedies for temporary symptomatic relief. On the other hand, females in urban areas have better access to education, information and professional help and are more comfortable seeking help and talking about their sexual problems.

Similar to our study, Laumann et al. in their study, also found that sexual dysfunction is substantially higher (p value = 0.003) with advancing age in depression in both males and females and in educated patients.[14]

However, other Indian studies found no significant association of sexual dysfunction with any socio-demographic variables.[2,3]

In clinical variables, severity of depression, higher number of episodes and longer duration of illness appeared to be significantly associated with sexual dysfunction.

Patients with sexual dysfunction had a significantly higher grade of depression (p value =0.044) when compared to patients without sexual dysfunction.

It is a well-documented fact that feelings of anhedonia, low mood, decreased self-esteem, low confidence and negative views about self in depression lead to decrease in pleasure seeking activities including sexual drive. With increasing severity of depression the psycho-social and biological functioning deteriorates, thereby leading to worsening of sexual dysfunction. Furthermore, depression can produce hormonal changes thereby leading to worsening of sexual functioning in affected individuals.

Abhivant et al., in their study also found significant association between depression and sexual dysfunction. They reported that low self-esteem, feelings of hopelessness and worthlessness and negative views about self and surroundings lead to impaired sexual life.[3] Thakurta et al. yielded similar results in their study.[15]

Another strong association was seen between the number of episodes and duration of depression with sexual dysfunction. Patients with sexual dysfunction had a significantly longer duration of current episode (pvalue = 0.002) and higher number of episodes of depression (p value = 0.004) when compared to patients without sexual dysfunction.

Our findings corroborate the literature in text books and previous studies that severity of female sexual dysfunction increases with increasing duration of illness and also worsens with each recurrent episode.[1-3,11,14]

Longer duration of depression will lead to more impairment in all the domains of depression including sexual functioning. With each recurring episode, there is a worsening of symptoms, duration of treatment is longer and more time is required to reach the pre-morbid state. Moreover, many patients with recurrent episodes do not reach euthymia in between episodes leading to higher chances of significant sexual dysfunction.

Limitations

The major limitations of the study are the small sample size, absence of a control group and selection bias which prevents the findings from being generalized to the entire population. Hence, future

studies should focus on larger sample size and community-based sample.

Conclusion

This study highlights the widespread prevalence of sexual dysfunction with almost all domains of sexual functioning being affected in depression. There is enough literature present that suggests that depression worsens sexual functioning, therefore, it needs to be assessed in all patients who are diagnosed with depression. This condition when addressed properly will not only improve prognosis, but will also enhance the overall well-being of the individual.

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Original Article

Burden of Care and Quality of Life of Caregivers to Patients with Obsessive Compulsive Disorder (OCD): A Cross-Sectional Study in Central India

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ABSTRACT

Introduction*: Obsessive compulsive disorder (OCD) is a psychiatric condition that carries a high burden of care. This burden of care also affects the quality of life of caregivers.* ***Method****: A total of 50 caregivers of patients with OCD, providing care to the patient for past 6 months or more were enrolled in the study. Demographic profile of caregivers, duration of illness, physical and psychiatric comorbidity in OCD patient was noted. All the caregivers were assessed for burden of care using Burden Assessment Scale. Quality of life of caregivers was assessed using WHO-BREF QoL scale for the domains physical health, psychological, social and environment. Data was analyzed using SPSS Version 21.0. Analysis of variance was used to compare the data.* ***Results****: Age of caregivers ranged from 18 to 70 years. Mean age of caregivers was 38.32 ± 14.28 years. Majority were females (72%). Half the caregivers were spouse followed by parents (28%), offspring (12%) and siblings (10%) respectively. Mean BAS was 86.50 ± 12.39. Mean quality of life scores ranged from 34.42 ± 22.49 (Psychological domain) to 45.08 ± 13.57 (Environment domain). Total mean QoL score was 168.92 ± 64.57. Caregiver burden and quality of life was significantly associated with caregiver gender, relationship with patient, education and presence of other psychiatric comorbidity in OCD patients. QoL was also affected by duration of illness of patients. Caregiver burden was also affected by family type. Caregiver burden was also significantly and negatively correlated with overall quality of life as well as for all the four QoL domains.* ***Discussion****: OCD caregivers have a high burden of care and a low quality of life. The burden of care adversely affected the quality of life of caregivers.*

Key words*: Caregiver burden, Obsessive compulsive disorder, Quality of life, WHO-BREF, Burden Assessment Scale.*

Introduction

Obsessive Compulsive Disorder (OCD) is a chronic anxiety disorder that is marked by obsessions *viz*. recurrent and persistent thoughts, images, impulses and compulsions *viz*. repetitive behaviours that include hand washing, checking, ordering or acts.[1] This obsessive and compulsive behavior results in a marked distress. It is recognized as one of the most debilitating disorders.[2,3] Globally, 2.5 to 3.9% persons are affected by OCD during their lifetime.[4-7] OCD is often marked with presence of other psychiatric comorbidities as well as increased risk for suicide.[8-10] It is reported that nearly 90% of OCD patients have at least one other psychiatric diagnosis too.[11]

In view of its complexity, OCD patients require an intense caregiving. However, caregiving to OCD patients is quite challenging and in view of the time consuming and disruptive rituals results into the impairment of daily life activities of both the patient as well as caregiver. This in turn is responsible for deterioration of relationships, stress, frustration,

anxiety and anger amongst the caregivers.[12] Families and caregivers of OCD patients in view of the increased burden of care are often at a state of social isolation and distress owing to reduced social and economic activities as well as poor ability to look after their physical and emotional health which in turn is responsible for a deterioration in their quality of life.[13-17] Although, the fall in quality of life of caregivers could be influenced by their demographic profile, environment and social support, yet it seems to be mainly affected by the burden of care.

Hence, the present study was carried out with an aim to measure the burden of care and quality of life of caregivers of OCD patients and to examine their mutual relationship as well as their association with caregiver's demographics and OCD patient's characteristics at a tertiary care teaching hospital in Central India.

Material and Method

The present study was carried out at Department of Psychiatry, Gajra Raja Medical College, Gwalior among caregivers of patients of OCD. A total of 50 Patients above 18 years age who had been diagnosed with OCD according to International Classification of Diseases, Revision 10 (ICD-10) Diagnostic Criteria for research (DCR) with a minimum duration of > 6 month of illness were included.

A total of 50 primary caregivers of above patients with > 6 months' known history of OCD were enrolled in the study. After obtaining an informed consent, demographic details like age, gender, occupation, education and family type was noted. Details regarding duration of OCD in patient, presence of any physical illness or comorbid psychiatric condition among OCD patients was also noted.

Caregivers' burden was assessed using Burden Assessment Schedule,[18] a structured instrument with forty items. Each item was rated on a three-point Likert scale indicating no to extreme burden of care, thus overall score of 40 indicated no burden of care while score of 120 indicated maximum possible burden of care. Quality of life of caregivers was assessed using WHO QoL-BREF, which is a 26-item generic questionnaire that collects subjective responses of respondents on different life conditions. The response options range from 1 (very dissatisfactory) to 5 (very satisfactory) based on Likert scale. The 26-items of the questionnaire comprise four domains, *viz.*, physical health (seven items), psychological health (six items), social relations (three items), and environment (eight items). It is a reliable and validated questionnaire for assessment of quality of life.[19] In view of different number of items, each domain was converted proportionally on a 100-point scale. Overall quality of life was measured by summation of scores of all the four domains on 100-point scale.

Data Analysis: Data so obtained was fed into computer using MS-Excel 2013 software. Data was analyzed using Statistical Package for Social Sciences, version 21.0. Analysis of variance and Pearson's correlation coefficient were used for the analysis of data. Associations were considered significant on a 'p' value less than 0.05.

Results

Age of caregivers ranged from 18 to 70 years. Mean age of caregivers was 38.32 ± 14.28 years. Majority were females (72%). Half the caregivers were spouse followed by parents (28%), offspring (12%) and siblings (10%) respectively. Maximum (28%) caregivers were illiterate followed by those educated upto graduation and above (24%), middle school (22%), high school (12%), primary (28%) and secondary school (6%) respectively. Majority were housewives/unemployed/students (52%), followed by farmer/unskilled workers (22%), skilled workers/shopkeepers/businessmen (14%) and executive/teacher (12%) respectively. A total of 27 (54%) were from joint families while remaining 23 (46%) were from nuclear families. Majority of caregivers were looking after the patients who had OCD for >5 years (72%) followed by those having OCD for 1-5 years (20%) and <1 year (8%) respectively. Presence of comorbid physical condition (*viz.* diabetes, infertility, tuberculosis, *etc.*) was reported in 5 (10%) OCD patients. More than two third (68%) OCD patients had some other psychiatric condition too (depression, anxiety, adjustment disorder, dysthymia, insomnia, *etc.*) (Table 1).

Burden Assessment scores ranged from 55 to 108 with a mean of 86.50 ± 12.39. Mean quality of life scores ranged from 34.42 ± 22.49 (Psychological domain) to 45.08 ± 13.57 (Environment domain). Total mean QoL score was 168.92 ± 64.57 (Table 2).

Table-1: Demographic Characteristics of Caregivers and Patient Profile

S No.	Characteristic	Statistic
1.	Mean Age of caregiver ± SD (Range) years	38.32 ± 14.28 (18-70)
2.	Caregiver gender	
	Male	14 (28.0%)
	Female	36 (72.0%)
3.	Relation with patient	
	Offspring – Son/Daughter	6 (12.0%)
	Spouse – Wife/Husband	25 (50.0%)
	Sibling – Brother/Sister	5 (10.0%)
	Parents – Mother/Father	14 (28.0%)
4.	Caregiver Education	
	Illiterate	14 (28.0%)
	Primary	4 (8.0%)
	Middle	11 (22.0%)
	High School	6 (12.0%)
	Secondary	3 (6.0%)
	Graduate or above	12 (24.0%)
5.	Caregiver Occupation	
	Housewife/Unemployed/Student	26 (52.0%)
	Farmer/Unskilled worker	11 (22.0%)
	Skilled worker/Shopkeeper/Business	7 (14.0%)
	Executive/Teacher	6 (12.0%)
6.	Family Type	
	Joint	27 (54.0%)
	Nuclear	23 (46.0%)
7.	Duration of illness	
	<1 Year	4 (8.0%)
	1-5 Years	10 (20.0%)
	>5 Years	36 (72.0%)
8.	Presence of comorbid conditions (Diabetes, Infertility, TB, LD)	5 (10.0%)
9.	Presence of comorbid psychiatric conditions (Depression, Anxiety, Adjustment disorder, Dysthymia, Insomnia)	34 (68.0%)

Table-2: Mean BAS and QoL Scores

S. No.	Characteristic	Statistic
1.	Mean BAS ± SD (Range)	86.50 ± 12.39 (55-108)
2.	Domainwise WHO QoL Scores (at 100-point scale)	
	Domain A (Physical health)	42.00 ± 20.27 (6-94)
	Domain B (Psychological)	34.42 ± 22.49 (6-88)
	Domain C (Social relationships)	45.42 ± 19.55 (6-75)
	Domain D (Environment)	45.08 ± 13.57 (19-75)
	Overall QoL (Out of 400)	168.92 ± 64.57 (62-306)

On evaluating the association of caregiver burden with different caregiver demographics and clinical characteristics of OCD patients, it was not found to be significant with caregiver's age and occupation,duration of OCD illness and presence of physical illness among OCD patients. However, females as compared to males, spouses and parents as compared to offsprings and siblings, illiterate and those educated up to high school as compared to those educated up to secondary school and graduation or above, those living in nuclear family as compared to those living in joint family, those caring for patients having other comorbid psychiatric conditions as compared to those caring for patients not having other comorbid psychiatric conditions had significantly higher burden (Table 3).

No significant association of overall quality of life was observed with caregiver's age, occupation, family type and presence of physical illnesses in cared OCD patients. However, males as compared

Table-3: Association of Caregiver burden with Demographic profile and patient characteristics

S. No.	Characteristic	Mean BAS ± SD	'p' value
1.	Age		
	≤ 20 Years (n=3)	74.00 ± 6.25	0.237
	21-40 Years (n=30)	86.87 ± 13.30	
	41-60 Years (n=12)	89.92 ± 10.37	
	>60 Years (n=5)	83.60 ± 10.95	
2.	Caregiver gender		
	Male (n=14)	74.00 ± 10.27	< 0.001
	Female (n=36)	91.36 ± 9.43	
3.	Relation with patient		
	Offspring – Son/Daughter (n=6)	75.17 ± 9.41	< 0.001
	Spouse – Wife/Husband (n=25)	92.76 ± 11.71	
	Sibling – Brother/Sister (n=5)	73.00 ± 7.04	
	Parents – Mother/Father (n=14)	85.00 ± 8.32	
4.	Caregiver Education		
	Illiterate (n=14)	93.50 ± 6.91	0.005
	Primary (n=4)	87.25 ± 12.69	
	Middle (n=11)	91.18 ± 8.24	
	High School (n=6)	83.00 ± 10.83	
	Secondary (n=3)	71.00 ± 7.55	
	Graduate or above (n=12)	79.42 ± 15.71	
5.	Caregiver Occupation		
	Housewife/Unemployed (n=26)	90.69 ± 10.56	0.094
	Farmer/Unskilled worker (n=11)	82.27 ± 12.69	
	Skilled worker/Shopkeeper (n=7)	82.57 ± 9.85	
	Executive/Teacher (n=6)	80.67 ± 17.78	
6.	Family Type		
	Joint (n=27)	82.41 ± 12.27	0.010
	Nuclear (n=23)	91.30 ± 10.93	
7.	Duration of illness		
	<1 Year (n=4)	76.25 ± 10.94	0.218
	1-5 Years (n=10)	88.50 ± 9.23	
	>5 Years (n=36)	87.08 ± 13.01	
8.	Comorbid physical conditions (Diabetes, Infertility, TB, LD)		
	Yes (n=5)	92.80 ± 5.50	0.235
	No (n=45)	85.80 ± 12.78	
9.	Presence of comorbid psychiatric conditions		
	Yes (n=34)	91.35 ± 8.06	<0.001
	No (n=16)	76.19 ± 13.85	

to females, offsprings and siblings as compared to spouses and parents, those educated up to high school and above as compared to illiterates and those educated up to middle school , those caring for OCD patients with disease <1 year as compared to those caring for patients with OCD for 1-5 and >5 years, those caring for patients without other comorbid psychiatric conditions as compared to those having comorbid psychiatric conditions had significantly higher overall QoL scores (Table 4).

On evaluating the correlation between caregiver burden and quality of life, a strong negative and significant correlation was observed between overall QoL scores and BAS (r=-0.718; p<0.001). A significant mild to moderate negative correlation of BAS was also observed for all the domains of quality of life (Table 5).

Discussion

In present study, average age of care givers was 38.32 ± 14.28 years. Majority of caregivers were aged 21-30 years (60%) and females (72%). Half the caregivers were spouses of the patients. Caregivers of the OCD patients are often young in age and closely related to the patients. Jayakumar *et al.*[20] in their study reported the mean age of caregivers

Table-4: Association of Overall Quality of Life with Demographic profile and patient characteristics

S. No.	Characteristic	Mean BAS ± SD	'p' value
1.	Age		
	≤ 20 Years (n=3)	255.67 ± 66.71	0.315
	21-40 Years (n=30)	162.67 ± 66.69	
	41-60 Years (n=12)	173.92 ± 64.16	
	>60 Years (n=5)	140.40 ± 39.13	
2.	Caregiver gender		
	Male (n=14)	226.50 ± 60.07	<0.001
	Female (n=36)	143.75 ± 50.25	
3.	Relation with patient		
	Offspring – Son/Daughter (n=6)	216.67 ± 57.98	0.046
	Spouse – Wife/Husband (n=25)	154.00 ± 61.85	
	Sibling – Brother/Sister (n=5)	213.00 ± 56.52	
	Parents – Mother/Father (n=14)	152.43 ± 62.39	
4.	Caregiver Education		
	Illiterate (n=14)	131.86 ± 39.22	0.036
	Primary (n=4)	156.50 ± 82.98	
	Middle (n=11)	153.09 ± 50.20	
	High School (n=6)	220.17 ± 71.59	
	Secondary (n=3)	211.00 ± 68.72	
	Graduate or above (n=12)	186.33 ± 71.52	
5.	Caregiver Occupation		
	Housewife/Unemployed (n=26)	155.15 ± 450.49	0.476
	Farmer/Unskilled worker (n=11)	171.73 ± 84.25	
	Skilled worker/Shopkeeper (n=7)	197.57 ± 51.48	
	Executive/Teacher (n=6)	173.33 ± 92.73	
6.	Family Type		
	Joint (n=27)	181.04 ± 65.45	0.094
	Nuclear (n=23)	150.35 ± 60.76	
7.	Duration of illness		
	<1 Year (n=4)	256.75 ± 63.83	0.009
	1-5 Years (n=10)	146.40 ± 50.04	
	>5 Years (n=36)	162.64 ± 61.50	
8.	Comorbid physical conditions (Diabetes, Infertility, TB, LD)		
	Yes (n=5)	132.60 ± 43.49	0.214
	No (n=45)	170.73 ± 65.74	
9.	Presence of comorbid psychiatric conditions		
	Yes (n=34)	143.74 ± 53.15	<0.001
	No (n=16)	216.19 ± 59.98	

Table-5: Correlation between Caregiver Burden and Quality of Life Scores

Variable	Correlation of Caregiver Burden (BAS) with	
	'r'	'p'
Overall QOL Score	-0.718	<0.001
Domain A	-0.616	<0.001
Domain B	-0.457	0.001
Domain C	-0.451	0.001
Domain D	-0.674	<0.001

as 41.97 years and found parents and spouses comprising 43.3% and 46.7% of caregivers respectively. However, in their study, majority of caregivers were males (83.3%) whereas in present study, majority (72%) were females. In another study, Oza et al.[21] found spouses and parents to be 38% and 44% of caregivers of OCD patients respectively. In present study, majority of caregivers were educated up to middle school (58%) and were housewives/unemployed/students (52%) and belonged to a joint family (54%). However, Kalraet al.[22] in their study had majority of the caregivers to OCD patients with education >10 years (80%) and from nuclear families (74%) and housewives comprising only 14% of study sample. These

differences in the demographic profile of caregivers in different studies are reflective of different nature of caregivers and as such difference in their coping strategies and *per se* difference in burden of care. Apart from caregivers' demographic profile, the patient characteristic in present study also varied slightly from the study of Kalraet al.[22] who reported duration of illness in 2-5 years range in majority (60%) of patients whereas in present study 72% patients had >5 years of illness. In present study, more than two-third OCD patients (68%) had other psychiatric illnesses too which is in accordance with the findings of epidemiological studies that report prevalence of other psychiatric conditions in nearly 90% of OCD patients.[11]

In present study, mean BAS score of caregivers was 86.50 ± 12.39 (out of a maximum possible 120), thus indicating a high burden of care. Compared to present study, Verma and Sinha[23] reported the mean BAS score of 65.34 ± 8.66, Jayakumar *et al.*[20] in another study reported mean BAS of 68.87 ± 7.61. However, Kalraet al.[22] in their study reported it as 74.38 ± 7.76. Differences in caregiver burden scores in different studies could be reflective of variance in the burden of care owing to difference in profile of OCD patients as well as difference in coping abilities of caregivers owing to their variable demography.

In present study, we used a 100-point WHO-BREF evaluation for quality of life assessment of each domain. For all the four domains (physical health, psychological, social relationship and environment) the mean scores were less than 50 on a 100-point assessment, thus showing that the quality of life of caregivers was dissatisfactory. Mean WHO-BREF scores were minimum for domain psychological well-being (34.42 ± 22.49) and ranged from 42.00 ± 20.27 (physical health) to 45.42 ± 19.55 (social relationships) for other domains. Mean total summed up QoL score for all the four domains was 168.92 ± 64.57, which was also reflective of dissatisfaction in overall quality of life of caregivers. Although, Gururaj *et al.*[24] in their study reported domainwise QoL scores of caregivers of OCD patients to be higher than present study, however, similar to present study they also found that psychological well-being (35.60 ± 14.9) was the most affected domain as compared to other domains of QoL(51.84 ± 19.9 for physical, 59.74 ± 12.2 for environment, 39.53 ± 16.3 for social domain). Similar observations were also made by Grover and Dutta[25] in their study. In present study, in relative terms, the fall in social relationships was lesser as compared to their study which could be attributable primarily to dominance of caregivers from a joint family profile in present study. Joint family offers a better social relationship even in case of psychosocial burden of disease owing to a better scope for the caregiver for interpersonal communication even in paucity of time and physical accessibility. However, the findings of present study correlated with other studies that found that psychological well-being was the most affected domain of quality of life of caregivers to OCD patients.[24,25]

In present study, burden of care was significantly higher in females as compared to males, spouses and parents as compared to offsprings and siblings, illiterate and those educated up to high school as compared to those educated up to secondary school and graduation or above, those living in nuclear family as compared to those living in joint family, those caring for patients having other comorbid psychiatric conditions as compared to those caring for patients not having other comorbid psychiatric conditions, thus showing that both demographic factors as well as illness characteristics have a significant impact on the burden of care among patients. Similarly, quality of life also showed a significant association with gender, relationship with patient, caregiver education, duration or illness and presence of other psychiatric morbidities among OCD patients. The findings thus show that with variable demography, the coping ability of caregivers towards stress induced by burden of care changes which in turn have a forbearance on quality of life of caregivers too. These findings thus suggest a relationship between quality of life and burden of care. In fact, on evaluating this relationship, the present study also found a strong negative and significant correlation between overall QOL scores and BAS ($r=-0.718$; $p<0.001$). A significant mild to moderate negative correlation of BAS was also observed for all the domains of quality of life.

These observations are in agreement with the observations of Grover and Dutt[26] who also found that both burden of care as well as quality of life of caregivers to OCD patients are affected by demographic factors as well as there was a mutual relationship between burden of care and quality of

life of caregivers. Interrelationship between burden of care and quality of life of caregivers was also highlighted by Gururaj *et al.*[24] in their study. Marwale et al.[26] also showed a significant association between demographic and patient characteristics with family burden. Kalra et al.[22] in their study showed a significant correlation between severity of illness and burden of care.However, the mutual relationship between QoL and burden of care was complex. For example, while burden of care was significantly associated with family type, the relationship of family type with QoL was not found to be significant. Similarly, duration of illness did not show a significant association with caregiver burden but showed a significant association with QoL of caregivers. In present study, caregiver's occupation did not show a significant association with caregiver burden as well as QoL, which might be owing to a dominance of housewives in the study. Nevertheless, the relationship between caregiver burden and quality of life of caregivers indicate an urgent need for sharing of caregiver burden by empowering them with better coping strategies and social support. The findings indicate the need of psychosocial counseling of caregivers of OCD patients in order to reduce their burden of care and to improve their quality of life in general.

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Original Article

A Cost-Effective Method for Assessment of Psychological Wellbeing of University Students

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ABSTRACT

***Objective:** The primary objective of this study is to assess the psychological health of university students by using General Health Questionnaire (GHQ-12). In this study attempt was made to determine the factor structure and its reliability for GHQ-12 scale. **Method:** A descriptive cross-sectional survey was conducted on 1581 (male=1151, female=430)students of Banaras Hindu University, Varanasi, India. A self-administered questionnaire was used to collect the required data and the GHQ-12 scale was utilized to assess the current psychological health of students.**Results:** The mean GHQ score for the sample was 11.78 (SD=6.81). The result also recommends that considerable proportion (27.6%) of students had psychological distress. The analysis carried out to compare the level of psychological health between genders was found to be insignificant (t=0.31, df=1579, p = 0.24). Reliability analysis showed acceptable results of internal consistency of the scale (Cronbach's alpha = 0.82). Factor analysis revealed that factorability of the GHQ-12 was examined and a three-factor structure, with 52.8% of the total variance was found to be the best fit. **Conclusion:** Based on these findings study affirm that the GHQ-12 is a good measure for assessing the overall psychological health of students.The findings of the study implied for parents, teachers, counselors and policy makers, who use to influence a wide range of students to improve the psychological health of students.*

***Keywords:** GHQ-12, Factor structure, Psychological health, University Students.*

Introduction

College students are experiencing high demands and expectations that have been placed upon them[1]. These have created stress on them to perform well in their studies, students who are unable to handle and deal with the pressures of studying are often more vulnerable to develop mental, emotional, physical and psychological problems.[2] Just as water pipe if it is well built than it used to handle the pressure of water, in the same way students of college today are facing vigorous competitive atmosphere leads to lack of time for recreational activities which produced misbalances in their academic performances. Moreover, it has also been noted that students with psychological problems experience disruptions in their developmental and educational tasks. As a consequence, students may not be able to perform well or obtain good achievement in their academic pursuit. On the contrary, they may experience stress which is resulted from academic workload and extreme pressure for success, making them even prone to experience mental disturbances[3] or psychiatric illnesses such as antisocial and suicidal behavior, substance abuse, depression, anxiety and eating disorders.[4,5] However, it appears necessary for students to be in their good and balanced psychological health in order to excel in their quest and for a successful future by putting positive efforts

towards human capital of the country.

The unpleasant effect of distress can reduce the self-esteem of students that leads to a flow of consequences at both personal and professional levels which include college dropout, impaired ability to work effectively, poor academic achievement, disturbed relationship and suicide.[6]

Therefore, the present study was primarily designed to assess the psychological health of university students by using General Health Questionnaire (GHQ-12). The study also aimed to determine the factor structure and its reliability for GHQ-12 scale.

Material & Methods

A descriptive cross-sectional study was conducted at the Out Patient Department (OPD) of Student Health Centre during March 2016 to September 2016. This study was conducted on 1581 students includingboth male and female, who were registered for attending the OPD of Student Health Centre of Banaras Hindu University, Varanasi for any Health-related consultation. Every 10th registered student from OPD register has been included as study subjects. GHQ-12 scale was used to assess the current psychological health status of the students. A structured Questionnaire was prepared to collect basic information from the students related with the objective of present study. The questionnaire includes question like age, sex, class, course and their department. The students were contacted and explained about the purpose of the study and written consent was taken. The Ethical Committee of the Institute of Medical Sciences granted approval for this study.

Tools of the study

The GHQ-12 is a screening tool which was used to assess the severity of psychological distress experienced by an individual within the past few weeks. This scale focuses on breaks in normal functioning in place of life-long events; hence, it only covers disorders of adjustment associated with distress.

The GHQ is among the most thoroughly tested of all health measures.[7] It is a self-administered instrument designed to identify current diagnosable mental disturbances and disorders. It has four versions based on the number of items; GHQ-60, GHQ-30, GHQ-28 and the smallest version GHQ-12. GHQ-12 is a self-administered questionnaire with 12 items. Each item of GHQ-12 has scored by four responses, which are 'not at all', 'no more than usual', 'rather more than usual' and 'much more than usual'.[8] GHQ-12 items are rated using a Likert-type scale from 0-3 (0-1-2-3). The scores were summed up by adding all the items on the scale ranging from 0 to 36. The total score of this 12 item GHQ instrument was used to measure psychological morbidity. Due to the different thresholds of the GHQ-12, the mean GHQ score for a population of respondents was suggested as a rough indicator for the best cut-off point.[9] Therefore, based on the GHQ-12 score more than 15 up to 20 is suggestive of distress and a total score more than 20 suggests severe psychological distress.[10]

Analysis of data

A descriptive analysis was performed with the help of Microsoft excel 2007 and SPSS v.16.0 software (trial version) to determine the distributional characteristics of all the variables studied, including the students' level of psychological health. Exploratory Factor Analysis (EFA) was conducted using the principle component analysis. Extraction method with principle component analysis was used to compute composite coping scores for the factors underlying the short version of the GHQ. Factor loadings below 0.4 were suppressed. Varimax rotation with Kaiser Normalization was used to determine number of factors. Finally the reliability of the measures was tested in relation to the instrument's internal consistency (Cronbach's alpha coefficients).[11]

Results

Socio-demographic characteristics: A total of 1581 respondents were included in this study. Table-1 illustrates the major proportion of the respondents were found to be males (72.8%). The students age spanned from 15 to >30 years, with a mean of 21.49 (SD = 3.092). Approximate more than half of the students were from Under Graduate courses (62.6%) followed by Post Graduate students (28.1%) and Ph.Ds. (8.5%). Among responders nearly one- third (37.8%) of the students are from Arts faculty, (20.3%) students from Science faculty, (7.5%) students from Engineering, (5.1% & 5.0%) students

Tabl-1: Socio-Demographic Characteristics of the Respondents

Characteristics	Respondents (N=1581)		
	No.	Percentage (%)	95% C.I.
Sex			
Male	1151	72.8	70.6 - 74.9
Female	430	27.2	25.0 - 29.4
Age (In Years)			
15 - 20 years	698	44.2	41.8 - 46.6
21 – 25 years	720	45.5	43.0 - 47.9
26 - 30 years	139	8.8	7.4 - 10.1
>30 years	24	1.5	0.9 - 2.1
Age (Mean ± SD = 21.49 ± 3.092)			
Type of Course			
Under Graduate	990	62.6	60.2 - 64.9
Post Graduate	443	28.1	25.9 - 30.3
Ph.D.	135	8.5	7.1 - 9.8
Diploma	13	0.8	0.3 - 1.2
Faculty			
Arts	597	37.8	35.4 - 40.1
Social Science	344	21.8	19.7 - 23.8
Science	322	20.3	18.3 - 22.3
Engineering	118	7.5	6.2 - 8.8
Law	81	5.1	4.0 - 6.2
Commerce	79	5.0	3.9 - 6.1
Medical Sciences	40	2.5	1.7 - 3.3
Year of Course			
1st year	618	39.1	36.7 - 41.5
2nd year	573	36.2	33.8 - 38.6
3rd year	326	20.6	18.6 -22.6
4th year	64	4.1	3.1 - 5.1

from Law and Commerce faculty and only (2.5%) students are from Medical Sciences. Majority of the students belongs to first year and second year of their courses (39.1%, 36.2%) respectively and only (4.1%) students are in fourth year of their respective course.

Psychological health

The descriptive analysis showed that the mean GHQ score for the sample was 11.78 (SD=6.81). Using the category of distress, the study revealed that stress level was highest among males in comparison with the females. Out of 1151 male students 323 (28.06%) were categorized under stress major problem category and among 430 female students 114 (26.51%) were in stressed category was clearly a problem (Table 2). These findings also indicate that the proportion of the students who are psychologically healthy was just slightly higher than those who were vulnerable to develop and experience

Table-2: Respondent wise distribution of GHQ-12 scores of the scale

GHQ-12 scores	Male (n = 1151)	Female (n = 430)	Total
0-15 (No evidence of distress)	828 (72.4%)	316 (27.6%)	1144
16-20 (Evidence of distress)	181 (72.1%)	70 (27.9%)	251
> 20 (Severe problem & Psychological distress)	142 (76.3%)	44 (23.7%)	186
Total	1151 (72.8%)	430 (27.2%)	**1581**

psychological problems.

The further analysis carried out to compare the stage of psychological health between genders indicated that the male students (mean = 11.82, SD = 6.86) obtained a higher mean GHQ score than the females (mean = 11.70, SD = 6.67). However, this finding was not significant (t = 0.31, df = 1579, p = 0.24).

Reliability

The internal consistency of the 12-item GHQ in the present study was tested using the Cronbach's alpha. Cronbach's alpha for the whole sample was found to be 0.82, indicating acceptable results.

Factor structure

The Kaiser-Meyer-Olkin (KMO) test applied to determine the factorability of the GHQ. The KMO value varies between 0 - 1 to index the simplicity of the factor pattern for a given factor analysis.[12] It recommended accepting values greater than 0.5 as acceptable, if values between 0.5 to 0.7 are ordinary, values between 0.7 to 0.8 are good, values between 0.8 to 0.9 are great and more than 0.9 are superb. Kaiser-Meyer-Olkin measure of sampling adequacy value was 0.90, which falls into 3rd category of great level of acceptance, so this sample data indicates adequate sample size for the factor analysis. Bartlett's Test of Sphericity is employed to determine the suitability of the sample size for conducting the analysis. Bartlett's test of Sphericity was highly significant (P<0.001). Therefore, it could be concluded that factor analysis is suitable for these data (Table-3).

Table-3: Kaiser-Meyer-Olkin (KMO) Test and Bartlett's Test Sphericity to determine the factor Structure for General Health Questionnaire

Kaiser-Meyer-Olkin Measure of Sampling Adequacy		.901
Bartlett's Test of Sphericity	Approx. Chi-Square	4643.9
	D.F.	66
	Sign.	P <0.001

The scree plot (Fig. 1) demonstrates the distribution of variance among the components graphically. Here appears to be a marked decrease in downward slope after the second or third principal component implying that we can summarize our twelve question variables by the first two or three principal components.

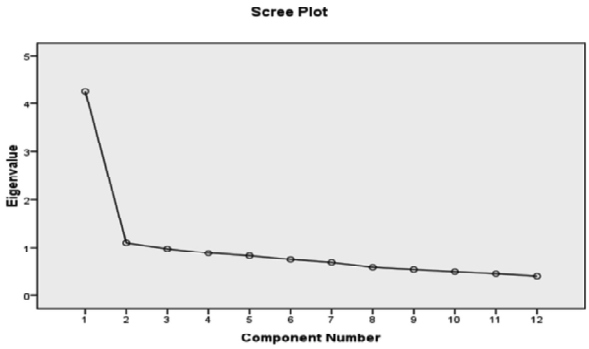

Fig. 1

The factor structure of the GHQ-12 was obtained by principal component analysis with varimax rotation. The number of factors was determined by the Eigen value of each factor was greater than 1, and the load factor was greater than 0.40 are considered as potentially meaningful for each item.

Table 4: presents reliability coefficient of each extracted components. The items were broken into 3 factors: Psychological Distress, Social and Emotional Dysfunction, Cognitive Disorder, which altogether accounted for 52.8% of the variance. The results of varimax rotation showed that question No. 1, 5, 7, 9, 12 having highest loading to factor 1 followed by the combination of question No. 4, 6, 8, 10, 11 as factor 2 and only question No.2 construct factor 3. The first factor was designated as psychological distress in which contained five items: Able to concentrate (item 1), constantly under strain (item 5), Able to enjoy normal activities (item 7), Feeling unhappy or depressed (item 9) and Feeling reasonably happy (item 12). The second factor was designated associal and emotional dysfunctionin which contained five items: Capable of making decisions (item 4), Could not overcome self-difficulties (item 6), Able to face up problems (item 8), Losing confidence (item10) and Thinking of self as a worthless person (item 11). The third factor was designated as cognitive disorder, was represent individual's inability to have a normal cognitive judgment regarding events that happens in life. This factor comprised only one items lost much sleep (item 2) with the highest loading (0.934).

Table–4: Varimax rotated factor structures on GHQ-12 scale to assess Psychological Health of the Respondents

	GHQ-12	Factor 1 (Psychological Distress)	Factor 2 (Social & Emotional Dysfunction)	Factor 3 (Cognitive Disorder)
Q.1	Able to concentrate	**.419**	.388	.139
Q.2	Lost much sleep	.021	.042	**.934**
Q.3	Play useful part in things	.161	.329	.312
Q.4	Capable of making decisions	.103	**.653**	.222
Q.5	Constantly under strain	**.748**	.061	.204
Q.6	Could not overcome self-difficulties	.089	**.605**	.071
Q.7	Able to enjoy normal activities	**.722**	.152	-.039
Q.8	Able to face up problems	.187	**.719**	.007
Q.9	Feeling unhappy and depressed	**.756**	.271	.049
Q.10	Losing confidence	.419	**.640**	.035
Q.11	Thinking of self as a worthless person	.313	**.596**	-.076
Q.12	Feeling reasonably happy	**.679**	.416	-.035

Discussion

The current study was designed to measure the psychological characteristics of mental health of students of Banaras Hindu University in India by using the 12-items General Health Questionnaire (GHQ-12), and to determine the reliability and validity of the scale. The GHQ comprised of 12 questions which asked the informants about their general level of happiness and the experiences of depressive and anxiety symptoms and sleep disturbances over the last four weeks. The finding indicates that although more than half (72.4%) of the students scored below the cut-off point of 15, a considerable percentage (27.6%) scored above this cut-off point. These results predict that a majority of the students likely to develop and experience psychological problems.

