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4. Case report/Series	Required (Unstructured)	1500	15
5. Letter to the Editor	Not required	1000	10
6. View point/ Opinion/ Perspectives	Not required	2000	20
7. Debate	Required (Unstructured)	4000	40
8. Book review	Not required	1500	10
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Editor-in-Chief : Dr. Adarsh Tripathi

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Indian Journal of Behavioral Sciences (IJBS) is the official journal of the Indian Psychiatric Society Central Zonal Branch. It is published biannually. It is a comprehensive journal for mental health professionals, professionals of allied disciplines, mental health policy makers,teachers and students in psychiatry and various allied disciplines. Emerging knowledge of the highest quality in the field of psychiatry and the latest developments are published in a timely and practical manner for clinical and professional use. The journal publishes *peer reviewed original research articles; review articles; commentaries on significant articles; case reports, perspectives, view-points (opinions) and letters to the editor*. All papers are peer-reviewed before publication. The journal provides immediate free access to all the published articles.

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What Have We Gained and Lost During The COVID-19 Pandemic? Perspectives From a Psychiatry Teacher

Adarsh Tripathi[1]
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As I sit on my desk to write this editorial for our journal, I reflect on the experiences, events, and vicissitudes of this strange instance of the COVID-19 pandemic we all are witnessing. During the writing of this editorial, I will aim to keep the focus on the part of experiences and reflections as a psychiatry teacher, clinician, and academician.

As the epidemic was spreading in India, newer strategies for containing the virus, flattening the curve, upgrading the medical system to deal with the unprecedented challenges of a large number of critically sick patients, and unique restrictions were being put on the general public to deal with the situations.The pandemic, by its very nature, was sudden, unexpected, and devastating on several fronts. It disrupted routine clinical care for the patients with psychiatric illnesses, services offered at both the outdoor and inpatients system of institutions other than COVID-19 patients in a substantial way.[1]A massive rearrangement of workflow and prioritization of services was needed. It is needless to say that this influenced the momentum of educational training and teaching worldwide.[2] Trainees from all the disciplines, including psychiatry, were pulled out of their routine teaching and training and were quickly trained and posted to the care of COVID-19 patients.

Mental health professionals played a vital role in the management of the pandemic in India. However, it was challenging to balance the standards of education of psychiatry trainees with other responsibilities related to COVID-19. Several key agencies, including WHO, ICMR, and other international and national bodies, advocated an increased need for mental health care of patients, health professionals, and the general public. Still, the challenges in training were difficult to manage.

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Several lost opportunities, miscalculations, inappropriate responses, and new and unique learning experiences happened due to our unpreparedness for the pandemic. Although I am cognizant that not all issues and their possible answers can be discussed in sufficient detail in this editorial, thisdocument attempts to go through a few important pieces of information in this regard.

WHAT HAVE WE GAINED?

Training future doctors and psychiatrists involve preparedness for them to participate in the medical situations even outside their designated clinical discipline at times, keeping in mind national and regional health priorities. Understanding and participating in governmental policies and emergent practices is also an important aspect of training in every medical discipline. Although important training opportunities were missed, COVID-19 pandemic provided unique experiences for the trainees during this period.

a) Telepsychiatry

COVID-19 pandemic catalysed the telemedicine/ psychiatry practices for government, health care professionals, and patients alike. There is a place of judicious utilization of telepsychiatry in various situations in psychiatry practice. The government of India has brought a telemedicine guideline for caring for the patients during this time, including the prescription of psychotropic medications using telemedicine services. These were well received, and implementation quickly started at various levels.[3] Most of the training institutions also started online OPDs, and residents actively participated in the running of the services. This resulted in continuing training, clinical exposure, and learning nuances of telepsychiatry to some degree. This enhanced utilization of telepsychiatry practices is here to stay even after the pandemic is over. The residents have developed a first-hand experience of the strengths and

weaknesses of telepsychiatry. This is going to be beneficial from a long-term perspective also.

b) Online/E- teaching

Information technology is rapidly developing, and virtual communication has boomed during the pandemic time. This heralded a new era in teaching and training in almost every field. As the restrictions on the public gathering as well as offline teaching were started, online teaching picked up at almost all the teaching institutions. Although not completely a good substitute for the conventional teaching practices, it did help in the continuation of training, supervision, and research at various levels. Online training has its advantages and disadvantages, and it was a savior during the pandemic time. Fortunately, most institutions, teachers, and trainees have access to relevant knowledge, skills, resources, and strategies to implement this due to the recent growth of IT technologies and improved penetration of high-speed internet services.

c) Newer skills and strategies

The crisis offered an opportunity to teach otherwise less commonly focused topics like psychological first aid, management of illness anxiety, Grief counseling, and grief therapies, in-depth and detailed exposure to medical wards and systems in non-psychiatry wards, as in-depth experience of consultation-liaisonservices.

d) Resilience

German philosopher Friedrich Nietzsche once said, "That which does not kill us, makes us stronger." Perhaps he was true. The pandemic time provided a unique opportunity to train residents to deal with the tough time and develop more resilient psychological attributes for the future. By exposure to the ability to cope with uncertainty and make a difficult decision during heightened anxiety and incomplete information, the trainees were also exposed to developing leadership skills and attitudes.

e) Consultation-liaison psychiatry

Residents of every medical discipline were expected to perform their duties as a general medical professional for COVID-19; their subspecialties-related competencies were also utilized during their postings in COVID-19 wards as and when needed. Psychiatry residents were expected to take care of mental health issues emerging in patients admitted for COVID-19 in consultation with their seniors and teachers. The trainee residents got to know and see the challenges of managing acutely medically ill patients themselves. They were also able to observe the effects of their interventions closely in a consultation-liaison setting.

WHAT HAVE WE LOST?

The COVID pandemic time was related to the sudden stoppage of routine clinical services, including OPDs and Inpatient care, for quite a long time. As the residency training period is time bound, this disruption led to the unwanted impact of the ongoing training of residents in clinical care, research mainly thesis work and training imparted during inpatient care of the patients, including training in brain stimulation and other somatic interventions. Psychiatric interviewing, monitoring of symptoms and delivery of interventions are best-done face to face in psychiatry. Ample exposure, especially during residency time, is needed for developing sufficient efficiency and ease with these strategies.

a) Reduced productivity and impaired working, inadequate teaching

The sudden nature of restrictions and changes due to the pandemic led to impairment in functioning and activities related to teaching and training activities for quite some time. Amid the chaos, heightened fear, and abrupt cessation, the systems took time to reorganize and function properly. This led to the loss of time, training opportunities, and appropriate involvement to facilitate adequate working and learning. This pandemic is not the first or not the last which human race will experience. However, situations of this nature were never witnessed by healthcare systems at any time in the recent past. Hence, ready preparedness may go a long way to deal with any such situation in the future. During online teachings and training, it is easy to incorporate the knowledge domain of the training component. However, medical education essentially involves skill, affective and psychomotor domains of teaching, which was challenging to integrate.

b) Promoting/focusing on general health and mental health of residents

Although the call for increased focus on both the physical and mental health of trainees has been there for a long

time, the current pandemic is an undeniable time to give attention to this issue. Quickly changing schedules, demand for the medical work without adequate training and supervision, the pressure of continuing training-related activities, and general stress imposed due to keeping health and safety are challenging tasks for the new trainees. Many institutions focused on the emotional health of employees and trainees, and attempts were made to support them. However, due to the haphazard nature of implementation occurring due to current situations, this might not have been consistently considered. Hence, trainers and administration should be mindful of trainees' physical and mental health, and appropriate provisions should be made in this regard. Burnout prevention, balancing personal life with professional life, and adequate attention to self-care are also skills one should get exposed to during residency time. Seeking appropriate assistance whenever in need must also be encouraged.[4]Despite our efforts in this direction, we have not been able to reach an optimal place. Several studies reported higher rates of depression, anxiety, and burnout in the doctors and residents in India during the COVID-19 pandemic. [5][6]

c) Training in research

COVID 19 pandemic disrupted the research training opportunities in a significant way. Clinical care was at the forefront, and every attempt was made to utilize the meager healthcare staff for clinical postings. The research exposure, which is an essential aspect of the postgraduate psychiatry training, cannot be focussed enough during this time. The thesis projects were changed, curtailed, and truncated abruptly to fit into the limited schedule of the training period. This led to inadequate exposure to research during training. I hope that this could have been better avoided.

CONCLUSION

The teachers, supervisors, and administrators must be cognizant of the immediate and long-term consequences and impact of the COVID-19 Pandemic on the trainees' training quality, well-being, and professional identity. Answers to many of the questions raised may not be crystallized at this moment. Appropriate steps should be planned to cover the gap in knowledge and skills of the residents undergoing training during this time due to current difficulties. However, a focus on swift reorganization of approaches and strategies is needed for future preparedness in context with sudden and unexpected health emergencies.

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Future of Child Psychiatry

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INTRODUCTION

Children and adolescents constitute about a third of the world's population, and almost 90% of them live in low and middle-income countries (LAMIC). 10 to 20% of children have psychiatric disorders, and about 5% have a severe disorder.About 50% of lifetime psychiatric disorders begin by age 14 and 75% by 24 years [(1)]. In developing countries, due to various psychosocial factors, there might be children who do not fulfill the diagnostic criteria but suffer from poor mental health and require help [(2, 3)]. For example, poverty may lead to child labor, lack of education, migration, physical or sexual abuse, nutritional deficiencies, and more exposure to infections. All these factors can affect the mental health of the child.

The problem of chronic infections like HIV is significant in developing countries. About 1.5 million children less than 15 years of age are suffering from HIV. Psychiatric disorders are common but often missed in children with chronic physical illnesses. Use of illicit drugs, substances not defined as a drug of abuse like inhalant, tobacco is used by the youth regardless of economic constraints. Youth suicides are increasing in developing countries. In India, suicide accounts for 25% of boys' deaths and 50-75% of deaths in girls in 10-19 years [(4)]. High suicide is mainly due to psychosocial factors rather than psychiatric disorders, for, e.g., the stress of studies and examination.

There are many barriers to care, like people have to travel long distances to get psychiatric help for children. There are financial problems as people have to spend out of pocket. There is no insurance for mental health problems. Then many people do not seek help due to stigma, superstitions, or lack of awareness about psychiatric disorders and where to seek help.

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The average lag time between the onset of symptoms and the initiation of treatment is 8 to 10 years. Common childhood disorders like anxiety disorders, ADHD, ODD which are not associated with severe symptoms are often remain undiagnosed till adulthood. If children are not screened and treated, these childhood-onset psychiatric disorders persist and contribute to a cycle of school failure, poor employment opportunities, poverty, and suffering that may affect the next generation too.

Additional stress will come from the events, which are likely to increase in the future, as increased urbanization will lead to poor social support and poor living conditions. Migration due to natural or man-made disasters will lead to survival issues and cultural change. More digital and social media use leads to inattention problems, poor social skills, and poor interpersonal relationships.

In most African, Eastern Mediterranean, Southeast Asian, and Western Pacific regions, the availability of a child psychiatrist is in the range of 1 to 4 per million[(5)]. Child psychiatrists treat disorders, such as childhood-onset schizophrenia and depression, that are typically more severe and more treatment-resistant than adult-onset disorders.