The internal consistency of the GHQ-12 indicated that the scale is reliable to be used for measuring the psychological health of these university students. As internally reliable~ Cronbach's α coefficients value was 0.82 for this present study. The findings are very comparable to previously reported study of Augustine for Indian students (Cronbach's value = 0.84)[13] and similar findings were also observed by the studies carried out in Malaysia[14,15] among students. Both Malaysian studies reported that Cronbach's alpha value for the GHQ-12 was obtained 0.85 and 0.84. The use of Likert scale scoring of GHQ12 in present study has advantages over other methods, which have been criticized for under identification of respondents with existing psychological problems.[16]

The principal component analysis identified three factor solutions known as "psychological distress", "social and emotional dysfunction", and "cognitive disorder" for GHQ-12. The factor analysis revealed that the GHQ 12 scale possessed good structural characteristics and it identified three factors that accounted for 52.88% of the variance in this study. These findings are consistent with the results of some previously reported factor analytic studies of GHQ12 that have found three factor solution.[17-19] Martin and Newell examined the factor structure of the 12-item GHQ and proposed that the model with the best fit was the three-factor model.[20] Similarly, a study conducted by Graetzusing Likert scoring similar to our study, revealed three factors: Anxiety, social dysfunction, and loss of confidence.[21] There are several similar studies have reported a three-factor structure for the GHQ-12.[22-24] Ferrell had obtained three different factors that is Anxiety, Depression and 'Social dysfunction' which accounted for 64% of the total variance.[23] According to Sanchez-Lopez[22] named these as 'Successful coping', 'Self-esteem' and 'Stress' which accounted for 54% of the total variance. Kuruvilla[24] tested the GHQ-12 of Tamil version consisted of three factors 'Depression/anxiety', 'Social performance' and 'Self-esteem', which explained 65% of the total variance.

The findings also reported that male students had a higher GHQ score suggesting psychological distress when compared to female students; however, it was not statistically significant. This result is consistent with the previous study conducted in Malaysia, which reported that more males were found to have psychiatric problems when compared to females (14.1% vs. 11%).[25] The study showed students in the higher age group between the ages of more than 23 years showed more psychological distress compared to lower age group students between the ages of 15 to 22 years, however not significant statistically. Senior students were more stressed because they were likely to complete their education soon and are under academic pressure. This findings are similar to the study of Shamsuddin, study demonstrated that stress scores were significantly higher among senior students.[26]

Conclusion

To conclude we can say that by assessing the psychological health of university students we realized that adolescence is a stage in life which is considered particularly difficult since it involves predictable and unpredictable changes and challenges in roles, relationships and responsibilities as an individual and hence they use to face the problems of sleeplessness, continuous stress and sometimes feel unhappy and depressed. But at the same time they feel that they are capable enough to face the problems and to take self-decisions if parents, teachers, counselors, researchers and policy makers, who are in a position to influence a wide range of students will timely guide and provide support to improve the psychological well-being of students. In conclusion, GHQ-12 displays adequate reliability and validity for use as a screening tool in

younger age population.The Findings of the study would be implication Therefore, both prevention and intervention strategies need to be formulated to ensure the strengthening of psychological state of Indian young population, including those studying in universities. However, the findings of this study are very specific and participants of the study were specifically selected thus the findings of the study cannot be generalized to the whole population of young adolescents in India it could be generalized to only students with similar characteristics.

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Original Article

A Cross Sectional Study of Psychiatric Sequelae in Riot Victims in Delhi

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ABSTRACT

Introduction*: With the introduction of Citizenship Amendment Act(CAA), the nation saw protests and acts of violence during Feb,2020 in North East Delhi, in which at least 39 people were killed and over 330 were injured. There is an adverse impact on the mental health of the surviving victims and this study aimed to assess the psychiatric sequelae in them.* ***Methodology****: This cross-sectional study was conducted in GTB hospital and UCMS, Dilshad Garden, New Delhi in 13 riot victims after taking their informed consent. Initially all the patients were screened using General Health Questionnaire (GHQ-12) and then detailed psychiatric evaluation was done and clinical diagnosis was made as per ICD -10.* ***Results****: The psychiatric sequelae were seen in 61.53% patients (8/13) with the most being substance abuse and PTSD. Others were acute stress reaction, social anxiety disorder with mild depression and Panic Disorder with mild depression.* ***Conclusion:*** *This study highlights the importance of the routine psychiatric assessment in all riot victims which will help to address their mental health needs at an early stage of intervention thereby improving their mental health.*

Keywords*: Psychiatric sequalae, Riot victims, Citizenship Amendment Act.*

Introduction

Disaster has been defined by the World Health Organisation (WHO) in 1992 as 'A severe disruption of ecological and psychological factors, which greatly exceeds the coping capacity of the community and the affected individuals'. Disasters are either natural (cyclones, floods, and so on) or human-made (riots, wars, and so on). These disasters leave behind them a trail of destruction in terms of death, destruction of the infrastructural facilities, and so on, but more importantly, they leave behind them a psychologically traumatised mass of human beings.[1]

The commonly observed psychiatric sequelae are adjustment disorders, depression, post-traumatic stress disorder (PTSD), anxiety disorders, non-specific somatic symptoms and substance abuse.[2-5] Most common high-risk variables are severity of the disaster, threat to life, loss of life, loss of family members and duration of exposure. Others are female gender, children, elderly, physically disabled, poor social support and family support.[4]

With the introduction of Citizenship Amendment Act, the nation saw protests and acts of violence during February, 2020 in North East Delhi. In these riots, at least 39 people were killed and over 330 were injured.

There is an adverse impact on the mental health of the surviving victims. The exclusivity of the sample prompted the authors to plan this short study with the aim to assess the psychiatric sequelae and the symptomatology of disorders.

Methodology

This cross-sectional study was conducted in GTB hospital and UCMS, Dilshad Garden, New Delhi. The riot victims presenting both in OPD and IPD were included after taking their informed consent. Those patients who were not willing to participate were excluded. Initially all the patients were screened using General Health Questionnaire

(GHQ-12) and then detailed psychiatric evaluation was done and clinical diagnosis was made as per ICD-10. Ethical clearance was taken to conduct the study.

General Health Questionnaire (GHQ-12)- It is a measure of current mental health developed by Goldberg in the 1970's. It was originally developed as a 60-item instrument and many shortened versions are GHQ-30, GHQ-28, GHQ-20 and GHQ-12. Each item is rated on a four-point scale (less than usual, no more than usual, rather more than usual, or much more than usual). The most common scoring methods are bi-modal (0-0-1-1) and Likert scoring styles (0-1-2-3).[6]

Table1.Socio-demographic details of the patient

		Number	Percentage
1.	**Gender**		
	Male	12	92.30
	Female	1	7.69
2.	**Age group (years)**		
	10-20	3	23.08
	20-30	6	46.16
	30-40	4	30.76
3.	**Education**		
	Illiterate	2	15.38
	Educated upto 5th std	3	23.07
	Educated upto 10th std	5	38.46
	Educated upto 12th std	1	7.69
	Graduate/Postgraduate	1	7.69
4.	**Socioeconomic status**		
	Lower	8	61.53
	Lower middle	2	15.38
	Middle	2	15.38
	Upper Middle	1	7.69
5.	**Religion**		
	Muslim	10	76.93
	Others	3	23.07

Table-2. Psychiatry morbidity in riot victims

Psychiatric morbidity	Number	Percentage
PTSD	2	15.38
Substance abuse	3	23.07
Social anxiety disorder with mild depression	1	7.69
Panic Disorder with mild depression	1	7.69
Acute stress reaction	1	7.69
None	5	38.46
Total	**13**	**100**

Results

In our study total number of patients included were 13 in which there were 12 males (92.30%) and 1 female only (7.69%). Most of the patients belong to the age group of 20-30 years (46.16%), with the mean age of 26.6 years. In our study group majority of the patents were educated and only 2 patients (15.38%) were illiterate. Majority of the patients belonged to lower socio-economic status. (61.53%) 76.93% (10/13) patients were Muslims and only 23.07% (3/13) belonged to other religion in our study sample.The mean GHQ-12 score in this study was 19 by Likert scoring.The psychiatric comorbidity was seen in 61.53% patients (8/13) with the most common substance abuse and PTSD. Others were acute stress reaction,social anxiety disorder with mild depression and Panic Disorder with mild depression. Among these patients only 5 (38.5%) had past history of psychiatric illness which included substance abuse like tobacco.

Discussion

This cross-sectional study was conducted on 13 riot victims after taking their informed consent, who presented to OPD and IPD department of GTB Hospital and UCMS, Dilshad Garden, New Delhi during riots in North East Delhi in February, 2020. There were 13 patients in which there were 12 males (92.30%) and 1 female only (7.69%) reflecting major involvement of the males in the riots especially physical violence. Most of the riot victims belonged to the age group of 20-30 years (46.16%), with the mean age of 26.6 years which can be explained as the young adults were more easily influenced by the mob or motivated to participate in the riots. They either felt they did not have much to lose or the possibility of any serious harm had not occurred to them. The areas involved in riots of North East Delhi comprised mainly of population from lower socio-economic status due to which our study sample also had victims of mainly lower socio-economic status. It was observed in our study, that psychiatric comorbidity was seen in 61.53% of patients which was high as compared to the results of Gautam et al who observed psychiatric morbidity in 35.5% patients.[2] The high risk variables for psychiatric sequelae are severity of the disaster, threat to life, loss of life, loss of family members and duration of exposure.[7] Others are loss of economic livelihood, poor social support and family support.

Most commonly reported symptoms were sleep disturbance, loss of appetite, irritability, low mood,

excessive worry. The most commonly observed psychiatric sequelae were PTSD and substance abuse (Tobacco dependence). In patients with PTSD, victims described experiences that closely resembled re-experiencing, avoidance and hyperarousal. People with past history of substance abuse are more likely to relapse during this period. Analysis by Kar showed occurrence of the following morbid conditions - PTSD (Post Traumatic Stress Disorder), grief, depression, anxiety and alcohol and substance abuse.[7] Other psychiatric sequelae seen are acute stress reaction, social anxiety disorder with mild depression and panic disorder with mild depression.The victims with poor coping strategies, poor social support and family support were more prone to develop psychiatric morbidities[7]. Physical injury and pain, death in the family, fear of imminent death during the event, increased stress before disaster and past psychiatric history were associated with adverse psychological sequelae.[4]This study stresses that the emotional injuries also need caring otherwise they can predispose a large number of victims of disasters to long-term mental health sequelae.

Conclusions

This study highlights the importance of the routine psychiatric assessment in all riot victims which will help to address their mental health needs at an early stage of intervention thereby improving their mental health. Factors that can prevent psychiatric morbidity in the survivors need to be ascertained. This will speed up their recovery and assist in early rehabilitation.

Limitations

This study had a small sample size

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Original Article

Acceptance and Commitment Therapy for Acne Vulgaris

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ABSTRACT

Background: *The present study explores the need for psychological interventions in dermatological conditions.* ***Aims and Objectives:*** *To focus on mindfulness based intervention, Acceptance and Commitment Therapy (ACT), which has a wide area of application, as found in research evidences on dermatological condtions.* ***Materials and Methods:*** *The study focuses on psychosocial concerns of a 14 year old female, suffering from Acne Vulgaris, reported. The tools used as pre-post assessment were, Rosenberg Self Esteem Scale, DASS-42 and Acceptance and Action Questionnaire. The Acceptance and Commitment Therapy of 12 session module was used as a primary psychological intervention.* ***Results:*** *The Acceptance and Commitment Therapy was found to be effective in dealing with the psychosocial concerns associated with Acne Vulgaris.* ***Conclusion:*** *The authors discuss the dermatological disorders, their psychosocial concerns and argue for the need for focusing on these concerns in psychological management, for better prognosis of the disorders, as psychological factors have a major role through mind-body interactions.*

Keywords: *Acceptance and Commitment Therapy, Acne Vulgaris, Psychosocial Concerns*

Introduction

Dermatological conditions comprises of diseases associated with nails, hair and skin. These conditions and physiological system persistently interconnect through psychological, neurological, immunology, endocrine systems and through activities or behaviours which could act as a triggering or maintaining factor for dermatological conditions. There is a wide range of such dermatological conditions, such as Alopecia (hair loss), Eczema (redness and inflammation in skin), Acne Excoriee (pricking of acne lesions), Acne Vulgaris (red pimples on skin) and many other diseases.

Acne Vulgaris could be considered as a skin condition categorized by red pimples on the skin, especially on the face, due to inflamed sebaceous glands and common mostly among adolescents, age group ranging from 10- 19 years.

A study concluded that Acne Vulgaris was present in 72.3% of 1032 children and mild acne was present in 81.9% students, moderate in 17.1%, and severe in 0.9%[1,] whereas, in a study there was no severity differences found among both the genders.[2]

The impact of dermatological conditions, which are acute or of chronic in nature leads to psychosocial disturbances, like poor self esteem, stress, depression and high anxiety levels in day to day life, withdrawn from social gatherings and percieved rejection from peer group. In a study, it was found that anxiety and depression was seen in 68.3%, 25.6% respectively among patients of Acne Vulgaris.[3]According to the Global Burden Disease, it is the tenth highest cause of disability adjusted life year (DALYs) in the late adolescent period (15–19-year olds) across developed countries.[4]

The primary treatment of most dermatological conditions is through medication, cryosurgery, laser therapy, chemical peeling and radiation therapies. These pharmacological treatments cure the

physiological symptoms. Though, the psychosocial concerns developed during the course of such diseases, remain untouched. Often, intervention of underlying psychosocial concerns results in improved lifestyle and enhanced coping skills.

There are studies suggesting thata higher level of mindfulness is associated with reduced psychosocial distress and improved quality of life. Such interventions might be used to target social anxiety associated with skin conditions and it may be supportive in reducing distress associated with visible dermatological conditions.[5]

A similar therapeutic approach is Acceptance and Commitment Therapy, which was originated by Steven C. Hayes.[6] It is one of the third wave behavioural therapies, which have in their core, the concept of mindfulness. There are six major components of this therapy, as following:[6]

- Cognitive defusion
- Acceptance
- Contact with the present moment
- The observing self
- Values
- Committed Action

Methods

Objective

The objective of this case study was to focus on mindfulness based intervention, Acceptance and Commitment Therapy (ACT), which has a wide area of application, as found in research evidences on dermatological condtions

Sample: The present case study focuses on psychosocial concerns of a 14 year old female, suffering from Acne Vulgaris, reported.

Tools: The tools used as pre-post assessment were, Rosenberg Self Esteem Scale, developed by sociologist Dr. Morris Rosenberg to measure level of self esteem.[7] This scale is a self-report measure of ten-item Likert type scale. Internal consistency reliability ranges from 0.77 to 0.88. Test-retest reliability ranges from 0.82 to 0.85 validity and criterion validity is 0.55. The second tool administered was Depression, Anxiety and Stress Scale (DASS 42) was developed by Lovibond & Lovibond.[8] DASS was developed to assess level of depression; anxiety; and stress. It is a 42 item self report questionnaire. Reliability of the three scales is considered adequate and test-retest reliability is likewise considered adequate with .71 for depression, .79 for anxiety and .81 for stress.[9] The Acceptance and Action Questionnaire (AAQ-2) is a 10-item questionnaire with items being rated on a 7 point Likert type scale from 1 (never true) to 7 (always true). High scores on the AAQ-2 are reflective of greater experiential avoidance and immobility, while low scores reflect greater acceptance and action. The AAQ-2 has adequate internal consistency is 0.70) and test-retest reliability is 0.64.[10]

Procedure: The baseline assessment was done, after which a 12 session module of Acceptance and Commitment Therapy was used as a primary psychological intervention, followed by post-intervention assessment. The pre-post scores were then graphically compared.

The case study below explores the need of intervention for psychosocial concerns of a client with Acne Vulgaris with the help of ACT intervention. The next section is divided into three major sections, describing the initial, middle and terminal phase.

Demographic Details: The client named A.S. was 14 years old female. She was studying in IX class and belonged to upper class socio-economic strata of urban area. She resided in a joint family with her father, mother, younger brother and paternal grandmother.

Fig. 1: Showing the condition of 'Acne Vulgaris'

Intervention Process : The 12 sessions module was followed, majorly divided into three sections- the initial, middle and termination phase. The detailed description of all three sections is as following:

Initial Phase : The total number of sessions ininitial phase was four, with an average duration of 45 minutes. The aim was to focus on building rapport, taking history and explore psychosocial concerns of her life.

The client suffered from chicken pox in year 2016 and went through medication. Since then she was under treatment for Acne Vulgaris from a local dermatologist, for nearly about a year. Drug compliance was found to be poor and there was no improvement observed because she did not take medicines timely, during the course of treatment.

It was observed by therapist that she had poor self image. She considered herself very ugly because of acne but later on she started avoiding seeing her face and said "I feel that I am ugly and fat but then I learnt to ignore seeing my own face, which is all I can do because medicines are not improving me".

After her interview, pre-intervention assessments were administered, score on Rosenberg Self Esteem Scale was 25 suggesting moderate level of self esteem, score on Depression Anxiety Stress Scale was 16 on depression, suggesting moderate level of depression, 7 on anxiety suggesting normal level of anxiety and score on stress was 38, suggesting very severe level of stress. The total score on Acceptance and Action Questionnaire was 46, suggesting mild level of psychological flexibility, reflecting of greater experiential avoidance and immobility. The following graph represents the pre-intervention scores on all the scales:

Middle Iddle Phase: The total numbers of sessions in middle phase were eight. The average duration of all sessions was of 40 minutes. Therapist focused on the six core components of ACT, to reduce her level of anxiety, depression, stress and enhance self esteem, psychological flexibility.

The client had mentioned during the initial phase that she was preoccupied with the negative thoughts about her appearance because of which she could not focus on any other activity properly. She also had difficulty in controlling her thoughts about the comments made by her peer group towards her appearance.

In order to help the client dealing with these concerns, therapist introduced to the concept of "mindfulness". An experiential exercise," Mindfulness deep breathing" was done to bring her focus on the sound of her breath. Therapist gave her homework to practice it on daily basis or whenever she felther emotional state was disturbed.

In the following session, therapist focused on enhancing her skills of responding in any perceived embarrassing situation, where she used to feel bad about her appearance. The client was facilitated to choose the actions and alternatives of her negative thoughts and action, which were towards the move and not away from move. It was explained to her that those actions which made her feel good were 'towards the move' and those actions which made her feel bad was 'away from the move'.

The concept of committed action was explained to client using "choice point metaphor" Therapist explained that for each situation, thought and feeling, she alwayshas a choice to make and she could choose

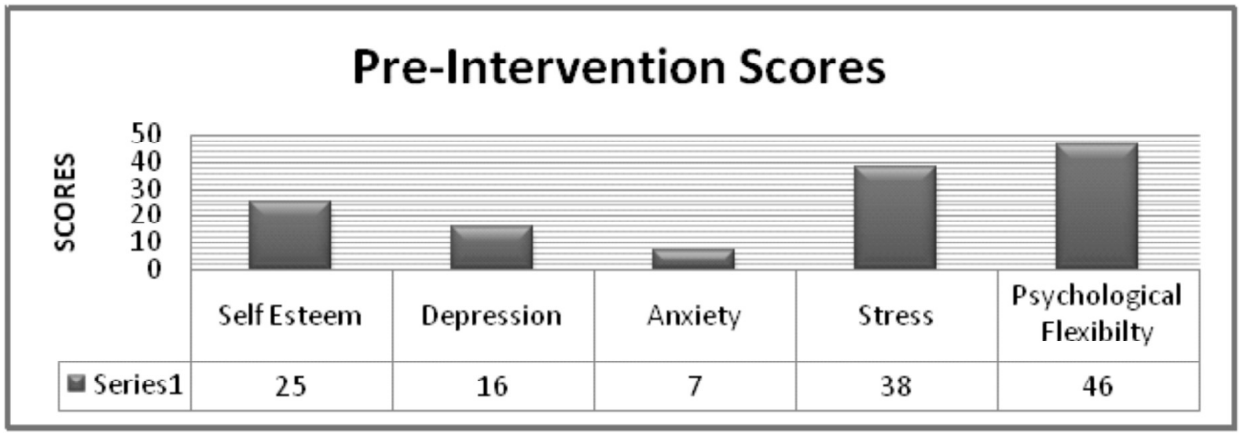

Fig. 2: Showing pre-intervention scores

to change the situation by changing her thoughts and feelings. A real life situation of client was taken as an example and she had to elicit the alternative responses.

The client had difficulty in distracting herself

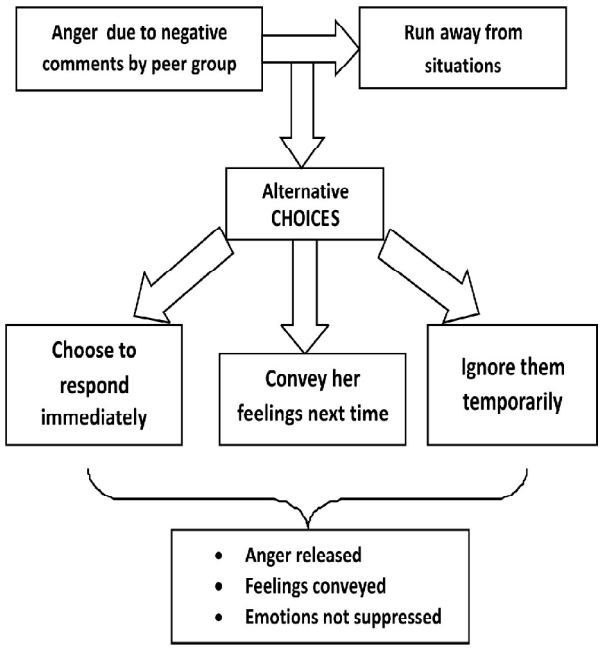

Fig. 3: Showing an example of 'Choice point metaphor'

from negative thoughts, while she needed to acknowledge it, instead of distracting from it. The rapist briefed her about "observing thoughts" by being aware about her thoughts rather than getting engaged into them, through a 'floating leaves on a stream' and 'chess board metaphor'. This process required bringing the thoughts to awareness by acknowledging them. Therapist gave her homework to practice this exercise:

- to be aware of her thoughts
- by not getting engaged in thoughts
- by keeping out struggles
- And feel inner experiences.

The therapist explained the meaning of "willingness and acceptance"; in order to increase her self esteem and modify her understanding about her appearance. It was explained to her through an activity metaphor "Chinese finger trap" and "explore effects of experiential avoidance and creative hopelessness". Therapist focused on self-love, having soft attitude towards oneself and accepting oneself without being judgemental. She was motivated to allow herself to be open for good and bad feeling, emotions and experiences in order to have comfortable life.

Client had difficulty in focusing in multiple areas.She wanted to excel in multiple areas of her life. This exercise was done because she often faced delayed completion of each task. The therapist briefed client about values and goals through 'life compass worksheet', so she achieves a clearer perspective of what she wanted to keep on top of her priorities.

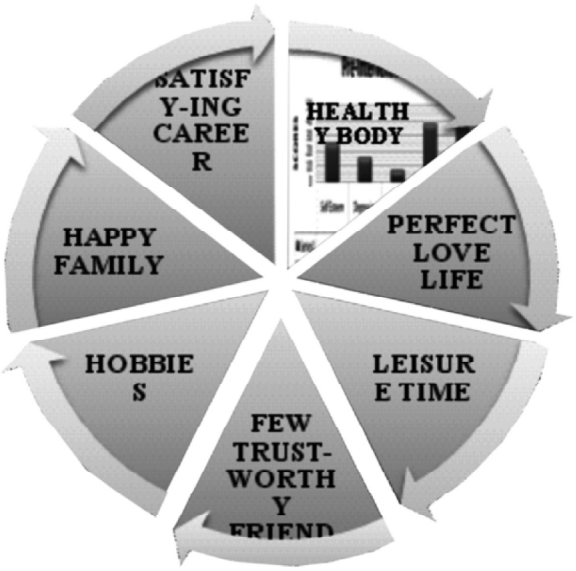

Fig. 4: Showing an example of 'Life Compass Worksheet'

Terminal Phase: In the terminal phase, the therapist briefed the client about the overall components discussed throughout the therapeutic intervention and facilitated her to follow the homework given during sessions.

Therapist took overall feedback regarding the client's experience. Client felt that she found herself more focused and open minded about the trouble some situations. She could relate with the concept of losing control resulting in decreased mental struggle.

The post intervention assessment was conducted. The following graph represents the post intervention scores on all the scales:

The scores on Rosenberg Self Esteem Scalewas 34, suggesting high self esteem, score on depression was 12, suggesting mild level of depression, score for anxiety was 4, suggesting normal level of anxiety, score for stress was 20, suggesting moderate level of stress and score on Acceptance and Action

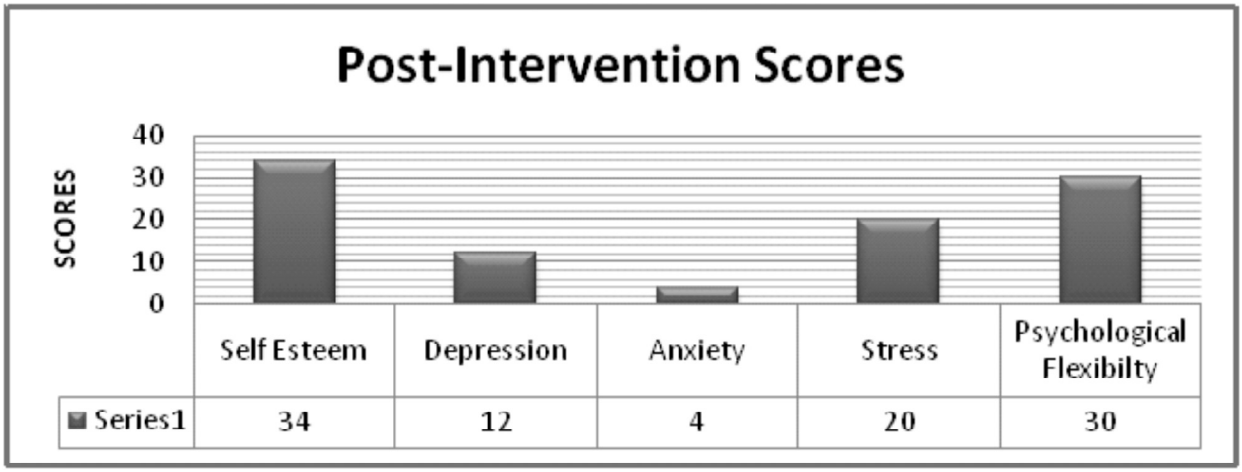

Fig. 5: Showing post-intervention scores

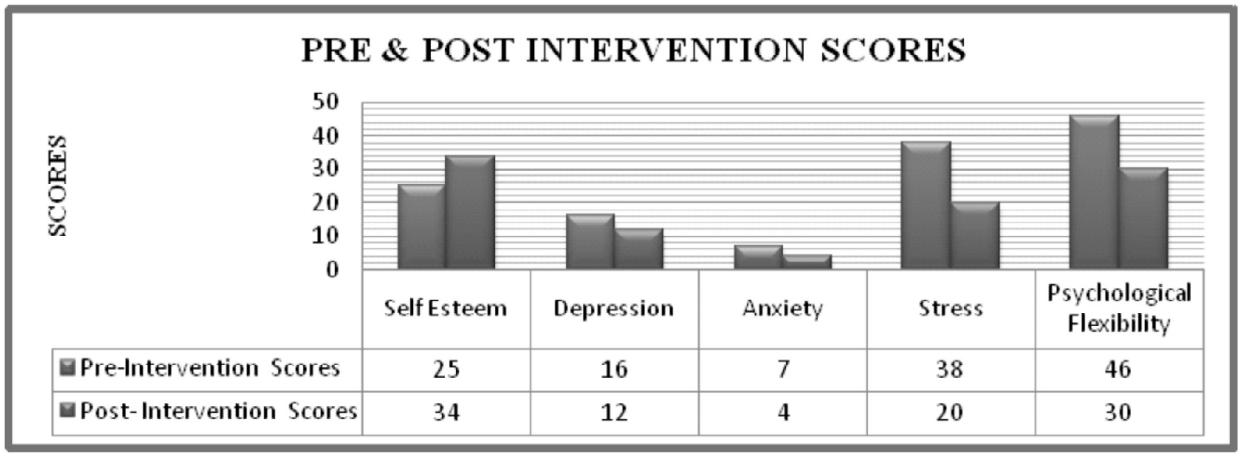

Fig. 6: Comparison of pre and post-intervention scores.

Questionnaire was 30, suggesting moderate level of psychological flexibility, reflecting greater acceptance and action.

Results

Therapist then compared the pre-post intervention scores of client to see the effectiveness of the intervention provided, which is represented in the following graph:

The major findings were as following:

- There was a decrease in scores on Depression, Anxiety, Stress and Psychological Flexibility (reduced experiential avoidance and immobility) indicating improvement in psychosocial concerns
- There was an increase in scores on Self Esteem, indicating improvement in psychosocial concerns.

It was seen that the score of self esteem scale was increased from moderate level to high level, while score of depression scale was decreased from moderate level to mild level, score of anxiety scale was at normal level, both pre-intervention and post-intervention, score of stress scale was decreased from very severe to moderate level and psychological flexibility was increased from mild to level to moderate level.

Conclusion

The authors attempt was to explore the need and effectiveness of psychological interventions for psychosocial concerns, associated with the dermatological conditions. The case study was of a fourteen year old adolescent female, suffering from Acne Vulgaris condition. On the basis of detailed history, present complaints and an initial interview, the patient revealed a pattern which was suitable for ACT intervention. Therapist found that, after the

ACT intervention was given, client had developed a better understanding of perceiving her situations and a better way to respond to them. She was able to observe her thoughts, live in present moment, explore her potential and modify her perception of 'self'. Also, she was able to deal with her psychosocial concerns and daily life challenges, due to dermatological condition. The scores revealed that client's level of self esteem and psychological flexibility improved and depression, stress, anxiety levels went down.

Future Scope of Study: The authors have made an attempt tofocuson dermatological conditions, which require psychological intervention. ACT was found to be effective, in dealing with such issues faced by adolescent population. In this case it was Acne Vulgaris, but one could find ACT as a potential alternative in other psychological concerns faced by adolescents.

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Original Article

A comparative study of Burden of care and Quality of life in caregivers of schizophrenia, seizure disorder and alcohol dependence syndrome

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ABSTRACT

Introduction: *Care giving is important part of management of chronic illnesses. Family is the main source of support for the persons with disabilities. Burden on relatives of patients with schizophrenia, seizure disorder (SD) and alcohol dependence syndrome (ADS) associated with reduction in their quality of life (QOL).* ***Aims and Objective****: To assess and compare quality of life and burden of care among caregivers of schizophrenia, SD and ADS.* ***Materials and methods -*** *This was a cross-sectional observational study carried out in tertiary care hospital. 75 caregivers included those involved in care of patients in last 12 months. A socio demographic Performa, Burden Scale for Family Caregivers and WHOQOL-BREF were used.* ***Results:*** *77.33% caregivers were males. Majority was in age group of 18-39 years (46.7%) and educated up to primary level (56%). Parents were main care giver (32%) followed by spouse (29.3%) and sibling (24%). There was no significant difference among the mean scores and their domains on WHO QOL. Mean score of burden of care in these caregivers was 41.68 and highest in caregivers of ADS (45.04).* ***Conclusion****: Burden of care was highest in wives of alcohol dependence syndrome groups. Though score on quality of life were comparable among groups.*

Key words: *Quality of life; Burden; Caregivers.*

Introduction

Caregiver is defined as a person who provides direct care (as for children, elderly people, or the chronically ill). There is no standard definition of family care giving which can be used consistently from one study to another.[1] In any society, Family is the main source of support for the persons with disabilities[2.] Mostly the patient's spouse, parents or closest relatives are main caregivers but significant others can also take on that role and function.[16] There is plenty of research about burden on relatives of patient with chronic illness or disabilities; however concern for this group has increased during last decades.[3,4] In association with chronic illnesses or disabilities, care giving can occur at any point in the life-course which results in loss of Independence and disturbance in proper day-to-day functioning of these caregivers.

A person suffering from schizophrenia is less likely to get a good employment and to marry which produce higher amount of burden on the family of the patient in financial, routine activities, family interaction, physical health and mental health of the family members.[5] So, burden on caregivers has been found associated with an important reduction in their QOL, causing damage in their health condition.[6-8] In 1993, The WHOQOL (The World Health Organization Quality of Life) Group defined QOL as

individual's perceptions 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, standards and concerns.[9]

Epilepsy is an unpredictable, often chronic and debilitating disorder. It impacts not only those bearing with it but also those who care for them. More than 70% of the adult population with epilepsy had the onset of their disease in childhood.[10] The diagnosis of a seizure disorder in children is associated with worries and fears in both the affected child and the parents. The family of seizure disorder child also affects in various aspect like leisure time activities, family and social relationship and finances. Interpersonal relationship and general family atmosphere of caregivers may become pathological because of this problem.[11]

Substance dependence is well recognized as a complex bio-psychosocial phenomenon and considered as a "family disease".[12] The adverse effects of substance dependence include physical, emotional, social, and financial distress and this leads to problems, difficulties, or adverse events in the lives of patient and his/her family members.[13] As the person with alcohol dependence syndrome becomes less predictable, less reliable, care givers loose selfconfidence and isolate from external contact to protect them from further embarrassment.[14] Various studies have seen burden of care in individual disorder independently but none of study has compared burden of care among these disorders.

Aims and Objectives

1. To find out socio-demographic details of caregivers of schizophrenia, seizure disorder and alcohol dependence syndrome.
2. To assess and compare quality of life in these caregivers.
3. To assess and compare burden of care in these caregivers.

Material and Methods

Research design: This is a cross sectional study which was conducted to compare three groups of caregivers.

Setting & Sample: The study was conducted at tertiary level teaching hospital. Total number of 75 subjects, among them, 25 caregivers in each group of Schizophrenia, seizure disorder (SD) and alcohol dependence syndrome (ADS) were included based on inclusion and exclusion criteria. **Inclusion criteria** for care givers, who were above age of 18 years and willing to give informed consent to participate in the study. Patient's illness should be more than 12 month and caregivers were living with patient for at least last 12 months and involved in care of patient.Caregivers reported to having serious medical illness impairing physical health which can affect their psychological wellbeing and younger age caregivers (below age of 18years) as they may not be able to understand the concept of care giving, nature & consequences of illness, medication issues etc. were **excluded** from the study.

Tools

1. A **semi structured sociodemographic Performa** containing socio-demographic detail of caregivers.
2. **Burden Scale for Family Caregivers (BSFC):** It containing 28 questionnaires which is rated on a three point rating scale. Question 1, 6, 8, 9, 11, 14, 15, 17, 19, 22, 28 are scored as 0, 1, 2 and 3 and 3, 2, 1, 0 are scored for rest. According to response of 28 questionnaire of BSFC, it divided into three categories: mild (BSFC score 0 to 35), moderate (BSFC score 36 to 45) and severely burdened (BSFC score 46 to 84).
3. **WHO-QOL-BREF Hindi Version:** This is the shorter version of WHO-QOL 100. We used Hindi version developed by Shekhar Saxena. This questionnaire consists of 26 questionsdivided into four domains namely Physical, Psychological, Social and Environmental. Questionnaire is rated on a five point rating scale. Questions are scored as 1, 2, 3, 4 and 5 while question 3, 4 and 26 are scored in reverse frame. The four domain scores denotean individual's perception of quality of life in each particular domain.

Results

The study consist of 75 caregivers from three different disorders namely schizophrenia, seizure disorder and alcohol dependence syndrome. These subjects were spouse, parents or any other family members.

Table 1 shows socio-demographic data of the

caregivers. 25 caregivers of schizophrenia patients who were fulfilling the criteria were interviewed in detail out of which 72% were male and rest were female and most of them 44% having age > 60 year and followed by 32% between ages of 40 to 59 years. Most of the caregivers were employed 60% while 40% caregivers were unemployed and 40% caregivers having no formal education while 24% caregivers having tertiary level education and 20% completed their primary education.

Most of the caregivers of schizophrenia patients were parents (48%) which followed by spouse, children and siblings each have 16%.

Out of 25 caregivers of seizure disorder patients 56% were male and rest were female and most of them having age between 18 to 39 years (60%) and 36% having 40 to 59 year of age. Mostly, caregivers were unemployed (60%), while 40% caregivers were employed. 40% caregivers completed their primary education while 32% have no formal education and 16% have secondary education and 12% have tertiary level education. Most of the caregivers of seizure disorder patients were parents (36%) which followed by siblings (32%) and spouse (24%).

The total 25 caregivers of ADS patients consist of 48% male and 52% females. Mostly, having age between 18 to 39 years (60%) and 28% between age of 40 to 59. Mostly, subjects were unemployed (52%), 48% subjects were employed.

40% completed tertiary level education, while only 12% subjects have no formal education. Most of the caregivers of ADS patients were spouse (44%) which followed by siblings (24%) and parents (20%).

Table 2 and 2A shows scores on WHOQOL-BREF scale. It was found that mean score among caregivers of schizophrenia in physical, psycho-

Table-1: Socio-demographic detail of Caregivers

	Profile of caregivers	Schizophrenia	SD	ADS
Gender	Male	18 (72%)	14 (56%)	12 (48%)
	Female	7 (28%)	11 (44%)	13 (52%)
	18-39	6 (24%)	14 (56%)	15 (60%)
Age	40-59	8 (32%)	9 (36%)	7 (28%)
	> 60	11 (44%)	2 (8%)	3 (12%)
	No formal education	10 (40%)	8 (32%)	3 (12%)
	Primary education	5 (20%)	10 (40%)	6 (24%)
Education status	Secondary education	4 (16%)	4 (16%)	6 (24%)
	Tertiary education	6 (24%)	3 (12%)	10 (40%)
	Unemployment	10 (40%)	15 (60%)	13 (52%)
Occupation status	Employment	15 (60%)	10 (40%)	12 (48%)
	Spouse	4 (16%)	6 (24%)	11 (44%)
	Children	4 (16%)	1 (4%)	3 (12%)
Type of care giving	Siblings	4 (16%)	8 (32%)	6 (24%)
	Parents	12 (48%)	9 (36%)	5 (20%)
	Others	1 (4%)	1 (4%)	0

Table-2: WHO QOL scores for caregivers of schizophrenia, seizure disorder and alcohol dependence patients

		N	Minimum M	Maximum M	Mean	Std. Deviation
Schizophrenia	PHYS	25	21.43	82.14	56.29	20.10
	PSYCH	25	25.00	79.17	51.67	16.97
	SOCIAL	25	25.00	75.00	54.67	16.51
	ENVIR	25	28.13	71.88	51.87	11.73
Seizure disorder	PHYS	25	17.86	82.14	59.71	18.66
	PSYCH	25	20.83	75.00	55.50	16.52
	SOCIAL	25	33.33	75.00	58.50	13.63
	ENVIR	25	28.13	71.88	52.12	12.59
ADS	PHYS	25	21.43	82.14	56.71	18.77
	PSYCH	25	25.00	70.83	50.67	14.62
	SOCIAL	25	25.00	87.50	53.50	17.17
	ENVIR	25	31.25	75.00	50.75	12.44

Table-2A: Analysis of Variance of WHO QOL score

		Sum of Squares	Df	Mean Square	F	Sig.
PHYS	Between Groups	174.49	2	87.24	.237	.790
	Within Groups	26508.16	73	368.17		
	Total	26682.65	75			
PSYCH	Between Groups	325.46	2	162.73	.630	.535
	Within Groups	18590.28	73	258.20		
	Total	18915.74	75			
SOCIAL	Between Groups	342.13	2	171.06	.682	.509
	Within Groups	18072.22	73	251.00		
	Total	18414.35	75			
ENVIR	Between Groups	26.82	2	13.41	.089	.915
	Within Groups	10820.31	73	150.28		
	Total	10847.13	75			

Table-3: burden scale for family caregivers (BSFC) of schizophrenia, seizure disorder and ADS

Disorder	N	Mean	Std Deviation	Std. Error	95% Confidence interval for Mean		Minimum	Maximum
					Lower Bound	Upper Bound		
Schizophrenia	25	42.88	10.00	2.00	38.75	47.01	25	60
Seizure disorder	25	37.12	9.41	1.88	33.23	41.01	22	52
ADS	25	45.04	7.74	1.55	41.84	48.24	25	60
Total	75	41.68	9.59	1.11	39.47	43.89	22	60

Table-3A: Analysis of variance of BSFC score

	Sum of Squares	Df	Mean Square	F	Sig.
Between Groups	838.08	2	419.04	5.05	.009
Within Groups	5968.24	73	82.89		
Total	6806.32	75			

Table-3B: Comparison of BSFC score between groups

Disorders		Mean Difference	Std. Error	Sig.	95% Confidence interval	
					Lower bound	Upper Bound
Schizophrenia	Seizure disorder	5.76	2.57	.085	-.55	12.07
	ADS	-2.16	2.57	1.000	-8.47	4.15
Seizure disorder	Schizophrenia	-5.76	2.57	.085	-12.07	.55
	ADS	-7.92*	2.57	.009	-14.23	-1.61
ADS	Schizophrenia	2.16	2.57	1.000	-4.15	8.47
	Seizure Disorder	7.92*	2.57	.009	1.61	14.23

logical, social and environmental domain was 56.28, 51.67, 54.67 & 57.87 respectively. Similarly, the mean score among caregivers of seizure disorder in physical, psychological, social and environmental domain was 59.71, 55.50, 58.50 & 52.12 respectively. While in Alcohol dependence syndrome caregivers, mean score in these domains was 56.71, 50.67, 53.50 & 50.70 respectively. This difference in mean score of WHOQOL was foundto be statistically not significant in all domains but depicting high impact onphysical health and social life of these care givers.

Table 3, 3A, 3B shows that caregiver on BSFC scale it was found that mean score of burden of care in these caregivers was 41.68. In caregivers of alcohol dependence syndrome, burden of care was highest which was 45.04. In these caregivers upper bound of BSFC score was 48.24 and lower bound

was 41.84. Respectively, in schizophrenia patient's caregivers mean score was 42.88. Upper bound of BSFC score was 47.01 and lower bound was 38.75. While, inseizure disorder caregivers mean score was 37.12. Upper bound of BSFC score was 41.01 and lower bound was 33.23.

Discussion

This study was aimed to assess burden of care in the caregivers of Schizophrenia, seizure disorder and alcohol dependence syndrome patient and to assess and compare the level of quality of life in these caregivers. Twenty-five caregivers in each of Schizophrenia, seizure disorder and alcohol dependence syndrome patients fulfilling the inclusion and exclusion criteria and giving informed consent were assessed on WHO-QOL-BREF and BSFC. Data were analyzed on suitable statistics using SPSS-21 software.

WHO-QOL was found to be affected in every domain with no significant difference in Physical, psychological, social and environmental domain but depicting high impact on physical health and social life of these caregivers. In this study, among the four domains of WHOQOL-BREF, mean satisfaction rating was found to be almost equal in all three chronic illnesses which imply social relationships of caregivers ofpatients suffer similarly. Other studies found that not meeting the needs of caregivers, burn out, high burden of care, high social stigma, low social support for care giver and low quality of life for care givers were among the most important challenges faced by care givers.[14-16]

In our study, we found significant burden of care on BSFC scale between these caregivers. These caregivers had moderate to severe burden during care of these patient.

Similar results found in other studies, According to Baronet,[17] burden in mental illness is determined by the presence of the disease and the result of the activities of care giving mediated by physical and psychological aspects and the resources of the environment.

In our study, main caregivers of alcohol dependence syndrome were wives and they had severe burden of care in comparison of schizophrenia and seizure disorder caregivers.

Alcohol ranks high as a cause of disease burden. Drunkenness and alcohol misuse by the male partner are associated with poor mental health and spousal violence among married women in India.[18-20] Research outside India documents that men's alcohol problems increase the risk of depression in their female partners;[21-23] exceeding the risks associated with women's own alcohol use disorders or spousal violence.

In our study, we also found significant result in burden of care between caregivers of seizure disorder and alcohol dependence syndrome. Caregivers of seizure disorder had mild to moderate burden during care of patient. The results agree with Anna et al. 2012 who reported that, epilepsy had an impact on caregivers QOL and imposed a mild to moderate burden as a consequence of care giving.[24]

Conclusions

Quality of life of these care givers was affected in each and every domain but physical and social domain being the most affected. Burden of care was found significant in these caregivers but maximum burden was found in wives of ADS patient.

Implication of study

- Family caregivers of mentally ill patients have high level burden and thisis a call for urgent need of provision of professional care services such as half way homes, sheltered accommodation for not only treatment and rehabilitation of mentally ill persons but also to reduce the excessive care giving burden.
- Raising awareness and improving education of epileptic patients and their family through accurate information about epilepsy, treatment options, and associated co morbidities and available vocational and community resources and health care services will reduce caregiver burden.
- Significant burden exists on wives of alcohol dependent patients so management plans must be devised aiming not only patients but also wives so as to reduce burden.

Limitations

- The sample size was small and recruited from a tertiary care center; hence, the findings could not be generalized to other treatment settings.
- Sampling method used was convenient

sampling which has its own limitations.
- Assessments of burden was cross-sectional and nonblind, and other sources of burden such as other stressors and life events were also not assessed.
- All information was obtained from a single family caregiver.

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Original Article

Perceived Stress and Coping Strategies among Women with dissociative disorder

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ABSTRACT

Background: *Dissociative disorders include disruption on individual's memory, identity, perception, consciousness or motor behaviour. Many women from West Bengal are victims of domestic violence and the cultural background varied also. Traumatic stress has a pervasive relationship with dissociative phenomena. Perceived Stress can be conceived of along two themes: the physical and mental changes a person experiences as a result of the external stressor and the aptitude, the person possesses to handle the stressful situation that is coping.* ***Aim:*** *The aim is to compare the perceived stress and coping strategies between women with dissociative conversion disorder and women without dissociative conversion disorder.* ***Methods:*** *60 female respondents (30 of dissociative disorders and 30 of general population) were reviewed and the two groups were compared with respect to socio-demographic profile, perceived stress and coping mechanisms.* ***Results:*** *Dysfunctional coping of the respondents and level of stress was significantly higher in women with dissociative disorders. Respondents with dissociative disorders had a significantly higher number of housewives.* ***Conclusion:*** *Women with dissociative conversion disorder have higher level of perceived stress and develop faulty coping mechanisms.*

Key Words: *Dissociative conversion disorder, Women, Perceived stress, Coping*

Introduction

In the modern world we find quite a large number of persons are disturbed by mentally living under great stress and tension. The people who perceived stress frequently are victims of mental illness. The stressors develops dysfunctional coping and it leads to disrupt their behaviours or daily functioning. Dissociative disorders include disruption on individual's memory, identity, perception, consciousness or motor behaviour.

Perceived stress is an individual's global appraisal of the degree to which situations in her life are overwhelming. It is a precursor for numerous poor health outcomes including inflammation and cardiovascular disease, and is a predictor of all-cause mortality.[1,2] McEwen (1998)[3] described that a convenient amount of perceived stress is in fact healthy and would confront the individuals to grow. Mostly the high level of perceived stress tends to manipulate the functioning of the immune system.[4] A study on "The Influence of Current Stress on Dissociative Experiences: An Exploratory Study in a Non-Clinical Population", focused on the relationship between current stresses, as that is perceived by an individual, and dissociative phenomenon was explored. They found that the experiences of dissociation were increased when subjects experienced high levels of stress.[5] The psychological stress is a relational notion that stems from a perceived contradiction between an external require or demand and the available resources for dealing with it. Stress can be conceived or perceived of along two themes: first the physical and mental changes a person experiences as a result of the external stressor and the propensity the person possesses to handle the stressful situation (that is

coping).

The term coping refers to the adaptive skills such as constructive coping strategies. Coping usually refers to the immediate or reactive coping that is the response of coping which follows the stressor. Defense mechanisms or any other subconscious or un-conscious strategies are usually barred from the domain of coping. Lazarus and Folkman in their psychological stress model views stress as emerging from a circular series of novel events and those are followed by physiological and emotional changes and consequent appraisals of obtainable coping options and their effectiveness. The adaptive coping mechanism helps the individual to develop his or her optimum level functioning but maladaptive coping methods leads to malfunctioning and intensify the disorder highly. Dissociation and others psychological behaviors are such examples of maladaptive behavior strategies.

In India, for different cultural values the boundaries for girls are multiple and rigid. Even in this era there are zillion of families who restricted women from many facilities. The girls are considered as a family burden and female infanticide is going on till now. A study by Debashri Banerjee[6] in 2017 focused on the violence against women in an alarming state i.e. West Bengal. The poor growth of literacy among female population, also hypocritical comments like "a woman is nothing but her womb" always portrays that women can be only identified with their reproduction system. The alarming fact is that the picture does not change at all. A study also focused on the relationship between mental illness and gender where they concluded with hysteria is woman-specific disease. The vivid history of hysteria indicates that illness is not exclusively determined by biological factors, but also significantly by the socio-cultural influences, for example in the treatment of hysterical women or female.[7]

Experience of the symptoms of this particular disorder is more common during any major social dislocation and violence. Dissociative fugue is usually described in adults. Clinical studies show the ratios between female and male is 5 to 1 and in diagnosed cases it is 9 to 1 in dissociative identity disorder.

Dissociation as an experience is reported to occur in a variety of disorders. This extensive occurrence has contributed to a better understanding of dissociation. According to the ICD-10 (WHO 1992), attempts should be made to systematically recognize the client's psychosocial environment or atmosphere. Stressors in an unfavourable condition and coping abilities as well as there are some specific secondary gains due to dissociative disorder, if any could be found then therapist should be carefully elicit those. The need of the study was to assess the perceived stress and coping strategies between women with dissociative conversion disorder and women without dissociative conversion disorder. This study will focus on the coping skills of women with dissociative conversion disorder and the perceived stress and coping skills of women in normal population. Psychosocial stressors are correlated with increased risk of Dissociative conversion disorder. Significantly the higher number of the clients presents the stressor of troubles with in-laws or family. It is very essential to correlate stressor with the onset of dissociative symptoms. There are practically no studies on the perceived stress and coping on women with dissociative conversion disorder and hence this study has been selected to conduct in a tertiary setting in Kolkata.

Objectives of the Study

The present study compares the socio-demographic and clinical profile, perceived stress and coping of women with dissociative conversion disorder and women without dissociative conversion disorder

Materials and Method

Research Design: This study is a cross sectional, comparative study.

Venue: *Group A:* Outpatient department of Institute of Psychiatry, Centre of Excellence, Kolkata, India & *Group B:* Barasat, Kolkata. Duration of the study was July 2017 to November 2017.

Sample: *Group A* (Women with Dissociative conversion disorder) - People came to Outpatient department of Institute of Psychiatry. Those persons who are receiving treatment from Institute of psychiatry, Kolkata are selected. *Group B* (Women without Dissociative conversion disorder) - The permanent resident of block 1, Barasat, North 24 pgs. ***Sampling:*** Criteria based Purposive Sampling. ***Sample size:***

Subject Recruitment Procedures

Group A - Thirty persons diagnosed with Dissociative conversion disorder is selected from the outpatient department of Institute of Psychiatry-Centre of Excellence.

Group B - Thirty persons from general population is selected from North 24 pgs.

Subject Inclusion Criteria

Group-A

Age within 18 to 55 years

Only Females

Duration of illness - at least one year

Consent of the person with dissociative conversion disorder

Consent of the family members of the person with dissociative conversion disorder. (generally dissociate person is attention seeking and manipulative in nature. So for the purpose of cross checking, we have included the family members)

Those who fulfilled the ICD-10 criteria for dissociative conversion disorder and those who diagnosed by the consultant psychiatrist of the outpatient department of Institute of Psychiatry-Centre of Excellence

Person who can speak in Bengali or English

Group-B

Persons who have never been diagnosed with any psychiatric disorder in the general population within any clinical settings

Age within 18 to 55 years

Only Females

Person who can speak in Bengali or English

Persons who scored less than 3 in GHQ-12

Exclusion Criteria

Group-A

Any co-morbid psychiatric or neurological or medical illness and substance dependence

Those who did not give their consent

Group-B

Any female with psychiatric or major medical illness

Persons who scored 3 or more than 3 in GHQ-12

Those who did not give their consent

Tools Description

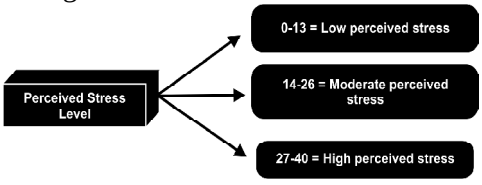
(i) Semi-structured socio demographic data sheet-

A semi structured pro forma, specially designed for the study and that is used by the researcher to elicit the various socio demographic information - Name, Age, Sex, Domicile, Educational qualifica-tion, Religion, Occupation, Marital status, Address, Type of family, Number of family members and Monthly income of the family.

(ii) The General Health Questionnaire (GHQ)-12 (Goldberg, 1988)[8]

(iii) Perceived stress scale: (Cohen, 1983)[9]

The Perceived Stress Scale was propounded by Sheldon Cohen in the year 1983. This scale (PSS) is the most extensively used psychological instrument to measure of the degree to which situations in one's life are appraised as stressful. Items were specially designed to tap how unpredictable, uncontrollable, and overloaded respondents find their lives. The scale also includes a number of direct queries about existing and current levels of experienced stress. The items or questions are easy to understand, and the response alternatives are very simple to grasp. Moreover, the questions are of a general nature and therefore are relatively free of content specific to any subpopulation group. The questions in this scale asked about feelings and thoughts during the last month. In every case the respondents are asked how often they felt in a certain way. This scale is a self-report that measures the perceived stress level. There are three levels of stress range in this scale. Total items in the scale are 10. The 10 questions in the perceived stress scale ask about feelings and thoughts during the last month.

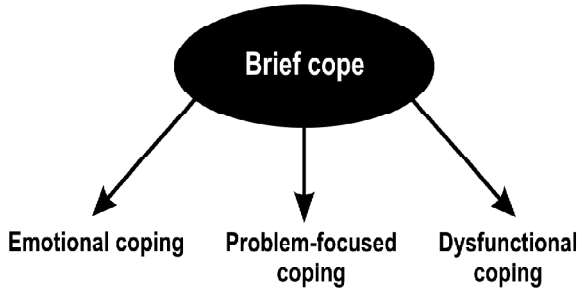


(iv) Brief Cope Scale: (Carver, 1997)[10]

Brief Cope Inventory is a 28 items scale propounded by Charles Carver.Brief Cope scale is the abbreviated version of the original 60-item Cope Inventory.It is a 28-item self report 4-point Likert-scale and instrument containing 14 sub category questions. The 14 categories are:

I. Active coping
II. Planning
III. Positive reframing
IV. Acceptance
V. Humor
VI. Religion
VII. Using emotional support
VIII. Using instrumental support
IX. Self-distraction
X. Denial
XI. Venting
XII. Substance use
XIII. Behavioral disengagement
XIV. Self-blame

It is 2-item scales, which are categorized as three domains. Responses on each item range from 1 (I have not doing this at all) to 4 (I have been doing this a lot). Coping is the sum of the 28 items ranging from 28 – 112. Emotional coping score range: 10-40, problem focused coping score range: 6-24, dysfunctional coping score range: 12-48. Higher scores on this scale indicates more frequent use of that coping style of the individual



Procedure

Group A - Selecting procedure for Women with Dissociative conversion disorder : Females with Dissociative conversion disorder who attended the outpatient department of the Institute of Psychiatry-Centre of Excellence and gave their consent to participate in the study and after fulfilling the inclusion and exclusion criteria were included for the purpose of data collection for the present study. Then consent was taken from the group, the researcher took the consent from persons with dissociative conversion disorder and from their family members as well. Already diagnosed cases by a certified psychiatrist of Institute of Psychiatry were only taken for the study. There was no separate clinical assessment of the cases and Group A was informed. Persons from this group were briefed about the purpose of the study. Then the socio demographic data including age, sex, religion, educational qualification, occupation, socio-economic status, type of family, number of family members was collected and for clinical data a brief history of their illness was taken from them. Then the researcher administered brief cope scale and perceived stress scale followed by scoring the collected data.

Group B - Screening procedure for Women without Dissociative conversion disorder: Group B- The females from general population and who are resident of Barasat block 1, North 24 pgs included for the purpose of data collection in the study. They were briefed about the purpose of the study and their consents were taken to participate in this study. For Group B - Researcher used General health questionnaire as a screening tool for them, the persons who scored less than 3 were included in this study. Then the socio demographic data including age, sex, religion, educational qualification, occupation, socio-economic status, type of family, number of family members was collected.

Then the researcher on the selected individuals administered brief cope scale and perceived stress scale followed by scoring the collected data. After completion of data collection, coding was done and data was entered into the master chart and then the statistical package for social sciences version 23 was used for analysis and interpretation.

Statistical Analysis

In this study, descriptive statistics - Mean, Standard deviation and Percentage were used. The study used inferential statistics like chi-square for discrete variables and t test for continuous variables. In this study researcher used Statistical Package for Social Sciences 23 version for computing descriptive and inferential statistics.

Ethical Consideration

Written informed consent was taken from the persons with Dissociative conversion disorder with their family members and persons from general population. An information brochure was provided to them in English, Hindi and Bengali so the participants could easily understand. All the queries and clarification were addressed before and after the study. Confidentiality was maintained strictly. Ethical clearance was taken from the Ethics committee of the Institute prior to conducting the study. Participants in Group A in the present study continued to receive psychosocial intervention from the department of psychiatric social work along with the other routine services of Institute of Psychiatry.

Results

Table1: Socio-demographic profile of women with Dissociative conversion disorder and women without Dissociative conversion disorder

Variables	Group-A (n=30) (Frequency %)	Group-B (n=30) (Frequency %)	Chi-square test X^2	Sig. (2-tailed)
1. Marital status	56.7%	76.7%	3.216	.079
(Married, unmarried, widow)	40 %	23.3%		
	3.3%	0.00%		
2. Education	6.7%	0.00%	8.910	.063
(Literate, Up to primary,	26.7%	13.3%		
Secondary, Graduate,	53.3%	43.3%		
Post-graduate)	13.3%	36.7%		
	0.00%	6.7%		
3. Religion	63.3%	83.3%	3.068	0.72
(Hinduism, Islam and others)	36.7%	16.7%		
	0.00%	0.00%		
4. Occupation	30%	6.7%	12.019	0.01*
(Student, House-wife	53.3%	46.7%		
Service, Unemployed, Retired)	6.7%	36.7%		
	10.%	6.7%		
	0.00%	3.3%		
5. Family type	46.7%	53.3%	3.170	.197
(Nuclear, Joint, Extended,	43.3%	46.7%		
Staying alone)	3.3%	0.00%		
	6.7%	0.00%		
6. Socio-economic status	80%	66.7%	2.649	.146
(Lower, Middle and Upper)	20%	26.7%		
	0.00%	6.7%		

Note: Unemployed means neither married nor student and not engaged in income generated work.
*Significant at .01 level (2 tailed)

Table-2: Difference in Perceived Stress between Women with Dissociative conversion disorder and Women without Dissociative conversion disorder

Variable	Category	Group A (Persons with Dissociative conversion)	Group B (Persons from general population)	X^2	Sig (2 tailed)
Perceived Stress	Low	0.00%	30 (100%)	60.000	.000*
	Moderate	8 (26.7%)	0.00%		
	High	22 (73.3%)	0.00%		

Table-3: Difference in Coping Strategies between Women with Dissociative conversion and Women without Dissociative conversion disorder

Variable	Group A (n = 30 Mean $\pm$ SD)	Group B (n = 30 Mean $\pm$ SD)	t-test	Sig. (2-tailed)
Coping strategy- Problem-focused	10.0667 $\pm$ 1.57422	18.9000 $\pm$ 3.60412	-12.302	.000*
Coping strategy- Dysfunctional	27.5667 $\pm$ 3.51041	16.1667 $\pm$ 3.25982	13.034	.000*

Note: There were not found significant inferences in the area of emotional coping. That was the region for excluding the domain.

Discussion

The present study compares the socio-demographic and clinical profile of women with dissociative conversion disorder and women without dissociative conversion disorder. Table 1 gives the socio-demographic profiles of Group A and Group B, which were almost similar. 16 respondents (53.3%) with Dissociative conversion disorder were mainly housewives, 9 of them (30%) were students, 3 respondents (10%) were unemployed and rest of 2(6.7%) were doing service and there were no retired women in this group. On the contrary 14 (46.7%) women without Dissociative conversion disorder were occupied as housewife, 11 among them (36.7%) were doing service, 2 respondents each (6.7%) were students and currently unemployed and only 1(3.3%) retired from her job. Group A and B differ significantly with respect to their occupational status. The difference was significant at .01 levels. In the present study it was found that there was a statistically significant difference between women with Dissociative conversion disorder and women without Dissociative conversion disorder in terms of occupation. This finding is consistent with the finding of study by Dr. E. Ramachandra Rao and Dr. Archana.[11] They explored in their study that Dissociative disorder was more common among females in which 70% were housewives.[11] Another study done by Jain and Verma et al[12] and Choudhury et al[13] have found that mostly housewives are the predominant in Dissociative disorder group.

The aims of this study were to find out the difference in Perceived Stress between Women with Dissociative conversion disorder and Women without Dissociative conversion disorder. Table 2 is showing that the majority (73.3%) of women with Dissociative conversion disorder (Group A) had high level of stress followed by 26.7% of women with Dissocia--tive conversion disorder who had moderate level of perceived stress. None had low level of perceived stress in this group which indicates of the samples with Dissociative conversion disorder had either high or moderate level of perceived stress. On the other hand Group-B had low level of perceived stress. The mean perceived stress of Group A was 28.4333 + 5.24361 and another group was 5.1667 + 2.32057. In both of the group, Women with Dissociative conversion disorder and Women without Dissociative conversion disorder differ significantly at the level of .001. This finding of this study is quite similar with the study by Irpati et al which showed that abnormal illness behaviors were significantly related to stress (daily hassles) perceived by the clients with dissocia-tive experience.[14] In this study 73.3% of women with Dissociative conversion disorder experienced high level of stress. This study is quite consistent with the previous study wherein they found out that higher number persons with Dissociative conversion disorder had high stress level and experience of trauma also.[15]

Another aim of this study was to assess the difference in Coping Strategies between Women with Dissociative conversion and Women without Dissociative conversion disorder. Table 3 portrays the mean of Problem focused and dysfunctional coping strategy inboth groups are 10.0667 + 1.57422, 27.5667 + 3.51041 and 18.9000 + 3.60412, 16.1667 + 3.25982 which indicates that the women without dissociative conversion disorderuse more of problem focused coping strategy on the contrary women with dissociative conversion disorder use more of dysfunctional coping. The difference is significant at .001 level in both aspects. A hospital based study by Ahmed and Bokharey where it was found that Dissociative conversion disorder had low trait resilience and used greater number of dysfunctional coping strategies.[16]

Conclusions

Women with Dissociative conversion disorder and Women without Dissociative conversion disorder significantly differ with respect to Perceived stress. Majority of Women with Dissociative conversion disorder have high and moderate perceived stress. Women with Dissociative conversion disorder and Women without Dissociative conversion disorder differ significantly with respect to Problem focused and dysfunctional coping strategies. Women with Dissociative conversion disorder tend to develop more dysfunctional coping mechanism for their psychosocial stress and it decreases their daily functioning and adaptive skills.

Limitations and future direction

Limitations of the study include small sample size. As this is a cross-sectional study, the pattern of symptomatology in subsequent recurrence could not be studied thereof.

For future direction a large sample size will be considered to validate and replicate the findings. A controlled group of young adults will be taken for further study. In the future mixed method study can be done to conduct an in-depth evaluation of the problem.

Author's contribution

This paper is part of M.Phil (psychiatric social work) dissertation of first author,Second author is a guide of the 1st author and 3rd author helped in the preparation of research design, literature review and analysis of data.

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Original Article

Reassessing the utility of Electroconvulsive Therapy in light of MHCA 2017: a retrospective data-based study in tertiary care hospital

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ABSTRACT

Background: *Electro-convulsive therapy (ECT) is the most commonly studied neuro-modulation therapy for severe psychiatric disorders like severe depressive disorders, mania, catatonia and acute exacerbations of schizophrenia and risk of self-harm.* ***Material & Methods:*** *Information was gathered from the charts of all patients who received ECT between January 2017 to December 2017. Psychiatric diagnosis was made as per the International Classification of Diseases (ICD) -10. Severity of the diagnosis was measured by a psychiatrist using the standardized scales at the initial ECT procedure and prior to all subsequent procedures to monitor response. Data was collected and analyzed for all the 70 patients. All patients who were administered ECT received bilateral modified ECT.* ***Results:*** *A total of 70 patients aged between 16-57 years were given ECT during the study period. The most common diagnosis in the group was Bipolar Affective Disorder (N = 23; 32.85%), followed by psychosis (N = 24; 34.28%). The most common indication for ECT in the group was poor response to medications (N = 38; 54.28%) followed by requirement of early response (N = 15; 21.4%). The number of ECTs administered to patient ranged from 1 to 12, with an average of 6.82 per patient. In terms of improvement, 87.14% (N = 61) showed good response to treatment defined as 20% or more reduction on scales used for psychosis, complete absence of symptoms on BFCRS (Bush-Francis Catatonia Rating Scale), 50% or more reduction in mood symptoms on standardized scales and 25% or more improvement in OCD symptoms on standardized scales.* ***Conclusion****: ECT warrants early consideration in treatment algorithms for patients. With the introduction and implementation of MHCA 2017 and its stance on emergency ECT as well as ECT in minors, alternative treatment plans will be needed in this group of patients.*

Keywords: *ECT, Indications, Response, MCHA*

Introduction

Electro-convulsive therapy (ECT) is the most commonly studied neuro-modulation therapy for severe psychiatric disorders like severe depressive disorders,[1] mania, catatonia and acute exacerbations of schizophrenia and risk of self-harm.[2] It is characterized by induction of a series of generalized epileptic seizures for therapeutic purposes, using brief-pulse stimulation techniques under anesthesia and muscle paralysis.[3,4] Despite evidence establishing the efficacy and safety of ECT, guidelines only recommend ECT as a later intervention for severe and complex depression following the failure of multiple medications, high-intensity psychological interventions, combined treatments, and collaborative care.[5] The evidence for the effectiveness of ECT in schizophrenia in general was not conclusive and therefore NICE does not recommend ECT in this population.[4] Four RCTs reviewed in the Assessment Report of NICE suggest that ECT may be of benefit

in the rapid control of mania and catatonia and this suggestion is supported by evidence from a number of observational studies and testimony from clinical experts. However clear-cut guidelines for ECT use in Catatonia and mania are missing.[6]

With the introduction of Mental Health Care Act 2017, discussion on the use of ECT has once again come to forefront. The act forbids the use of ECT as part of emergency management. It also recommends that ECT not be given to minor and if required, prior consent be taken from the guardian and permission from the concerned board.[7]

We have collected data from a tertiary center prior to implementation of MHCA 2017 to analyze demographic details, indications and treatment outcomes in patients receiving mECT in the light of MHCA 2017.

Material and Methods

Upon approval from the institutional ethical committee, information was gathered from the charts of all patients who received ECT between January 2017 to December 2017, Department of Psychiatry, Lady Hardinge Medical College. Psychiatric diagnosis as defined by the International Classification of Diseases (ICD)-10 was made or confirmed by an experienced psychiatrist during the initial evaluation. Severity of the diagnosis was measured by a psychiatrist using the standardized scales at the initial ECT procedure and prior to all subsequent procedures to monitor response. Data was collected and analyzed for all the 70 patients. The data was collected from ECT record register of the department which included details about ECT, diagnosis treatment history and improvement assessed by applying appropriate scales. However, the data lacked complete sociodemographic details.

All patients who were administered ECT received bilateral modified ECT. The decision to administer ECT is usually taken by the consultant-in-charge of the case, in consultation with other treating team members. ECT is usually advised based on the patient's clinical status, severity of symptoms, response to other treatment and past history. Once ECT is considered as a treatment, patient and family members are approached and explained about the need for the ECT and procedure of ECT. Once consent is given, patients who agree to undergo ECT are evaluated physically, undergo necessary investigations and are evaluated by the anesthetist for their fitness to undergo ECT. If the patient is considered to be fit for ECT, then they are administered bilateral, brief-pulse, modified ECT. The ECT machine delivers constant energy. However, it has the provision for adjusting the duration of current passed (0.1 s to up to 5 s), frequency (settings of 20, 40, 50, 60, 70, and 90 Hz), and the pulse width (0.1, 0.2, 0.5, 1, 1.2, and 1.5 s). Usually, the frequency (70 Hz) and pulse width (1 s) are kept constant and the duration of current is adjusted. In most subjects, the first stimulus is given at 0.6s. If the patient does not have an effective seizure (motor seizure of 15-s duration), the duration of current passed is increased and a maximum of 3 stimuli are given in an ECT session. In our institute ECT is administered according to NIMHANS ECT manual.[8] In subsequent sessions, the electrical dose is adjusted to compensate for the rise in the seizure threshold. ECT is given three times a week.

Data was analyzed by using SPSS-21 version.[9] Categorical variables were analyzed in the form of frequency and percentages. Continuous variables were evaluated in the form of mean and standard deviations.

Results

Study Sample and Demographic Profile

During the study period a total of 294 patients were admitted in the in-patient facility. A total of 70 patients aged between 16-57 years were given ECT during the study period. The mean age of patients was 29.27 years. During this period 7 minors (age< 18 years) (N = 7; 10%) received ECT. The group consisted of 36 females and 34 males.

Clinical Profile

The most common diagnosis in the group was Bipolar Affective Disorder (N = 23; 32.85%) with mania with psychotic symptoms (N = 16; 22.85 %) more common than without psychotic symptoms (N = 5; 7.14%) followed by current episode depression (N = 2; 2.85%). Second most common diagnosis was of psychosis (N = 24; 34.28%) with paranoid schizophrenia most common diagnosis (N = 15; 21.42%) followed by acute and transient psychotic disorder (N = 3; 4.28%). Six cases (N = 6; 8.57%) received ECT for diagnosis of obsessive-compulsive disorder and five (N = 5, 7.14%) with presentation

of catatonia and same number (N = 5, 7.14%) with severe depressive disorder and recurrent depressive disorder.

Emergency treatment including ECT defined as that given within 72 hours of admission was given to twenty-five patients (N = 25; 35.71%) out of which three (N = 3; 4.28%) were minor. The response in clinical symptoms varied from 4% to 95% with an average response of 53.60%. (The treatment response was taken as a change in rating on diagnostic scales over individual sessions and not as completion of ECT.)