However, the allied fields of psychology, social work, public health, and preventive medicine make headway in developing interventions that can prevent mental illness. As a result, we hope to reduce the incidence and prevalence of mental illness, thereby reducing the suffering and disability associated with psychiatric illness[(6)]. Childhood and adolescence are crucial times in human development in which intervention is necessary for the prevention of mental illness. The architecture of children's brains is under development, particularly in fetal life and infancy and till early adulthood. Risk and protective factors exert their influences on the brain architecture during these sensitive periods in development, but they may not manifest their full effects until many years later. Thus, early childhood and

adolescence are the necessary time to prevent mental illness in children and adults. Preventive research has traditionally focused on reducing exposure to risk factors, such as poverty and child abuse. Recent work has focused equally on health promotion, like increasing exposure to protective factors, such as good schools and healthy peer relationships.

Health promotion approaches are fundamental when risk factors such as genetic risks are not readily modifiable.

TREATING MATERNAL DEPRESSION

It has been linked to many adverse outcomes in children like depression, anxiety disorders, ADHD, ODD, etc. Much more children suffer due to maternal depression than child abuse. The risk of illness in children is both due to genetics as well as the home environment. In the STAR*D study, mothers who reached remission by any treatment, their children (7-17 years) had significantly fewer behavioral problems [6]. Diagnosis of internalizing disorders improved over time in their children. CBT was used in at-risk adolescents with symptoms of depression, showed a reduction of MDD by 75% in three years.

PSYCHOSIS PREVENTION

Considerable progress has been made in identifying and treating adolescents at Ultra-High Risk for Psychosis. Psychotic disorders starting in adolescence or young adult have severe long-term effects. Therefore, it is crucial to prevent it. Cognitive behavior therapy for psychosis (CBTp), Family focused therapy (FFT), Family aided assertive community treatment have been used in such adolescents with beneficial effects. Meta-analyses have shown that early intervention can reduce the risk of conversion by 50% from ultrahigh risk to first-episode psychosis over 12 months and 37% over 24 to 36 months[7]. However, such programs are located at high-level academic centers and are carried out by highly trained workers. Therefore, such programs require wider availability in the future.

DIAGNOSIS

There are no valid biological markers, and psychiatric diagnosis is based on clinical signs and symptoms. In the future, diagnosis may be based on research domain criteria based on dimensional characteristics, neurobiology, and cognition [8]. E.g., we may be treating inattention based on abnormality in the cortico-striato-thalamo-cortical circuit irrespective of diagnosis.

DETECTION OF POSSIBLE RISK

In a study on adolescents thinning of the cortex along the entire lateral aspect of the right hemisphere and the medial wall of the left hemisphere, about 30% reduction in gray matter. Bilaterally reduced volumes of frontal and parietal white matter have also been observed. This endophenotype was present at much higher rates in the offspring of persons with depression than in the offspring of persons without depression, even if the offspring did not have depression.

Asymptomatic adolescents who have at least one depressed parent and this pattern of cortical thinning have a greater than 80% likelihood of developing MDD[9]. Although no reliable biomarker has been identified for ADHD, increased olfactory sensitivity and increased substantia nigra echogenicity are promising candidates for further studies[10].

DIGITAL PHENOTYPE

Studies have correlated severity of depression, anxiety with the app-based collection of mobile usage, call logs, use of social networking sites, etc. [11]. Similarly, studies have shown that it is possible to predict suicide risk by machine analysis of students' socio-demographic and psychological variables in Korea[12]. Smartwatches or fitness trackers can collect basic health information. A digital pill can automatically record medication adherence. Such findings have huge prevention potential.

SERVICE DELIVERY

Diagnostic assessments and treatment outcomes will be more measurement-based in routine clinical practice. Currently, routine psychiatric practice is not based on any measure of illness while physicians measure BP, blood sugar levels, etc. However, studies have shown measurement-based assessments lead to better treatment and outcome[13].

There is unlikely to be a sufficient number of child psychiatrists in the future, while demand for services will be much more. Therefore, the services will shift to internet-based, remotely administered assessments through nonmedical health workers (NMHW). Studies showing that NMHW trained to screen and give initial treatment based on the standard protocol could enhance patient adherence, improve outcome, and reduce cost, especially in remote areas where doctors are not available [14].

There will be a shifting of care. Psychiatrists need to engage and train traditional healers, community workers, and teachers to identify people with mental illness and refer them to primary care. Primary care should be able to identify and provide treatment. For example, in the UK, 50% of doctors going for any specialty have to do four months of training in Psychiatry during their foundation years. The role of the psychiatrist will be more in the form of training, supervision, development of standard protocols, and liaising with primary care providers.

Future services will be more internet-based without geographical boundaries. It will be possible to provide treatment in remote areas by technology. Studies have shown improvement and patient and parent satisfaction with delivering therapies through telepsychiatry in various disorders in children like ADHD, ODD, and Tics[15]. Studies have shown telepsychiatry module-based assessment by a non-psychiatrist doctor or paramedical worker of help in remote areas of India[16].

PERSONALIZED MEDICINE

In the future genetic information and data like family history, the child's cognitive profile will determine the future risk of conversion to disorders like depression and, psychosis which will lead to more emphasis on preventive interventions. Pharmacogenomics will decide the treatment whether the child with ADHD will respond to medication/psychological treatment or not. Studies have shown variability in response to methylphenidate related to DAT1, SNAP 25, NET, DRD4 genes in ADHD[17]. Currently, cytochrome P450 allele assays have been done to predict response to SSRIs.

INTERNET-BASED PSYCHOTHERAPY

Studies have shown preliminary data on the use of virtual assistant-based psychotherapy in depression. In the future, it may be possible to provide psychotherapy for a large number of patients without the need for a psychotherapist. SPARX, a video game, was developed to engage children in CBT[18]. This is a fantasy-based platform that is both interactive and didactic and is very much like commercial video games. In SPARX, a mythical guide instructs players in basic CBT. A total of 7 modules cover classic CBT content, such as psycho-education about depression, behavioral activation, problem-solving, and cognitive restructuring.In addition, players are instructed to practice relaxation strategies at certain points within the game.SPARX has been tested in New Zealand and Netherland for adolescents with mild to moderate depression. Such games are more likely to be readily accepted as they are home-based treatments. Such games have huge preventive potential in at-risk populations.

NEW WAYS OF TREATMENT

Safer and personalized medicines based on the genetic and cognitive profiles of patients will be available. Nanotechnology may help in the more effective delivery of medications. For example, stem cell therapy may develop for a developmental disorder like autism [19]. There might be an implantable drug reservoir for the long-term delivery of medicines for one year or more.

TRAINING

The rapid pace of development in neurosciences and care models will require significant changes in the way psychiatrists are trained. They will require new training methods, such as problem-based learning, self-directed learning, and flipped classroom training in team work, management and leadership as per new models of care. Instead of seeing individual patients, they may have to oversee treatment of a large number of patients through primary care doctors, nurses, pharmacists, or nonmedical health workers. Training in information technology for internet-based assessments and treatments. Dimension-based assessment and personalised medicine will require a strong foundation in genetics, cognition, and neurosciences.

SCHOOLS

Schools will be the future workplace of child

psychiatrists. Children spend around 6 hours at school. So, one can access a large number of children. Much can be done through teachers, school counselors, nurses, social workers. Schools in remote areas can be accessed by telepsychiatry. Still, we need to find ways to access children who are outside the school system.

There are many prevention programs available for school settings. For example, primary prevention Programs for Schools like good behaviour games, Zippy's friends, life skill training and sex education.

The PAX Good Behavior Game (GBG) is delivered by trained teachers, usually in the first and second grades. The game was played during regular school hours[20]. GBG's has targeted self-regulation in its interventions. The development of the capacity for effective self-regulation in childhood leads to more adaptive interpersonal interactions, more positive health behaviors, improved cognitive flexibility, and better impulse control. The post-intervention measurement was done when the students reach the age of 19 and 21 years. It showed a significant reduction in substance use and development of antisocial personality disorder in children in the intervention group as compared to the control group (Figure 1).

HELPING AT RISK CHILDREN AT SCHOOL

There are programs for children at risk for psychiatric disorders like CARE (Care, Assess, Respond, Empower) for depression, suicide prevention, substance use, aggression, etc. Such a program is for high-risk individuals, delivered in small groups at school has been found to be effective. It can be delivered by the counsellor, psychologist, or social worker. Similarly, paying attention to learning programs for children with learning problems.

PROGRAMS FOR CHILDREN WITH MENTAL HEALTH PROBLEMS AT SCHOOL

Similarly, there are programs for children with mental health problems that can be delivered on a group or individual basis. For example,Interpersonal therapy for depression, Coping CAT CBT based program for anxiety delivered at school in group or individual setting and early intervention for psychosis. Coping CAT has been developed to help children 7-17 years with anxiety. It is based on CBT model includes psychoeducation, understanding emotional and physical reactions to anxiety, exposure tasks, relaxation training and cognitive restructuring.

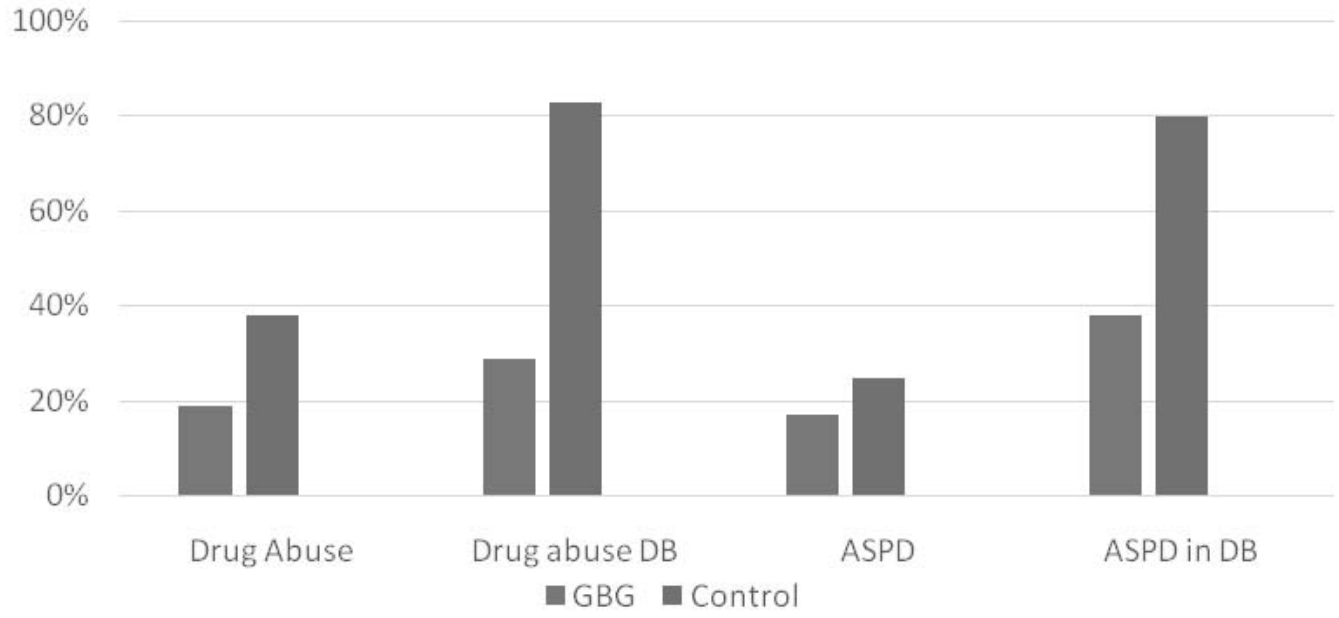

Figure 1: Good behavior games

CONCLUSION

In future child psychiatry will be focused more on prevention and health promotion. There will be significant involvement of technology in assessment and treatment. Training methods should be modified as per the needs of future and current realities. More individual centric approach in treatment should be adopted. We should become more familiar with technology.