ECT Profile

The most common indication for ECT in the group was poor response to medications (N = 38; 54.28%) and this was followed by requirement of early response (N = 15; 21.4%) and others such as suicidality and catatonic symptoms.

The number of ECTs administered to patient ranged from 1 to 12, with an average of 6.82 per patient. In terms of improvement, 87.14% (N = 61) showed good response to treatment defined as 20% or more reduction on scales used for psychosis, complete absence of symptoms on BFCRS, 50% or more reduction in mood symptoms on standardized scales and 25% or more improvement in OCD symptoms on standardized scales.

Discussion

Out of the total 294 in-patients in the study duration, 70 patients (23.80%) received ECT. When compared to past studies[10,11] it shows that there is a gradual rise in use of ECT in patients which can be attributed to-better and safe practices and slow but steady decline in the stigma surrounding the use of ECT. Among the 70 who were administered ECT, mood disorder (N = 33; 47.14%) was the most frequent diagnosis followed by psychosis (N = 24; 34.28%). This finding is in variance with earlier reports of ECT practice in Asia, where schizophrenia was observed to be the most common diagnosis.[12,13] However, these are more in accordance to recent guidelines where more robust and clear indications for ECT exist in mood disorders as compared to psychosis.

Another main indication for ECT i.e. catatonia was represented in around 7% of patients.

Around thirty six percent of the patients got emergency treatment which included ECT, mainly in cases where rapid response[14] was desired due to severity of symptoms (failure of oral intake over few days with potential of mortality).

Within this group three (4.28%) were minors (<18 years of age). A total of seven minors (10%) had received ECT in the study period. Multiple studies have demonstrated the safety and efficacy of ECT in pediatric population for varied psychopathology.[15]

The response in clinical symptoms varied from 4% to 95% with an average response of 53.60%. ECT is associated with rapid response and remission in a high percentage of patients.

No individual suffered complications of anesthesia or serious adverse effects of ECT during the study period.

ECT warrants early consideration in treatment algorithms for patients. With the introduction and implementation of MHCA 2017 and its stance on emergency ECT as well as ECT in minors, alternative treatment plans will be needed in this group of patients. The rapid response and resolution of these symptoms will become a challenge for clinicians as much time might be taken in getting permission from the concerned boards unless robust measures are implemented.

Retrospective design, possible selection bias by virtue of being a single-center study, and non-matching of sample across the studied groups are a few limitations of the study. Gender differences, socio-demographic differences, long term sustained benefits as well as adverse effects of ECTor differences in reasons for termination of ECT were not analyzed due to lack of access to this data. Although the data for gender of patients was available but the gender differences between groups could not be assessed due to small sample size in each group. Given the naturalistic study design, the results are not affected by constraints of patient selection and ensuring strict protocols as in clinical trials. For this reason, they are also more reflective of real-world practice of ECT in Indian settings.

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Original Article

Parental Psychological Distress and Child Developmental Outcomes

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ABSTRACT

Introduction: *Parent psychological distress is considered to be associated with unsupportive, controlling and neglectful parenting practice towards their children. This is suggested to significantly impact the childs' developmental outcomes like Hyperactivity, Emotional Problems, Conduct Problems, Peer Problems and low Pro-social behaviour.* ***Method****: Data was collected from 176 parents residing in India satisfying the exclusion and inclusion criteria. The Parent Psychological Distress Questionnaire (PPDQ), a self developed questionnaire by the researchers was used to assess parent psychological distress. The Strengths and Difficulties Questionnaire (SDQ) was applied to assess the child developmental outcomes across 5 domains, i.e Emotional Problems, Peer Problems, Conduct Problems, Hyperactivity/inattention and Total Difficulty Score.* ***Results:*** *Significant correlations were found between Parental Distress and Emotional problems (r = .33); Conduct Problems (r = .16), and Hyperactivity (r = .18). The correlation coefficient (r = .27) signified a significant positive correlation between parental distress and child developmental outcomes.* ***Conclusion and Implications****: Understanding this relationship gives impetus to the development of parent specific psychological distress assessments, and implement timely interventions for the parents and the child.*

Keywords*: Psychological Distress, Child Development, Hyperactivity, Emotional Problems, Conduct Problems, Peer Problems.*

Introduction

There is an increase in prevalence of child developmental problems, related to behavioural and emotional mental health, resulting from an interaction of various risk factors like peer interaction, family environment, stressful pregnancy, academic stress and adverse socio-economic influences.[1-4] Beyond these, in particular, parental psychological distress as a risk factor in poor child developmental outcomes has been increasingly explored recently.[5-9] The present study advances the existing body of literature by studying the relationship between parental distress and different outcomes in child development.

Feldman[10] defined child development as "the scientific study of the patterns of growth, change, and stability that occur from conception through adolescence" (p.3). It can broadly be classified into four types, i.e. Physical development (examining how the body's organs, systems and senses and the need for food, drink, and sleep—helps determine behaviour); Cognitive development, (includes how growth and change in intellectual capabilities influence a person's behaviour); Social development (specifies how social interactions and relationships grow, change, and remain stable over the course of life); Personality development (includes how enduring characteristics that differentiate one person from

another change over the life span).[10] Child development is a broad field, wherein developmentalists believe that there is a potential for both growth and decline in an individual's abilities.[10] A lot has been written about the interaction between nature and nurture.[11] Research on child development has suggested that a child's development may be negatively or positively influenced by the interaction between nature (genetic, inherited influenced) and nurture (environmental factors including parents, social-economic circumstances, biological influence of maternal pregnancy).[12-16] For example, several studies have shown that psychiatric and behavioural developmental problems in children tend to be influenced by adverse socio-economic circumstances or neglected parenting at home.[17,18] The behavioural issues are not new to Indian population. The prevalence of child behavioural problems in India ranges from 6.3%[19] to 12.5%[20] and is only increasing now with nearly 50 million children suffering from behavioural concerns.[21]

Child behavioural problems can be majorly distinguished into two categories, i.e. Internalizing behaviour and Externalizing behaviour.[22] Internalizing behaviour reflects a child's psychological and emotional state;[23] while externalizing behaviours are displayed outwardly and are reflected by behaviour towards the physical environment.[23] Achenbach[24] and Werry[25] suggest that internalizing behaviours include Emotional Problems (anxiety, sadness, social withdrawal, and fearfulness); Peer Problems (inability to build or maintain satisfactory interpersonal relationships with peers and teachers, bullying or being bullied, inappropriate types of behaviour or feelings) and Pro-social Behaviour Problems (lack of being considerate of others, poor sharing, unhelpfulness, being unkind and lack of volunteerism). On the other hand, externalizing behaviours include Hyperactivity (over activity, being restless, poor impulse control, low task completion and difficulty sustaining attention) and Conduct Problems (non-compliance, disobedience, aggression and violence toward others, deceitful behaviour and tantrums).[26] It is likely that having higher levels of any of these domains may put the child at risk for poor academic, social and emotional outcomes.[27-28]

The quality and nature of the parent's nurturance of the child significantly depends on the wellbeing of the parent.[29] In particular, the psychological distress of parents related to factors like low socio-economic status, stressful pregnancy, and stressful parenting have been found to be correlated with child development outcomes like delayed child development, intellectual disability, and Attention Deficit Hyperactivity Disorder (ADHD).[30-36]

A handful of recent research suggests that parental psychological distress may be linked to unsupportive, controlling, neglecting and punitive parenting practice towards their children, including reduced quality and quantity of time spent with the children and lack of being able to provide social and cognitive nourishment for the child.[37-42] Such disrupted parenting practices have been associated with externalizing and internalizing problems in child development.[43-45] Elgar[29] suggested that parental depression symptoms were highly correlated with emotional problems in child development between 10-15 years like lack of emotional regulation, more insecure attachment, heightened emotionality and etc.

Additionally, a positive correlation between prenatal anxiety and child emotional problems has also been previously suggested in research.[46-48] Hamilton McCubbin[49] introduced the perspective that the psychological resources of parents like ambition, trust and motivation may be internalized by the children, such that the emotional uncertainty of parents (e.g. divorce or unemployment related) may negatively impact the child's ability to cope.

Further, Orsmond, Seltzer, Krauss, and Hong[50] suggested that increased maternal burden, pessimism and depressive symptoms are associated with internalizing behaviour like asocial behaviour and Peer Problems. Hay[51] suggested that antenatal parental depression predicts antisocial behaviour in the child at 16 years of age. The findings were further supported by Loomans[52] who revealed that children of mothers who reported antenatal maternal anxiety showed more peer related problems. It is also suggested that maternal stress during pregnancy is associated with Hyperactivity, inattention and ADHD among children.[52-54] O'Conner[55] and Mina[56] showed that a child's prenatal exposure to maternal obesity is associated with neuropsychiatric problems in early childhood and antenatal stress during pregnancy is associated with emotional and Conduct Problems in their children.

Furthermore, Jouriles[57] reported that marital

conflict was positively associated with toddler Conduct Problems. Simons[58] recommended that psychological distress related to economic hardship may be associated with Conduct Problems in adolescents. Low Pro-social behaviour in children has also been associated with exposure to antenatal anxiety.[52] However, the paucity of research for this particular correlation warrants more research to explore the association between parental psychological distress and pro social behaviour in children, along with other child developmental outcomes like Hyperactivity, Peer Problems, Conduct Problems and Emotional Problems.[59] Therefore, from the evidences we hypothesize that parental distress would be positively correlated with different child developmental outcomes.

Hypothesis: There would be a significant correlation between parental psychological distress and child developmental outcomes.

Material and Methods

Data was collected from 176 parents residing in India, out of which 136 were mothers and 40 were fathers. All the participants were briefed out the study and prior consent was taken before the data collection. Specific inclusion and exclusion criteria are given below:

Inclusion Criteria:

- Fluent in Verbal and written English.
- Aged between 18 to 50 years.
- Have one or more children up to the age of 17 years.

Exclusion Criteria:

- If both or only Child is above the age of 17 years.
- Not living in India.
- Below the age of 18 years.

Measures

Parent Psychological Distress Questionnaire (PPDQ): A questionnaire was developed by the researchers for the present research to assess parent psychological distress. 30 items were written after a thorough review of literature. All the items were shown to 5 psychologists to assess the face validity of the items. 10 were deleted and few were edited after the recommendation from the psychologists. Few items of the scales are "*Have you experience bad dreams or nightmares regularly?", "Have you experienced thinking of yourself as a worthless person*?". The responses were capture on a 5 point Likert scale wherein 1 was for "Strongly Disagree" and 5 was for "Strongly Agree", and some items were reverse scored. The cronbachs alpha on the current sample was found to be .82

Strengths and Difficulties Questionnaire (SDQ)[60]: A 25-items questionnaire used to assess strengths and difficulties in children and adolescent, aged between 2 to 17 years.

The scale assesses 5 domains: Emotional Problems, peer relationship problems, Conduct Problems, Hyperactivity/inattention, and prosocial behaviour. For the current study, prosocial sub scale was not used. A total 'impact' score is also calculated which measures chronicity, distress, social impairment, and burden to others. Prosocial score was not taken into consideration for calculating total distress scale. Sample items of the scales are "*My child is considerate of other peoples feelings", "My child has atleast one friend", "My child often lies or cheats"*. The Cronbach's alpha was found to be .81

Results

The data was screened for the missing values and outliers. There were a total of 5 missing values which were then replaced by the series mean. No outlier was found. The data was found to be normally distributed as the values of skewness and kurtosis were found to be in range of +/- 2. The mean scores are shown in Table No. 1

From the Table No 1, It can be seen that the mean score of Emotional Problems was found to 2.24 with 1.90 standard deviations, while the mean score of Conduct Problem was found to be 2.25 with 1.71 standard deviations. The mean score for Hyperactivity and Peer Problems was found to be 4.25 with 2.20 standard deviations and 2.21 with 1.89 standard deviations respectively. The mean scores for Internalizing and Externalizing was found to be 4.78 with 3.25 standard deviations and 6.17 with 3.39 standard deviations. The mean values of Total Difficulty was found to 10.97 with 5.66 standard deviations. As far as the Parental Distress is concerned a mean value of 46.06 with 12.65 standard deviations was observed. Further, the correlations are shown in Table No 2.

Table-1: Showing mean and standard devation of the variables used in the study.

Variable	N	Mean	Standard Deviation
Emotional Problems	176	2.24	1.90
Conduct Problems	176	2.25	1.71
Hyperactivity	176	4.25	2.20
Peer Problems	176	2.21	1.89
Internalizing	176	4.78	3.25
Externalizing	176	6.17	3.39
Total Difficulty	176	10.97	5.66
Parental Distress	176	46.06	12.65

Table-2: Showing Correlation Coefficients

Variable	Conduct Problem	Hyper-activity	Peer-problem	Interna-lizing	Externa-lizing	Total Difficulty	Parental Distress
EmotionalProblems	.34**	.24**	.41**	.74**	.41**	.68**	.33**
Conduct Problem		.42**	.46**	.49**	.76**	.74**	.16*
Hyperactivity			.37**	.47**	.75**	.73**	.18*
Peer-problem				.75**	.55**	.76**	.11
Internalizing					.43**	.84**	.20**
Externalizing						.85**	.26**
Total Difficulty							.27**

***** P < .01, * P < .05***

From the Table No. 2, it can be inferred that all the child's behavioural problems, both, Internalizing and Externalizing are related to each other and share a significant positive correction among themselves. As far as Parental Distress is concerned, r = .33 signifies a significant correlation between Parental Distress and child Emotional Problems. A significant positive correlation was also observed between Parental Distress and child Conduct Problems (r = .16), and Hyperactivity (r = .18). Non significant correlation was observed between Parental Distress andPeer-problems.

Likewise Internalizing, Externalizing and Total Distress shares a significant positive correlation with Parental Distress. The correlation coefficient (r = .20), (r = .26) was found to be between Parental Distress and Internalizing, and Parental Distress and Externalizing. The correlation coefficient (r = .27) signifies a significant positive correlation between Parental Distress and child developmental outcomes.

Discussion

Although a handful of international research attempts to explore parental psychological distress as a risk factor for poor child development, there is a dearth of studies exploring this relationship in India.[5-9] In the light of results, hypothesis was accepted for most of the variables suggesting that higher parental psychological distress, the higher the Emotional Problems, Conduct Problems, Hyperactivity, and Total Difficulty Score. However, there was no significant correlation found between parental psychological distress and Peer Problems.

These results are supported by previous researches which also showed a positive correlation between maternal depressive symptoms and child internalizing and externalizing behaviors in 3 year old preterm children.[61] In particular, the current study adds to the observation that there is a positive correlation between parent psychological distress like maternal depression, prenatal anxiety and child Emotional Problems.[29,46-48] It is possible that parents with psychological distress may tend to engage in acting out behaviors, Emotional Problems, are often worried, and emotional uncertain which may implicitly or explicitly convey that the parents are vulnerable or helpless, and thus impact the child's ability to cope, emotional dysregulation, and internalizing the Emotional Problems.[62-64] Additionally, it is also possible that parents with high psychological distress may perceive the child as problematic, and thus exhibit a punitive or controlling parenting style, which is less caring, less kind and so may be correlated with lack of independent decision making and lack of emotional regulation in the child.[65-68] The

relationship between parent psychological distress and child Hyperactivity and Conduct Problems have also been supported by previous researches.[52-55,58] Psychological distress of parents may have been associated with factors like adverse socio-economic circumstances, pregnancy, financial problems, marital conflict, etc., and may be marked by lack of knowledge of parents regarding own mental health concerns, and the child's. Thus, the parents may be adopting neglectful parenting towards the child, rejection towards the baby, anxious and avoidant parenting style, which may give rise to the child engaging in conduct related problems for attention seeking from the parents, poor communication skills or from simple observation of problematic parental interaction.[69,55,70] Interestingly, studies have shown that ADHD related behaviors in children are correlated with higher presence of psychopathology in the parents of these children.[71,72] Two thirds of children with ADHD have a parent with ADHD[73], and studies suggest that parental ADHD predicts parental psychological distress as well.[74] Another plausible explanation could be that having a child with ADHD may exacerbate the parent psychological distress and parental problems aswell.[75]

There was no significant relationship found between parent psychological distress and child Peer Problems in the present study, which is contrary to the literature findings suggesting that parental psychological distress due to maternal burden, pessimism and depression symptoms may be associated with antisocial child behavior and Peer Problems.[50-52] This difference may be explained by the lack of consideration of the different factors like parent self esteem, parent emotional and family support, that may play a role in the psychological distress of the parents. For example, Roustit, Campoy, Chaix, & Chauvin[76] reported that the relationship between parent psychological distress and child development may be mediated by factors like self esteem, parental emotional support, and extrafamilial social support and perceived control.[77] As far as the relationship between parental distress and peer-problems is concerned, our results highlight the value of peers in one life. It can be said that relationship with peer is independent of family.

Implications and Conclusions

The results of the study contributed to the limited Indian literature suggesting a significant correlation between parent psychological distress and child development outcomes.

Understanding and accepting this correlation would support parents to take the necessary mental health care steps to identify their own distressing factors and how they have been influencing their parenting styles and in turn affecting the child's development. It seems like a vicious cycle of parent psychological distress, compromised parenting styles and interaction, child-parent conflict, and poor child development outcomes. It is essential to break this cycle and encourage parents to identify and resolve their own psychological distress, adopt positive and useful parenting skills and knowledge, and these need to be conveyed to the larger parental population in India.

Additionally, existing literature consistently shares the need for parent focused interventions and early identification of parental psychological distress.[78,79] Further research exploring this field would help in creating parent specific standardized forms to assess early psychological distress, identify targets and start parent intervention early so that parents can build upon more positive parenting styles, and healthy interactions with the child to support the child's cognitive and behavioral development.[18,80-83]

The limitations of the study include a small sample size (N=176), and administering a non-standardized form to assess the parent psychological distress. Further, since the forms were all in English, it is expected that a significant proportion of the non-English speaking Indian population has been left out from the data. Knowing the causal relation would help mental health practitioners to plan targeted assessment and early intervention accordingly for maximum support to the parents and their child. Additionally, it is not clear whether the psychological distress of parents in the present study is due to a past trauma, past experiences, a recent stressful life situation, or is it distress due to the burden of the child developmental problems itself, which needs further exploration.

Future directions

The present study provides tentative data to suggest a significant correlation between parent psychological distress and child developmental

outcomes in India. However the causal relationship between these associations remains unclear. Future research can further explore this correlation with a larger sample size, and using predictive analysis to understand the causality between the variables. Understanding this correlation would give impetus to the development of parent specific psychological assessments to identify parental psychological distress, and implement timely and target specific intervention for the parents and the child.

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Original Article

Extraversion in Indian and Iranian Married Women with Children and Married Women without Children

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ABSTRACT

Background*: It has been found that having children has both positive and some negative effects on the psychological well-being of parents. Although recent researches focus primarily on the effects of parenting on the psychological well-being of different types of parents, there remains an underlying assumption that being a parent, compared to remaining childless, influences personality or psychological characteristics of married women. Research shows that a lot of changes happen when a woman chooses to have babies, and that a mother is not the same person as she was before having children. Hence extraversion in Indian and Iranian married women with children and married women without children was investigated.* ***Material and Methods:*** *The study investigated the extraversion as a personality dimension of Indian and Iranian married women with children and married women without children in Pune city (India) and Tehran city (Iran). Purposive sampling method was applied to collect the data from 392 participants of the study. Number of total Iranian married women was 195 and total Indian married women were 197. Eysenck Personality Questionnaire (EPQ_R) was utilized as the tool of the study to measure extraversion. SPSS software was used for the calculation of Means of the groups, standard deviation (SD), Independent t-test and Two way ANOVA were also utilized.* ***Results:*** *Findings suggest that extraversion in married women with children is significantly higher than the extraversion in married women without children. Whereas, the hypothesis stating that "extraversion in Iranian married women is significantly higher than extraversion in Indian married women" is not verified".* ***Conclusion:*** *According to the findings of the study motherhood, nationality and religion are some factors that can make a difference on extraversion of married women with children and married women without children in different situations and life conditions.*

Keywords: *Motherhood, Nationality, Extraversion, Married women.*

Introduction

It has been found that having children has both positive and some negative effects on the psychological well-being of parents. The balance of positive and negative effects associated with parenthood depends on residential status of the child, age of youngest child, marital status of the parents, and the particular dimension of psychological well-being.[1]

Research shows that a lot of change happens when a woman chooses to have babies, and that a mother is not the same person as she was before having children. Dunlop (2019)[2] reported that almost all female mammals undergo "fundamental changes" during pregnancy and after birth of a baby and that pregnancy and lactation hormones may alter the brain, "increasing the size of the neurons in some regions and producing structural changes in others."

Recent decades have witnessed a trend toward increased childlessness and delayed child bearing. In 1975, 15.6% of women age 30–34 and 10.5% of women between 35 and 39 were childless. These percentages rose to 28% and 20%, respectively, in 2000 (U.S. Census Bureau, 2006).[3]

Not surprisingly, interest in the psychological implications of childlessness has also increased. Recent studies suggest that parents of minor children are more distressed than their childless counterparts .In contrast, parents of adult children report levels of distress and well-being that are similar to those of the childless.[4,5] Both types of effects depend on the social context of childlessness and parenting.

Parenthood and Childlessness and Psychological well-being

Nomaguchi[6] examined the association between age of children and parental psychological well-being, focusing on a key element of rewards of parenthood, parental relationship satisfaction with their children, as a mediator of the link. Findings indicate that parents whose oldest child is under age five report higher satisfaction with the relationship with their children, higher self-esteem, higher self-efficacy, and less depression than do parents whose oldest child is school-age or adolescent. When parental satisfaction is taken into account, the differences in self-esteem, self-efficacy, and depression by age of children disappear.

Although recent researches focus primarily on the effects of parenting on the psychological well-being of different types of parents, there remains an underlying assumption that being a parent, compared to remaining childless, influences personality or psychological characteristics of married women. Here in the present research parenting and childlessness will be compared to find out if there is any significant difference in extroversion personality factor of married women with children and married women without children.

Fraleyand Hudson[7] suggested that some people may even be able to intentionally change their own personality through sustained personal effort and careful goal-setting.

A research conducted in 2016[8] highlighted the significance of social roles on personality. When we invest in a role that calls for particular kinds of behavior, such as a job that calls for being hard-working and responsible, then over time those behaviors tend to become integrated into our personality.

And while personality traits are relatively stable over time, they can and often do gradually change across the life span.[9] What's more, those changes are usually for the better. Many studies, show that most adults become more agreeable, conscientious and emotionally resilient as they age. But these changes tend to unfold across years or decades, rather than days or weeks. Sudden, dramatic changes in personality are rare.

Extraversion and Introversion

The traits of extraversion (or extroversion) and introversion are a central dimension in some major human personality theories. The terms introversion and extraversion were popularized by Carl Jung, although both the popular understanding and psychological usage differ from his original intent. Extraversion tends to be manifested in outgoing, talkative, energetic behavior, whereas introversion is manifested in more reserved and solitary behavior. Rather than focusing on interpersonal behavior, however, Jung defined introversion as an "attitude-type characterized by orientation in life through subjective psychic contents" (focus on one's inner psychic activity) and extraversion as "an attitude type characterized by concentration of interest on the external object" (focus on the outside world).[10]

Extraversion as a Sexual Phenotype

Extroverts are more sociable and outgoing so that they are in a better position to meet members of the opposite sex. As one might expect they have larger social networks than introverts who characteristically spend more time engaged in solitary pursuits.

Evidence from both indigenous populations, such as the Tsimane of Bolivia, and modern societies shows that extroverts have more children than average (1,2). This is a substantial advantage for men and a modest advantage for women.

If extraversion provides a clear reproductive fitness advantage, then one might expect that introversion would be strongly selected against, and therefore extremely rare. Yet, that is not the case.[11]

India and Iran Review

Marriages in India and Iran are basically divided into two categories arranged Marriage and love marriage where girls and boys are selected by individuals (parents or relatives) other than the couples and when they grow up, they marry each other. In this type bride and groom have no right to select their partners by their own wish, though it has been said that even in arranged marriages men and women can meet each other before marriage to decide for acceptance of each other. On the other hand "Love Marriage" is used to describe a marriage which is decided by the couple, with or without consulting their parents or families. These marriages may transcend ethnic, community and religion barriers. Love marriage started becoming popular in urban areas of India in 1970s onwards.[12]

Both arranged and love marriage exist in Iran and India but there is a big difference that number of love marriage is more than arranged marriage in Iran whereas in India number of arranged marriages unlike Iran is higher than love marriages. A IPSOS 2013 survey found that 74% of young Indians (18-35 years old) prefer an arranged marriage over a love marriage.[13]

India

Hinduism is the most common religion in India, accounting for about 80% of the population. Islam is the second-largest religion at 13% of the population. Other major religious groups in India are Christians (2.3%), Sikhs (1.9%), Buddhists (0.8%) and Jains (0.4%). People who claimed no religion are officially recorded under 'other' by the census. In 2011, 0.9% of Indians selected the 'No Religion' category. While the number of Indians living in urban areas has increased over the last two decades, about 67% of people still live in rural areas. In 2011, India had a literacy rate of 74%: 82% for men and 65% for women. The literacy rate varies wildly by state. Bihar is the least literate with a rate of 63.82% whereas Kerela has the highest literacy rate by 93.91% (Census of India). The Quality of Life Index in India is 111.25 which is "high".[14]

Iran

The major part (89%) of the population in Iran is Shi'a Muslim, 10% is Sunni Muslim, and the remaining 1% are Christian, Zoroastrian, Baha'i and Jewish. Judaism has a very long history in the country, although the Revolution and the establishment of Israel have left just under 9,000 Jews in the country. Christians are the largest minority religion having a population around 250,000 to 370,000. Most Christians have an Armenian origin (World Population preview). In Iran (2019) Quality of Life Index is 75.67 which is "moderate".[15]

Objectives of the study

1) To examine and compare extroversion in married women with children and married women without children.
2) To compare Indian married women with Iranian married women on extroversion.

Method

Sample: Samples of 400 married women who have passed the first 4 years of their marital life were selected from two countries (India and Iran). Particularly, these women were selected from the city of Pune, India, and the city of Tehran, Iran. Hence the sampling technique to be adopted was purposive sampling.

The age range of the samples was 30 to 40 year's old and minimum education was12th standard in both the countries.

The 400 married women consist of 200 Hindu Indian married women (100 with children and 100 without children) as well as 200 Muslim Iranian married women (100 with children and 100 without children).

Samples were collected from Pune city in India and Tehran city in Iran. Population of India in 2019 was 1,370,677,389 and population of Pune was 6.772 Million.

Iran Population in 2019 was 83.257 Million and population of Tehran was 9.014 Million.

Variables of the study

The status of married women (with or without child or children) and nationality (Indian and Iranian), were treated as independent variables in the study. The independent groups were formed accordingly. Participants were measured on their extraversion, thus, it was treated as dependent variable.

Control variables: Age (between 30 to 40 years old), education (having passed of least 12th standard

and having English proficiency for answering the questioner) for Indians. (Iranians have taken the translated version of the same into Persian language). Marital life duration (At least 4years). Number of children of mothers (1 to 3) with minimum age of 1 year old to minimize the interference of postpartum depression (depression after giving birth) in mothers.

Hypotheses

1. Extroversion in married women with children is significantly higher than the extroversion in married women without children.
2. Extroversion in Iranian married women is significantly higher than extroversion in Indian married women.

Tools

Eysenck Personality Questionnaire - Revised (EPQ-R) by Eysenck (1980).

The tool which has been utilized for the study is Eysenck Personality Questionnaire - Revised (EPQ-R) with 90 items which takes around 15 to 20 minutes. The EPQ measures the traits of personality: Psychoticism (P), Extraversion, (E) Neuroticism (N) and Lie (L). The test-retest reliability ranges between 0.80 to 0.90. The internal consistency reliability is above 0.80 thus, it is a highly reliable tool.

Study design

A 2 x 2 factorial design as shown here was used.

	Married women with children	Married women without children
Indian	100	100
Iranian	100	100

Interview data of 40 participants from both the cultures India (10 married women with children and 10 married women without children) and Iran (10 married women with children and 10 married women without children) were qualitatively analyzed.

Verification of Normality and Screening of the Data

For the detailed statistical analysis, the SPSS (Statistical Package for Social Sciences) software was used and the obtained excel data was converted into the SPSS data file. Initially, the data was checked for the missing values, extreme scores and outliers. However, some cases were eliminated due to the duplicate and anomaly in the data set. Therefore, out of 400 cases only 392 cases were finally selected for analysis. SPSS software was used for the calculation of Means of the groups, standard deviation (SD), Independent t-test and Two way ANOVA were also calculated.

Normal distribution for extraversion variable was studied. Overall, there was a normal distribution with the Mean = 13.94 and SD = 3.7 (N=392).

Demographic Information

On the basis of the collected information available in the demographic data sheet i.e., motherhood, nationality and number of children, the data is shown in Table-1. It can be observed that out of 392 cases of motherhood, there were 50% of women without children and 50% of women with children selected in this study.

Around 50.3% of married women were from India and remaining 49.7% married women were from Iran. As stated earlier 50% of the women had

Table-1: Motherhood-wise and Nationality-wise, Means and Standard deviation for extraversion variable

Group	Mean	SD
Indian Women without Children (n=99)	15.10	3.14
Iranian Women without Children (n=97)	11.91	3.64
Total Women without Children (n=196)	13.52	3.75
Indian Women with Children (n=98)	14.62	3.44
Iranian Women with Children (n=98)	14.21	3.58
Total Women with Children (n=196)	14.42	3.51
Total Indian Women (n=197)	14.86	3.30
Total Iranian Women (n=195)	13.07	3.78
Total Indian women and Iranian women (n=392)	**13.96**	**3.69**

Table-2: Two Way ANOVA with Motherhood and Nationality as Independent Variables and Extraversion as Dependent Variable

Source	Sum of Squares	df	Mean Square	F	*P*	η^2
Motherhood	81.91	1	81.91	6.85	<.01	.02
Nationality	317.85	1	317.85	26.60	<.01	.06
Motherhood x Nationality	190.10	1	190.10	15.91	<.01	.04
Error	4636.69	388	11.95			
Corrected Total	5223.63	391				

no children, approximately 27.6% of women had one child, 18.6% women had two children and 3.8% women had three children.

Results

Differences as per Motherhood and Nationality in Extraversion.

In the following Table 2, the obtained summary of a 2 X 2 ANOVA with Motherhood and Nationality as independent variables and Extraversion as dependent variable can be seen.

As presented in the Table 2, F value for Motherhood is found to be significant [F (1, 388) = 6.85, $p < .01$] which shows that there is a significant difference among women with children and women without children in Extraversion. The mean for women with children (M = 14.42) is significantly higher than the mean for women without children (M=13.52). However, the effect size of extraversion for Motherhood ($\eta^2 = .02$) can be classified as small effect size, as it is near to the value of .01. Thus, it can be concluded that the hypothesis that stating 'Extroversion in married women with children is significantly higher than the extroversion in married women without children' is verified.

The main effect of Nationality is found to be significant [F (1, 388) = 26.60, $p < .01$] which shows that there is a significant difference among Indian married women and Iranian married women in Extraversion. The mean for Indian Women (M = 14.86) is significantly higher than the mean for Iranian Women (M = 13.07). The effect sizeof Nationality ($\eta^2 = .06$) can be classified as medium effect size. Thus, the findings do not support hypothesis twostating that 'Extroversion in Iranian married women is significantly higher than extroversion in Indian marriedwomen. However; the findings are indicating the opposite of hypothesis.

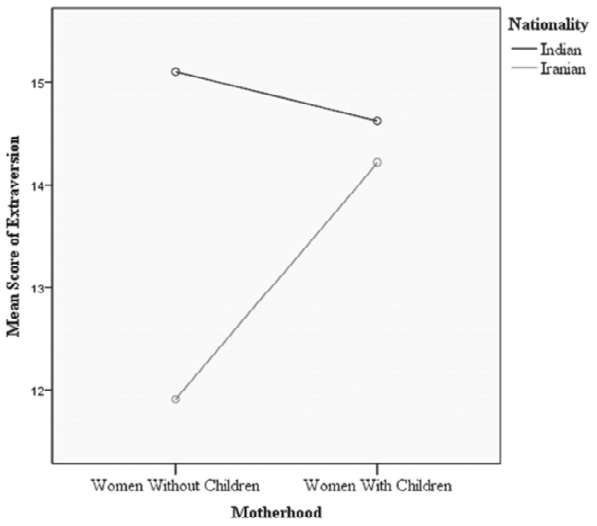

Fig. 1: Mean score of extraversion in Indian and Iranian married women with children and married women without children.

M = 13.52 (Total Women without Children) M = 14.42 (Total Women with Children)

A two-way ANOVA was conducted and examined the effect of motherhood and nationality on Extraversion. There was a statistically significant interaction between motherhood and nationality [F (1, 388) = 15.91, $p < .01$] on Extraversion. The effect size of interaction ($\eta^2 = .04$) can be classified as medium effect size. The main effects of interaction as shown in the Figure 1, showed that Indian Women at the stage when they are without Children scored higher on Extraversion than Indian Women with Children and also Iranian Women with or without children. Also, Indian women with children scored higher on Extraversion than Iranian Women.

Discussion

According to the findings, hypothesis one stating "Extroversion in married women with children is significantly higher than the extroversion in married women without children" is accepted in both Iranian and Indian married women. It can be the result of

self-devotion of mothers to the kids as well as being a role model for children in the society which can be consistent to the result that causes married women with children to be more sociable and outgoing than their childless counterparts.

On the other hand, after conducting the interview from 40 people namely, India (10 married women with children and 10 married women without children) and Iran (10 married women with children and 10 married women without children), 70 percent of Indian married women with children and 60 percent of Iranian married women with children (age 30 to 40) claimed to be extraverts whereas, 60 percent of Indian married women without children and 50 percent of Iranian married women without children (age 30 to 40) reported themselves as extraverts which supports the result of the study that married women with children are more extraverts than married women without children. On the other hand, according to the earlier researches, personality can change overtime but changes usually happen for the better. Hence, based on the review it can be inferred that, although married women with children scored higher in extroversion than married women without children, childless married women can change overtime in terms of personality through sustained personal effort and careful goal-setting.

Whereas, hypothesis two stating that "Extroversion in Iranian married women is significantly higher than extroversion in Indian married women' is not verified.

One thing which may support the result after the interview is the cultural differences. Indians have variety of joyful festivals, celebrations and dancing with colorful dresses which is a part of Indian culture that make them participate in such celebrations irrespective of their religion and cast. Whereas, Iranian official celebrations are much fewer in contrast to India and are mostly limited to New Year, Yalda Night, Chaharshanbesoori and some Imam's birthdays. Instead they give more value to mourning functions on Prophet's and Imam's deaths and related programs.

Furthermore, lower quality life of Iranians as compared to Indians is another factor that could be associated with lower extraversion in Iranians. Hence, It can be inferred that culture, and quality of life can make a difference on personality particularly extraversion, when it comes to cross-cultural psychology and psychological differences of people in two different countries.

On the other side, religion and peer pressure in the society can make changes inpersonality. For example, in the holy Quran and in Islam as a whole, introversion is not seen as something bad, in fact it is often seen as beneficial. Quran uses the word "taddabbur" and "tafakkur" repeatedly saying to ponder and spend time introspectively thinking about yourself, the world, all creations, and God. The book is filled with examples of introspective/introverted people and introspection is shown as a desirable thing.

Conclusion

The study investigated extraversion in married women with children and married women without children particularly in two different countries India and Iran. According to the findings of the study motherhood, nationality and religion are some factors that can make a difference on extraversion of married women with children and married women without children in different situations and life conditions. Finally, based on the obtained results of the study, hypothesis one stating "Extroversion in married women with children is significantly higher than the extroversion in married women without children" is accepted. Whereas, hypothesis two stating that "Extroversion in Iranian married women is significantly higher than extroversion in Indian married women' is not verified.

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Original Article

Digital LED Device use, Outdoor Sports, Sleep Disturbance and Psychological Stress among Adolescents

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ABSTRACT

***Background**: Use of digital LED devices among adolescents is increasing at the cost of outdoor sports having physical and psychological health consequences. **Aim**: To study the effect of digital LED device and outdoor sports participation on sleep pattern and psychological stress among adolescents. **Method**: A total of 98 adolescents aged 15 to 19 years were enrolled in this cross-sectional study. Pattern of digital LED device and outdoor sports participation was studied. Average daily digital LED device use ≥ 3-4 hours, night time use >2 hour and weekly outdoor sports participation >7 hours was considered clinically significant. Sleep pattern was studied using Epworth Sleepiness Scale while psychological stress was studied using GHQ-12 scale. Data was analyzed using SPSS 21.0. **Results**: Mean age was 17.03 ± 1.45 years. Majority (58.2%) were males. Digital LED device use was prevalent in 60.2% cases, 15(15.3%) were night users. Outdoor sports participation was 37.8%. Mean ESS and GHQ-12 scores were 2.60 ± 2.93 and 0.93 ± 1.20 respectively. A total of 26(26.5%) had GHQ-12 scores ≥ 2. Mean ESS and GHQ-12 scores were significantly higher among digital device users as compared to non-users. Night-time use was significantly associated with higher while participation in outdoor sports was associated with lower ESS and GHQ-12 scores. On binary logistic regression, night-time use and outdoor sports participation was significantly associated with risk of psychological stress. **Conclusion**: Digital LED device in general and their night time use in particular along with low outdoor sports activity were significant predictors of sleep disturbances and increased psychological stress among adolescents.*

***Key words**: Digital LED device, Outdoor sports, Sleep disturbances, Adolescents, Psychological stress.*

Introduction

The twentieth century has given a big boom in the field of information and digital technology. The beginning of the century was marked by associated changes in technology too. The transition from keypad mobile phones to LCD- and LED-touch screen smart phones, traditional cathode ray tube based monitors to LED monitors and emergence of other digital LED-based devices like laptops, tablets and video games for personal use. One of the most crucial developments in ensuring the portability of the devices and their increasing personal use was emergence of light emitting diodes as the lighting source in these devices. Light emitting diodes are complex semiconductors that emit light when electricity is passed through them. The light generated by LED devices is comprised of a narrow-spectrum light beam, predominated mainly by blue-spectrum or low-wavelength light.[1-3] LED light is energy efficient and this feature of them makes suitable for

the personal devices for which low-energy consuming lighting device prolongs the battery life, reduces the overall weight of device and thus ensures portability with longer use.

Despite having these advantages, LEDs have their own disadvantages and health related effects too. Blue light, which comprises the major spectrum of LED light, has a low wavelength (400-500 nm)[4] and has been shown to have an excellent penetrative ability. It is known to affect the cornea, iris, pupil and retina, causing irreversible photoreceptor damage.[3,5,6] Apart from the effect on the eye blue-light enriched LED lights have also been shown to affect the circadian rhythm, alertness and sleeping pattern.[3,7-9]

Trends have indicated a high incidence of LED-based digital device use among teenagers and youth throughout the world as well as in India.[10-12] Use of these devices is often at the cost of outdoor sports activities, which are considered to be quite essential for overall physical and mental growth of adolescents. Unfortunately, during the current years, declining psychological health trends have been seen in teenagers throughout world as well as in India and have been linked with lesser outdoor sports activities.[13-15] Moreover, abnormal sleep patterns can also be linked with a poor mental health.[16-18] Considering these linkages, the present study was carried out as a pilot study to study the relationship of LED-based digital device use, sleep pattern, outdoor sports activity and psychological stress among teenagers at a major city in North India.

Material and Method

The present study was carried out as a cross-sectional study for which data collection was done at Agarwal Inter College, Sitapur from amongst adolescent students aged between 15 and 19 years during a psychological health camp. During the camp, a lecture was delivered by the investigator on importance of sleep to cope up with stress in the growth years. At the end of the talk, the students were invited to assess their sleep pattern and stress levels. From amongst those interested, students with known psychiatric illnesses and those taking anti-psychotics were excluded from the study. Assessment of sleep pattern was done using Epworth Sleep Scale (ESS) (8-items) while Psychological Stress was assessed using General Health Questionnaire-12 (GHQ-12) (12- items; bi-modal scoring).[19,20]

Details regarding possible direct exposure to LED light through use of mobile phone, laptop, computer monitor, tablet, video games and/or LED based table lamps during study were obtained. Direct exposure was defined as use of any of these devices from less than 2 feet distance.

Unexposed: Adolescents having an average daily direct exposure to LED devices for less than 3-4 hours in total and <2 hours in night.

Daytime exposure: Adolescents having an average daily direct exposure to LED devices for more than 3-4 hours in total but less than 2 hours in night.

Nighttime exposure: Adolescents having an average daily direct exposure to LED devices for more than 2 hours in night irrespective of daytime exposure status.

All the students were enquired about their weekly participation in Field sports/Outdoor games. On the basis of average weekly time spent, they were categorized into two categories: $\leq$ 7 hours or > 7 hrs.

Data so obtained was analyzed using Statistical Package for Social Sciences, version 21.0. Independent samples 't' test was used to establish associations. A 'p' value less than 0.05 was considered as statistically significant. Binary logistic regression was done for multivariate analysis.

Results

In all, a total of 98 students completed the assessment. Age of students ranged from 15 to 19 years. Mean age was 17.03 ± 1.45 years. Majority (n = 57; 58.2%) were boys. There were 41 (41.8%) girls. The sex-ratio was 1.39:1. Digital LED device use was reported by 59 (60.2%) students. Among these a total of 15 (15.3%) were night users and 44 (44.9%) were only daytime users. Weekly outdoor sports participation > 7 hours was reported by 37 (37.8%) students. Mean ESS and GHQ-12 scores were 2.60 ± 2.93 (range 0 to 11) and 0.93 ± 1.20 (range 0 to 6) respectively. A total of 26 (26.5%) had GHQ-12 scores $\geq$ 2 (Table 1).

Mean ESS and GHQ-12 scores of digital device users were 3.27 ± 3.14 and 1.13 ± 1.39 respectively as compared to 1.59 ± 2.27 and 0.61 ± 0.75 respectively among non-users, thus showing that both ESS and GHQ-12 scores were significantly

Table-1: General Profile and Characteristics of Study Population (n=98)

S.No.	Characteristic	Statistic
1.	Mean Age ± SD (Range)	17.03 ± 1.45 (15-19) in years
2.	Sex Boys Girls	57 (58.2%) 41 (41.8%)
3.	Digital LED Device use	59 (60.2%)
4.	Night users	15 (15.3%)
5.	Outdoor sports	37 (37.8%)
6.	Mean ESS ± SD (Range)	2.60 ± 2.93 (0-11)
7.	Mean GHQ-12 ± SD (Range)	0.93 ± 1.20 (0-6)
8.	No. of adolescents with GHQ-12 ≥2	26 (26.5%)

with higher ESS and GHQ-12 scores. Mean ESS and GHQ-12 scores of those taking part in outdoor sports were found to be 1.54 ± 2.38 and 0.62 ± 0.72 respectively as compared to 3.25 ± 3.05 and 1.11 ± 1.39 respectively among those not taking part in outdoor sports, thus showing the difference to be significant statistically (Table 2).

On binary logistic regression, where digital device use, their night time use and participation in sports activity were taken as independent factors for prediction of psychological stress risk (GHQ-12 > 2), only outdoor sports was found to be associated with lower risk of psychological stress (OR=0.283; 95% CI=0.092-0.871). However, when the independent predictors were restricted to nighttime use and outdoor sports participation only, both the predictors were found to be significantly associated with psychological stress risk. Between these two

Table-2: Association of Sleep Disturbance and Psychological Stress with Digital LED device use and Outdoor Sports Participation

S. No.	Characteristic	No. of respondents	Mean ESS ± SD	Mean GHQ ± SD
1.	Digital LED Device use			
	Users	59	3.27 ± 3.14	1.13 ± 1.39
	Non-users	39	1.59 ± 2.27	0.61 ± 0.75
	Statistical significance		't'=2.882; p=0.005	't'=2.132; p=0.036
2.	Pattern of digital LED device use			
	No night use	44	2.72 ± 3.01	0.80 ± 0.85
	With night use	15	4.87 ± 3.04	2.13 ± 2.10
	Statistical significance		't'=2.368; p=0.021	't'=3.505; p=0.001
3.	Outdoor sports participation			
	Yes	37	1.54 ± 2.38	0.62 ± 0.72
	No	61	3.25 ± 3.06	1.11 ± 1.39
	Statistical significance		't'=2.896; p=0.005	't'=1.996; p=0.049

Table-3: Binary Logistic Regression for association of Psychological stress (GHQ12 ≥2) with digital LED device use and outdoor sports participation

Step (1)

							95.0% C.I. for EXP(B)	
	B	S.E.	Wald	Df	Sig.	Exp (B)	Lower	Upper
Digital LED device use	.761	.571	1.774	1	0.183	2.141	.698	6.561
Night-time use	1.136	.645	3.102	1	0.078	3.114	.880	11.024
Outdoor Sports participation	-1.263	.574	4.843	1	0.028	0.283	.092	.871
Constant	-1.343	.466	8.321	1	0.004	0.261		

Step (2)

							95.0% C.I. for EXP (B)	
	B	S.E.	Wald	df	Sig.	Exp (B)	Lower	Upper
Night-time use	1.455	0.608	5.736	1	0.017	4.285	1.303	14.098
Outdoor Sports participation	-1.243	0.570	4.754	1	0.029	0.288	0.094	0.882
Constant	-0.907	0.301	9.097	1	0.003	0.404		

higher among digital device users as compared to non-users. On comparing the mean ESS and GHQ-12 scores of daytime users (2.72 ± 3.01 and 0.80 ± 0.85) with night-time users (4.87 ± 3.04 and 2.13 ± 2.10), night-time use was significantly associated

predictors, night-time use was associated with a greater risk of psychological stress (OR = 4.285; 95% CI = 1.303-14.098) whereas outdoor sports participation had a preventive effect (OR = 0.288; 95% CI = 0.094-0.882) (Table 3).

Discussion

In present study, use of personal LED-based digital devices was found to be 60.2%. As such, there are no studies so far been conducted that have specifically looked upon the prevalence of LED-based digital device use among youngsters and this is probably the first study on the issue. Nevertheless, there are previous studies that have studied the computer/internet and mobile phone use pattern among adolescents.[21,22] In one such study amongst youth, use of mobile phone for >4 hours per day has been reported to be as high as 75%.[21] In yet another study, Sadagopan *et al.*, reported > 2 hours/day use of mobile phone by 80% of medical college students.[12] In fact, the prevalence of use of these devices might vary in different studies depending upon the cut-off time as well as on the profile of study population. In present study, most of the adolescents were secondary school students and generally had a personal smart phone. In view of the growing data-boom in the mobile industry during the last few years, their use in general and amongst adolescents in particular has shown a tremendous rise in society. According to a report, teenagers today spend an average of 9 hours on day with media.[10] In present study we restricted it to LED-based personal digital device usage only and found that nearly 60% adolescents had an average use >3-4 hours per day.

Interestingly, more than one-quarter of total LED-based digital device users were active night-time users, which in turn comprised 15.3% of study population. Night usage of these devices, which was defined as an average use of >2 hours per night is an issue of concern, as exposure to LED light at night has been reported to influence the circadian rhythm and sleepiness.[3,7] It is reported that LED light exposure during night leads to melatonin suppression which plays an important role in determining the circadian rhythm.[7]

In present study, only 37 (37.8%) used to participate in outdoor sports/games for >7 hours per week. Thus, showing that more than two third of adolescents had a less active physical activity profile. Growing use of screen-based media activities has affected the level of physical activity among adolescents throughout the world[23,24] and our study sample too did not lag behind.

In present study, a total of 26 (26.5%) adolescents had GHQ-12 score > 2. It is the most common cut-off taken for screening purposes.[25] The high proportion of screen positive adolescents thus indicated an increased level of psychological stress which is an issue of concern.

The present study found that direct exposure to LED-based digital device in general and its use for substantial period during the night had a detrimental effect on sleep quality and psychological well being. The issue of LED-light exposure on mental health and sleep quality has been raised in conceptual studies so far,[7,8] but there has been little or no clinical evidence related with it. The present study, probably for the first time tries to quantify it in a cross-sectional study linking pattern of LED-device usage, night time exposure, sports activity participation, sleep disturbance and vulnerability to psychological disorders. As such the issue of extensive use of cellphone and mental health issues has already been discussed in various studies throughout the world,[26-28] the present study tries to look into it from a different perspective.

The present study highlighted the protective effect of active participation in outdoor sports/games against psychological stress. It seems that while daytime usage seems to cut-short the availability of time for outdoor sports activities, the night usage owing to its probable physiological impacts has a detrimental effect on sleep quality which might be responsible for emergence of night usage and outdoor sports activities as the significant predictors of psychological stress on multivariate analysis, however, daytime usage did not emerge as the independent predictor of psychological stress.

The findings in present study are interesting. They highlight the role of participation in outdoor sports activity which helps to build a real social network instead of a virtual social network while at the same time ensuring a good physical activity, thus helping to ensure a better overall health. Sleep deprivation owing to use of LED-based digital devices and its consequent psychological distress could be a big price to pay for the information, entertainment and social enlightenment that we gain

through the use of these devices. Further studies on the issue are recommended with inclusion of more variables.

Conclusion

Growing use of LED-based digital devices and lesser participation in outdoor sports activities leads to sleep deprivation which could be manifested as psychological stress among adolescents. There is need to create awareness among young growing children to rationalize their use of LED-based digital devices and they should be motivated to participate in sports and outdoor games.

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Psychomicrobiology

Borna Disease Virus (BDV): Another Zoonotic Disease in Humans with Neuropsychiatric Sequelae

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Introduction

Decreasing efficiency of humans due to psychiatric illness has alarmed the healthcare system to consider mental health on a serious note. Nebulous risk factors leading to mental illness are a major drawback. Overtime zoonotic diseases have led to serious neurological and psychiatric illnesses. Borna disease virus is a known zoonotic pathogen manifesting in horses and sheep as a fatal disease, however, its impact on humans is still in shades as over time some studies have confirmed its ability to cause neuropsychiatric disorders while few reports its link to be an inconsistent one. Although cases have been reported from Germany, United States, Taiwan, Thailand, Iran and Japan.[1] Member of Mononegavirales (mononegavirads, mononegaviruses) order of Bornaviridae (bornavirids, bornaviruses) family, bornavirus has a spherical envelope of 90 nm in diameter with the core of 50-60 nm diameters. It possesses a single molecule of negative-sense single-stranded RNA 8.9kb (<10 kb) in size.

Transmission

Mode of transmission in humans can be directly from animals like sheep, horses, dogs, cats, and cattle or human to human transmission via secretions from nose and mouth.[2]

Incubation period

In animals its incubation period ranges from four weeks to months but in the case of humans, incubation period is still unknown.

Clinical features

It has an affinity for glial cells and neurons in animals. For human brain, its neurotropism for neurons of cortex and hippocampus leads to defects in cognition and behaviour. It mainly leads to an acute depressive episode (unipolar and bipolar), obsessive-compulsive disorders (OCD), reduced intellectual capability memory loss and learning disabilities[3]. Studies over three decades mainly indicated bipolar disorder, schizophrenia, anxiety disorder, and dementia.[4]

Several reports have confirmed the ability of Borna virus to cause diseases in human beings.[5-7] A study by Mazaheri-Tehrani et al. showed majority have bipolar patients, were either manic (59.4%) or in a mixed episode (25%), while only 15.6% developed recent depressive episode.[8]

Many studies have proved that mental disorders are a risk factor for blood borne infections.[9-11] Borna disease virus (BDV) is considered by some studies as a risk factor that might play a role in the development of neurological and psychiatric disorders. However, there is no consensus on whether BDV can infect human and cause neuropsychiatric disorders.[12] BDV is a virus that has negative strand and negative polarity, non-segmented RNA. It belongs to order Mononegavirales that replicates in the cell nucleus.[12-14] BDV mainly infects the cortex and hippocampus neurons of limbic system and thus, may affect cognition and behavior.[15]

A study by Bechter et al. had detected BDV immunoglobulin G (IgG) in cerebrospinal fluid (CSF) specimen of patients with mood disorder and

confirmed the role of BDV infection in the etiology of psychiatric disorders.[16] In a study using real-time reverse transcriptase polymerase chain reaction (RRT-PCR) to detect BDV p24RNA in patients with mood disorder, the association between BDV infection and mood and other psychiatric disorders was reported.[6] In another study by Li et al., using western blot (WB) assay and RT-PCR, BDV was detected in 6 patients with encephalitis, but not in the ones with other neurological disorders.[17] However, in another study using RRT-PCR and indirect immunofluorescence antibody (IFA) methods, no association was observed between BDV infection and psychiatric disorders including depressive, bipolar, and schizophrenia.[18] Tsuji et al. compared patients with psychiatric disorders with a control group using RT-PCR and WB assay, but did not confirm the association between BDV infection and mood and other psychiatric disorders.[19] In another study conducted in Iran, high prevalence of subclinical BDV infections and the association between BDV infection and mood disorders such as bipolar and major depressive disorders (MDD) was observed.[8] This study points again to integrating BDV infection surveillance in psychiatric research[20] rather than to continue in underplaying its impact. The study by Horing et al. rejected the role of BDV infection in pathogenesis of psychiatric disorders such as bipolar, major depressive, and schizophrenia.[21]

Borna Disease is characterized by a disseminated non-purulent meningoencephalomyelitis with infiltration of mononuclear cells[22-24] and a predilection for the gray matter of the cerebral hemispheres and the brain stem.[22,23] In neurons, sometimes in glia cells, acidophilic intranuclear inclusion bodies, called Joest-Degen inclusion bodies, are occasionally found. BD occurs sporadically in Germany and Switzerland; its presence in other countries has not yet been substantiated. Natural infections in other Equidae, ruminants, rabbits, cats, and ostriches have also been described.[24,25] Seroepidemiologic studies have demonstrated BDV-specific antibodies in sera of psychiatric and neurologic patients in Germany, Japan, and the United States.[26-31]

Moreover, the evidence indicated a possible association between BDV infection and mood disorders, but the exact association was not clear and many questions about this association remained unanswered.

Mechanism of action

Viral proteins generated by the virus during replication primarily lead to disease. Mainly by direct binding of viral proteins to neurotransmitter receptors and indirectly by generating immune and inflammatory responses.[2] Humoral immune response in generated mainly against structural BDV proteins N and P.[32] Protein M is responsible for virus attachment and aggregation.[33]

Diagnosis

Immunofluorescence assays (IFAs) were the first test used to detect BDV in humans.[34] Old tests like complement fixation and Ouchterlony tests were additional but lack sensitivity.[35] Sample for diagnosis of BDV is still a debate as a wide prevalence of 0 to 66% was found for nucleic acid detection using peripheral blood samples of patients and 0 to 57% for controls.[10] ELISA test is now mainly used for diagnosis.[3] Bornavirus-specific circulating immune complex (CICs) detectable after viral replication are used for BDV screening and are also tested for acute illness.[36] Bode et al gave the first direct evidence using highly sensitive RT-nested PCR on the peripheral blood of many psychiatric patients.[14,37,38] Reports by many laboratories support that BDV might contribute to many psychiatric disorders.[5-7,39]

Treatment

Amantadine sulfate, when used to treat BDV patients not only improved the patient's condition but cleared blood of viral proteins as well. it successfully inhibits the replication of wild-type BDV in cells in vitro and prevents infection of naïve cells.[37]

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Psychophysiotherapy

Psychophysical Approaches to Athletic Injuries

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Sports participation is assumed to be beneficial to health. Athletic injuries are potential outcome of participation and also an important public health problem.[1] Athletes can manage most injuries with little to no disruption in sport participation and other activities of daily living while some impose a substantial physical and psychological burden. Ever growing popularity of "sports industry" worldwide has consequently intensified both of these burdens on athlete.Every year nearly half of athletic runners experience lower extremity injuries, joggers sustain musculoskeletal injuries and one in two collegiate football players get severely injured and lose their playing time.

Sprains, strains, growth plate fractures, overuse injuries, wounds, epiphyseal injuries, stress fractures and dislocations are common injuries amongst adolescent athletes.[1]Prevalence rate of sports injuries in India is 49.2% and 27.9% in football and basketball respectively.[2]Studies have shown that boys get injured in football and basketball and girls in field hockey, soccer and basketball.[1,3] Bar and Markser proved that head injury associated with sports develops neurodegenerative diseases such as Parkinson and Alzheimer's as well as have mood and behavioral disturbances including, agitation, aggression depression, paranoia, personality changes, and suicide.[4]Concussion is another injury that can be very challenging for athletes to handle with the associated emotional and cognitive symptoms. Athletic injury has been associated with low self-esteem and emotions such as depression and anxiety immediately following injury and during rehabilitation.[5]Maladaptive psychological responses may be detrimental to the athlete's ability to return to their previous level of sports participation and may also affect the quality of sports performance, and increase the risk of reinjury.[6,7]Psychological symptoms become more exacerbated and complicated when sports injuries result in a loss of skills, performance level or when athlete's carrier is at stake.Nideffer suggested that psychological stressors such as fear of injury during competition may illicit a cycle of both physical and psychological effects that result in a decrease in physical performance.[8]

Athletes associated with sustained sports injuries get affected both physically as well as emotionally with a decrease in their quality of life. Continuation of sports is a team management which is capable of identifying problem and taking decisions immediate after the injury. The aim of each professional is to help the injured athlete to return to sports as early as possible. Enhancement of sports skills related to specific demand of sport is focused. Any sign of abnormal biomechanics should be corrected and re-trained within shortest period of time.Athlete's ability to cope with stress has been shown to influence recovery and progression through a multidisciplinary rehabilitation programme.[9]

Psychological reactions accompanying Athletic Injury

Athletes can experience a wide range of emotional responses and problematic reactions following injury. Emotional responses to injury include sadness, feelings of isolation, irritation, lack of motivation, frustration, anger, alterations in appetite and sleep disturbance. Emotional responses to injury are normal however; problematic reactions either do not resolve or worsen over time.

- **Stress/Anxiety:** Stress occurs as a response to specific sports injury, which usually resolves when the stressors disappear. Anxiety is an adverse effect of stress which may persist and have affective,cognitive,

PROBLEMATIC EMOTIONAL REACTIONS (EXAMPLES)		
Persistent Symptoms	**Worsening Symptoms**	**Excessive Symptoms**
• Alterations of appetite • Sleep disturbance • Irritability	• Alterations of appetite into disordered eating • Sadness into depression • Lack of motivation into apathy • Disengagement into alienation	• Pain behaviors • Excessive anger or rage • Frequent crying or emotional outbursts • Substance abuse

physical or behavioral compensatory symptoms. The prevalence of anxiety disorders in adolescents ranges from 6% to 20% and is much higher in females. In college 49%of female athletes and 32%of male athlete self-reported the feeling of overwhelming anxiety.[10]

- **Depression:** Prevalence of clinically relevant depressive symptoms is up to 23.7%. Female athletes are at 1.8 times greater risk for clinically relevant depressive symptoms than male college athletes**.** Athletes may experience anger, guilt, concentration or attention problems, feeling of helplessness, sleep disturbance, risk-taking behavior and decreased performance as other symptoms of depression.
- **Disordered Eating/Eating Disorders:** Disordered eating (DE) occurs on a spectrum, featuring the restriction of energy intake to significantly reduce body weight. Classic eating disorders are anorexia nervosa (AN), bulimia nervosa (BN) and binge eating disorder (BED). Athletes involved in aesthetics, endurance and weight classification sports are at risk of disordered eating. 18% to 20% of elite female athletes suffered from ED. In college 4% to 10% of male athlete suffered from ED.[11]
- **Self-regulation:** It is the ability of an athlete to manage thoughts, feelings and behaviors. Objective gratification to achieve long-term goals gets affected by a physical injury.
- **Self-Doubt:** Feeling of self-doubt, worry about their career and ability to play again increases after sports injury.

Physical Reactions Accompanying Athletic Injury

Musculoskeletal injuries are an inevitable result of sport participation. They can be classified as follows:

- *Macro-traumatic:* injuries due to a strong force such as a fall, accident, collision or laceration and are more common in contact sports such as football and rugby. These injuries can be primary due to direct tissue damage or secondary due to release of inflammatory mediators and other cytokines.[12]
- Micro-traumatic: overuse injuries of a structure such as a muscle, joint, ligament, or tendon. Commonly occur in sports such as swimming, cycling and rowing.[12]

In India adolescents commonly play cricket & football (65%) followed by athletics, basketball and hockey.[13] Most of the injuries occurred during the training session.

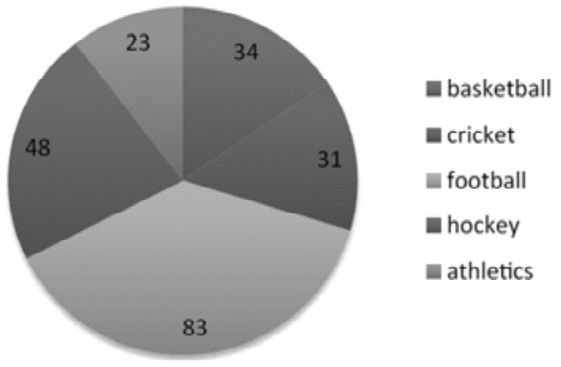

Fig. 1: Display percentage of sports injuries in above mentioned sports.[14]

The most frequent injuries are the joint injuries (55.5%), followed by muscular (33.4%), bones

(9.2%), and other (1.9%). Regarding the phases chronic injuries were the most common (47.0%), followed by subacute (26.6%), and acute (26.4%).[15] Most affected body parts are: shoulder (10%), wrist (1.7%), lumbar spine (6.9%), hip (2.8%), thigh (13%), knee (26%), ankle (17.5%) and foot (4.8%).[15] The most frequent injuries are tendinopathies, anterior cruciate ligament rupture and meniscal injuries.

Psychological Interventions

Below mentioned table shows the selected techniques for coping with psychological issues

Cognitive-Based Techniques	Somatic-Based Techniques	Cognitive Behavioral-Techniques
• Thought stopping • Thought replacement and imagery • Positive self talk	• Slow, deep or centered breathing, • Progressive muscle relaxation • Biofeedback training	• Goal setting • Stress management training

1. Cognitive Based Techniques:

- **Thought Replacement and Imagery**: It is a mental technique that allows to focus on a particular skill or physical behavior and to mentally practice that skill.[16] Performance imagery help athlete to maintain their individual skills and tactical sharpness, when they are far from practices because of injury. Imagining to perform an action increases blood circulation and determines muscular activation in an area that is inactive after the injury. Visualizing positive images of the return to the competition and imagining the related sensations can be useful to increase self-confidence in those athletes who return to play after long time. Thus athletes can expedite their own recoveries and prepare themselves mentally for competition by using imagery as a psychological strategy.[17] Green et al suggested that for every physiological change in the body, there is a simultaneous change in the mental emotional state and imagery allows the athlete to cope better with internal and external pain, and keeps physical skills from deteriorating. [18] Imagery and actual experiences trigger similar neurophysiological functions hence Weiss and Troxel suggested that athletes should think constructively and not destructively while dealing with injury management.[19]
- **Positive self talk**: This intervention includes cognitive restructuring, positive thinking and self-monitoring.It is used as a strategy to increase motivation, facilitate learning, enhance performance, cope with anxiety, strengthen confidence, focus attention and stress management. According to Bunker and Williams positive self-talk facilitates enhanced performance in athletes by fostering proper attentional focus, building confidence and creating positive mood.[20] Hardy Jones & Gould demonstrated the effectiveness of self-statements in providing self-reward, controlling attention and anxiety and aid in the rehabilitation process. Weinberg and Gould emphasized the effect of self-talk on skill acquisition, initiate action and breaking bad habits.[21] Williams & Roepke suggested that positive self-talk can assist the injured athlete to overcome negative emotional states such as fear, anxiety and depression.[22] It can help in elevating the decreased self-confidence of injured athletes. Ievleva and Orlick reported the effectiveness of positive self-talk among injured athletes.[23]

2. Somatic Based Techniques:

- **Progressive muscle relaxation:** is a non-pharmacological method of deep muscle relaxation. Muscle tension is the body's psychological response to anxiety-provoking thoughts. This technique involves learning to monitor the tension in specific muscle groups by first tensing each muscle group and then relaxing it progressively. This strategy have been found to be

beneficial in coping and controlling anxiety, stress and alleviate pain ultimately influencing the overall rehabilitation process.[24] Kissari Ali proved the effectiveness of progressive muscle relaxation to reduce the intensity of competitive sport anxiety amongst the elite player.[25]

- **Biofeedback:** is the process of gaining greater awareness of many physiological functions of one's own body with the help of electronic instruments and with a goal of being able to manipulate the body's systems at will. Biofeedback may be used to improve health, performance and the physiological changes that often occur in conjunction with changes to thoughts, emotions and behavior. Response time is a measure of performance and is used to evaluate motor skills of an athlete. Studies have proved the effects of EMG Biofeedback on reaction time and movement time and provided evidence of learning and improved performance.[26] With this method athlete can manage stress, control heart rate or breathing in a better way, improve reaction time and faster injury healing.[27]

3. Cognitive-Behavioural Therapy (CBT)

It is a technique of psychotherapy that attempts to reduce excessive emotional reactions and self-defeating behavior by modifying erroneous thinking and maladaptive beliefs. Gustafsson et al suggested the effectiveness of CBT in treating situation-specific performance anxiety experienced by athletes and also showed that CBT can change high-level athlete's response towards organizational stress thus improves their performance.[28]

- **Goal setting:** Setting goals determines an enhancement in motivation and commitment, and provides a direction in order to optimize the recovery. Hardy et al demonstrated three different types of goals: outcome, performance and process goals. Outcome goals focus on outcome of an event such as winning and involve interpersonal comparison. Performance goal focus in achieving a particular level of performance while process goal focuses on specific actions to achieve desired performance outcome. Taylor suggested the effectiveness of goal setting to reduce athlete's anxiety and improves their self-confidence.[29] Burton has reported increase effort, improvements in performance, and higher percep-tions of success and self-efficacy with goal setting strategy.[30]
- **Stress Management Techniques:** These techniques facilitate a positive progression that reduce the impact of the stress reaction in injured patients.[31]

➢ **Mindfulness exercises** - This technique helps to develop a clear understanding of the thoughts, emotions and stressors associated with any traumatic sports injury. Awareness through open discussions is facilitated and athlete is allowed to view the injury in the correct context. Relaxation techniques like guided meditation, visualization, purposeful breathing etc. can be used for the reduction of stress and anxiety prior to the beginning of a rehabilitation session.[31]

➢ **Pain Education** - The common response to physical pain is fear and this give rise to anxiety, stress and behavioral responses that can be detrimental to rehabilitative progress.[32] Often, athlete may not understand the physiological purpose of pain thus education about pain response is necessary.

Physiotherapeutic Intervention

The process of rehabilitation should start as early as possible after an injury and form a continuum with other therapeutic interventions.The ultimate goal of the rehabilitation process is to limit the extent of the injury, reduce or reverse the impairment and functional loss and prevention of disabilities.[33]

Initial phase of Rehabilitation

This phase lasts approximately 4-6 days. The goals during the initial phase of the rehabilitation process include limitation of tissue damage, pain relief, control of inflammatory responses and protection of the affected anatomical area.Elite athletes are expected to return to competition at the earliest possible time and therefore require a different and more aggressive rehabilitation approach which

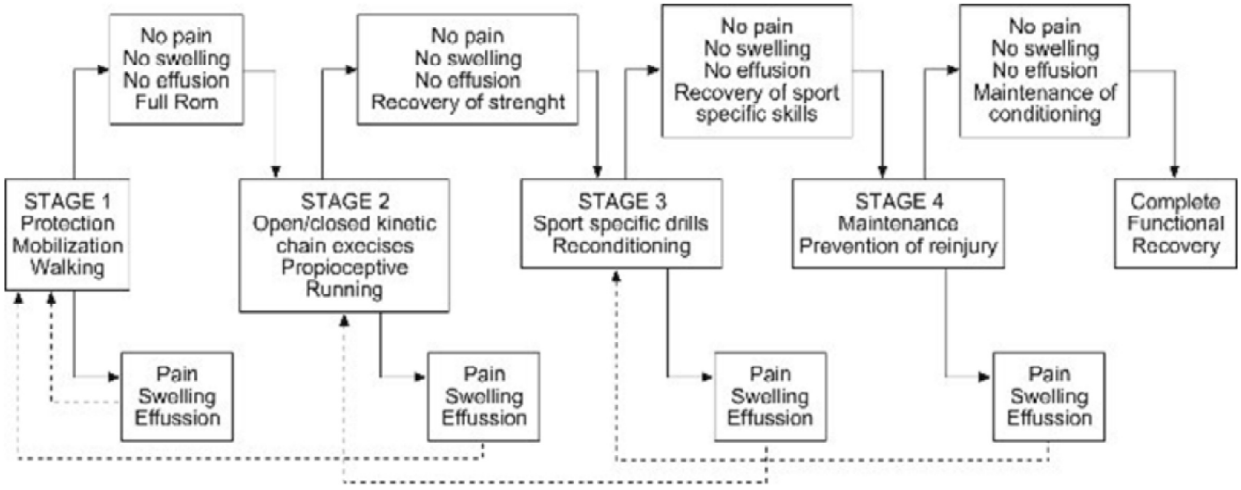

Fig. 2: Different stages of rehabilitation[34]

needs to be initiated in the acute phase itself. Keeping the end goal of risk-free injury performance, it is proposed that clinicians follow a protocol inclusive of protection, optimal loading, ice, compression, and elevation (P.O.L.I.C.E) in the acute care setting for athletes.[35]

- Protection is required to avoid further tissue damage, reduce associated pain and to promote the healing process.
- Early mobilization and tissue loading has shown to have a positive effect in promoting collagen reorganization and tissue healing.[36]
- Ice, compression and elevation of the affected part have done to control pain and swelling.
- Therapeutic modalities like low-intensity pulsed ultrasound and neuromuscular electric stimulation are used to manage inflammation and promote tissue healing.[37,38]
- Isometric exercises are used for strengthening when range of motion is restricted due to the fracture or acute inflammation of a joint. Isometric exercise makes another excellent option as the first line of tissue loading intervention. Active range of motion within one's own control and passive range of motion can be started.
- Isotonic strengthening can begin within the painless arc of joint motion.Isolated exercises that target areas proximal and distal to the injured area may be permissible provided that they do not stress the injured area.[39]

Intermediate phase of rehabilitation

This phase lasts from day 5 to 8-10 weeks. The goals during the second phase of rehabilitation include the limitation of the impairment and the recovery from the functional losses.