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AWARD PAPER

Medication Adherence in Clinically Stable Patients with Severe Mental Disorder Attending a Tertiary Care Center of North India: An Observational Study

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ABSTRACT

Background: Medication non-adherence is a major challenge in severe mental disorder.

Objective: The objectives of the study are to see medication adherence in patients with severe mental disorder (schizophrenia and bipolar affective disorder) and compare reasons of medication non-adherence among schizophrenia and bipolar affective disorder.

Method: It is a cross-sectional, observational study conducted in a tertiary care center among stable patients with severe mental disorder. Patients were assessed on Mini International Neuropsychiatric Inventory (MINI 5.0 version) to rule out other co-morbid psychiatric illnesses. Psychopathology of the patients was assessed on Positive and Negative Syndrome scale for Schizophrenia (PANSS) for schizophrenia and Young's Mania Rating Scale (YMRS) & Hamilton's Depression Rating Scale (HAM-D) for Bipolar disorder. Medication Adherence Rating Scale (MARS) was applied to assess about medication adherence. Clinical Global Impression (CGI) was used to look for clinical stability.

Result: A total of 52 patients were diagnosed with schizophrenia and 53 with bipolar affective disorder were included in the study. Patients with schizophrenia have significantly (p=0.0193) better medication adherence than those with bipolar affective disorder. Forgetting to take medication was the common reason of medication non-adherence in schizophrenia, whereas in bipolar affective disorder most common reasons of non-adherence were - Don't like to be controlled by medications & Taking medications, only when sick. There were not many differences between patients of schizophrenia and bipolar affective disorder in terms of individual reasons of medication non-adherence.

Conclusion: Non-adherence to medication is a common phenomenon in patients with severe mental disorder. Multiple factors attribute to medication non-adherence in severe mental disorder. Clinically stable patients of schizophrenia are more adherent to medication than those with bipolar affective disorder.

Keywords: Medication adherence, Severe mental disorder, Schizophrenia, Bipolar affective disorder

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INTRODUCTION

Severe mental disorder often refers to schizophrenia and bipolar affective disorder. As per the recently concluded National Mental Health Survey 2015-16, the lifetime prevalence of severe mental disorder in India is around 2%.[1] Similarly, the lifetime prevalence of schizophrenia and Bipolar affective disorder in Uttar Pradesh is 0.39% and 0.41% respectively.[2]

Patients with schizophrenia and bipolar affective disorder share some common characteristic features like – Chronicity of illnesses, lack of insight, severe psychopathology and long-term need for treatment. At the same time, they differ from each other by - Episodicity, nature of psychopathology and time spent in illness.

Medication adherence is a major issue in patients with severe mental disorder. Non-adherence to medications is often associated with poor treatment outcome.[3]

Six different levels of medication adherence have been described by Gearing *et al.*, (2011), which are – initiation, trial, partial acceptance, intermittent adoption, untimely termination and complete adherence to treatment.[4]

Despite of non-adherence to treatment, many patients do not disclose about their status of adherence to treatment which may have an adverse consequence on the future course of treatment and therapeutic relationship.[5]

Various subjective and objective strategies (pill count, patient records, drug level in blood, applying various rating scales to assess attitude & belief towards medication, rating scale to access medication adherence) have been used to measure medication adherence in patients suffering from schizophrenia.[6] Simultaneous use of multiple methods to access medication adherence is suggested by researchers.[6]

Medication non adherence results in increased burden of care, increased cost of care, increased morbidity, exacerbation or relapse of symptoms and increased risk of mortality.[7] Optimizing the dose of medications, regular follow up & supervised care, psycho-education as well as strengthening the psycho-social support helps in improving adherence to treatment in schizophrenia.[7]

The objectives of the study are to see medication adherence in patients with severe mental disorder (schizophrenia and bipolar affective disorder) and compare reasons of medication non-adherence among schizophrenia and bipolar affective disorder.

STUDY DESIGN

This is a cross-sectional, non-interventional study conducted in a tertiary care hospital of North India.

MATERIALS AND METHOD

The study aimed at assessing medication adherence in patients with severe mental disorder. Institutional ethics committee approval was obtained. Patients diagnosed with schizophrenia and bipolar affective disorder along with their caregivers were recruited in the study through purposive sampling technique from a tertiary care teaching hospital from North India after obtaining the informed consents. Diagnosis of schizophrenia and bipolar affective disorder was made as per the DSM-IV TR criteria and other psychiatric disorders were ruled out by screening on MINI 5.0. Only the clinically stable patients were enrolled in the study. Patients with CGI-S (clinical global impression-severity) score ≤ 2 were considered as clinically stable. Patients with other co-morbid psychiatric disorders, except tobacco use disorder were excluded. Similarly, those with co-morbid medical illnesses that require management on priority basis were excluded.

Patients with age more than 18 years with at least one year duration of illness were included in the study. The caregivers were operationally defined as the person, who was living with the patient for significant period of time during the illness, involved in the care and shouldering the responsibility of the patient. The definition of caregiver has been adopted from the study of Kate *et al.*, (2013).[8]

Patients socio-demographic variables (age, gender, education, occupation, marital status, religion, family structure and income) and clinical details (age at onset of illness, duration of illness, severity of illness, duration of treatment, current treatment details and family history of psychiatric illness) were obtained on semi-structured proforma. Patient's psychopathology was assessed using

Positive and Negative Syndrome scale for Schizophrenia (PANSS) for schizophrenia[9] and Young's Mania Rating Scale (YMRS) [10] & Hamilton's Depression Rating Scale (HAM-D) [11] for Bipolar disorder. Medication Adherence Rating Scale (MARS) was applied to assess about medication adherence.[12] A higher score in medication adherence rating scale (MARS) indicative of good adherence.[12, 13] Adherence to medication was confirmed from the caregiver as well. The Clinical Global Impression (CGI) scale has two components (severity & improvement). Clinical Global Impression-Severity (CGI-S) was used to look for clinical stability.[14]

Statistical analysis: Statistical analysis had been done by using statistical software SPSS 16.0 version. Data analysis was done with basic descriptive statistics, such as frequency distributions, means and standard deviations, appropriate for the type of variables. For continuous variables like age, years of education, caregiver's years of education, duration of illness, age of onset, medication adherence scoresmean and standard deviation were calculated. Data was divided into two independent groups-schizophrenia patients and bipolar patients. Comparison of means of the two groups was done using the unpaired t-test. In case of nominal data like marital status,socioeconomic status, caregiver's gender and caregiver's marital status, frequency distribution was calculated. Difference between the 2 groups was compared using chi-square test.Frequency of various responses on MARS was calculated for both groups and compared using chi-square test.

RESULTS

A total of 207 patients with schizophrenia and bipolar disorder were screened. A total of 102 patients were excluded due to not meeting the selection criteria, making the total study sample 105, of which 52 patients were diagnosed with schizophrenia and 53 with bipolar affective disorder. The mean age of study population was 31.61 ±10.13 years. In patients with schizophrenia, the mean age was 33.60±10.166 years. The mean age of patients with bipolar affective disorder was 29.66±9.812 years, which was significantly different from that of schizophrenia (p=0.046). In the study population 62.9% patients were males and 62.9% were married. The mean year of education of the study sample was 10.39±7.36 years. Most of the patients (69.5%) in the study belong to low socio-economic status (income ≤ 1600/month). There was no significant difference between patients of schizophrenia and bipolar affective disorder in terms of their gender and years of education.The mean age of the caregivers in the study population was 48.14±11.62 years and their mean year of education was 9.40±4.81 years. Most of the caregivers were males (81%) and married (86.7%).

There was no significant difference in the duration of illness between patients of schizophrenia (73.52±76.45 months) and bipolar affective disorder (54.75±46.38 months). However, there was significant difference (p=0.029) between the age of onset of patients with schizophrenia (p=28.31±9.636 years) and bipolar affective disorder (24.28±9.029 years).

The overall medical adherence score was 4.50±1.52. There is significant difference (p=0.0193) in medication adherence of schizophrenia (4.85±1.71) and bipolar affective disorder (4.16 ±1.23).

The overall common reasons of non-adherence in the study group (n=105) were - Forgetting to take medication (66.7%), Don't like to be controlled by medication (63.8%), Feeling tired or dull due to medications (56.2%) and Taking medications, only when sick (55.2%) (table.1).

DISCUSSION

Medication adherence is a major concern in psychiatric disorders. In severe mental disorder this issue becomes still worse. Various techniques like – interview of the patients & caregivers, use of structured rating scales, pill count, drug level in the body and clinical judgement are used to measure medication adherence.[15] Assessment of drug level in the body and pill counts are challenging tasks in developing countries like India. Though drug level estimation accurately predicts medication adherence, unavailability of such facility in most places and unaffordability are major hurdles to carry out the same.In our study, we used Medication Adherence Rating Scale (MARS) to measure medication adherence.[12] Additionally, we confirmed medication adherence by asking the caregivers, who involve in the care of the patient. As presence of chronic medical co-morbidities and psychiatric disorder in the caregivers are likely to influence in monitoring the treatment of their patients, such caregivers were excluded. Similarly, such co-

Table 1: Reasons of medication non-adherence in severe mental disorder

MARS items	Total patients (N=105)	Schizophrenia (n=52)	Bipolar (n=53)	Test of significance
Q1. Ever forget to take your medicine? (%YES)	70 (66.7%)	39 (75%)	31 (58.5%)	P = 0.073
Q2. Careless at times about taking your medicine? (%YES)	50 (47.6%)	28 (53.8%)	22 (41.5%)	P = 0.206
Q3. When you feel better, sometimes stop taking your medicine? (%YES)	33 (31.4%)	20 (38.5%)	13 (24.5%)	P = 0.124
Q4. Sometimes if feel worse when taking, do you stop? (%YES)	34 (32.4%)	19 (36.5%)	15 (28.3%)	P = 0.367
Q5. Take my medication only when felt sick. (%YES)	58 (55.2%)	25 (48.1%)	33 (62.3%)	P = 0.144
Q6. Unnatural to be controlled by medication (%YES)	67 (63.8%)	34 (65.4%)	33 (62.3%)	p = 0.739
Q7. Thoughts are clearer on medication* (%NO)	26 (24.8%)	16 (30.8%)	10 (18.9%)	P = 0.158
Q8. Staying on medication prevents getting sick* (%NO)	28 (26.7%)	15 (28.8%)	13 (24.5%)	P = 0.617
Q9. I feel weird, like a 'zombie', on medication. (%YES)	48 (45.7%)	27 (51.9%)	21 (39.6%)	P = 0.206
Q10. Medication makes me feel tired and sluggish. (%YES)	59 (56.2%)	29 (55.8%)	30 (56.6%)	P = 0.931
Mean MARS score (S.D.)	4.50 ± 1.52	4.85 ± 1.71	4.16 ± 1.23	P = 0.0193

**reverse scoring is done for these items*

morbidities also affect the medication adherence in patients with severe mental disorder and can bias the result; hence appropriate selection criteria were chosen.

Earlier evidences suggest that the compliance rate of patients receiving antipsychotic medications, anti-depressant medications and medications for physical disorders are 58%, 65% and 76% respectively.[15]

Novik *et al.*, in their study found that patients with bipolar affective disorder were more adherent to medications than those suffering from schizophrenia and insight plays a major role in determining the degree of adherence to medications.[13] In our study population, medication adherence in schizophrenia is significantly better (p=0.0193) than bipolar affective disorder. Such finding in our study might be due to the reason of poor socio-economic status. As patients with poor socio-economic status when become free from symptoms, due to financial constraints, they might be feeling reluctant to continue medications. The patients with bipolar affective disorder have episodic course, due to which they spend a significant period of time in symptom-free state that may compel them to be non-adherent to medications. In our study, in the bipolar affective disorder group, most common reasons of non-adherence were - Don't like to be controlled by medications (62.3%) &Taking medications, only when sick (62.3%).

Similarly, in the schizophrenia group of our study the most common reason of non-adherence to medication was - Forgetting to take medications (75%). It indicates that cognitive deficits to be major reason of treatment non-adherence. However, as there is no significant

difference between the two groups in terms of reasons of medication non-adherence, cognitive deficits do play a role for non-adherence in bipolar affective disorder (58.5%), also. The mean duration of illness in schizophrenia (73.52±76.45 months) group was also higher than that with bipolar affective disorder (54.75±46.38 months). Long duration of illness might be also attributing to more cognitive deficits in patients with schizophrenia.

Non adherence to antipsychotic medications is not new or unique or uncommon in patients suffering from schizophrenia. [7] Multiple factors like – absence of insight, nature & severity of symptoms, shorter duration of illness, past history of non-adherence, co-morbid medical illness, co-morbid psychiatric disorders (substance use disorder), disabling adverse drug reactions to antipsychotics, negative attitude towards medications, financial constraints, poor psycho-social support, poor therapeutic relationship, stigma as well as cultural factors have contribution to treatment non adherence in schizophrenia.[7,16, 17] Among the psychopathology, persistent positive or negative symptoms are associated with non-adherence to treatment in schizophrenia. Similarly, weight gain is the commonest adverse effect of antipsychotic medication that attribute to non-adherence to treatment.[13] Side effects to the antipsychotics also responsible for the negative attitude towards medications, which may result in non-adherence.[18] Internalized stigma (self-stigma) has a negative correlation with medication adherence.[19, 20]

Similarly, multiple factors influence medication non-adherence in bipolar affective disorder. Evidences suggest that other than illness related factors, various other factors related to patient (attitude towards medications, stigma, satisfaction about treatment, access to treatment facility, personal beliefs about illness and patient's rapport with the treating clinician) also influence medication adherence in bipolar affective disorder.[21] Cognitive deficits, co-morbid substance use, impairment of insight, experience or fear of side effects to medications also determine medication non-adherence in bipolar affective disorder.[22] In our study, a significant proportion of patients with bipolar affective disorder are non-adherent to medication due to forgetfulness (58.5%), feeling lethargic and tired due to medication (56.6%) and feeling weird on medication (39.6%).

A recent meta-analysis of 198 articles, revealed that there are gross variations in the role of socio-demographic, illness & treatment related factors in treatment non-adherence in bipolar affective disorder.[23] Only two factors were consistently associated with medication non-adherence – co-morbid substance use and lack of insight.[23] Hence, the clinicians need to evaluate the patients in holistic manner for treatment adherence, rather than generalizing the findings of individual studies or projecting the findings of individual studies to their clients.

In our study, we did not find significant difference between patients of schizophrenia and bipolar affective disorder in terms of individual reasons of medication non-adherence. There may be multiple reasons of non-adherence in a given patient.

Green *et al.*, (2018) in their recent study mentioned that long acting depot preparations of antipsychotic medications helps in improving medication adherence in schizophrenia and bipolar affective disorder by reducing the treatment discontinuation (than oral antipsychotic drugs) by 20% and 19% respectively.[24] So, in the real-world setting, long acting depot can be recommended to improve medication adherence.

The findings of the study has a strong clinical implication as medication non-adherence lead to relapse, re-hospitalization, increased burden of care, poor quality of life, increased disability, increased health care expenditure, suicidal behaviour, stigmatization, which are poor outcome indicators.[21, 22, 25-28] Considering the factors that may attribute to medication non-adherence during treatment of severe mental disorders are likely to improve the adherence and can give better treatment outcome. Small sample size is a limitation of the study, which limits its generalizability. Only stable patients were taken in the study and various other factors play role in determining medication adherence during different stages of illness; hence the findings need to be interpreted cautiously. Estimating drug level might give an accurate account of medication adherence, which could not be done in this study due to cost factors.A large scale study report about the poor internal consistency of the tool – MARS[29], which can also be a limitation of the study.

CONCLUSION

Non-adherence is a major determinant of treatment

outcome of severe mental disorders which stands as a challenge across the globe. Identification of risk factors of non-adherence, considering them in the management plan and periodic monitoring for medication adherence may be recommended to improve medication adherence. "Forgetting to take medications" is the most common reason of non-adherence in Severe Mental Disorder as found in our study.

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ORIGINAL ARTICLE

Sexual Dysfunction in Treatment Naïve Male Patients with Depressive Disorder : A Cross-sectional Observational Study

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ABSTRACT

Sexual dysfunction is commonly encountered in general population; however the rate is much higher in patients with co morbid depressive disorder. The data of sexual dysfunction with depressive disorder when compared to general population is lacking in Indian context. The aim of this cross sectionalstudy was to assess and compare the sexual dysfunction and its various domains in cases of depressive disorder as compared to age, sex and socioeconomically matched control group from hospital staff. Both cases and controls were selected by systemic random sampling. Montgomery-Asberg Depression Rating Scale (MADRS) was used for assessing severity of depression and Sexual Function Questionnaireas well as Sexual Health Inventory of Men was used for measuring sexual dysfunction. It was found that patient with depressive disorder had increased rate of overall sexual dysfunction as compared to general population and there was positive correlation of various domains of sexual dysfunction like desire, erection and ejaculation with the severity of depression. This study depicted that cases of depression not getting any form of treatment were found to have 2-3 times higher chances of having sexual dysfunction as compared to age and sex matched controls.

Keywords: sexual dysfunction, depressive disorders, control group, treatment naive

INTRODUCTION

Human sexuality covers broad areas of different specialties, affected by multiple biopsychosocial reasons. Masters and Johnson's studies [1,2] in 1950's and 60's paved the way for understanding the physiology of human sexuality. They gave the concept of human sexual response cycle which has four stages- excitement, plateau, orgasm and resolution. According to these four stages, corresponding problems in sexual functioning can occur which are included in Chapter V of ICD 10[2], under category of F52 - Sexual dysfunction, not caused by organic disorder or disease. The broader categories of sexual dysfunction are hypoactive sexual desire disorder, erectile dysfunction, premature or delayed ejaculation, orgasmic dysfunction. Studies show that the frequency of sexual dysfunction is about onethird in general population[4-9] but the sexual functioning is also affected by other conditions like depressive disorders, wherein the frequency of sexual dysfunction is even higher. Depressive disorder which is characterized by depressed mood, anhedonia, decreased energy levels,

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sleep and appetite disturbance, ideas of guilt, lack of concentration can also affect sexual function. Studies on sexual dysfunction [10-14]carried out in western nationsas well as in India, show that in depressive disorder, the frequency of sexual dysfunction is 2-3 times higherthan that in the general population and also carries a positive correlation with the severity of depression. However, the studies in India are mainly done on patients receiving antidepressant treatment and carried out without any control groups. The present study was an attempt to assess relationship between sexual dysfunction and depression in treatment naive male patients.

OBJECTIVES

1. To compare the frequency of sexual dysfunction in male patients diagnosed with depressive disorder and age and gender matched control population
2. To find out the association of sexual dysfunction with severity of depression

METHODOLOGY

It was a cross sectional study carried out at a tertiary care neuropsychiatric hospital in north India. A sample of 30 cases and 30 controls was taken during study period of 6 months.

Sample size was arrived keeping in view the feasibility of study done as part of post graduationdissertation work. Cases were selected from patients with depressive disorder in psychiatry OPD and every 5th patient diagnosed with depressive disorder was selected for the study. Diagnosis of depression was made by a trained psychiatrist. Patients were assessed prior to start of any treatment to ensure that they were treatment naive. Inclusion/ Exclusion criteria were applied to those diagnosed with depressive disorder and for age and gender matched controls. Consent was taken in Hindi or English depending on subject's preference. For selection of controls, list of all housekeeping and nursing staff employees of hospital was obtained and from that list, every 7th person was selected as control. The persons selected as controls from the same hospital belonged to lower or lower middle social economic status and they were matched on age, gender and socioeconomic status. Severity of depression was assessed using Montgomery-Asberg Depression Rating Scale (MADRS) scale[15],Sexual dysfunction was screened by using Sexual Function Questionnaire[16], diagnosis of sexual dysfunction was established and Sexual Health Inventory of Men[17] was used to grade the severity of erectile dysfunction. Institutional ethics committee permission was taken prior to commencement of the study.

Inclusion criteria for cases

1. Diagnoses of depressive episode (mild or moderate) of unipolar depression, recurrent depressive disorder or bipolar depression
2. Age range of 21 to 40 years
3. Males of heterosexual orientation

Inclusion criteria for controls

1. Age, sex and socio-economic status matched with cases
2. Not suffering from depressive disorder

Exclusion criteria for cases & controls

1. Cases/controls suffering from serious mental illness, other medical condition, substance use disorder that could affect sexual functioning.
2. Cases/controlsalready taking medication/substance that can affect sexual functioning in the last 6 months
3. Self reported significant psychosocial or interpersonal issues

Tools used for study

1. Semi-structured pro-forma for socio demographic profile, history taking, general physical examination and mental status examination
2. ICD 10, CDDG for diagnosing depressive disorder and sexual dysfunction[3]
3. MADRS for assessing severity of depression[15]
4. Sexual functioning questionnaire[16]
5. Sexual health Inventory of men[17]

Post data collection SPSS version 22 was used and data was analysed using descriptive statistics. Chi square test was used for inferential analysis and Fisher exact test was used for qualitative data. Student T test for quantitative data and Spearman Rho test was used for correlation analysis of non parametric data.