- **Flexibility and Mobilization Exercises:** Sub-maximal isometric exercises should be performed to maintain neuromuscular function and improve strength at low intensity that the newly formed collagen fibers are not disrupted.[39] Flexibility training is an important component of rehabilitation in order to minimize the decrease in joint ROM. Stretching techniques including PNF, ballistic stretching and static stretching are used to improve range of motion.[33]
- **Strengthening Exercises:** Isotonic exercise with constant external resistance is incorporated. Dumbbells, barbells, and weight-stack machines are used as resistance. Isokinetic exercise can be done on equipment that provides resistance to movement at a given speed (e.g., 60°/sec or 120°/sec).[39]
- **Endurance Exercises:** Athletic injuries result in loss of aerobic capacity and fatigability. During rehabilitation maintainenace of cardiovascular endurance is essential. Thus regular bicycling, one-legged bicycling or arm cycling, an exercise programme in a pool using a wet vest and circuit weight training involving exercise programmes of major muscle at relatively high intensity and

short rest periods can be of major importance.[33]

- **Core Stabilization:** During athletic activities the core region plays an integral role in reducing the risk of back injury.[40] low-load isometric motor control exercises for the transverse abdominis and multifidus should be emphasized.[41]
- **Proprioception and Coordination:** Proprioception informs about the sensations of the deep organs and the relationship between muscles and joints.[33] Scott et al demonstrated the effectiveness of proprioceptive re-education in providing a rapid motor response.[33] Proprioceptive exercises like partial and full weight bearing exercises, jumping, hopping and running drills should be incorporated. Coordi-nation can be defined as the capacity to perform movements in a smooth, precise and controlled manner. Mini-trampolines, balance boards, and stability balls can be used to create unstable surfaces for upper and lower extremity training. Athletes can perform common activities such as squats and push-ups on uneven surfaces to improve neuromuscular control.[39] Further exercises may also be performed by removing visual input to increase challenge balance.[39]

Advanced phase of Rehabilitation

This phase begins after 3 weeks and continues for 6-12 months. Rehabilitation includes the start of the conditioning process needed to return to sports training and competition. Drew and Finch demonstrated a significant relationship between excessive training loads and risk of reinjury.[42]

- **Functional training:** The combination of clinic-based and sport-specific functional techniques will provide an individualized sport-specific rehabilitation protocol for the athlete.[43] Rehabilitation and reconditioning exercises must be incorporated to facilitate a return to competition. Functional training includes specific multi-angled strengthening, velocity-specific muscle activity, closed kinetic chain exercises and exercises like sprinting, agility drills and figure of eight running are designed to further enhance neuromuscular control. Sport-specific exercises are designed to replicate movements for strengthening muscles for specific sports.[39] Cross-training has encouraged in certain sports that do not produce any symptoms of recurrence of the injury.[14]
- **Return to play:** Return to participation involves the athletic training by the team that includes sports specific training to the ongoing rehabilitation. The rehabilitation team should be well aware of the demands of the sport, the potential risks involved and the time of participation before making their final decision. Load monitoring is vital to avoid reinjury and any potential new injuries. Once the athlete has undergone an incident-free training session their partial return to sport is recommended to avoid a sudden increase in acute workload.[44] Sport-specific functional rehabilitation should focus on restoration of the injured athlete's ability to have sport-specific physiology and biomechanics to interact optimally with the sport-specific demands.[33] That means that they need to be replicated at the same speed, on the same surface and with the same level of fatigue to be truly effective.[39]

Conclusion

Integrated Rehabilitation after an athletic injury is a crucial aspect to minimize time off from sports and their return to sports with full recovery. Modern rehabilitation methods have surpassed traditional management protocols and are based on an active rehabilitation framework that demands equal participation from the athlete and the entire rehabilitation team. Considerable routine screening of injured athletes during the rehabilitation phase with validated and condition-specific measures must be done to identify those at risk of developing maladaptive psychological responses. Evidence suggests that both physical and psychological factors are likely to be important determinants of successful return to sport following injury. Knowledge about the reactions to the injury, the effects of other factors and motivation underlying the recovery is important in predicting athlete's recovery and implementation of supportive interventions.

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Newer Development

Internet Gaming Disorder: Are Games Curse or Boon?

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Introduction

In latest years, it's been known that addictions are not only limited to the overly use of substance, but has up grown to other innocent behavior which by hampering the daily lives become addictive. The list of such behavior has prioritized the online video gaming which has become one in all the world's most liked leisure activities among youth.

Internet gaming disorder (IGD) has been recently included as a tentative disorder within DSM-5 which summarizes Internet gaming disorder as the "persistent and recurrent use of the Internet to engage in games, often with other players, leading to clinically significant impairment or distress."[1] As the growing data suggesting the lifestyles of such addictions, DSM-5 included a fresh diagnostic category named Substance-Related and habit-forming Disorders. This category has included "Gambling Disorder" (F63.0). Likewise, "Gaming Disorder" has currently been included among the beta model of the International Classification of Diseases of World Health Organization (ICD-11 Beta Draft–Mortality and Morbidity Statistics).[5] During this, the difficulty is represented as "a pattern of continual or repeated gaming behavior ("virtual gaming" or "video-gaming"), which can be on-line (i.e., over the internet) or offline, manifested by: impaired manipulation on gaming (e.g., onset, frequency, intensity, duration, termination, context); growing priority given to gaming like change in different life interests and day by day activities; and continuation or increased use of gaming regardless of the prevalence of poor consequences.[2-7]

Famous internet games and their impact

There are some famous internet games like Blue whale and PUBG. "Blue Whale" also known as the "Blue Whale Challenge", was the social network which consisted of a series of tasks that are assigned to the players by game administrators over a 50-day period, less harmful prior introducing elements of *self-harm* and the last challenge requiring the player to commit suicide.[8-10] Throughout 2017, media in India reported several cases of child suicide, self-harm and attempted suicide to be a result of Blue Whale, and in response, the Indian government's Ministry of Electronics and Information Technology, requested several internet companies (including Google, Facebook, and Yahoo!) to remove all links which direct users to the game.[11,12]

But, then onwards one such game which has affected the life of many players is PUBG, Player Unknown's Battlegrounds. It is a web multiplayer battle royal game developed and revealed by PUBG Corporation, launched in Dec 2017 and has been downloaded over a hundred million times on the Google Play Store (Google Play 2019).[13] In PUBG, Battlegrounds may be a player versus player shooter game during which up to one hundred players fight in an exceedingly battle royale, a kind of large-scale last man standing death match wherever players fight to stay at last, alive. Entries of Players to the match could be solo, duo, or with alittle team of up to four individuals.The last person or alive team wins the match.[14,15]

At present, the sport has over thirty million daily active users globally and is extremely in style in

India. A 2018 marketing research survey conducted among 1047 of Indian gamers found PUBG the foremost in style game (62%). Despite the recognition of this game in India, there are less dedicated studies on the negative psychosocial impact though there are studies that have enclosed Indian gamers, whereas there are couple of case study which accounts of problematic gaming within the medical and psychological literature spanning over thirty five years.[16,17]

Impact of Internet Gaming

Consequences of Internet Gaming can be positive or negative. The main edges of enjoying video games involve enhancing mental skills that include:

(i) Downside determination and logic – Once a toddler plays a game like The unbelievable Machine, Angry Birds or Cut The Rope, he trains his brain to return up within ventive ways that to unravel puzzles and alternative issues in brief bursts. In shooting games, the character is also running and shooting at constant time, which needs both eye-hand coordination and visual-spatial ability. The player learns to manage resources that square measure restricted, and choose the most effective use of resources, constant method as in world.[1,18]

(ii) Multitasking - In strategy games, for example, whereas developing a town forces the player to be versatile and quickly amend techniques being required. It has been seen that enjoying action video games primes the brain to form fast selections.[19]

(iii) Memory – Enjoying person shooter games like decision of Duty and field series permits the player to effectively decide what data ought to be hold on in his remembering and what will be discarded considering the task at hand.

(iv) Mapping – The gamer use in-game maps or build maps on his head to navigate around virtual worlds.

(v) Taking risks – Winning in any game involves a player's spirit to require risks.

(vi) Cooperation – Several multiplayer games like in Team fort, cooperation with other on-line players is needed so as to win. These games encourage players to create the foremost of their individual skills to contribute to the team. Some on-line games introduce the child to players of various nationalities and cultures, which fosters friendships among completely different individuals.

Research on Internet Gaming:

Several researches have been carried out in the area of internet gaming. A study found that enjoying video games might facilitate, improve visual modality by teaching the brain to identify little details, follow movements and spot refined light weight changes, a minimum for individuals with visual difficulties.[20] Another study suggested that video games facilitate kids with learning disability by allowing them to browse quicker and with higher accuracy.[21,22]

A study emphasized increase in gray matter within the right hippocampus, the proper anterior cortex which measure crucial for spatial navigation, strategic designing, remembering and motor performance. The raised gray matter in these components of the brain is correlative with higher memory and small gray matter is correlative with major affective disorder.[23]

The study suggests that computer game coaching might be accustomed to best-known risk factors for smaller hippocampus and anterior cortex volume in, for instance, post-traumatic stress disorder and psychosis.[16,24] A study revealed that video game use isn't related to a raised risk of mental state issues but to higher intellectual functioning.[22] Another study suggests that enjoying some video games could even overcome the psychological feature skills littered with economic condition like focus, self-control, and memory.[24]

Apart from the benefits, most of the dangerous effects of video games are the violence they contain. Children playing a lot of violent video games possess raised aggressive thoughts, feelings, and behaviors, and small pro-social serving. Another study suggests that chronic exposure to violent video games isn't solely related to lower sympathy, however, emotional feelinglessness in addition.[29]

Similarly, American Psychological Association (APA) argued a "consistent correlation" between violent game use and aggression, however finds lean proof to link violence with video games and have noted that there's a small rate of juvenile crime that coincides with the recognition of games like Death Race, Mortal Kombat, Doom and Grand larceny automobile. It was concluded that video game is

habit-forming for teenagers, and found that the impulsive part of the brain, referred to as the amygdala-striatal system was a lot of sensitive in line with significant game players between thirteen and fifteen whose self-control system isn't however well-developed will have raised susceptibleness to different sorts of addiction and may be a lot of susceptible to impulsive and risky behaviors later in life.[28]

A metaanalysis of twenty four studies conducted examines that violent video games had very little impact on kids' aggression, mood, serving to behavior or grades but suggested that players may follow riskier behaviors like reckless driving, binge drinking, smoking and unsafe sex.[27] It was found that teenaged players readily leave the emotional effects of the sport behind, once the sport is over.[26] These players navigate through the sport tract mistreatment in-system navigation tools or on-screen GPS, looking forward to steering "habit" rather than active learning and which causes a rise within the quantity of gray matter in their basal ganglion, whereas it decreases within the hippocampus.[30] Reduced gray matter within the hippocampus has antecedently been joined to higher risks of brain diseases, together with depression, psychosis, PTSD, and Alzheimer's sickness. But, games that need players to navigate spatial methods just like the 3D Super Mario games have raised nervous tissue within the hippocampus. Though, a lot of computer games make the child socially isolated. In fact, among gamers, being a individualist isn't the norm. Some video games teach children the incorrect values. Studies have shown that the longer a child spends enjoying video games, the poorer is his performance in class.[29] A study found that computer game addicts argue plenty with their academics, fight plenty with their friends, and score lower grades than others and a lot of game players habitually skip their studies to play games.[31] Video games may have dangerous effects on some children's health, together with blubber, video-induced seizures, muscular and skeletal disorders, like inflammation, neurological disease and carpal tunnel syndrome. When enjoying on-line, child may develop dangerous language and behavior from others, and make child prone to on-line dangers. Kids' defray an excessive amount of time enjoying video games could exhibit impulsive behavior and have attention issues.[32]

On contrary, it was seen that enjoying video games enhances a child's concentration and facilitate children's attention problems, raising the flexibility to concentrate in brief bursts however damaging semi-permanent concentration.[33]

Evidence depicting harmfulness of gaming with reference to India

India is one of the top five mobile gaming markets in the world in terms of number of users. The Indian gaming industry is set to be worth $1.1 billion in 2020 with a projected 628 million online gamers. This rise in popularity is largely due to the increased accessibility of the public to video games as well as multi-platform dissemination along with a saturated and affordable technology market ensures that smart devices reach even larger sections of society every year. The internet penetration in India is expected to reach 53% of its population by 2021.[39]

The Indian medium has arguably vilified online gaming esp. PUBG and has tried to link the sport with a large vary of negative psychosocial impacts. Some terribly recent cases area unit highlighted below:

Case 1—Hospitalization: A fitness trainer from Jammu allegedly became keen about enjoying PUBG and was admitted to the hospital when he started to hit himself, when finishing one in all the rounds and burned himself. The doctors treating him claimed that he was mentally unbalanced and his mind was totally underneath the influence of the 'PUBG' game. As a consequence, such life-threatening on-line games were prohibited in the state and also in the country.[34]

Case 2—Drinking acid rather than water by mistake: A young adult from Chhindwara (in the central Indian state of Madhya Pradesh) was allegedly thus engrossed in enjoying PUBG that he drank acid thinking it had been a bottle of water and underwent surgery.[36]

Case 3—Suicide attempt: In an event from Nashik (in the northwest region of Maharashtra), a 14-year-old boy, allegedly tried suicide in an exceedingly match of anger by intense poison when his mother took away his mobile as a result of intense playing the PUBG game.[35]

Case 4—Death: A 20-year-old man from

Jagitial, Telangana (in the center-south stretch of the Indian peninsula) was hospitalized in Hyderabad with serious neck pain when enjoying PUBG for forty five days so died whereas undergoing treatment. On a social media video created by his friend, it was claimed that the nerves of his neck were broken when enjoying PUBG perpetually.[36]

Different stories have tried to link PUBG fiddling with extreme acts, due to which the judicature has conjointly asked the Indian Union government to require action against PUBG Mobile supported that the sport promotes violence, aggression, and cyberbullying.

Though internet gaming has created storm in the mind of especially young teenagers, as discussed there are not only the positive facets but also the negative ones, and the government has taken various steps to prevent the youth from diverging themselves from their career, or taking harmful steps in their life by banning some of them and taking actions. Many of the countries have focused on mental health facilities to treat IGD. Policy makers of the other countries like India have similarly taken this issue seriously and have dedicated resources for education, prevention, and treatment of IGD. Schools at all levels ought to routinely incorporate instruction about IGD and extend the framework they have set up for other conceivably dangerous practices (drugs, liquor, unsafe sex, betting, and so forth) to incorporate issues with electronic media;[37] Because of the predictable connection among IGD and poor school execution, schools might be an astounding spot for screening for IGD and for giving referrals to administrations when issues with IGD or related issues are revealed.

Many schools give PCs and additionally support PC use all through classes, as this can have enormous instructive and reasonable advantage. Numerous schools consider "gamifying" their instructive procedures. Schools ought to take initiatives for preparing guardians and instructors to look forward the potential issues. Schools and public sectors can be of major incentives in helping parents to recognize non-gaming incentive chances.[36,38]

Conclusion

Nowadays video games have been a large and growing part of our culture as well as an emerging market. It has many characteristics of other addiction disorders including deleterious physical and mental health consequences. The social and omnipresent nature of gaming makes it a bit difficult to identify the signs and symptoms of excess gaming. There has been too little serious public policy debate concerning the best measures to reduce the exposure of media violence on children and youth. It is right time to move on to the more difficult public policy questions concerning whether modern societies should take action to reduce the high rates of exposure of children and youth to media violence, and if so, what public policies would likely be the most effective.

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Commentary

Mindful way of Self Awareness and Psychological Well Being

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Introduction

"The key to desired future or meaningful living is the moment-based living"

The search for meaning of life has always been a matter, rather concern for the scientists, psychologists, anthropologists and spiritualists. The amalgam of majority of opinions can be precisely considered as the search for a divine soul, to which all the existing creatures on earth belong to or are a part of. But it raises a question that why does human existence strive for the answer of where we came from and/or where we are going to be after life. What is the actual or literal sagacity for the term "search for meaning of life"? In our opinion, search for the meaning of life could be that how can we humans actually find a mid-way to live "life" happily among all the distractions and uncertainties of our existence. Again, after centuries of development in various domains, be it Spirituality, Science, Psychology or any other domain, we have found the diverse ways to cope up with the stressors of life. Spirituality suggests that worshipping divine soul or integrating ourselves to it, is the major purpose of human existence. Science believes that being healthy, is absence of any form of illness in the human body and unrevealing the facts of human genetics to prevent, diagnose, cure the infirmity. Psychology focuses on adapting healthy life patterns, developing positive coping skills and if needed modify-ing personality patterns.

Search for Meaning of Life: A queue of assumptions

All the above scientifically and spiritually proven ways, some or the other way lead towards finding meaning of life or its domains. But is it possible to reach a destination without crossing the midway junctions or stoppages? Is it possible to have the midway junctions, in the search for meaning of life? If all of this is possible, then what could be the potential stoppages of human existence? Let's assume that spiritually if divine soul is the destination for each human soul, then the possible midway junction could be 'finding oneself' initially and later being aware of the environment. This can further be explained by differentiating between aims and objectives in any research. In any research an aim is the anticipated goal and objectives can be described as the ways to achieve that goal. Similarly, if one aims to achieve the 'higher consciousness' or as said in spirituality 'divine', one needs to bypass the objectives of gaining 'self-awareness' and 'awareness of the environment'

Self-Awareness: Different Fields and Different Means

There have been various explanations of self-awareness and there are different terms used in various branches of Science, Philosophy and Psychology. In a scientific way consciousness is described as proper cognitive functioning along with complete alertness and the person is considered unconscious or in a state of coma when the brain does not respond to any external stimulus. In psychiatry, there are various techniques to assess cognitive functions and if found intact, then the individual is considered as consciously aware of one self and the environment. In spirituality, the self-awareness is revealing the depth knowledge ofone's own hidden potentials and devoting oneself to the divine soul.

Gaining scientific consciousness is usually considered as beyond the potential of biological human body, rather it could be gained through

medical assistance. Psychiatric awareness or insight could be developed with the passage of time through therapeutic sessions. But, Spirituality and the latest trends in Psychology suggest that 'self-awareness' can be gradually gained by one's own practice. In spirituality, reaching out to highest potential and awareness is through *Dhayana, Samadhi, Yoga, Kundlani Jagran,* etc. In quantum physics there has been a topic of debate that human brain waves generate energy and this energy is allocated to the external surroundings of human body, i.e. universe. The "law of attraction" suggests that what you give thought is what you will attract.[1] If the universe receives positive waves, then in return one attracts the positivity and same is with the negativity. In Trans-personal Psychology, consciousness is addressed something as 'beyond' the personal sense of self and include understandings that "encompass wider aspects of humankind, life, psyche and cosmos". In Psychology it can be attained by being 'mindful' about one's thoughts, feelings, and emotions.[2,3] urges and yet being as an external observer along with non-reactive approach.

Moment Based Living: Key to Desired Future

Taking into consideration of all the explanations of happy and healthy human existence, one must be 'aware' of what one is feeling, thinking and behaving. Another matter of interest is that there is a need to be 'aware' that however one wants to feel, think and behave; is one even aware of it? To attract what is desired one must know what they want.[4] In philosophically precise way "the key to desired future or meaningful living is the 'moment-based living', by being mindful".

Now, how can be self-awareness gained, is another interesting, though well researched area. The recently emerged fourth wave behaviour therapies suggests that spirituality along with the mindfulness-based practices are beneficial to sustain a mindfulness-based living. Four widely shared world views - radical materialism, secular humanism, pantheism and monotheism – differ in their core assumptions, and clinical implications.[5]

Mindfulness is the English translation of, "Sati" in Pali, an ancient language from northern India. Sati means: memory, recognition, consciousness, intentness of mind, wakefulness of mind, mindfulness, alertness, lucidity of mind, self-possession, conscience, self – consciousness.[6] The term 'mindfulness' was first described in ancient eightfold path of Buddhism, specifically to be liberated from cravings and clinging.[7] These eightfold path, right understand; right thought, right speech, right action, right livelihood, right effort, right mindfulness and right concentration. In current scenario, mindfulness-based approaches and researches are becoming more popular. There are various modes of therapies which are currently in trend, as Mindfulness based stress reduction developed by Professor Jon Kabat-Zinn, Acceptance and Commitment Therapy by Steve Hayes, Mindfulness based meditation and so on.[8,9]

Need for 'moment-based living' and self-awareness: Less sufferings

There have been many explanations on finding the causative factors for human sufferings. Here it is being described as four major causative factors, which are *expectations, late realization, influenced behaviours, let go dilemma, misapprehension*. We as humans are the most intellectual species on earth, we are not born with sufferings and we know how to survive and keep ourselves alive. Yet, the research data of *Global Burden of Disease* study estimates that in 792 million lived with a mental health disorder.[10] This is slightly more than one in ten people globally (10.7%). So here are certain major factors influencing the overall functioning of individuals and are possible reasons for human sufferings.

Expectations

In all of us, there lies a basic tendency or innate reaction of putting forward one's needs, desires and wants on the priority. In any form of emotional bonding or relationship, usually willingly or unwillingly we indulge into a give and take approach, which does not result in a flourishing manner. One may do something meaningful towards the person with whom one is emotionally attached, which at that point of time could be a selfless act. But this repetitive act of kindness, which isn't demanded by the other person, may gradually result into an expectation of something equivalent in return. Now here is the point, where people need to realize about the boundaries between self and others. This lack of 'self-awareness' at the initial level of relationships gradually develops a sense of 'dependency', be it

emotional, physical, financial, social and so on. When another person does not come up to the expectation levels of the dependent individual, the suffering rises in its fullest potential.

Late Realization

As per the socio-selectivity theory, as an individual move towards or is at the edge of going towards old age, there is a gradual shift from cognitive, materialistic goals to emotional or affective dominance. This shift develops a sense of importance for 'self' and 'relationships'. Though, it could be considered as a late realization because it is a state of 'empty nest syndrome'. The mistakes done, the decisions taken, the paths not chosen cannot be reversed or re-acted. All this can be avoided by vanishing the 'late realization' with the help of experiencing the true meaning of life, starting with 'self-awareness'.

Influenced Behaviours

Our decisions, our understanding, our behaviour is majorly influenced by whatever we learn across the various transition phases of life. Our family, peer groups, social groups, official groups, our traditions, our culture, etc. play an active role in shaping behaviour and mostly people are truly proud of it. Yet why do they often regret for the unexpected happenings of life? The probable answer could be that they fail to recognize the true sense of self and act as per what is felt right in that moment. But it is not the case with everyone, some people do have an idea of what they are doing, irrespective of right and wrong, sometimes because of demands, disagreements, unknown realities and sometimes deliberately, resulting into baggage of regrets. ***Collection of regrets leads to suffering.*** If an individual could somehow act, feel or decide in an unbiased manner, one would be able to get rid of these emotional sufferings and influenced pattern of behaviours.

Let go dilemma

The 'let go' phenomenon is too casual to say nowa-days but, when to let go and when not to, is another dilemma. People often use displacement or projection to deal with the unresolved conflicts and let go is another trending verbatim. How to differentiate between what actually needs to let go and what must be dealt at that moment, when we think of letting it go? Also keeping in mind that this 'let go' approach does not add on to our baggage of regrets. Perhaps a permeable line is always there between two situations. If one is aware of the true self and one's potential, capabilities and able to perceive the possibilities, then it way too easy to let go or take an action.

Now, another view is that, is it possible to not have any baggage of regrets in life? Is it possible to have no sufferings at all? Well, the answer is plausibly a big fat NO. What we mean to say is that, mindful acts or total self-awareness does not mean that one will never have any baggage of sufferings or regrets. It simply means that if one is mindful at most of the moments of one's life, if one acts, feels or thinks accordingly, then also one may or may not carry that baggage. Then why to practice mindfulness or be psychologically well? Because, instead of all the adversities and regrets, load of regrets would be less because one attempted really in a mindful way and did what was the most appropriate of one's potential at that moment. Thus, pain would be there, sufferings would be there but the intensity, frequency and duration would be way too less.

So, the much we practice mindfulness, the more we will be aware of our true self, will expect less, give more, will realize priorities of life early, will be more influenced by inner self than other and will be able to deal with let go dilemma, resulting in less sufferings in life.

Misapprehensions

In the era of technology, when the message is conveyed in the absence of gestures, it becomes very unclear what, why and how to perceive. This misapprehension happens a lot of time and then a new prediction is formed, often leading to a pleasant or an unpleasant perception. We listen, see or come to know about something, at that moment we just know the reality of one moment, situation or thought. But there is always a star indicating *terms and conditions applied.* We are mostly unable to discover the entire truth or reality of a situation or an individual. Another matter of fact is that *discovery of truth is always influenced by one's underlying beliefs, thoughts, experiences*, which is a normal human dilemma. The instinctual thought or feeling

is made on the basis of latter, but one can be in charge of one's own perception. *Change in perception is a matter of desire and willingness.* We want to others get changed, we want their environment to change, we wish to change destiny, but we all fail to change the most basic unit of humanity, i.e. 'own self'. And we fail to do so because we don't feel the need for it and we don't feel the need for it because we don't realize what we actually are. ***Mindfulness helps with exploring, integrating and flourishing one's own existence in the world full of dilemmas***.

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View Point

Postpartum Depression in India: a socio-cultural viewpoint

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After delivery, it is a normal and expected phenomenon to see and experience hormonal changes in the mother that can make her feel low or depressed for some time. Some mothers also experience a phenomenon called as *'baby blues'* which is a short period of experiencing low mood and worry, for about 1 month. *Baby blues* is a term used to describe the feelings of worry, unhappiness, and fatigue that many women experience after having a baby. Babies require a lot of care, so it's normal for mothers to be worried about, or tired from, providing that care. Baby blues, which affects up to 80 percent of mothers, includes feelings that are somewhat mild, last a week or two, and go away on their own.[1]

Postpartum depression is one of the three post-partum psychiatric disorders, apart from post-partum blues and post-partum psychosis. It is a psychiatric disorder that may be present as antenatal depression or may occur as apostnatal condition, after delivery. Postpartum depression can predispose to either chronic or recurrent depression, and has negative consequences for the mother, infant and family.[2] The global prevalence of postpartum depression has been estimated as 100-150 per 1000 births.[2] Postpartum depression also negatively impacts a woman's everyday functioning as well as her relationship with her partner and social relationships. Importantly, the marred relationship with the child not only affects the child's normal social, emotional and cognitive development, but also interferes with basic needs such as feeding.[3] Children of mothers with postpartum depression have greater cognitive, behavioral and interpersonal problems compared with the children of non-depressed mothers.[4]

Postpartum depression is akin to a major depressive disorder with peripartum onset, i.e., symptom onset during pregnancy or within 4 weeks after childbirth. The Diagnostic and Statistical Manual of Mental Disorders-5 (DSM 5) diagnostic criteria specifies that $\geq$ 5 symptoms must be present nearly every day for at least two weeks, including either 1) depressed mood or 2) loss of interest or pleasure in activities that are normally enjoyable as at least one of the symptoms. The symptoms of postpartum depression are –

a) Feeling sad, hopeless, empty, or over-whelmed
b) Crying more often than usual or for no apparent reason
c) Worrying or feeling overly anxious
d) Feeling moody, irritable, or restless
e) Oversleeping, or being unable to sleep even when her baby is asleep
f) Having trouble concentrating, remembering details, and making decisions
g) Experiencing anger or rage
h) Losing interest in activities that are usually enjoyable
i) Suffering from physical aches and pains, including frequent headaches, stomach problems, and muscle pain
j) Eating too little or too much
k) Withdrawing from or avoiding friends and family
l) Having trouble bonding or forming an emotional attachment with her baby
m) Persistently doubting her ability to care for her baby
n) Thinking about harming herself or her baby.

Other symptoms include persistent significant

weight loss, insomnia or hypersomnia, psychomotor agitation or retardation, fatigue or loss of energy, and feelings of worthlessness or excessive/inappropriate guilt.[5]

Postpartum depression continues to be one of the challenging perinatal mental health problems that despite having a high global prevalence of approximately 19%,[6] has not attained the desired attention to treatment and care. Research literature identifies a high prevalence of postpartum depression in low-and-lower-middle-income countries.

A meta-analysis in developing countries showed that the children of mothers with postpartum depression are at greater risk of being underweight and stunted[7] and that mothers who are depressed are more likely not to breastfeed their babies and not seek health care appropriately.[8] Findings of a longitudinal study carried out in a low- and middle-income country showed that postpartum depression is associated with adverse psychological outcomes in children up to 10 years later.[9]

These risk factors can be grouped into five main categories—physical/biological, obstetric/pediatric, sociodemographic, psychological and cultural—with the relative influence of a given risk factor on the development of postpartum depression varying based on person, place, and context. There is significant diversity in how these risk factors interact to cause the condition and there is also diversity in how women experience and express PPD in different countries.[10]

Some women are at greater risk for developing postpartum depression because they have one or more risk factors,[10] such as:

- Symptoms of depression during or after a previous pregnancy
- Previous experience with depression or bipolar disorder at another time in her life
- A family member who has been diagnosed with depression or other mental illness
- A stressful life event during pregnancy or shortly after giving birth, such as job loss, death of a loved one, domestic violence, or personal illness
- Medical complications during childbirth, including premature delivery or having a baby with medical problems
- Mixed feelings about the pregnancy, whether it was planned or unplanned
- A lack of strong emotional support from her spouse, partner, family, or friends
- Alcohol or other drug abuse problems.

Despite the launch of India's National Mental Health Programme in 1982, maternal mental health is still not a prominent component of the programme. Dedicated maternal mental health services are largely deficient in health-care facilities, and health workers lack mental health training. The availability of mental health specialists is limited or non-existent in peripheral health-care facilities.[11]

Maternal mental health services, which are deficient in the majority of health-care facilities, are often limited to peripheral health care centers when available. Additionally, there is no screening tool in use to identify postpartum depression or other perinatal mental disorders. Thus, little is known about the prevalence of postpartum depression because no data are collected on a routinely-basis.[12] Current literature suggests a steady decline in maternal mortality in India. Given this, if the focus of maternal care is to now transcend towards maternal morbidity, mental health would be an essential component to consider.

Although the number of empirical studies examining post partum depression in India is increasing, they are mostly regionally-based and there is still a lack of nationwide data on it. There is only one systematic review of 38 articles, and it estimates the overall national burden of postpartum depression in India to be 22%.[13] This same study also lists the primary risk factors for postpartum depression with financial difficulties being the most commonly-reported (in 19 out of 21 studies with this variable). Other common risk factors include domestic violence, history of mental illness in the mother, marital conflict, lack of support from the husband, and the birth of a female baby.[14] Herewith below is a summary of the key findings of the systematic review and analysis done for the 38 studies involving 20,043 women that give an estimate of the burden of postpartum depression in Indian mothers:

i. Southern regions of India have the highest prevalence with an estimated pool prevalence of 26%.
ii. The eastern and south-western parts of India followed with a prevalence of 23% each and then 21% in the western regions.

iii. Northern Indian regions were found to have the least prevalence.
iv. Pooled prevalence was found to be higher (though, not significantly) among hospital settings as compared to that in community settings and urban versus
v. Most commonly reported risk factors were: financial stress, domestic violence, past history of psychiatric illness in the mother, marital conflict, lack of support from husband and birth of a female baby. Other risk factors that were reported are: stressful life events, family history of psychiatric illness, sick baby or death of baby and substance abuse by husband.

There are several reasons that contribute to gap in the data. We have enlisted factors that especially hold true in the Indian scenario where cultural factors and traditional lifestyles also contribute to the ignorance and lack of awareness –

1. Antenatal (prenatal) care is not fully utilized in India. Further, antenatal care is not even equally available across the demographics of our nation. In India, only 21% of pregnant women utilized full ANC, ranging from 2.3–65.9% across states.[15] Several women choose to come to hospitals only when there is a complication or medical condition that may arise during pregnancy.
2. Antenatal mental morbidities such as depression and anxiety are a more prevalent among the lower socio-economic classes and migrant communities residing in urban areas. They make up for 30% of the urban population in India.[16] Screening of PPD is not a routine practice in Indian hospitals and nor do women stay back in hospitals for routine follow ups after delivery.
3. Two studies, carried out in Goa and rural southern India show that apart from some factors that are common with risk factors found globally, there are some socio-culturally relevant factors to the Indian subcontinent that aggravate the prevalence of postpartum depression Gender based factors emerged as being highly important, with intimate partner violence, unhappiness about the gender of the child, poverty and having a living female child being identified as risk factors both for the occurrence of PPD and for chronicity.[17]
4. Often the marital discord remains among families and the woman is most often than not found to bear the consequences of the same. This adds to the mental health adversities for a child-bearing woman. It is especially challenging when the spousal support is amiss.

Despite the growing number of empirical studies on postpartum depression in India, there is a lack of robust systematic evidence that looks not only at the overall burden of postpartum depression, but also its associated risk factors. Our current understanding of the epidemiology of postpartum depression is largely dependent on a few regional studies, with very few nationwide data. The current review was done to fill this gap, by providing an updated estimate of the burden of postpartum depression in India. Further, to reduce the postpartum psychiatric care burden, there is a need for liaison between psychiatric care, addressing gender-based issues, economic growth and psycho-social care at the family level. This can be facilitated with psychoeducation and counselling. Though counselling is one of the essential and must be given services according the government guidelines, it is barely seen to be practiced on ground. There is a need for psychiatrist, obstetricians and family physicians to look at postpartum depression as an important public health problem and give it the due recognition it deserves.

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Drug Review

Brexanolone: A novel drug for Post-Partum Depression

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Introduction

One of the leading causes of pregnancy-related deaths among mental health diseases is postpartum depression (PPD). PPD is a separate but easily identifiable major depressive disorder that may occur during pregnancy or in the postpartum period. For a pregnant woman and her family, the consequences of a disease like PPD can be destructive. These may include the usual symptoms of depression like sadness, decreased appetite, disturbed sleep, challenges in motor and somatic functions, loss of concentration, feeling of lethargy and poor self-esteem, as well as significant functional impairment and/or loss of interest in her newborn.[1]

According to the 5th Edition of Diagnostic and Statistical Manual of Mental Disorders, PPD is defined as a new or recurrent major depressive disorder with the onset of depressive symptoms during pregnancy or in the first four weeks postpartum.[2] The leading risk factor of PPD among childbearing women is any previous history of depression. Some other risk factors are fear of childbirth, maternal anxiety, low socioeconomic status, history of tobacco use, domestic violence, gestational diabetes mellitus, etc.[3,4]

The etiology of PPD is not clear. In the pathophysiology of PPD, various preclinical and clinical studies have indicated an important role of Neuroactive steroids.[5] Importantly, the onset of PPD symptoms during the peripartum period may occur because of the changes in neuroactive steroid levels, which the GABA system is unable to adapt to.[6] While functioning as behavioral switches, neuroactive steroids like Allopregnanolone might play a potentially important role in the treatment of mood disorders such as PPD. Research has shown that Allopregnanolone, which is a progesterone metabolite, is directly linked to depression.[7,8] During pregnancy, allopregnanolone levels increase, with a peak in the third trimester. In the immediate postpartum period, its levels decline rapidly that may represent specific pathophysiology of PPD.[9]

Recent studies have linked uncontrolled PPD with adverse postpartum as well as neonatal outcomes. Therefore the rapid resolution of depressive symptoms is of utmost importance. The most effective and acceptable first-line treatment of PPD is Selective Serotonin Reuptake Inhibitors (SSRIs). However, the evidence for using SSRIs, specifically in the postpartum period is insufficient. And those PPD patients who received SSRIs had a success rate of only 43% to 88%. Studies have suggested that only 3.2% of women with PPD achieve remission with current treatments.[10] SSRIs fail to control PPD as their effect takes weeks to months to appear, putting both mother and the infant at risk.[11]

Other than SSRIs, alternate treatment options include serotonin-norepinephrine reuptake inhibitors (SNRIs) and atypical antidepressants.

Brexanolone

Brexanolone as an intravenous injection is the first drug approved by the FDA specifically for the treatment of moderate to severe postpartum depression (PPD) in adult women.