RESULTS

Flow Diagram showing recruitment of cases for study

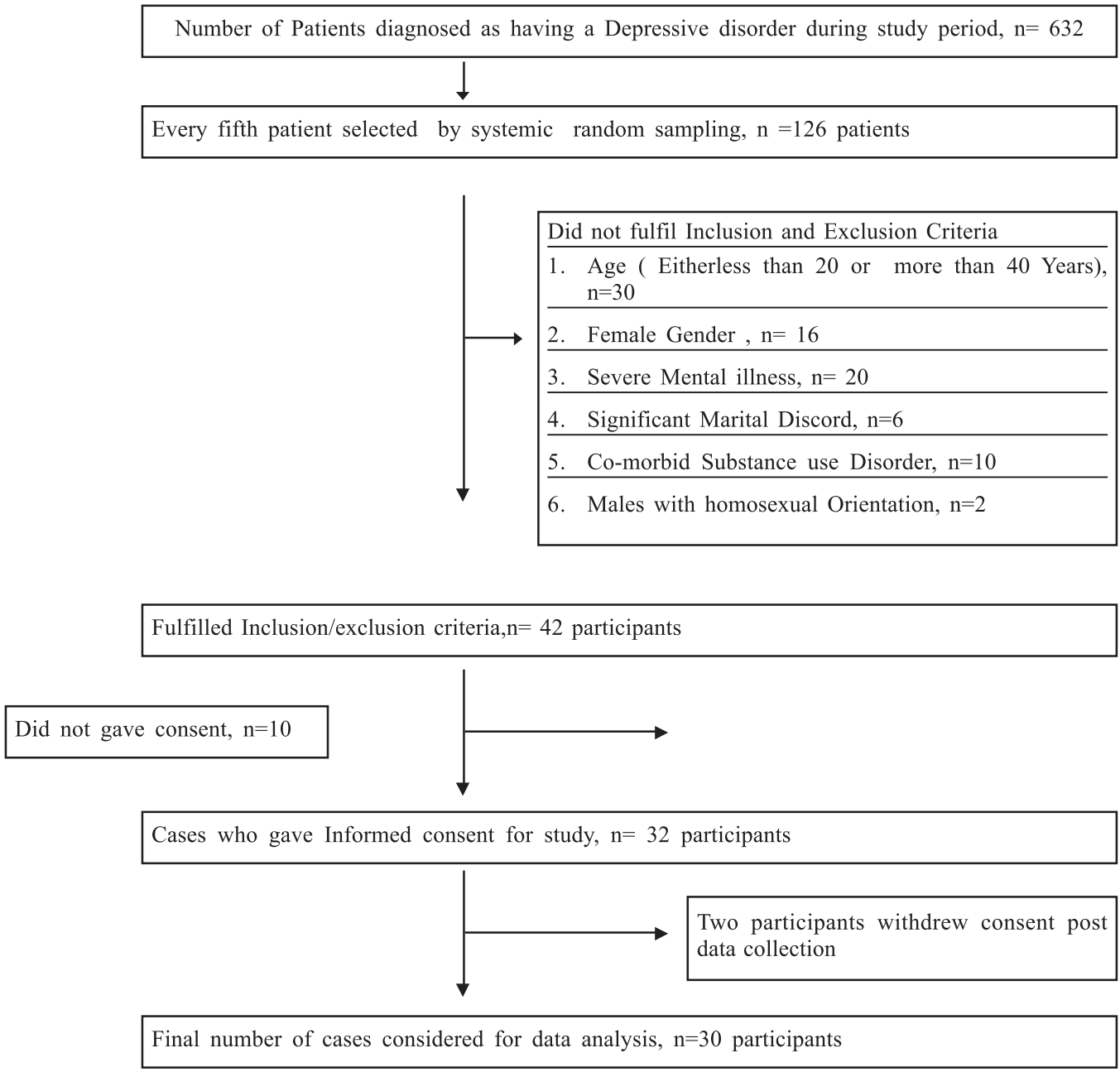

Table 1: Comparison of socio-demographic profile of two groups

		Number of Cases (%)	Number of Controls (%)	p Value
Age	21-30 years	16 (53.3)	15 (50)	1.000
	31-40 years	14 (46.7)	15 (50)	
Domicile	Rural	12 (40)	9 (30)	0.589
	Urban	18 (60)	21(70)	
Education	Up-to 10 years	12 (40)	8 (26.7)	0.384
	11- 15 years	17 (56.7)	19 (63.4)	
	More than 15 years	1 (0.3)	3 (10)	
Occupation	Unskilled/semiskilled/skilled	11 (36.7)	16 (53.3)	0.299
	Clerical/shop owner/farmer/ semi-professional	19 (63.3)	14 (46.7)	
Income	Up-to 18000 Rs/-/month	12 (40)	16 (53.3)	0.437
	More than 18000Rs/-/month	18 (60)	14 (46.7)	

Table 2 – Comparison of various domains of sexual dysfunction between cases and controls

		Cases, n (%)	Controls, n (%)	p Value
Sexual dysfunction	Present	24 (80)	11 (36.7)	**0.001**
	Absent	6 (20)	19 (63.3)	
Reduced sexual desire	Present	21(70)	12 (40)	**0.037**
	Absent	9(30)	18 (60)	
Erectile problems	Present	22 (73.3)	10 (33.3)	**0.040**
	Absent	8 (26.7)	20 (66.7)	
Orgasmic dysfunction	Present	11 (36.7)	8 (26.7)	0.580
	Absent	19 (63.3)	22 (73.3)	
Premature ejaculation	Present	18 (60)	3(10)	**0.000**
	Absent	12 (40)	27 (90)	

Table 3: Comparison of frequency of Sexual Dysfunction in various degrees of Depression

		Severity of Depression		
		Mild (n=16)	Moderate(n=14)	p value
Sexual Dysfunction	Present, n (%)	12 (40)	12 (40)	0.650
	Absent, n (%)	4 (13.3)	2 (6.7)	

Table 4: Association of severity of depression with type of sexual dysfunction

Severity of depression		
	Correlation Coefficient	p value
Sexual dysfunction	0.133	0.481
Reduced desire	0.466	**0.009**
Physical arousal problems	0.327	0.077
Erectile problems	0.564	**0.001**
Orgasmic dysfunction	– 0.296	0.113
Premature ejaculation	0.188	0.319
Severity of erectile dysfunction	0.466	**0.009**

Table 1 shows that both the groups were comparable in various parameters of socio-demographic profile.

Table 2 shows that the rate of sexual dysfunction was not only higher in depressive patients but twice the frequency as compared to controls and were statistically significant in domains of reduced sexual desire, erectile problems and premature ejaculation.

Table 3 shows that overall there was no difference in sexual dysfunction when it was compared between mild and moderate depressive patients.

Table 4 shows correlation between severity of depression with various domains of sexual dysfunction and it depicted that there is a positive correlation with reduced desire, physical arousal problems, erectile problems, premature ejaculation and severity of erectile dysfunction and negative correlation with orgasmic dysfunction, however the correlation was statistically significant only for reduced desire , erectile problems and with severity of erectile dysfunction.

DISCUSSION

The results of this modest study showed that the frequency of Sexual Dysfunction in maleswas higher in depressive patients, as compared to controls which is in accordance with studies done in other parts of India [18] and the world[19]. Among those who reported of having sexual dysfunction while having a depressive disorder, primarily reported of either having low sexual desire problems or erectile dysfunction problems and the problems were associated with severity of depression which may indicate a common etiology for these two disorders.Various population based surveys in India[20] and the world[21] indicate depressive disorder to be a leading cause of psychiatric morbidity and having a co-morbidity further adds to the distress creating a difficulty not only for patient but also for treating clinician in making aintegrated plan of management for such patients.

Various studies[22,23] also show that the pharmacological management of depressive disorder can also have an adverse effect in the form of sexual dysfunction in patients, thereby adding a layer of complexity in management of patients with co-morbid sexual dysfunction and depressive disorder. Though the current study involved hospital based population but since only mild to moderate cases of depressive disorder were considered for part of study, it can be said that the cases represented population at community level.

LIMITATIONS

The current study has limited generalizability in the general population due to a modest sample size. Single interviewer performed all the assessments &analysis and thus the possibility of measurement bias could not be ruled out.

FUTURE DIRECTIONS

For future studies, larger sample size from different age groups and longitudinal studies would be needed to assess the direction of the association between sexual dysfunction and its various subtypes with that of depressive disorder. This study tried to assess the relationship between two conditions in a very homogenous population. Various mediators and moderators that could have a bearing on both depressive disorder and sexual dysfunction also need to be separately assessed in Indian context which will further enhance the understanding of the relationship between them. At the same time, clinicians also need to be sensitized and made aware about the potential that a higher numbers of patients with depressive disorder can have sexual dysfunction as a co-morbidity, which should be part of regular assessment and managed accordingly.

CONCLUSION

Sexual dysfunction is more common among male depressive patients who are treatment naïve thanamong general population in Indian Context, the severity of which directly varies with severity of depressive disorder. However, the conclusion needs to be understood with conjunction of limitations of the study and this may hold a value in comprehensive assessment of sexual dysfunction in settings where patients with depression are managed.

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ORIGINAL ARTICLE

A Comparative Study of Mental Health Impact Among the Patients of COVID -19 During First and Second Waves of Pandemic

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ABSTRACT

Aims & Objectives: To find out the prevalence of mental health impact including depression, stress and anxiety in COVID patients during first and 2nd waves of COVID pandemic.

Methodology: 50 patients in first wave and other 50 patients in second wave COVID-19 positive patients who were admitted in COVID ward enrolled in the study. The first part consisted of basic socio-demographic details of the participants including name, age and sex along with DASS-21 questionnaire for depression, anxiety and stress in accordance with the approved ethical standards. Both parts also comprise questions regarding basic socio demographic details of participants.

Results: The mean age of second wave covid-19 patients was significantly lower ($p<0.05$). No significant variation in sex was found. In the first wave, 66.0% patients were having comorbidity while 22.0% patients of the second wave were suffering from comorbidities. At the second wave of COVID-19, the stress score was significantly higher ($p<0.05$). On the DASS-21 scale, a significantly higher score of Anxiety and depression was found in the second wave of pandemic than the first wave ($p<0.05$).

Conclusion: Young patients of COVID-19 during the second wave of pandemic not only had higher prevalence ofanxiety, depression and stress disorder, but also had statistically higher scores on DASS-21 scale when compared to patients of COVID-19 during the First wave .

Keywords: COVID-19 first wave, COVID-19 second wave, Stress score, Anxiety score, Depression score.

INTRODUCTION

The dramatic outburst of Coronavirus disease (COVID-19) on the global stage has amazed many people and left us feeling vulnerable and helpless.The first case of COVID-19 in India, was reported on 27 January 2020.[1] Presently, India has the most significant number of COVID-19 cases in Asia.[2] As of 12 June 2021, in India 29.3 million cases testified of COVID-19 contagion which was the second-largest figure of definite COVID -19 cases in the world as also has the third-highest number of COVID-19 related deaths at 367,081 deaths.[3,4]During this covid-pandemic Millions of people have lost their livelihood, and many others were

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compelled to alter their personal lives drastically; as for a long stretch of time people were compelled to stay indoors following repeated stretches of lockdowns during which people were restricted from any outside visits which leads to adverse psychological impact, No guidelines were framed and notified to protect people from psychological trauma, even for the most susceptible individuals. Researchers exploring the mental health consequences of COVID-19 support the view that the disease has been a psychological hazard.[5,6,7,8] These studies consistently stated that the levels of anxiety and depressive symptomatology were higher than pre-pandemic standards.

The COVID-19 pandemic has been a challenge for the covid-19 positive patients globally regarding their mental health, and the situation prevailing in India is no different. Unfortunately, there is a scarcity of data available regarding anxiety, mental health, and stress levels being faced by covid-19 positive patients in the country. This study aimed to comparatively assess the levels of anxiety, stress, and depression among first and second wave COVID-19 positive patients.