Mechanism of Action

Brexanolone is an exogenous analog of Allopregnanolone, a major metabolite of progesterone, which is increased during pregnancy and sharply declines after childbirth. This hormonal decline and

the resulting downregulation of γ- aminobutyric acid A ($GABA_A$) receptors act as a trigger for PPD.[9]

Brexanolone (exogenous Allopregnanolone) is a positive allosteric modulator of $GABA_A$ receptors. These five-unit transmembrane ion channels have numerous possible conformations and are found in intrasynaptic and extrasynaptic sites as well as on glial cells. Brexanolone specifically acts at $\alpha_1ß_2c_2$, $\alpha_4\beta_3\delta$, and $\alpha_6\beta_3\delta$ subunits.Enhancing activity at $GABA_A$ receptors appears to have acute anxiolytic and antidepressant effects.[8] Brexanolone directly targets the fluctuations in allopregnanolone levels that occur with PPD.[5,9]

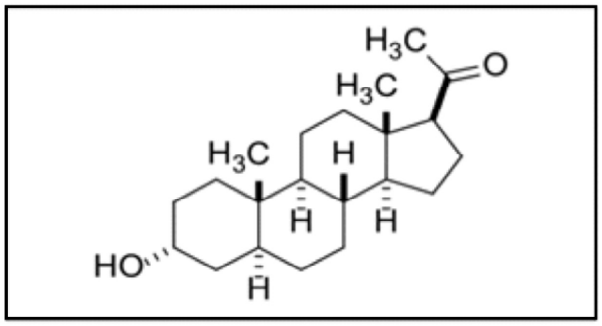

Figure-1: Structure of Brexanolone

Chemical Structure and Pharmacokinetics

Brexanolone has a volume of distribution (V_d) of approximately 3 L/Kg, which suggests extensive distribution into tissues. It is greater than 99% protein-bound, which makes it prone to protein binding interactions.

Its terminal half-life is approximately 9 hours, with 47% recovered in feces and 42% in urine, primarily as metabolites. The total plasma clearance of brexanolone is approximately 1 L/h/kg.

Non-CYP based pathways extensively metabolize Brexanolone via three main routes-keto-reduction (AKRs), Glucuronidation (UGTs), and Sulfation (SULTs). Three major circulating metabolites are pharmacologically inactive and do not contribute to the overall efficacy of brexanolone.

No changes in pharmacokinetics were evident in patients with mild to severe hepatic impairment. Although there is no evidence regarding the pharmacokinetics of brexanolone in end-stage renal disease, betadexsulfobutyl ether sodium, used as a solubilizing agent, can accumulate in patients with creatinine clearance less than 30 ml/minute.

Dosage and Administration

- Brexanolone is administered over 60 hours (2.5 days), as a continuous intravenous infusion. Its schedule of administration is:
  - 0 to 4 hours: Initiate with a dosage of 30 mcg/kg/hour
  - 4 to 24 hours: Increase dosage to 60 mcg/kg/hour
  - 24 to 52 hours: Increase dosage to 90 mcg/kg/hour (alternatively consider a dosage of 60 mcg/kg/hour for those who do not tolerate 90 mcg/kg/hour)
  - 52 to 56 hours: Decrease dosage to 60 mcg/kg/hour
  - 56 to 60 hours: Decrease dosage to 30 mcg/kg/hour
- Brexanolone must be administered under the supervision of a healthcare provider (HCP) for the complete duration of the infusion, to monitor the patient, and intervene if necessary continuously.
- If any time during the treatment, excessive sleepiness occurs, the infusion should be stopped until the symptoms disappear. After that the treatment may again be started at the same or lower dose as clinically appropriate.

Adverse Effects

The most common adverse reactions are sedation/somnolence, dry mouth, loss of consciousness, and flushing/hot flush.[9]

Because of the side effects of sedation and occasional loss of consciousness, Brexanolone has been approved with a Risk Evaluation and Mitigation Strategy (REMS) and is only available to patients through a restricted distribution program at certified health care facilities where the health care provider can carefully monitor the patient.

Drug Interaction Studies

Currently, no drug interaction studies are available.

Brexanolone in Clinical Trials

In three pivotal trials, phase II study (202A) and two-phase III studies (202B and 202C), patients were randomly assigned to receive a single intravenous injection of either brexanolone 90 µg/

kg/h, brexanolone 60 μg/kg/h, or matching placebo for 60 hours.[5,9,12]

In all three studies, a 60-hour continuous intravenous infusion of brexanolone or a placebo was given to the patients with four weeks follow up. Both the studies also evaluated titration to the recommended target dosage of 90 mcg/kg/hour. In Study PPD-202B, titration to a target dosage of 60 mcg/kg/hour was also evaluated.

Demographic and baseline disease characteristics were generally similar across treatment groups in the pooled Studies PPD-202B and PPD-202C. Most patients (76%) had onset of PPD symptoms within four weeks after delivery, with the remainder having onset during the third trimester. 23% of patients reportedbaseline use of an oral antidepressant.

All three studies had patients between 18 to 45 years of age and were six months or less postpartum. The incidence of a major depressive episode in all the patients was between the third trimester to 4 weeks postpartum.The primary outcome for all studies was changed from baseline in the 17-item Hamilton Depression Rating Scale (HAM-D) total score at 60 hours. Secondary outcomes included response rate (50% or more reduction in HAM-D total score), remission rate (HAM-D total score of 7 or lower), and change from baseline on Montgomery-Asberg Depression Rating Scale (MADRS), Generalized Anxiety Disorder 7-item Scale (GAD-7), and Edinburgh Postnatal Depression Scale (EPDS) total scores. All studies used the continuous stepped infusion of 30 μg/kg/hour for hours 0–4, 60 μg/kg/hour for hours 4–24, 90 μg/kg/hour for hours 24–52, 60 μg/kg/hour for hours 52–56, and then 30 μg/kg/hour for hours 56–60. Subjects in the 60-μg arms maintained the rate of 60 μg/kg/hour for hours 24–52.

Study 202A

In this study, brexanolone was evaluated vs. placebo for the treatment of severe PPD, i.e., HAM-D score $\geq$ 26 in a randomized, double-blind placebo-controlled phase II trial. Twenty-one women were randomized into two groups of brexanolone 90 μg/kg/hour (10 patients) and placebo (11 patients)[5]. All the patients had comparable baseline demographics across groups. The mean baseline HAM-D scores were 28.1 (range 27–30) in the brexanolone group and 28.8 (range 26–32) in the placebo group. At 60 hours, the average reduction in HAM-D score from baseline was 21 points for the brexanolone group and 8.8 points for placebo (difference -12.2, 95% confidence interval [CI] -20.77 to -3.67, p=0.0075, effect size 1.2). This effect was sustained to day 30 (difference -11.9; - standard error [SE] 4.1, p=0.0095). Change in MADRS score at 60 hours and 30 days was also statistically significant (-15.9, SE = 5.5, p=0.0104 and -15.1, SE = 5.2, p=0.01, respectively). Remission rates were higher in the brexanolone group compared with the placebo group at both time points, with 70% of patients meeting remission criteria at both 60 hours and 30 days, compared with 9% and 18% of patients in the placebo group, respectively.

In the brexanolone group, 4 out of 10 patients reported any adverse effect compared with 8 out of 11 patients in the placebo group. The most common adverse effects reported in the brexanolone group were dizziness (20% vs. 27% in the placebo group) and somnolence (20% vs. 0% in the placebo group). There were no serious adverse events, discontinuations, or deaths in either group.

Study 202B

This double-blind, randomized phase III study evaluated the safety and efficacy of brexanolone 60 μg/kg/hour (BRX60) (38 subjects), brexanolone 90 μg/kg/hour (BRX90) (41 subjects), and placebo (43 subjects) for severe PPD (HAM-D score of 26 or higher).[9] Out of the 138 randomized women (1:1:1), 122 received treatment. Patients were medically supervised for 72 hours, which consisted of 60 hours for infusion and 12 hours for post-infusion assessments. All three groups had similar baseline characteristics. Nine of 122 patients who received treatment discontinued the study; one in the placebo group (lost to follow-up), three in the BRX60 group (two withdrew consent, and one was lost to follow-up), and five in the BRX90 group (three withdrew consent, and two were lost to follow-up).

Baseline HAM-D scores were 29.1, 28.4, and 28.6 for BRX60, BRX90, and placebo, respectively. At 60 hours, the mean reduction in HAM-D total score was 19.5 points in the BRX60 group and 17.7 points in the BRX90 group compared with 14 points in the placebo group (mean difference -5.5 [95% CI -8.8 to -2.2], p=0.0013 for the BRX60 group; -

3.7 [95% CI -6.9 to -0.5], p=0.025 for the BRX90 group). The effect was sustained at 30 days. At the end of the 60-hour infusion, 51% of patients in the BRX60group met remission criteria vs. 16% of patients in the placebo group (OR 6.0 [95% CI 2.1–17.8], p=0.0011); however, the separation was not maintained at 30 days. Patients in the BRX90 group did not have significantly higher remission rates compared with placebo at either 60 hours or 30 days. Significantly more patients in both BRX60 and BRX90 groups had higher response rates at 60 hours and 30 days compared with placebo ($p < 0.05$).

The number of adverse events that were reported was 19 for BRX60, 22 for BRX90, and 22 for the placebo group. The most common adverse effects were headache (18%, 15%, and 16%, respectively), dizziness (16%, 15%, and 2%, respectively), and somnolence (18%, 5%, and 7%, respectively).

Study 202C

A third phase III study assessed patients of moderate PPD (HAM-D 20–25). It was a double-blind, randomized placebo-controlled trial comparing BRX90 (51 subjects) with a placebo (53 subjects).[9] Three patients in the brexanolone group (one lost to follow-up, one withdrew consent, and one adverse event), and one in the placebo group (one lost to follow-up) discontinued the study early. Baseline HAM-D scores were 22.6 and 22.7 for BRX90 and placebo, respectively. The mean reduction in HAM-D at 60 hours was 14.6 points for BRX90 and 12.1 points for placebo (difference 2.5 [95% CI 4.5 to 0.5], p=0.016). At 30 days, reduction in HAM-D score in the placebo group (15.2 points) surpassed the brexanolone group (14.7 points) (difference 0.5 [95% CI 2.0 to 3.1], p=0.671). Significantly more patients achieved HAM-D remission at 60 hours in the BRX90 group than placebo (30 [61%] of 49 patients vs.20 [38%] of 52 patients; OR 3.4 [95% CI 1.5–7.9], p=0.0033). The difference in remission rates was not significant at 30 days. BRX90 patients experienced significantly higher response rates at 60 hours but not at 30 days when compared with the placebo.

The reported adverse events were similar between the two groups (24 [45%] of 53 patients in the placebo group and 25 [49%] of 51 patients in the brexanolone group). Similar to Study 202B, the most common adverse effects were headache (18%), dizziness (10%), and somnolence (8%), as well as infusion site pain (10%) and nausea (10%).

These three studies demonstrated the efficacy of brexanolone for PPD with significant and meaningful reductions in HAM-D scores over placebo. The onset of effect was rapid, with a separation from placebo at 24 hours and most patients achieving HAM-D remission (51–70%) at the end of the infusion. Although the outcomes for brexanolone were not consistently superior to placebo at 30 days in all three studies, the effect of the medication was generally sustained, patients with both moderate and severe PPD improved quickly and did not relapse after treatment. The secondary outcomes of MADRS and EPDS were similar to outcomes based on HAM-D scores. The GAD-7 scores did not differ significantly from placebo for any active treatment arm.

Special Concerns

Brexanolone presents some other unique challenges. Because of the long duration of infusion of over 60 hours, the patient needs admission to a health care facility. In a depressed patient, tubing for infusion poses ligature risk.

The infusion also requires a multidisciplinary team. Primarily, the patient belongs to obstetrics and hence would be admitted to the obstetrics ward, but to provide treatment for PPD, the patient will have to be managed by a multidisciplinary team of Psychiatrists, obstetrician, counselors, and nursing staff.

Conclusions

Brexanolone is the first drug approved for the treatment of PPD by the US FDA. It provides rapid remission of symptoms of PPD, which was lacking in previous treatment strategies for PPD. The main issues with brexanolone that remain to be resolved are the long infusion time and cost of the drug, which may prevent extensive use of brexanolone.

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Drug Review

Lumapetrone: A newer antipsychotic

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Background

Antipsychotics as treatment for schizophrenia were initially discovered in 1950s. Chlorpromazine, a first-generation antipsychotic was the prototype. First generation antipsychotics have high affinity for D_2 receptors. Clozapine which was reintroduced in 1989 marked the era of second generation or atypical antipsychotics. They have low affinity for D_2 receptors and high affinity for $5HT_{2A}$ receptors. In past few year many new SGA have been introduced like asenapine and iloperidone (2009), lurasidone (2010), cariprazine and brexipiprazole in 2015[1]. SGA have fewer extrapyramidal side effects but higher metabolic adverse effects in comparison to FGA[2].

However, none of the antipsychotics are fully effective in all patients and for all symptom dimensions of schizophrenia warranting need for alternative treatment options.[3]

Lumateperone (ITI-007), an antipsychotic which is US FDA approved in December 2019 for schizophrenia in adults has demonstrated antipsychotic efficacy and favourable side effect profile.[4]

Chemically, [4-((6bR,10aS) 3-methyl-2,3,6b,9, 10,10a-hexahydro-1H, 7Hpyrido [3¹,4¹:4,5] pyrrolo [1,2,3-de]-quinoxalin-8-yl)-1-(4-fluoro-phenyl)-butan-1-one 4-methylbenzenesulfonate] and exists as the tosylate salt.It is obtained by combining a tetracyclic core with butyrophenone side chain.[5,6]

Mechanism of action

It has D2 and 5 HT2a antagonism, with a wide separation of 60:1 between D2 to 5HT2a. This allows for increased binding to 5HT2A without excess binding at D2 leading to decreased risk of extrapyramidal side effects at therapeutic dose. Further contributing to its efficacy and favourable EPS profile are presynaptic D2 partial agonism and postsynaptic D2 antagonism.[7,8] It also increases phosphorylation of mesolimbic GluN2B glutamate receptors leading to increased NMDA receptor activity[1].It is also a inhibitor of SERT which accounts for its antidepressant efficacy.[8]

Pharmacokinetics

It has high plasma protein binding (97.4%) and high CYP3A4 binding. It is highly lipophilic (pH-7.4) and greatly permeable across intestine and blood brain barrier. Peak plasma level reaches at 3-4 hours by oral route.[5] In brain, it specifically acts on mesolimbic and mesocortical regions.[9] Ketone reductase reduces the carbonyl sidechain of lumateperone to an alcohol,which is the major metabolite. In liver, the isoenzyme cytochrome P450 3A4 dealkylates it to an N-desmethylated carbonyl metabolite or an N-desmethylated alcohol metabolite. Metabolites are water soluble and due to compound's high molecular weight it is completely excreted in faeces. Elimination half-life of lumateperone is 13 hours and that of metabolites is 20-21 hours. The pharmacokinetics of lumateperone are not affected to much by age, sex or race. Dose is 42 mg once daily with food and no titration is required.[10,11]

Indications

1. **Schizophrenia (FDA approved)**- Lumateperone was found to be effective in schizophrenia in a double blind RCT phase II trial.[12] At a once daily dose of 42mg, it improved depressive and psychotic symptoms in schizo-

phrenia with comorbid depression.[12] At the same dose, it showed similar antipsychotic efficacy to risperidone in a pooled analysis.[13] No significant improvement in negative symptoms of schizophrenia was found.[12] Lumateperone significantly improved symptoms of schizophrenia over longer-term.[14]

2. **Bipolar depression**- Lumateperone was not found to be better than placebo at a dose of 42mg daily in one RCT phase III trial as treatment for bipolar depression[15].However, there was significant improvement in MADRS scores as compared to placebo at same dose in another RCT. It also had significantly higher remission rates (i.e., MADRS total score of $\leq$12) than placebo (40 vs 34%).[16]
3. **Sleep maintenance insomnia-**An RCT has shown improvement in sleep maintenance insomnia in a dose dependent manner with preservation of normal sleep architecture.It significantly decreased the duration of wake time after sleep onset and increased slow wave sleep.[17]
4. **Behavioural disorders-**studied in dementia and other neuropsychiatric conditions.[17] It enhanced recognition and memory in dementia patient compared to placebo. In the initial stage of the same trial, it improved verbal learning and memory in healthy geriatric patients as compared to placebo.[17]

Side effects

Overall, lumateperone has good cardiometabolic safety and tolerability.[12,18] Generally, well tolerated, few side effects have been reported in studies.

Short term-somnolence/sedation (24 vs 10% with placebo), nausea (9 vs 5%), dry mouth (6 vs 2%), dizziness (5 vs 3%), increased creatine phosphokinase (4 vs 1%), fatigue (3 vs 1%), vomiting (3 vs 2%), increased hepatic transaminases (2 vs 1%) and decreased appetite (2 vs 1%), EPS(6.7% vs 6.3%).[17]

Long term- weight loss (10%), dry mouth (8%), diarrhoea (7%),headache (7%),weight gain (9%).[14]

Black box warning

Black box warning has been issued for elderly in dementia related psychosis due to increased risk of death.[17]

Conclusion

Lumateperone has a unique pharmacodynamic, pharmacokinetic and safety profile which regards it a promising treatment of schizophrenia. It has shown good efficacy in schizophrenia with minimal side effects noticeably cardiometabolic and motor ones. Cardiometabolic side effects and extrapyramidal symptoms are among the main reasons of treatment non adherence, thus lumateperone is expected to have decent adherence in patients. However more long term studies are needed to establish it as a promising antipsychotic in schizophrenia as compared to existing agents. Also, efficacy and safety need to be established in children and old age.

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Case Report

Cerebroprotein Hydrolysate in the management of Extrapontine Myelinosis in a case of Alcohol Withdrawal

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Introduction

Central pontine myelinolysis (CPM) is a demyelinating disease affecting patients with chronic alcohol dependence and has rapid correction of hyponatremia as its cause.[1] In approximately 10% of patients, it is associated with extrapontine myelinolysis (EPM), and this may generate parkinsonian symptoms and psychotic features.[2] The causative etiology in most cases remain unclear, many studies have implicated the rapid correction of hyponatremia as the major factor associated with CPM, due to exposing the pontine glia and extrapontine glia to osmotic stress and edema.[3] Cerebroprotein hydrolysate is an unique neurotrophic peptide mixture produced by standardized enzymatic breakdown of lipid-free porcine brain proteins.[4] It acts via unique neurotrophic activity that enhances neurogenesis, neuronal survival, provides neuromodulatory action, increases neuronal plasticity and neuronal repair and has neuroimmunotrophic actions.[5] It reduces blood-brain and blood-cerebrospinal fluid barriers permeability changes, attenuates brain pathology and brain edema, and mitigates functional deficits caused by probable hyponatremia.[6] We describe here a case of alcohol withdrawal with EPM in a chronic alcoholic that responded very well to cerebroprotein hydrolysate.

Case Report

A 54 years old male presented to our outpatient department with complaints of difficulty in walking, sleep disturbances, incontinence of stool and urine and seeing things invisible to others since the past 4 days. The patient had history of alcohol consumption of over 35 years. He had daily consumption of 4-5 quarters whisky (each quarter of 90 ml). He had history of day time drinking and relief drinking as well. He had been off work since more than 10 years due to alcohol consumption. His wife complained that he would have suspiciousness towards her that she is having affair with another man. Due to this suspiciousness, he would not allow her to go out and would occasionally beat her. The patient had been abstinent maximum up to a period of 3 months from alcohol when he was admitted in a deaddiction centre. He has been taking treatment from our department since more than 10 years. With medicines he would be abstinent for few days and the suspiciousness would also reduce. Due to non-compliance of medication, he would continue drinking alcohol and suspiciousness would keep coming back.

At this time, he was brought to us with complaints of difficulty in walking, not able to keep balance, disturbed sleep in form that not able to sleep for even an hour and passing stool and urine in clothes. He also complained of visual hallucinations of seeing people coming to harm him. On enquiry, his wife said these complaints started after stopping alcohol suddenly since the past 4 days. We admitted him and diagnosed him as having Alcohol Withdrawal Syndrome with perceptual disturbances and Alcohol Use Disorder and Delusional Disorder Jealous Type as per DSM-5. He was started on

injectable Thiamine, Lorazepam 8mg/day in divided doses, Quetiapine 50mg at night for sleep and Oxcarbezapine 150mg twice a day for anti-withdrawal treatment. He was a known case of hypertension and was maintained on Telmisartan 40mg and Hydrochlorthiazide 12.5mg once a day. On neurological examination deep tendon reflexes were brisk and also spastic quadriplegia was found. The patient had speech difficulties and the speech was slurred and unclear. All routine blood investigations on day of admission were within normal limits except for serum electrolytes where sodium levels were 106 mEq/dl and potassium was 2.7mEq/dl. He was started on salt capsules, 2 capsules three times a day. His electrolytes gradually over 8 days came to the normal range. But his gait disturbances, speech and urinary difficulties were still present.

A magnetic resonance imaging (MRI) study of the brain was done which showed patchy areas of T2 and FLAIR hyperintensities involving the central part of pons which was hypointense on T1W images which was showing restricted diffusion on DWI with corresponding low ADC values. Abnormal bilateral symmetrical T2 and FLAIR hyperintensities were seen involving bilateral putamina, head of caudate nuclei, bilateral thalamus, bilateral insular cortex with diffusion restriction in bilateral putamina (Fig 1 and 2). The MRI brain was suggestive of

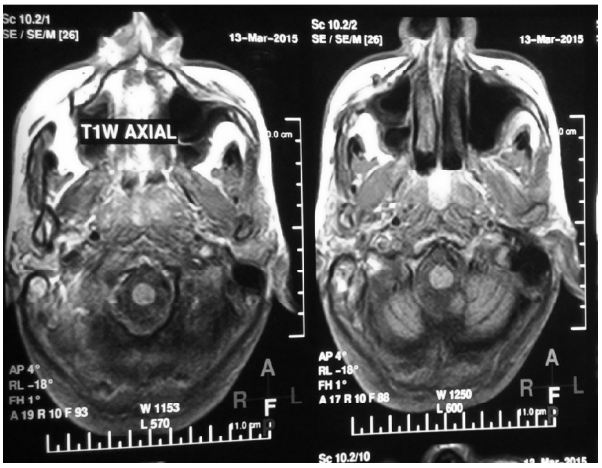

Fig. 1: MRI findings of the patient showing hyperintensities and T1 weighted images

extrapontine myelinosis apart from age related cerebral and cerebellar atrophy. The patient also had dry, blackish skin lesions for which dermatology opinion was sought and it was diagnosed as Pellagra and he was started on Tab. Niacin 375 mg 4 times

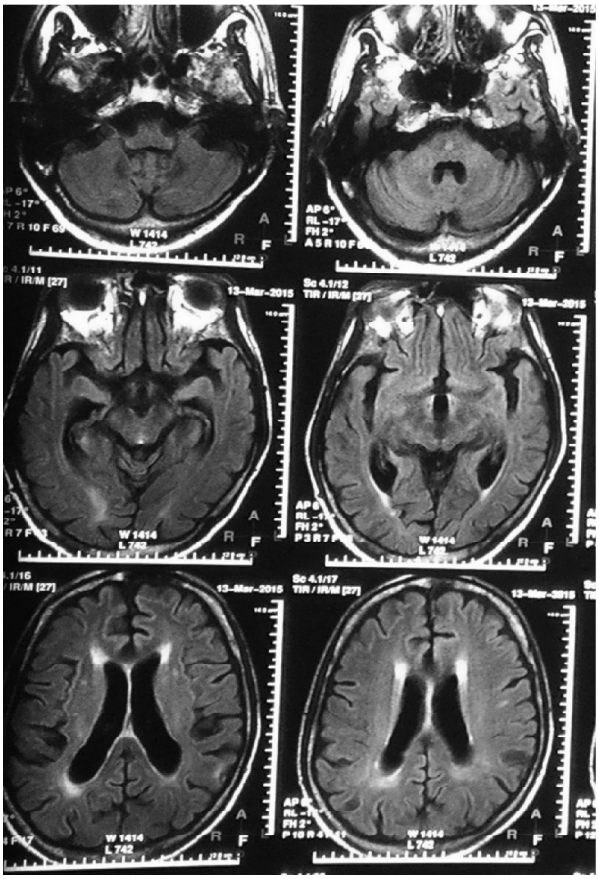

Fig. 2: MRI findings of the patient showing hyperintensities and T1 weighted images

as day. For his gait disturbances and other complaints, the neurologist had advised thiamine injections to be continued for a week. As there was no improvement in his symptoms after a week, we decided to start him on injectable Cerebroprotein after consultation with the neurologist. Due to his skin lesions it was difficult to secure an intravenous line for administration. He was then started on oral Cerebroprotein Hydrosylate 90mg tablets twice a day. His condition started gradually improving in a week and after 2 weeks of starting the medication, he showed marked improvement. His urinary and stool incontinence improved and then his gait disturbances followed by speech showed improvement. His repeat MRI Brain had no worsening of findings and was similar to first one (this was done 3 weeks after the first imaging study). He was discharged on oral Cerebroprotein, Vitamins and Quetiapine. He was much better on next follow up weekly. He showed progressive improvements on subsequent follow ups and continued Cerebroprotein for 4 weeks

post discharge. He was advised to continue the same for 6 months and he then went to his native place and was lost to follow up.

Discussion

Extrapontine myelinolysis (EPM) is seen with central pontine myelinosis and mostly involves the basal ganglia and thalamus. It is commonly associated with rapid correction of hyponatremia though its pathogenesis not clearly understood.[7] Though corticosteroids are implicated in treatment, our patient was not prescribed the same by the neurologist as it was felt that steroid administration may complicate the alcohol withdrawal process and may also worsen some of the psychotic features that the patient had. Another factor that restricted steroid use was lack of an intravenous access. In EPM, the radiological findings have not been an indicator of the clinical severity and prognosis or improvement.[8] Cerebroprotein hydrolysate has been used by us previously with success inn an injectable form in a case of a 35 years old with alcohol withdrawal and head injury that developed EPM.[9] This prompted us to use the same in our case, but due to lack of intravenous access, we had use to oral formulation of the drug. This is the first case report as per our knowledge of oral cerebroprotein in the management of EPM in alcohol withdrawal. Clinicians must use this drug in such conditions further to enable us to understand its utility in such cases.

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Case Report

A Case of Tourette's Syndrome with White Matter Hyperintensities on Brain MRI

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Background

Tics refer to involuntary, nonrhythmic, repetitive movements and vocalizations. Multiple tics - sneezing, snorting, involuntary vocalizations, and troublesome compulsive and aggressive impulses, all constitute the rarest and i.e. most severe tic syndrome - Tourette Syndrome.[1] The problem has been noticed to occur three times more in men than in women and usually begins as a simple tic. Tourette's syndrome (TS) is an inherited neurological disorder that results in a series of motor and vocal tics. The definitive diagnoses are based on the presence of multiple, involuntary motor tics and at least 1 vocal tic consistently occurring for 12 months.[1] Tics may be simple or complex hyperkinetic movements, often preceded by uncomfortable sensations localized at the site of the tics. The aetiological factors include heredity, psychogenic, post-traumatic, post-central neurological infections, medications (methyl-phenidate, levodopa). The pathophysiology of TS is unknown; however, it is known that a developmental disorder in the synaptic neurotransmission in the basal ganglia, particularly in the caudate nucleus, inferior prefrontal cortex, and frontal cortex, may be a reason.[2] The following is a case report of Tourette syndrome with OCD features and rage attacks.

Case Report

17-year-old, unmarried male, a diploma student, reported in ESI Hospital, KK Nagar in the OPD, Department of Psychiatry after being referred from the Neurology department with symptoms of abnormal motor movements of head and neck: repetitive, involuntary eye blinking, raising of eyebrows, flaring of nostrils, teeth grinding, jaw cracking, twitching and raising of angle of mouth, swallowing, tensing neck muscles with utterance of obscene words.

History dates back to 7 years, when the patient initially had only repetitive, involuntary eye blinking and flaring of the nostrils but the symptoms gradually progressed to all the above symptoms over the next five years, with utterance of obscene words for the past two years. These movements were spontaneous and though the intensity and persistence of symptoms were waxing and waning in nature, he had never had a symptom free interval till date. He also stated that he had premonitory urges before the occurrence of the symptoms.Symptoms tended to aggravate when the patient "felt sad". Voluntary suppression of tics by the patient lasted for 3 minutes only during which he would experience palpitations and inner restlessness. Patient's symptoms had aggravated in intensity over the past two years leading to his dropping out of school despite having had a good academic record previously due to embarrassment caused by his symptoms which lead to low self esteem and an increase in irritability.

Patient had history of excessive anger outburst upon easy provocation also accompanied by sudden unprovoked rage attacks. Patient would break objects, throw household articles, shout suddenly, assault family members for trivial issues. Birth was a normal, full term vaginal delivery with no antenatal or postnatal complications, achieved all the normal developmental milestones. The patient had a history of repeated upper respiratory tract infections during his childhood. There is history of repeated checking of doors as well as windows of his house to see if they were locked, at least five times, in a day knowing well that it was not warranted so many

times. There was no history of any substance use or hyperactivity. After having the episodes of tics, he is reported to have isolated himself from his friends and family. The informant, patient's mother stated that he was apparently normal before the initial display of symptoms and that no one in their family had similar history or had any history pertaining to psychiatric diseases.

Examination at the time of psychiatry OPD visit of the patient revealed that he was a irritable, depressed teenager with repeated excessive raising of the eyebrows, blinking of eyes, flaring of nostrils, teeth grinding, jaw cracking, repeated opening of mouth, twitching and raising of right angle of mouth and swallowing; he however was found to have intact thought process but harboured suicidal ideas and normal higher mental functioning. Physical examination revealed no other abnormalities.

The Yale Global Tic Severity Scale:[3]

Total tic severity scale = motor tic severity + Vocal tic severity = 24/25 + 13/25 = 37/50

The Yale Global Tic Severity Scale = Total tic severity scale + Impairment = 37 + 50 = 87[3]

The Beck Depression Inventory[4] = 39 (indicates severe depression)

Laboratory tests (CBC, RBS, RFT, LFT, TFT, CXR, serum ceruloplasmin levels, serum toxin screen) were normal.

A plain magnetic resonance imaging scan of the brain showed Periventricular White Matter hyper intensities in bilateral frontal and peri trigonal regions extending up tosub cortical regions in bilateral Frontal lobes.

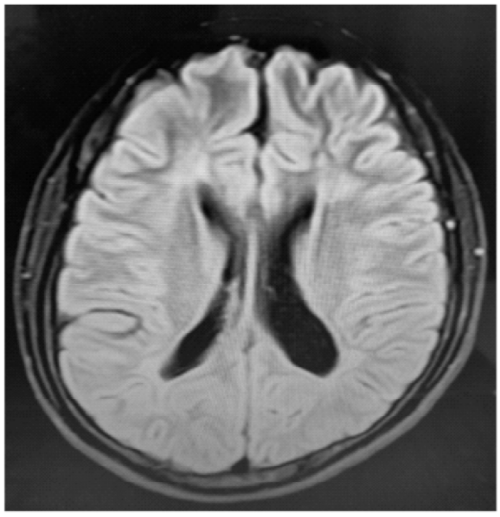

Figure-1

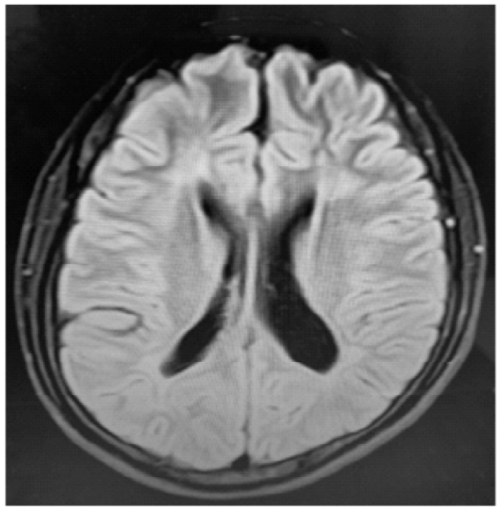

Figure-2

Discussion

The diagnosis of Gilles de la Tourette's syndrome is a clinical one. Parkinson's, can be ruled out based on age of onset, absence of tremors and preserved dexterity, no visible signs of incoordination and preserved thought process. Absent muscle rigidity and gait abnormalities rule out Huntington's chorea. Wilson's disease can be ruled out based on normal liver function and normal serum ceruloplasmin levels. There is no evidence of delirium and no visible ocular signs and no headache or seizures thus ruling out encephalopathy. Absence of headache, dizziness and paralysis rules out cerebrovascular accident. Dystonia can be ruled out based on absent history of muscle cramps and movement difficulties. Negative toxin screening rules out case of poisoning or toxicity.

Our patient had aversion towards studies stating he had difficulties with concentration, writing and reading, and completing examinations and homework and was easily distracted, was laughed at and made fun of by some peers who also imitated his tics, sent out of the classroom as a result of their tics or disciplined for making inappropriate or offensive comments (coprolalia) and also his aggressive behaviour towards staff and students. This is similar to a study done in University of Nottingham which reports school work was more difficult, Negative response from staff and fellow students, and that people with TS found it difficult to manage emotions in school.[5]

This patient has rage attacks. "Rage Attacks" in which the person has an unexplained outburst of uncontrollable rage or anger, is a frequent complaint in this patient, who also had co morbid OCD features. This finding corroborates with results of a pilot study which reported that rage attacks in Tourette's disorder may be related to the presence of co morbid disorders (obsessive-compulsive disorder (OCD), and attention-deficit/hyperactivity disorder (ADHD), conduct disorder) and that it resembles intermittent explosive Tourette's disorder.[6]

Our patient had severe depression and scored higher on BDI which is in accordance with a study done byMichael Trimble Neuropsychiatry Research Group in which patients with TS scored significantly higher on the BDI than controls ($P < 0.001$) and all individual symptoms were reported more frequently by patients with TS than by controls ($P < 0.001$).[7]

In our patient, Plain MRI brain showed peri-ventricular white matter hyperintensities in bilateral frontal and peri-trigonal regions extending upto sub-cortical regions in bilateral frontal lobes. This is in concordance with the study conducted by Jose A. Amat et al, on children and adolescents with Tourette's Syndrome, which reported an increased incidence of sub-cortical white matter hyper intensities in plain MRI Brain. The behavioural dysregulation (tics, rage attacks, compulsions) in this patient may have resulted from a disturbance in the cortical – sub cortical connectivity.[8]

Conclusion

Tourette's syndrome may cause school refusal, in spite of having good intelligence. Educating staff and fellow students in the school about the disease can help in providing understanding and empathy. Patients should be routinely screened for depression and appropriate treatment should be initiated as and when required. The MRI findings point towards the notion that injury to sub-cortical white matter may be involved in the pathophysiology of Tourette's syndrome.[8]

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Case Report

A Case on Clozapine Induced Paralytic Ileus

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Introduction

Ileus is the obstruction of the intestine due to paralysis of the intestinal muscles and it represents 20% of acute abdominal pain cases. Renal failure, hypovolemic shock, organ hypoperfusion, bowel perforation, colorectal, cancer peritonitis and sepsis, are serious and potentially fatal consequences of ileus.[1] All of the psychotropic drugs with anticholinergic side effects can result in a change in bowel movements which may result in paralytic ileus.

Clozapine is an atypical antipsychotic drug with minimal extrapyramidal toxicity, has been effective in treatment-resistant schizophrenia, decreasing the suicide risk in schizophrenic disorders and decreasing aggressiveness in psychotic patients.[2] It is used in the management of patients who do not respond to at least two different antipsychotics.[3] Ileus is a unusual but life-threatening side-effect of clozapine treatment.[4] Advanced age and treatment with higher dosage of clozapine in psychotic patients are major risk factors associated with an increased risk of fatal ileus.[5] We describe here a patient with simple schizophrenia who developed paralytic ileus on clozapine.