MATERIAL AND METHODS

This is a comparative observational study conducted on 100 participants comprising 50 patients in the first wave and another 50 in the second wave of covid-19 positive patients. All these patients were admitted in the COVID ward and the COVID ICU in order to ascertain the influence of COVID on their mental health. The study was performed in the department of Psychiatry L.LR.M Medical College, Meerut, and Uttar Pradesh.

Study Design: comparative observational study

Study Location: This was a tertiary care teaching hospital based study carried out in the department of Psychiatry L.LR.M Medical College, Meerut, and Uttar Pradesh.

Study Duration: April 2020 to April 2021.

Sample size: 100 patients.

Sample size calculation: The size of sample was estimated on the basis of a single proportion design. The target population from which samples were randomly drawn was considered 10,000. We assumed a confidence interval of 10% and confidence level of 95%. The sample size actually obtained for this study was 48 patients from each group. We planned to include a total 100 patients (50 from Group I- covid-19 patients of the first wave, and 50 others from Group II- covid-19 patients of second wave, 50 patients for each group) with 4% drop out rate.

Subjects & selection method: The study population was drawn from consecutive moderate to severe covid-19 patients of first and second waves admitted in covid wards and ICU in L.LR.M Medical College, Meerut, Uttar Pradesh, in between April 2020 to April 2021. Patients were divided into two groups (each group comprised of 50 patients) according to doses of wave. During intake, patients scored the DASS-21 as part of the standard intake procedure. After admission the patients were asked to participate in this study and sign a written informed consent. This consent included permission to use data from the DASS-21 at intake, as well as socio-demographic data from their electronic patient record.(which include their Age, gender, marital status, comorbid condition, covid severity level)

Coronavirus 2 (SARS-CoV-2)-infection was identified by real time reverse transcriptase-polymerase chain reaction (RTPCR). Severity of COVID-19 was graded as follows: (1) mild; as mild clinical symptoms, no pneumonia on lung CT; (2) common: as fever, cough and lung CT with pneumonia; (3) severe: as respiratory distress (respiratory rate > 30/min, oxygen saturation (O2Sat) ≤ 93 percent at rest and/or ratio of arterial oxygen partial pressure to fractional inspired oxygen ≤ 300 mmHg (PaO2/FIO2); and (4) critical: afore mentioned criteria of respiratory failure receiving mechanical ventilation, shock, and/or organ failure other than lung and/or intensive care unit (ICU) hospitalization.[9, 10]

Inclusion criteria: Age >18 years of either sex covid-19 patients admitted in ward and ICU during the currency of first and second COVID-19 pandemic waves.

Exclusion criteria: Patients who had not given their consent for study, were pediatric patients, severe COVID-19 cases needed Intubation or ventilator support and

patient who already diagnosed with Major psychiatric illness before covid infection & or cognitive impairment (because they may not fully understand the questionnaire) were excluded from study.

PROCEDURE METHODOLOGY

The DASS-21 scale is a self-reported questionnaire which consist of 21 items, 7 items per subscale include depression, anxiety and stress. and for every item on a scale, patients were asked to score from 0 (did not apply to me at all) to 3 (applied to me very much). Because the DASS-21 is a short form version (and less time consuming) of the DASS original, the long form has 42 items, the sum scores were computed by adding up the scores of the items as per (sub) scale and multiplying them by a factor 2. The scoring system is Likert type and that for each of the subscales may range from 0 to 42. Table no. 1 shows the final score of DASS Categorization, studies have shown that the DASS-21 score have validity in the measurement of degree of depression. Anxiety & stress in patients, it also has high reliability in term of usage in clinical & non clinical settings.[1]

Table No. 1 : Manual forDepression, Anxiety and Stress Scale

	Depression	Anxiety	Stress
Normal	0-9	0-7	0-14
Mild	10-13	8-9	15-18
Moderate	14-20	10-14	19-25
Severe	21-27	15-19	26-33
Extremely Severe	28+	20+	34+

The responses of the study participants were then compared for the first and second waves of covid-19 positive patients. Descriptive analysis was performed by calculating the frequency and percentages of the categorical variables and mean and standard deviation (SD) for continuous variables. The Chi-square test and fisher exact test were used to establish the association between categorical independent variables and the categorical dependent variables. A P-value $p<0.05$ was considered significant for all the tests.

OBSERVATION

This is a comparative observational study conducted on 100 participants including 50 patients in first wave and other 50 patients were from second wave covid-19 positive patients who were admitted in COVID ward. The study was performed in the department of Psychiatry L.LR.M Medical College, Meerut, and Uttar Pradesh.

The mean age of the 50 patients included in first wave was 41.70±13.16 and the mean age of the other 50 patients of second wave was 36.00±10.91which was significantly lower ($p<0.05$). Male, female patients ratio was equal in the first wave but in the second wave' male percentage (54.0%) was higher than the females (46.0%). In the first wave (66.0%) patients were having comorbidities while 22.0% of second wave patients were suffering from comorbidities. [Table No. 2]

Among the first wave patients of COVID-19 the mean stress score was 16.44±13.02 and the score in the second wave of COVID-19 was 23.50±11.76; which was significantly higher ($p<0.05$). Anxiety score was 11.98±9.55in first wave and that in the second wave of COVID-19 was 14.90±8.38 and depression score was 11.56±12.83 in first wave and in the second wave of COVID-19 depression was 15.28±12.09 which is also higher than the first wave of COVID-19 but differences is insignificant ($p>0.05$). [Table No. 3]

As for the association level of stress, anxiety and depression among the first and second COVID-19 waves patients it was observed that the patients with moderate, severe and extremely severe levels of stress and depression were significantly higher among the COVID-19 patients of second wave than the first wave ($p<0.05$). Talking about anxiety level it was found that the number of patients feeling moderate, severe and extremely severe anxiety were more during the second wave group but the difference was statistically insignificant between the patients of the two waves ($p>0.05$). [Table No. 4]

Table No. 2 : Demographic Details in both group patients

		Group		p value
		First wave (n=50)	Second wave (n=50)	
Sex	Male	25 (50.0%)	27 (54.0%)	0.689*
	Female	25 (50.0%)	23 (46.0%)	
Age Group (Years)	< 35	13 (26.0%)	24 (48.0%)	0.063*
	36-50	26 (52.0%)	20 (40.0%)	
	> 50	11 (22.0%)	6 (12.0%)	
	Mean Age (Years)	41.70±13.16	36.00±10.91	0.020#
Comorbidity present (diabetic mellitus, hypertension, chronic kidney disease, severe anemia, asthma etc.)		33 (66.0%)	11 (22.0%)	<0.001*

*Chi-Square test; # Independent Samples t test

Table No. 3 : Psychological score (stress, anxiety and depression) variation in groups

	Group		p value#
	First wave (n=50)	Second wave (n=50)	
Stress score	16.44±13.02	23.50±11.76	0.005
Anxiety score	11.98±9.55	14.90±8.38	0.107
Depression score	11.56±12.83	15.28±12.09	0.139

Independent Samples t test

DISCUSSION

In the situation of the COVID-19 pandemic, this timely study is both relevant and urgent. It is very imperative for those persons working at the front-line with the infected patients and in affected regions to have necessary strategies and the resources to bear various challenges. There is the lack of published studies particularly on mental health implications faced by the COVID-19 patients during the first and 2nd wave of COVID-19 epidemic. There is also the paucity of data around how to prevent psychological distress, and which steps are required to mitigate harm to COVID-19 patient's comfort. The reason for this study is the mental health impact of the first and second wave of COVID -19 pandemic.

Early evidence has shown that the patients with COVID-19 are at the risk of developing the mental health symptoms. Similar psychological reactions were depicted among COVID-19 patients in the previous studies during the 2003 Severe Acute Respiratory Syndrome (SARS) outbreak.[1,2] The increasing no of the confirmed cases, burden, of work and deaths, lack of sufficient personal protective equipment (PPE), lack of the specific treatment, media coverage, susceptibility to infection and to stay in quarantine, in addition to feelings of being insufficiently supported in workplace, can contribute to mental burden of the COVID-19 patients.[3]

This comparative observational study was conducted on 100 participants, including 50 patients from the first wave and 50 patients from the second wave covid-19 positive patients admitted in the COVID ward and COVID ICU to know the influence of COVID on their mental

Table No. 4 : Distribution of studied patients on the psychological disorder in both groups

		Group		p value*
		First wave (n=50)	Second wave (n=50)	
Stress	Normal	22 (44.0%)	10 (20.0%)	<0.001
	Mild	10 (20.0%)	2 (4.0%)	
	Moderate	3 (6.0%)	11 (22.0%)	
	Severe	5 (10.0%)	14 (28.0%)	
	Extreme Severe	10 (20.0%)	13 (26.0%)	
Anxiety	Normal	16 (32.0%)	9 (18.0%)	0.428
	Mild	6 (12.0%)	4 (8.0%)	
	Moderate	8 (16.0%)	9 (18.0%)	
	Severe	8 (16.0%)	10 (20.0%)	
	Extreme Severe	12 (24.0%)	18 (36.0%)	
Depression	Normal	31 (62.0%)	18 (36.0%)	0.030
	Mild	3 (6.0%)	8 (16.0%)	
	Moderate	0 (0.0%)	3 (6.0%)	
	Severe	4 (8.0%)	6 (12.0%)	
	Extreme Severe	12 (24.0%)	15 (30.0%)	

*Chi-Square test

health. During intake, patients scored the DASS-21 as part of the standard intake procedure. After admission the patients were requested to participate in this study and sign a written informed consent. The agreement included permission to use information used in DASS-21-scale, as well as socio-demographic details from their electronic patient record.

In this study, the mean age of first wave patients was 41.70±13.16 years. In the second wave, male patients' (54.0%) percentage was higher than females (46.0%), and mean age of second wave patients was 36.00±10.91 years, which was significantly lower ($p<0.05$) in the second wave. Venugopal VC et al[4] (2020)reported the mean age was 36.52 years old of participants, and half of these individuals were males. In first wave patients, 66.0% were having comorbidity, while 22.0% of second wave patients were suffering from comorbidity due to younger patients in second wave Covid-19.Vahedian-Azimi et al[5] (2020), in their study on comparison of the severity of psychological distress, found that out of 217 medical staff, 111 (51.2%) were male, and 106 (48.8%) were females, which was in accordance with the present study.

COVID second wave and mental health: NIMHANS

helpline sees 40% increase in calls. The devastating second wave of pandemic in India, feelings of fear, guilt, uncertainty and sadness abound. Many people are suffering mental health complications like depression and anxiety. Evidence to this, the NIMHANS 24/7 mental health helpline has documented a 40% spike in the number of calls collected on a daily basis subsequently the second wave penniless out. 80% callers are in the age group of 18-45 years.[6]

In contrast, a study done by Al- Hanawi MK et al.[7] (2020), reported that gender was the significant factor associated with a psychological disorder and females were affected significantly higher ($p<0.05$). This may be because of the higher sample size and geographical changes.