Case Report

A 30-year-old single female from lower middle socio-economic rural family with a well adjusted pre-morbid personality was admitted to the psychiatric department complaining of an inability to pass a stool, abdominal pain and nausea since 1 week. Her temperature was 97°F, pulse was 88 beats/min and blood pressure was 110/70 mmHg. She last had flatus and stools three days before coming to the hospital. She had been treated only with clozapine at a dose of 200 mg/day for the past five years.

On enquiring further she had a 12 year history of progressive social isolation, deterioration in academic achievements, disinterest in family friends and social pursuits. Patient had to be fed. She required assistance in dressing and wearing clothes. She had marked deterioration in personal care, so much that she would often knowingly not change her clothes soiled with urine and feces and would be completely unconcerned. Facial expressions were constant and did not change with time. She showed delayed minimal response to questions. There were no delusions, hallucinations, first rank symptoms, catatonic affective or organic features. There was no record of alcohol and drug use. No history suggestive of any psychiatric, medical or surgical illness in the past. There was history suggestive of psychosis in mother. Her birth history, developmental history, childhood had been normal. Treatment history was not available. Her examination showed distended abdomen and decreased bowel sounds. The patient's blood count, biochemistry, electrolytes, urinalysis, and inflammatory markers were normal. Abdominal ultrasonography revealed dilated bowel loops. Mental status examination revealed difficulty in establishing rapport, psychomotor retardation, flat affect, impaired attention, poverty of content of speech, poor abstraction and lack of insight.

The patient was diagnosed with simple schizophrenia with paralytic ileus and she had been treated only with clozapine at a dose of 200 mg/day for the past five years. The symptoms of the patient were thought to be due to the use of clozapine, therefore oral intake was stopped and feeding was provided by a nasogastric tube. On the third day, the patient's symptoms improved. Clozapine treatment was stopped and the patient was shifted to aripiprazole 15 mg. Patient was advised high fiber diet and regular physical exercise. In the follow up

of the patient, gastrointestinal side effects were observed closely, high-fiber food was increased in the diet, and physical exercise was also increased.

Discussion

Clozapine is a dibenzothiazepine. It is rapidly absorbed, with peak plasma levels reaching in about 2 hours. Steady state is achieved in less than 1 week if twice daily dosing is used. The elimination half-life is about 12 hours. Clozapine is a highly effective second-generation antipsychotic known to reduce suicide rates and it is used for treatment-resistant schizophrenia. Clozapine is weakly D2, strong D1, D3, D4 and is also noradrenergic, and a cholinergic muscarinic, histaminergic receptor antagonist. Clozapine was the first antipsychotic to be recognized as "atypical" and has low propensity to cause extrapyramidal side effects, and hyper-prolactinemia.[6]

The most common drug-related adverse effects of clozapine are sedation, dizziness, syncope, tachycardia, hypotension, electrocardiography (ECG) changes, nausea, and vomiting. Leukopenia, granulocytopenia, agranulocytosis, and fever occur in about 1% of patients. The CVS side effects are myocarditis, cardiomyopathy and prolongation of the QTc interval. Gastrointestinal side effects of clozapine include nausea, vomiting and constipation. Constipation is seen in 14–60% of patients.[2,4-8]

Clozapine's antagonism of acetylcholine receptors inhibits smooth muscle contraction and delays intestinal transit time.[4] Clozapine has a greater potential for ileus and constipation than other anti cholinergic medications because in addition to its strong anti-cholingeric properties, it also antagonizes serotonin receptors, which are critical to motor and secretory gastrointestinal function. Autonomic dysfunction of the enteric nervous system has been reported in people with schizophrenia and their first-degree relatives and specifically dysmotility of gastrointestinal tract due to abnormal sympathetic reflexes. The anticholinergic and antiserotonergic effects of antipsychotics are known to contribute to the onset of paralytic ileus.[8]

In our case study, paralytic ileus was considered to be due to the use of clozapine. Clozapine's highest anticholinergic property is thought to be the main cause of paralityc ileus. Mean time from initiation of clozapine to onset of ileus is four years (Palmer et al. 2008). Our patient was on clozapine since last 5 years and as gradually the dose of clozapine was increased, the patient reported of chronic constipation and on investigation was diagnosed of paralytic ileus but as the dose was tapered off and patient was shifted to aripriprazole patient had reported improvement in constipation and had started passing stools once in 2 days. Other factors which can cause paralytic ileus include hypothyroidism and electrolyte imbalance following postoperative procedures, which were not present in this case. Antipsychotic like aripiprazole and amisulpride has a least propensity for causing paralytic ileus.[5] Patients with schizophrenia possess several risk factors for developing an ileus. In addition to their typical higher use of antipsychotics and anticholinergic drugs they have the increased likelihood of living a sedentary lifestyle as compared to the general population.[2] Other risk factors for an ileus include older age and female gender.[2] Due to these risk factors,physicians should plan prevention of constipation and paralytic ileus in patients who begin taking clozapine. A dietician should always be consulted to ensure proper fiber and fluid intake. More recent publications have encouraged physicians to emphasize exercise, increased fluid intake and higher fiber diets to prevent constipation.[2] For mild to moderate cases of constipation, stool softeners or laxatives should be used.[2] Caution should be taken if the patient reports of abdominal pain,who are prescribed cloazapine and patients can ignore the symptoms of pain, and the physician may mis-interpret it as a symptom of pain of the psychiatric disorder which would lead to an incorrect identi-fication of cases of ileus. All of these factors should be taken into account in the decision making process. Regular follow up should be done and patient should be encouraged to do physical exercise and take high fibrediet. Patient and the family should be psychoeducated regarding the warning signs of the disease.

Conclusion

It is important to continue the follow up of patients using clozapine, and to make sure they are taking standard precautions to avoid constipation. Slowly increasing the dose of medications and maintaining a high fibre diet carefully are all very important. It is important for physicians to be aware

of the possible intestinalside effects that clozapine can directly cause due to its muscarinic and serotonergic antagonism. Patient should be educated about nutrition, supplementation and the warning signs of possible bowel obstructions.

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Case Report

Presentation of Schizophrenia as Delusional Oral Parasitosis

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Introduction

Delusional parasitosis is an uncommon psychiatric disorder in which patients have the firm conviction that small, living organisms, such as insects, worms or larvae infest their skin or other organs.[1-3] This has been described in association with many psychiatric disorders including depression,[4] posterior thalamic hemorrhage and involvement of root of trigeminal nerve.[5] We describe a case of delusional parasitosis involving the mouth. The patient initially presented to Dental Department and was subsequently referred to Psychiatry Outpatient Department.

Case Report

We describe a case of 46-year-old married man. He was living with spouse and two children in a neighboring urban area. There were no known stressors. He presented with a six months' history of insects crawling residing in his oral cavity and causing damage to teeth and his mouth cavity resulting in numbness of tongue and oral mucosa. He had himself used different paste, lotions and mouthwashes for killing or removing insects but had no improvement. On examination by a Dental Surgeon, there was no evidence of infestation or any other problem. He was then referred to Psychiatry OPD.

The detailed history revealed that he had firm delusions that the neighbors are responsible for his problems. The insects are bought by them to his bed and food, which subsequently had infested his oral cavity and brain. This was when countered and denied by his wife, he told that she is also conspiring with the neighbors. His wife also reported that he also had disturbed sleep and at times, muttering to self. The patient denied having any hallucinations. The informant also reported that the patient was avoiding going to factory for last 4 months, where he was employed as a laborer. There had been no change in the symptoms since onset. Due to infestation, he had also reduced appetite and was unable to do his routine activities perfectly. He did not believe in the suggestion of his relatives including wife and children that there was no such infestation with insects. Relevant routine and specific investigations were normal.

Detailed systemic examination including neurological examination and relevant investigations did not reveal any abnormality. There no past and family history of any chronic psychiatric disorder, physical disease, or drug abuse. Mental state examination revealed a middle-aged man of endomorphic build. Psychomotor activity and speech were normal. There was no perceptual abnormality. He was preoccupied with the complaint. Thinking revealed the presence of delusions of being infested by small insects. Higher mental functions were normal.

The patient was psycho-educated that it is a disease that require treatment with systemic psychotropic drugs. The patient was started on tablet penfluridol 20 mg/week for four weeks. There was improvement in his delusion, numbness and other symptoms in 6 weeks, however complete remission took 8 weeks, and on following him up at 3 months, he did not develop the delusion again.

Discussion

In this patient, numbness of tongue and oral cavity along with belief of being infested with

insects inside the mouth were the presenting symptoms on the background of schizophrenia. There are different hypotheses put forward to explain the origin of delusional infestation. One hypothesis is that these patients develop inability to discriminate between normal and abnormal body perceptions and the delusion may be mediated by dysfunction in the limbic system probably due to over activity of the dopaminergic system, as evidenced by the efficacy of the specific dopamine antagonist, pimozide.[2,3,6] Many atypical antipsychotics have been used in the treatment of delusional parasitosis.[3, 6-13] This is probably the rare case report of delusional parasitosis of oral cavity in a patient with schizophrenia in which penfluridol has been successfully used. Penfluridol is a highly potent, first generation diphenylbutylpiperidine antipsychotic.[14] It was discovered at Janssen Pharmaceutica in 1968.[15] Penfluridol is indicated for antipsychotic treatment of chronic schizophrenia and similar psychotic disorders. The once-weekly dose is usually 10–60 mg but the present case responded to 20 mg. Penfluridol has the advantage of being oral depot preparation with improved compliance. Delusional infestation has been described in association with depression,[4,10] but in the present case, there were symptoms of schizophrenia. The present case was followed up for 3 months and did not develop the delusion again. These patients usually require long-term treatment because relapse rate is high on stopping the treatment.[16]

These patients require to be correctly identified, properly referred and adequately treated. The unnecessary investigations and treatment should be avoided.

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Case Report

Hypnotherapy as Treatment for Problematic Smartphone Use: A Single Case Analysis

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Introduction

Hypnosis is a temporary altered state of awareness or consciousness, in the individual induced by another person in which a variety of phenomena may appear spontaneously or in response to other stimuli.[1] It happens automatically anytime one becomes deeply relaxed or highly focussed, such as while reading a good book or watching a great movie. The active mind becomes quiet and hypnosis simply takes you deeper into that shift in consciousness, through techniques such as guided visualisation or deep relaxation, positive suggestions, regression etc. It helps you address your problem and find new ways forward, transforming old habits and unhelpful behaviours into healthy new ones. It puts you in charge of your own mind and your outcomes.

Hypnotherapy taps the subconscious mind of the client and examine beliefs and thought processes that give rise to emotional, mental, physical and spiritual problems. Once the issues have been identified, different therapeutic methods are used to bring about changes at subconscious level. With changes at the sub conscious level, the outer projection may also change.

Hypnotherapy has been used to resolve various illnesses like asthma,[2,3] psychosomatic problems,[4,5] chronic pain, weight loss treatment, phobias, PTSD, sleep disorders, irritable bowel syndrome,[6] drug abuse[7,8] and smoking cessation.[9]

With the help of relaxation during hypnosis, an individual can learn to lead a healthier lifestyle which in turn increases the acceptance to the treatment[10]. That is how it helps an asthmatic patient to reduce or entirely quit smoking, a patient that suffers from a dermatological condition to stop scratching and scarring, or a patient with irritable bowel syndrome to have a healthier diet. The patients suffering from irritable bowel syndrome often have disordered eating pattern. Stress and anxiety lower immune functioning and resistance to diseases. Adopting to a healthier lifestyle can lead to increased body resistance and it represents a nonspecific effect that hypnosis generates.[11] Non-specific aspects include suggestions with affirmations, self-hypnosis and relaxation practices.

Hypnosis is also used in the treatment of alcohol addiction and the main objective is help individual realise their potential to deal with the environment and develop coping strategies.

Problematic Smartphone Use

The progression of technology has led to the development of smartphones providing access to social media, email and various other functions. Today, every individual around us has access to internet on their phones and are able to use it anywhere and everywhere. Smartphones have many benefits including increased accessibility in general and specific, social connection, efficiency in the workplace, convenience etc.

Increasing amount of research has indicated that smartphones have addictive nature. The independent predictors of problematic smartphone use are age, excessive reassurance seeking, impulsiveness and depression.[12] A number of studies indicate that excessive use of smartphones can have detrimental consequences. Excessive use of smartphones is an indication of pseudo-adaptation to stress, tension, and anxiety. People overcome the feelings of inferiority, isolation and futility by excessive usage of smartphones. When they began using it, it is for fun and gradually they tend to increase the time spent on smartphone. The main objective of therapy is to establish the rapport and

encouraging the evolution of the patient's self-esteem; stimulating the patient to develop external interests (especially related to leisure activities); supporting the patient so that one can cope with frustration – reinforcing positive thinking and optimistic attitudes towards existence; to guide the client to better adapt to their environment, and the client to establish social contacts.

Case History

Mr. ABC, 28-year-old, engineer, residing in South Delhi, running his own consultancy business presented with complaints of overusing his phone without any purpose often during the day. The client was unable to utilize the time in a productive way unlike earlier. The client felt angry, irritated and guilty for spending 6 hours in a day on his phone. It all started back in 2016 when he got his I Phone for the very first time. For about a year, its usage was limited but it increased with time. Earlier he would spend his leisure time on reading books, doing exercise and meeting people but soon he started spending all his time on his smartphone. As soon as he would realize his excess usage, he would leave his phone for some time or remove applications to avoid usage however within a few hours or days be back on using it completely. This went on for a year or so. But On few occasions, he felt like throwing away his phone and breaking it but couldn't do the same. He was now spending his entire time on phone. Soon it started impacting his social, occupational and personal life. He would say – "I don't feel any attachment with the people present around me and there is lack of intellectual stimulation".

Family History

Mr. ABC grew up in an upper middle-class family. He reported his father is a businessman and mother as housewife. He was closest to his sister who is older than him and married.

Objective of the therapy

- To remove the urge and restlessness to use the phone when not required.
- Be able to use the time constructively.

Methodology

A single case study of an individual (male, 28 years old) suffering from problematic smartphone usage where the client participated in weekly 60 minutes hypnotherapy sessions. A total of 8 sessions were planned considering the severity, nature and progression of the problem. The client was expected to be present at the university clinic for the required sessions.

No. of Sessions: Eight

Hypothesis: Hypnotherapy based intervention will significantly reduce the problematic smartphone usage of the client.

Clinical Setting: The sessions were conducted at the University Clinic, Gurugram.

Diagnostic Criteria

The Diagnostic and statistical manual of Mental disorders has not formally codified smartphone overuse as a diagnosis. ICD – 11 also includes only Gaming Disorder as a diagnosis category. For the assessment of this client, the proposed indicators from the study by Lin et al.[13]

Assessment of Problem Situation

The problem situation was assessed based on the following indicators. The patient was asked to describe the dysfunction/discomfort on a scale of 1 – 10 where 1 indicates least amount of dysfunction and discomfort and 10 indicates highest amount of dysfunction/discomfort.

S. No	Indicators	Scale
1	Failure to resist the impulse to use the smartphone.	10
2	Smartphone use longer than intended	8
3	Persistent desire and/or unsuccessful attempts to quit or reduce smartphone use	9
4	Continued excessive smartphone use despite knowledge of having a persistent or recurrent physical or psychological problem resulting from smartphone overuse	4
5	Smartphone use in a physically hazardous situation (e.g., smartphone use while driving, or crossing the street), or having other negative impacts on daily life	4
6	Smartphone use resulting in impairment of social relationships, school achievement, or job performanc	8

Procedure:

Session 1: Intake and Induction:

The rapport was established and the client was

encouraged to talk about his area of concern. He explained how over a period of time he developed this habit of using his smartphone excessively. This made him angry, irritated and guilty. He also felt that he didn't have people around him who stimulated his intellect anymore to read or do other things. He felt restless if he didn't use his and guilty if he used his phone. Due to excessive usage of his phone, his interaction with his own family had decreased.

To begin with the treatment, it was imperative to understand his suggestibility. He was asked to complete the suggestibility. His scores indicated that the client was Intellectual Suggestible. It means that he was hypnotizable and sufficient for the use of treatment. The myths and misconceptions of the client were addressed.

Also, this session focussed on conducting an induction for him to understand how hypnotherapy will help him.

Session 2: Passive Aggressive Behaviour:

Individuals who suffer from addiction mat engage in self-sabotaging." Rather than dealing with uncomfortable feelings and finding workable solutions, they turn to excess usage of smartphones, temporarily escaping one problem only to create bigger ones. During the session, it was discovered that the client started escaping his emotions when he was 4 – 5 years old.

Session 3: Void Identification:

This session focussed on identification of how the addictive behaviour was blocking his life. During this session, he released clutter, energy of overdoing, judgemental stares violating personal space and body pain. When the client reached home, he actually found clutter free space to sit and read in his room.

Session 4: Aura Exploration and Ego states therapy:

During Aura exploration, it was identified that the physical body felt discomfort near neck, chest & his eyes, hips and his lower back. In ego states therapy, the client was able to release restless energy from neck, hands and lower back, however, the release from hip didn't complete the course. On further exploration, it was found that the discomfort in these areas of the body initiated in multiple family conversation involving mother and friends.

Post this session, the client was advised to not use his phone during leisure time at all.

Session 5: Passive Aggressive Behaviour, Void and Aura:

The client used the phone during the free time for 10 – 15 minutes indicating resistance and emotional conflict. In this session, the approach was changed and a combination of techniques were coupled in single session. The same indicated that the client addictive behaviour was an escape from mother's showing off behaviour to others as he was very intelligent.

Session 6 and 7 Ego States Therapy:

During this session, the client was allowed to share his thoughts with mother through a technique known as Hypno-drama. The client was encouraged to express his feelings, emotions and conflict to his own mother during the session. The client understood how his relationship with his mother is impacting his current life and habits.

Session 8: Self Hypnosis:

The client was taught self-hypnosis exercise to regularly practice along with affirmations for next 21 days.

Results

All the indicators had significant improvement. The client felt subjective relief from the restlessness and other associated negative emotions like guilt and anger. Moreover, the client understood how overuse of smartphone was impacting his lifestyle and he was blaming it on the environment. He also understood how he left his healthy habits once smartphone came into his life. Additionally, the client understood how his deep-rooted desire to be understood by his mother played an important role. This case study highlights an important area of research which is intriguing – how a person relationship with primary caregiver plays a role in addiction.

Discussion

This single case design indicates how hypno-therapy can be used as a therapeutic tool to help resolve problematic smartphone use. For the current study, the indicators of problematic smartphone use included 5 – 6 hours of usage, disruption with daily activities, and restlessness in absence of smart-phone. Various techniques of hypnotherapy were

utilized to provide subjective relief to the client.

Limitations

The main limitation of this case study is that the results of the same cannot be generalised. To be able to generalize the study results, it should be conducted on a large population suffering from problematic smartphone usage. Along with that it is important to address various patient's characteristics (such as attentiveness, suggestibility, motivation, fear etc) and practitioner's characteristics (training, knowledge, experience, ability to master techniques and its utilization) as it may impact the outcomes.

Future Course

Recent research indicates anxious and avoidant attachment styles predicted smartphone addiction.[14,15] This raises further study questions as to how important it is to study the role of attachment styles and parenting on the child's development. The study demonstrated that hypnotherapy-based sessions are useful in management of problems associated with smartphone usage. In future, this study can be conducted with a larger sample and randomized design may be used.

Conclusion

Hypnotherapy has the potential to be used for multiple physical and mental health problems as a psychotherapeutic intervention. It can be easily integrated into the existing models of psychotherapy and can be standardized across multiple platforms. Extensive research studies to be able to achieve greater generalizability for various diseases and disorders would bring merit to hypnotherapy interventions.

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Case Report

Hypersexuality in a Patient on Clozapine

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Introduction

Sexual dysfunction associated with antipsychotic treatment has significant negative impact on medication adherence.[1] Current evidence suggests that a significant part of sexual dysfunction associated with antipsychotic medication results directly from dopamine antagonism combined with indirect effects of increased serum prolactin concentration.[2-4] Multiple 12-step style self-help groups now exist for people who identify as sex addicts, including Sex Addicts Anonymous, Sexaholics Anonymous, Sex and Love Addicts Anonymous, and Sexual Compulsives Anonymous. Some hypersexuals may treat their condition with the usage of medication (such as Cyproterone acetate) or any foods considered to be anaphrodisiacs.[5] Other hypersexuals may choose a route of consultation, such as psychotherapy, self-help groups or counselling.[6] In this report, we describe a case of a patient with possible hypersexuality related to clozapine.

Case Report

A 39-year old came to psychiatry OPD with complaints of seeing ghost, hearing voices of wiches, feels that someone wants to kill him, self muttering, unprovoked aggression, disturbed sleep, wandering, poor self-care. Total duration of illness was 6 years. Routine physical examination and blood tests were normal. On mental status examination, he appeared shabby, was partly cooperative, reaction time was slightly increased and he was mostly looking downward, sometimes talking to self and affect was guarded and anxious. He talked incoherently and second person auditory hallucinations were present though visual perceptual diasturbances could not be elicited. On the basis of history and mental status examination, he was diagnosed as paranoid schizophrenia with continuous course. He was prescribed olanzapine 20 mg and clonazepam 1 mg daily, on follow up visit after 30 days with no improvement in symptoms and oedema over feet. He was then admitted in the psychiatric ward for 15 days and 5 modified ECTs were given. Partial improvement was observed and he was discharged on clozapine 400 mg and clonazepam 2 mg. Next month dose of clozapine was increased to 600 mg. After 4 months of treatment with 600 mg clozapine, though his hearing voices and seeing images were decreased, his family members reported complaints of him roaming around in house without wearing clothes, teasing females of family and neighbourhood, his wife also complained that he was masturbating excessively, used to make frequent sexual intercourses each day and even forced her whenever she denied. A complete physical examination, blood investigations and radio imagings were done to rule out any organicity. After a detailed evaluation and discussion, we concluded that hypersexuality was due to increased doses of clozapine. Then it was planned to reduce the dose of clozapine to 300 mg and then gradually stopped it while maintaining him on Quetiapine and clonazepam. After cessation of clozapine, symptoms of hypersexuality have gradually decreased.

Discussion

In ancient time, people believed that schizophrenia was due to deficiency in sex hormones. Sexual problems in patients with schizophrenia may be due to the illness as such, or many psychosocial factors, and use of selective serotonin reuptake inhibitors (SSRIs) and atypical antipsychotics such as risperidone, aripiprazole etc.[7] The relationship of schizophrenia to sexual dysfunction is alterable and intricate and is different between men and women.

The pathophysiology behind their development remains unclear and specific therapeutic interventions are also not well studied.[8,9] Atypical antipsychotics have not been extensively studied with regard to hypersexuality. Several studies have shown a 25%–60% incidence of sexual dysfunction among patients treated with risperidone.[10] However, cases of clozapine-induced hypersexuality are rarely reported. Clozapine, an atypical antipsychotic, is thought to be associated with loss of libido in both sexes. While, in our case, the patient exhibited symptoms of hypersexuality.[11] A thorough literature search revealed that all atypical antipsychotics except risperidone induce sexual dysfunction at lower rates.[8,9] A study conducted by Hummer et al revealed that hypersexuality was seen in 8% of the patients with psychiatric illness. However, clozapine is thought to be associated with fewer sexual side effects because of its weaker blockade of dopamine (D2) receptors and has minimal effect on plasma prolactin levels.[12] In our case hypersexuality developed in this patient who had no history of any sexual problem in past. The patient developed more frequent sexual desire and greater sexual preoccupation after taking clozapine The hypersexuality completely disappeared within days of the patient discontinuing clozapine. Patient did not experience any recurrence of similar hypersexuality phenomena after withdrawing clozapine.

Conclusion

In conclusion, clozapine can enhance sexual desire in patients with schizophrenia. We suggest that clozapine dopaminergic agonistic effects at the mesolimbic circuit, especially at nucleus accumbens, may be responsible for hypersexuality phenomenon. We also suggest that clinicians should inform the family members that hypersexuality is because of clozapine side effect because they can misunderstand these complications and can result in marital disharmony and can become a source of marital discord and suffering for the patient.

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Case Report

Somatic Symptoms Responding to Electroconvulsive Therapy

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Introduction

Psychiatric syndromes with somatic symptoms are highly prevalent and estimated to be 5% to 7% in the general population which lead to significant impairment.[1] The number of effective treatment modalities for somatic symptom and related disorders (SSDs) remains limited.[2] Non pharmacological interventions with or without antidepressants are the mainstay treatment.[3] At present, there is no formal indication for electroconvulsive therapy (ECT) in SSD. However, the patient showed clinical improvement only with ECT after the drug trial had failed.

Case Report

A 51-year-old married lady, educated upto 4th standard, homemaker, from rural background was brought to our psychiatric outdoor services by her husband. She had multiple somatic complaints i.e pain in abdomen, headache, lethargy, fatigue and weakness in lower limbs which would change every day along with decreased appetite and sleep for about the past 4 years as compared to her usual self previously. The symptoms had an insidious onset and continuous course. She was not performing daily routine chores to the extent that she would need assistance in her bladder/bowel needs despite no neurological signs. Mostly she kept herself confined to the bed, citing weakness in getting up and doing household work. She would get irritable and complain of headache even on switching on lights or slight noise. No psychosocial stressor could be elicited and the patient was well adjusted pre morbidly. She did not respond to adequate trials of medications prescribed by psychiatrists. A possibility of depressive disorder, illness anxiety disorder, generalized anxiety disorder, hypochondriacal disorder or any other delusional disorder was ruled out. She had a history of suicide attempt out of frustration due to her persistent somatic symptoms and received 6 bitemporal MECTs (modified electroconvulsive therapy) along with sertraline 150 mg for being dangerous towards self. She reported improvement and remained on OPD follow up for two years until one month back when she left the medications. Her symptoms got relapsed and she was started on oral tablet sertraline which was titrated up to 150 mg on OPD basis. However, she did not show any improvement and in view of her exaggerated symptoms, she was readmitted. Nothing suggestive of any physical illness was found on examination and routine investigations.On mental status examination (MSE), psychomotor activity was decreased, speech was normal and affect was irritable. Further MSE was not contributory except for preoccupation with significantly distressing somatic complaints such as lack of energy and difficulty in getting up, difficulty in going to washroom, pain in abdomen or sometimes back pain and did not get convinced even on reassurance. Based on history and clinical assessment, diagnosis of "somatic symptom disorder" as per DSM-5 was considered. The patient did not show any significant improvement on adequate trials of two antidepressants of different class (sertraline 200 mg and duloxetine 90 mg) along with 8 sessions of CBT. The patient would deny to go for sessions or do not listen to the therapist and didn't follow their instructions enumerating multiple complaints at that time despite being told by therapist about nature and prognosis of her complaints. Observing no response to CBT and drug therapy, plan of MECT, its pros and cons were discussed with the family members and patient who consented for the same. There was

no clear indication for ECT as per guidelines[2] in this patient. However, the literature suggests the role of ECT in intractable neurotic condition.[2,3] Six MECT were given and medications were continued. The patient was assessed for the symptoms of the disorder after each MECT and she started reporting improvement by the third MECT and further MECTs were stopped when no symptoms were reported.

Discussion

We started the patient on CBT and psychotropic medications as per available evidence based[4-6] who concluded the effectiveness of CBT, multimodal treatment program and psychotherapy respectively in the treatment of somatic symptoms disorder. The literature suggests that ECT can be effective in the treatment of severe treatment-refractory somatic disorders and pain disorders or in the presence of comorbid depression and suicidal ideation but not used as a first line treatment.[2] The literature is primarily in the form of case reports and there are no guidelines to use ECT in somatic illness.[7-9] The precise mechanism of action of ECT is unclear, the evidence suggests that it modulates the interaction between the neuroendocrine and immunologic systems.[2] ECT can also cause changes in the availability of neurotransmitters and causes increase in amount of endorphins and dynorphines in the central nervous system[7] that may lead to improvement in the somatic symptoms. Based on preliminary evidence reviewed above, we conclude that further research is needed to elucidate the role of ECT in SSDand may be considered as a treatment when standard treatment is not effective.[2,10]

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Case Report

Pseudobulbar affect and post-stroke emotionalism treated with a combination of Escitalopram and Mirtazapine: a case report

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Introduction

Pseudobulbar affect (PBA) may occur in association with a variety of neurological diseaseslike amyotrophic lateral sclerosis, extrapyramidal and cerebellar disorders, multiple sclerosis, traumatic brain injury, Alzheimer's disease, stroke, and brain tumours.[1] The psychological consequences and the impact on social interactions is substantial and needs to be identifies and treated. Although it is most commonly misidentified as a mood disorder, particularly depression or a bipolar disorder, there are characteristic features that can berecognized clinically.[2] PBA is a disinhibition syndrome in which pathways involving serotonin and glutamate are disrupted. This knowledge has permitted effective treatment for many years with antidepressants, particularly tricyclic antidepressants and selective serotonin reuptake inhibitors.[3] This case report illustrates the use of Escitalopram and Mirtazapine in combination for the treatment of PBA in a 56-year-old lady.

Case Report

A 56 years old lady was brought to our outpatient department referred from neurology with chief complaints of sudden and inappropriate bursts of laughter and crying. The reason for psychiatry referral cited the management of emotional lability secondary to a cerebrovascular accident. The lady had suffered a stroke 5 months prior to presentation and had been exhibiting similar lability of emotions during the same period. The lady showed exaggerated emotional responses to even trivial interactions with family members. She also reported trouble sleeping at night with minimal day time sleep. There was no history of a similar episode in the past. She was extremely distressed with her symptom and had good insight that her symptoms were brain related and that the symptoms distressed her family members as well. On detailed history, there was no history suggestive of any other psychopathology in the past or present. She did not have family history suggestive of the same either. Her mental status examination was normal and insight was grade 5 out of 6.

On magnetic resonance imaging study of the brain, the scan revealed lacunar early subacute non-haemorrhagic infarcts in the pons, gliotic areas in the bilateral globus pallidus, bilateral midbrain and middle cerebellar peduncles and focal loss of normal flow void of the mid basilar artery (on magnetic resonance angiography). All the routine laboratory tests were within normal limits. No significant abnormality detected on general physical examination and neurological examination revealed power of 3/5 in both lower limbs with difficulty in walking.

A provisional diagnosis of pseudobulbar affect (PBA) / post stroke emotionalism is made based on ICD 10 code 48.2 under other non-psychotic mental disorders.It is also known as Involuntary Emotional Expression Disorder (IEED).[4-5] We applied the Centre for Neurologic Study-Lability Scale (CNS-LS)[6] for PBA and it revealed a score of 33.

We started the patient on Escitalopram 5 mg twice daily for the mood lability and Mirtazapine 15 mg at night for mood and sleep. The patient was asked to follow up after a week. Within a week of starting the medication the patient and relatives

reported remarkable improvement in emotional lability and sleep by 50%. On her second follow up, a week later, the patient reported 80% improvement. She is currently maintained on the same combination and plan of action includes to treat for 12 weeks and observe the future course of action.

Discussion

There has been a previous case report where Escitalopram has been used in combination with Topiramate in the management of PBA effectively.[7] We chose Mirtazapine as an adjuvant because our patient was having difficulty in sleeping at night. There has been literature that reports the superiority of combined norepinephrine and serotonin reuptake inhibitors over selective serotonin reuptake inhibitors (SSRIs) in PBA.[8] Early diagnosis and prompt management by specific psychopharmacological targets can significantly reduce morbidity associated with PBA. A dearth of treatment options has been the limiting factor for the recognition of this disorder leading to obscurity around the diagnosis.[9] It is important that neurologists and psychiatrists to be aware ofthis rare yet distressing syndrome to help early diagnosis and prompt treatment to reduce the psychosocial consequences and distress caused by it.

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Letter to Editor

Lockdown Period during Novel COVID-19 Pandemic

COVID-19 is an infectious disease due to which several countries have been struggling to save the lives of their people. By April 21, currently 23,14,621 people have been reported as confirmed cases of coronavirus infection globally out of which 1,57,847 people have lost their life. In India approximately 15000 people have been reported as confirmed cases of this disease and above 500 people have been died till mid of April, 2020.[2] Seeing the increasing cases of COVID-19, most of the countries have locked down their people. So all over the world shopping malls, transportations, cinema halls, theatres, hotels, motels, companies, offices everything is shut down. This lock down is certainly helping in slowing down the rate of corona virus infection but something more dangerous rather than this disease is creeping to India. Indian people have been facing lock down and staying at home since 24th march, 2020 but in a culture like India where people are so much fond of socializing, mixing, celebrating[3] each others' happiness are bound to the four walls becoming prone to psychological issues.[3] The most vulnerable group from the view of immunity system are children and elderly people. They tend to be infected due to weak immunity system faster than other age groups so they have been given extra care i.e. strict social distancing. Situation becomes worse when elderly people are not well known of advanced technology of communication. Staying at home whole day making them stressed and generating a feeling of loneliness. Though they don't fulfil the diagnostic criteria of psychiatric illness but certain problems like, irritability, loneliness, fear of infection, financial strain, and future possibi-lities are definitely running in their mind.[4] When we talk about young people, they have a longer life to fulfil their dreams but due to lock down they are becoming prone to anxiety, sleeplessness, aggre-ssion, FOMOS etc. All these strains are pushing them to think about survival with small savings and loans. Full stop at academic year has raised a question of job expectancies before them.[5] Apart from it, social media is also affecting people enormously. People have a plenty of time to spend on social media which is surely not a good sign for their mental health. As the Indians have witnessed the color of communalism even in pandemic is creating a doubt in their mind against other communities and religions.[6] It's a matter of debate who is victim or who is culprit but what about those staying their home and wish to have a normal and peaceful life. Color of communalization and hatred is bothering them severely. Such people have been developing fear, depression, insomnia, prejudice and aggression apart from the COVID-19 infection. It's a matter of serious concern to beware of such situation when a virus is being colorized in religion so easily.[8] Many people have started reporting depressive feature and anxiety after going through such fake provoking viral news.[7] Along with it, thousands of migrant labourers had started moving from their workplace to hometown by walking. Some died on the way and some are still compelled to live under the shade of bridges where life is nothing more than a curse.[9] It doesn't matter to talk about their mental health until they get proper meal and a safe place to spend their life. This lock down is more dangerous for the people of poor emotion management skills. This situation is frightening them and raising a question in their mind about sustaining life.[10] Though there are certain positivity amid lockdown period like lower crime rate

and global warming. But India has been facing a new challenge in this period. Media reports shrugged increasing number of domestic violence and child abuse during lockdown. Women and female children as usual have become soft target for mannish barbarism. They are being beaten, sexually abused, raped, molested, facing over loading of house chores, definitely would have been generating psychiatric illness after this lock down period.[11] Indian psychiatric society has also predicted 20% rise in psychiatric illnesses after lockdown which willburden the psychiatrists and clinical psychologists in upcoming future.[12]

All these problems are bigger challenges in front of India for which we have to seek the solutions. First off, the government should pay attention on basic needs of marginalized population living a life worst than animal and the health workers sacrificing their life for the nation. Medical emergencies should have been taken as the primary concern to ensure good physical health. Mental health professionals should also understand their duty to save people from the clutch of psychiatric morbidity. People should maintain mental hygiene in order to be mentally fit. Following a proper routine, having healthy diet and sound sleep could help them a lot to stay away from mental health issues. Using the term, 'physical distancing' is more suitable rather than 'social distancing'. It can help people to reduce their subconscious fear of being isolated. Spending time with family members, healthy talk with other people, helping elderly in their work could make lock down happier than expected. Being mindful about the ongoing crisis and related problems would definitely enhance well being. Along with social distancing, distance from sensational news on social media is the key factor of happiness. Positive approach amid lockdown will break the cage of sadness. It's a high time to be mindful for the havoc going around us in the lockdown period. We should remember every war is won by fighting together rather than fighting with each other.

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- **Chapter of a book**

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