It was found that the stress score, Anxiety score and depression score were significantly higher in the second wave of COVID-19 than the first wave of pandemic ($P<0.05$). A chinese study reported moderate to severe levels of depression, stress, and anxiety (16.5%, 8.1%, and 28.8%, respectively) among the respondents.[8] The data obtained from India show a risk of mental disorders in nearly 42.16% of respondents Venugopal VC et al (2020).[20]Another study done by Grover S et al[9] (2018) in North India reported that 30.1% of participants found to have depression, and 13% of participants found to have a high level of stress. A Meta-analyses done assessing the impact of the COVID-19 pandemic on mental health clearly shows that it has an association with population health i.e an increase in level of social anxiety, severity of symptoms, of depression and risk of developing PTSD. The main influencing factors include female sex, a low level of education, and the coexistence of chronic diseases.[10] A study conducted in 2017 and 2020 in the Czech Republic, showed an increase in mental disorder control from 20.02% to 29.63%, showing the impact of the COVID-19 pandemic and the numerous restrictions associated with it.[11]

In the present study, it was observed that moderate to extreme severe levels of stress (36% Vs.76%), anxiety (56% Vs. 74%) and depression (32% Vs. 48%) between first wave and second wave of COVID-19 pandemic. It indicates that the stress was significantly more in the second wave than the first wave of COVID-19 patients. Numerous studies have been done on mental disorders during Covid-19 pandemic using different-2 scale. No study was done on comparison of mental health impact in COVID patientsduring the first and 2nd wave of COVID pandemic with DASS-21 scale. Recently, an 8-wave longitudinal study to investigate the changes in the psychological distress among Croatian students using DASS-21 scale found that the levels of depression, anxiety and stress were normal in more than 60% of cases during the pandemic. Moderate- to severe levels of depression, anxiety and stress were found in 19.48%, 28.8% and 22.08% of the participants, respectively.[12]

The results of the other studies in which the same psychological instrument (DASS-21) was used, we can observe variations in the range of distress in different countries: among the participants in Spain, in the study done by Ozamiz-Etxebarria et al[13] (2020), more than a quarter of the general population sample had symptoms of depression (27.5%), anxiety (26.9%) and stress (26.5 %), and depending on the circumstances, the authors interpret these results as optimistic; in the general adult population in Spain Rodriguez-Rey R et al[14] (2020), 41% of participants reported depressive symptoms, 25% showed mild to severe anxiety, and 41% felt stressed; Verma S and Mishra A[15] (2020) found that about a quarter of their sample in the general population in India had high levels of distress: depression (25%), anxiety (28%) and stress (11%). Mazza C et al[16](2020) reported prevalence of depression (32.4%), anxiety symptoms (18.7%) and stress score (27.2%) in the general population in Italy. Because of the very significant differences in the methods used by countries to cope with the pandemic, it is crucial to identify a range of emotional responses specific to environmental stressors in different contexts to organize appropriate interventions for the specific needs of the people affected.

It was observed that in the second wave of COVID-19 the stress level and depression level were significantly higher ($p<0.05$) while anxiety level was insignificantly higher ($p>0.05$) than the first wave of COVID-19. Comparing the results of our study between two waves of pandemic, it can be supposed that COVID-19 pandemic has had a significant impact on the mental condition of our population due to more exposure of the most traumatic aspects of the pandemic (such as their infection, the infection of their family/friends or the death of relatives due to COVID -19), which is a risk factor for increasing stress, depression and anxiety in second wave.

The limitation of the study was owing to the small sample; there is a further need to conduct this study on a larger sample size that is representative of the entire population. We do not have a baseline (pre-pandemic) measure, so our assumptions are limited, and the subscales of mental health evaluation and their outcome were not studied. Our study design was a comparative observational study that does not allow us to discern the fluctuations in depression, anxiety, and stress levels of the COVID-19 patients; hence, prospective longitudinal studies are required for this matter.

The study's strength was that the findings offer valuable insight into the psychological impact of COVID-19 on our COVID-19 patients.

CONCLUSION

Though only a few studies exist in this field, it is evident that the COVID-19 epidemic has led to a vigorous and multi-faceted response from various researchers across the world. Adverse psychological stress, anxiety and depression was not only more common among the younger people but also stress, anxiety and depression scores were found to be higher in people in the second wave as compared to the first.

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ORIGINAL ARTICLE

Isolation and Illness Anxiety Disorder During the COVID 19 Pandemic : A Descriptive Study

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ABSTRACT

Background: Cognitive behavioral models of Illness Anxiety Disorder assume that normal bodily sensations are interpreted as signs of a serious illness. This increase in bodily sensation and its interpretation can be significantly influenced by several triggering factors. As these triggering factors, especially during the COVID 19 pandemic have not been studied yet, we conducted an online survey among the Indian population (N=532, 57.3% female, M_{age}= 26.97 years, SD = 12.72).

Methodology: The survey consisted of two psychometric scales - the SHAI (to evaluate health anxiety levels) and LSNS (to evaluate Social Networking). The results were analysed using Spearman's correlation coefficient and the SPSS tool.

Results: We observed that health anxiety levels showed positive correlation with time spent reading COVID related news (r = 0.2063) and negative correlations with social networking score (r = -0.2524).

Conclusion - These findings suggest that increased media consumption and social isolation serve as a risk factor to developing COVID associated Illness Anxiety Disorder.

Keywords: COVID 19, Illness Anxiety Disorder, Isolation, Media Consumption

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INTRODUCTION

In early 2020, a novel coronavirus disease (SAR-COV 2) was discovered, which spread worldwide, and was finally declared a global world threat, in the month of March 2020.[1,2]First reported in the Wuhan Province of China, this emerging respiratory disease caused large-scale panic and has endangered the very defining aspect of human behaviour - socialisation.

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Studies done during past epidemics and pandemics have shown that mental illness increases proportionately with an increase in the spread of the disease.[3-6] Recently some studies have begun to investigate anxiety, stress and other emotional symptoms experienced during the COVID 19 Pandemic.[7-10] Research done during the COVID 19 Pandemic in Germany found that health anxiety, cyberchondria and especiallythe combination of the two was associated with increased virus anxiety.[11]

Illness Anxiety Disorder (IAD) is a psychiatric disorder defined by excessive worry of having or developing a serious undiagnosed medical condition.[12] Studies have shown that people with Illness Anxiety Disorder experience persistent anxiety or fear of developing or

having a serious medical illness and this has adverse effects on their daily life.[13] Cognitive behavioural models of this illness anxiety assume that normal bodily sensation (such as functions of digestion and sweating) or benign symptoms are interpreted as threatening and as signs of a severe illness.[14,15] The increase in bodily sensation and their perception and interpretation can be significantly influenced by several factors such as internet usage, media consumption and knowledge about the virus.[15-17] However, results of previous studies are inconsistent about media consumption and its effects on illness anxiety during a virus pandemic.

Social support is the care or help from others that an individual can feel, notice or accept.[18,19] Good social support can safeguard one against stress and depression.[20,21] Studies have shown that long term social isolation is a major risk factor for depressive and anxiety disorders.[22] During the COVID 19 lockdown, for the first time in people's lives, they experienced an unwanted and prolonged separation, from a vital, and deeply human aspect of their existence. There is a paucity of knowledge about social isolation and its role during the COVID 19 pandemic. Moreover, there has been no research conducted on social isolation and its effect on illness anxiety disorder.

The objective of this study was to survey COVID 19 associated illness anxiety disorder in India and investigate links between IAD, social isolation, and media consumption. The primary objective was to understand the prevalence of COVID 19 associated illness anxiety disorder in India. The secondary objective was to understand the correlation between IAD, social isolation and media consumption.

It was hypothesised that social isolation aggravates Health Anxiety (i.e. one is more likely to have IA when more socially isolated). It was also hypothesised that increased media consumption is strongly associated with high IA scores.

MATERIAL AND METHODS

The study was conducted as an online survey on the google forms platform. People were recruited via social media - Facebook, Instagram, Linkedin, Whatsapp and Twitter. The inclusion criteria were age more than 18, giving informed consent, and fluency in written English.The study received approval from The JNMC, Belagavi Institutional Ethics Committee.

The first case of SARS COV 2 in India became known at the end of January 2020.[23] As on 19th July, there were 370,000 active cases with 26,000 deaths in India.[24] The survey was conducted against a backdrop of India hitting the one million mark (wrt total number of infections), while the lockdown restrictions were slowly being relaxed.

Responses of 532 individuals were recorded between 13th July 2020 and 26th July 2020. The study received approval from The JNMC, Belagavi Institutional Ethics Committee.

The survey contained semi structured and self-reported questionnaires. It included informed consent, questions regarding socio-demographics, questions about self-practice measures in response to COVID-19, questions about previous history of physical and mental illness, and psychometric scale (consisting of SHAI, LSNS).

Psychometric Scales

1. Short Health Anxiety Inventory (SHAI) - SHAI is an 18 item, self-report instrument developed by Salkovskis*et al*.[25] It is based on the cognitive model of health anxiety and hypochondriasis.[14] Each of the 18 questions has 4 statements, where the individuals have to choose the statement which best reflects their feelings over the past 6 months. The statements are scored on a 4 point Likert scale between 0 and 3.

   The scale has 2 sections:

   A. Health anxiety and its cognitive, affective and behavioural aspects

   B. Negative consequences if an illness occurred in the past.

   A cut-off score of 18 was used to diagnose an individual as having IAD.

2. Lubben Social Network Scale (LSNS-6) - The LSNS-6 is a 6 item self report instrument developed by Lubben *et al.*[26] It is used to assess perceived

Table 1. Sociodemographic characteristics of study sample

Variable (n=532)		IAD Present (n=131)	IAD Absent (n=401)	Prevalence (present/ n*100)	p VALUE
Age	<25 (n=381) ≤ 25 (n=151)	109 22	272 129	28.6 14.56	0.0007
Gender	Male (n=227) Female (n=305)	43 88	184 217	18.94 28.85	0.0087
Education	10th Pass (n=4) 12th Pass (n=265) Graduate (n=157) Post Graduate (n=97) Not Applicable (n=9)	1 75 36 17 2	3 190 121 80 7	25 28.3 22.92 17.52 22.22	0.3046
Family Income (annual)	<1 Lakh (n=53) 1 - 2.5 Lakh (n=58) 2.5 - 10 Lakh (n=179) >10 Lakh (n=242)	14 23 42 52	39 35 137 190	26.41 39.65 23.46 21.48	0.0357
Locality	Urban (n=481) Rural (n=51)	116 15	365 36	24.11 29.41	0.4039

Table 2. Risk factors associated with IAD

Risk factors		IAD Presen (n=131)	IAD Absent (n=401)	Prevalence (present/ n *100)	p VALUE
H/O Physical Illness	Yes (n=68) No (n=464)	20 111	48 353	29.41 23.92	0.3265
H/O Mental Illness	Yes (n=58) No (n=474)	32 99	26 375	55.17 20.88	<0.0001
Family H/O Mental Illness	Yes (n=48) No (n=484)	23 108	25 376	47.91 22.31	0.0001

social support received from family and friends. This 6 item questionnaire is scored from 0-5 with a cutoff score of <12 (less than 12) to be considered as socially isolated.

RESULTS

Responses of 532 individuals were recorded between 13th July 2020 and 26th July 2020. 57.3% respondents were female (305) and 42.7% were male (227). The mean age of the participants was 26.97 years with a standard deviation of 12.72, ranging between 15 to 81 years. 71.62% were between the age of 15 to 24 (381 participants), 7.52% in 25 to 34 age group (40 participants), 6.39% between 35 to 44 (34 participants), 7.71% in 45 to 54 (41 participants) and 6.77% above the age of 55 (36 participants). When asked about 'state of current residence' 53.4% chose Karnataka,11.1% Delhi-NCR and 7.1% Maharashtra.

With regard to the SARS COV 2 infection, when asked "What is the closest proximity to someone who contracted COVID 19", 5.3% chose colleague, 7.3% chose friend, 6.6% chose immediate family member, 19.9% chose neighbour and 61.8%reported not being in proximity to anyone currently infected.

Prevalence

To calculate the prevalence of illness anxiety disorder among our study population we used a cutoff score of 18 on the SHAI scale. 131 out of 532 people were screened positive giving a prevalence of 24.62 percent.

The results in the inference column can be interpreted as follows:-

(i) NS - Not Significant ($p > 0.05$)

(ii) S - Significant (p value between 0.05 and 0.01)

(iii) VS - Very Significant (p value between 0.01 and 0.001)

(iv) HS - Highly Significant ($p < 0.001$)

Table 1 shows the sociodemographic factors related to illness anxiety disorder. The variable is comparable in both groups - patients who screened positive and those who screened negative for IAD. The difference, statistically, was highly significant for age, very significant for gender and significant for family income. IAD was seen to be more common at a younger age (28.6% vs. 14.56%), females (28.85% vs. 18.94%) and a lower middle income group.

Table 2 shows the risk factors that are most commonly seen with IAD. History of mental illness (yes 55.17% vs. no 20.88%) and family history of psychiatric illness (yes 47.91% vs. no 22.31%) were more commonly seen in patients who were screened positive for IAD and the results were, statistically, highly significant.

Table 3 shows the relationship between COVID 19 related responses and prevalence of IAD. No statistical significance was found.

Table 4 shows the hypothesized risk factors seen with IAD. It was observed that patients who were socially isolated showed a higher prevalence of IAD than those who weren't (36.14% vs 19.39%) and the results were, statistically, highly significant.

Correlational analysis

Spearman's correlation coefficient was calculated to establish a relationship between the hypothesized risk factors and IAD. A positive correlation was established between average time spent reading COVID 19 related news and IAD ($r = 0.2063$, $p < 0.0001$ HS) i.e. more time spent reading COVID related news was associated with higher scores of IAD.

A negative correlation was established between social network score and IAD ($r = -0.2524$, $p < 0.0001$ HS) i.e. lower scores on the social network scale (socially isolated) are associated with higher scores of IAD.

DISCUSSION

Prevalence

The results of the study should be interpreted against the backdrop of the situation in India and subsequently the world. At the time the study was conducted, the total number of cases in India had hit the one million mark, while the worldwide total number of cases was

Table 3. COVID 19 related responses

Risk factors		IAD Present (n=131)	IAD Absent (n=401)	Prevalence (present/ n *100)	p VALUE
Proximity to COVID positive patient	Colleague (n=27) Friend (n=38) Family (n=34) Neighbor (n=105) Not Applicable (Nobody) (n=328)	5 11 15 28 72	22 27 19 77 256	18.51 28.94 44.11 26.66 21.95	0.0522
Weekly contact with people outside (in lockdown)	1 time (n=121) 2 – 3 times (n=148) 4 – 6 times (n=60) > 6 times (n=106) 0 (None) (n=97)	34 34 15 22 26	87 114 45 84 71	28.09 22.97 25 20.75 26.8	0.715

Table 4. Hypothesized risk factors for IAD

Hypothesis		Present (n=131)	Absent (n=401)	Prevalence (present/ n *100)	p VALUE
Avg time (daily) spent on internet	<30 mins (n=6) 30 mins - 1.5 hr (n=59) 1.5 - 2.5 hr (n=93) 2.5 - 4 hr (n=134) 4 - 6 hr (n=135) >6 hr (n=105)	1 9 20 38 29 34	5 50 73 96 106 71	16.66 15.25 21.5 28.35 21.48 32.38	0.1256
Avg time (daily) spent on COVID related news	>30 mins (n=282) 30 - 59 mins (n=169) 60 - 89 mins (n=47) ≥ 90 mins (n=24)	59 52 13 7	223 117 34 17	20.92 30.76 22.82 9.16	0.1171
Social Isolation	Isolated (n=166) Not Isolated (n=366)	60 71	106 295	36.14 19.39	<0.0001

at 28.9 million. The lockdown regulations were finally being lifted across the world, and the 'unlock' process had been initiated in India. A study conducted in the early weeks of June sampling the general public of India, concluded that the population exhibited good knowledge, attitude and practice towards the COVID 19 pandemic, which was, in itself, a significant milestone crossed for a third world country like India.[27]

Our study reported a prevalence of 24.62% for IAD. Various studies done to assess the prevalence of health anxiety among a general population using diagnostic

interviews have reported a prevalence between 5.7% to 10.6%.[28-32]A study by Tyrer*et al.*, which used SHAI as a diagnostic tool on medical inpatients, reported a prevalence rate of 19.9%.[33] However there has been no study conducted on IAD and its epidemiology during a pandemic. High prevalence rates of IAD in our study can possibly be attributed to the media presence of the COVID 19 pandemic.

Regarding the socio demographic variables, our study saw that IAD was more common at a younger age, in females and in a lower-middle income group. Regarding health anxiety, Noyes *et al.* and Rief*et al.* reported a higher prevalence seen in an older age group.[28,31] This difference might be due to the higher knowledge levels of the COVID 19 pandemic seen among the younger age group. The difference in the gender prevalence (high in females) reflects the already established gender gap for IAD.[34]Lastly, previous studies have been inconsistent regarding the role of socio-economic status for IAD.[28,32] The high prevalence of IAD seen among the middle class can possibly be attributed to the worldwide economic recession and a steep increase in healthcare costs during the COVID 19 pandemic.

There are various risk factors which can contribute to developing IAD. We compared three such factors - H/O physical illness, H/O psychiatric illness and family H/O of psychiatric illness. It was seen that IAD was more common in participants who had a history of psychiatric illness. This was consistent with studies by Barsky *et al.* and Scarella *et al.* who found that patients with hypochondriasis had at least one other psychiatric comorbidity.[35,36]In our study, family H/O psychiatric illness was associated with higher prevalence rates of IAD. Similar results were found by Taylor *et al.*[37]

Regarding the hypothesized risk factors, it was seen that IAD was more common in participants who were found to be socially isolated. This could possibly be due to the high morbidity and mortality of the COVID 19 pandemic which has induced a fear of a lack of support system.

IAD Levels

Concerning the hypothesized risk factors and its effect on IAD, it was seen that both time spent reading COVID related news and social isolation had a significant effect on health anxiety levels. Participants who spent more time (e" 90mins) reading COVID related news reported higher levels of health anxiety, and positive correlations were found between the two. This positive correlation is consistent with the cognitive behavioural models of health anxiety and previous findings, and further confirms the wide held assumption that excessive media usage during the pandemic is associated with increased anxiety.[38,39] We also saw that socially isolated participants reported higher health anxiety scores, and negative correlations were found between the two traits - Social networking and health anxiety. This could possibly be due to the fear of a lack of support system among the socially isolated participants.

Implications

Implications of the study may be to reduce the potential strain on the healthcare system by bringing to public awareness the existence of Illness Anxiety Disorder and to reduce the risk factors for IAD (increased media consumption, social isolation). With respect to media consumption, it can be reduced by educating the population regarding its harmful effects and recommending reputable sources for information. Social isolation can be reduced by educating the public about its harmful effects and recommending virtual meetings among friends and family. In this age of digitization, interventions to reduce IAD in the form of online tools could be seen as a promising way to control this psychiatric pandemic.

Limitations

Our study had some limitations, and these are mentioned below.

1. Compared to face-to-face interviews, self-reporting has several biases.

2. The sampling done was a convenience mode of sampling and also, since this was an online-based survey, this study is not representative of those who had limited access to the internet.

3. There were some discrepancies in the sampling. The age group of people who responded was skewed towards the younger age groups, and more females had responded to the survey.

4. The psychometric scale (SHAI) employed by our study is used only for screening and cannot be used to make a diagnosis for IAD.
5. The sample size of our study was average and additional studies employing larger samples could help verify the results.

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ORIGINAL ARTICLE

Brief Family Intervention for Caregivers of Patients with Schizophrenia

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ABSTRACT

Background : Psychoeducational treatments, that have been developed and supported by over 50 years of research that address the needs of family members have consistently shown that clients'outcomes improve when the needs of family members are met. Inspite of its clinical relevance and established effectiveness, family psychoeducation is underutilized in clinicalpractice.

Aim : To study the effectiveness of brief family psychoeducation module for family members/ caregivers of hospitalized patients with schizophrenia.

Method : Experimental research was conducted on 684 family caregivers of hospitalized patientswith schizophrenia. With simple random sampling technique, 128 participants were recruitedand further randomly allotted in two groups (intervention and treatment as usual). Pre and post assessment were done to assess the level of psychological distress (depression anxiety and stress) and family burden.

Result: High level of psychological distress in the form of depression anxiety and stress and also high level of family burden was reported by the caregivers. Brief family intervention significantly reduces the Psychological distress and family burden by increasing the knowledge and understanding about illness and treatment.

Conclusion: Treatment as usual is making significant improvement but implementation of brief family intervention program can multiply the positive effects.

Keywords: Family Intervention, Family Burden, Hospitalization, Psychological Distress.

INTRODUCTION

Family Psychoeducation for schizophrenia refers broadly to several different models of treatment in which the family members of a person with schizophrenia participate in and are the focus of the intervention. This is not based on the assumption that family members cause schizophrenia but rather on recognition that families can have a significant impact on their relative's recovery and functioning.[1] The patient-centered goals of family psychoeducation include reduced relapse, fewer hospitalizations, and improved outcomes for the person with

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schizophrenia. Family centered goals are to reduce the distress of dealing with a family member's mental illness, improve patient-family relations and decrease the burden of mental illness on family members. Family psychoeducation integrates learning about schizophrenia, assist with crisis intervention, emotional support, problem solving and communication skills training. Family psychoeducation interventions typically long for several months, can be conducted with individual families or in multi-family groups, and focus on the family's strengths and resiliency. Early psychoeducation to the family members of people with schizophrenia increases the knowledge and coping skill for patient care.[2]Family psychoeducation significantly reduces the risk for relapse in individuals with schizophrenia. Research demonstrating the effectiveness of the family psychoeducation for this population dates back to the late 1970s and has been replicated in several studies.[2-4] Fundamentals of efficient family interventions consist of illness education, crisis intervention, emotional support, and training in how to cope with illness symptoms and related problems.[4]

Caregivers presuppose a key role in society, with considerable inference in financial, social and human requisites.[5] Caregiver turns into susceptible to psycho social distress and may experience a collapse due to worry or overwork and can develop symptoms of stress, anxiety, depression and reduced self-esteem, amongst others.[6,7] These factors can lead to emotional, social, physical, psychological and financial troubles.[8] Working with patients and their families is a process that intend to provide the informal caregiver with the support and necessary guidelines to motivate the patient and caregiver and achieve their active participation in the therapeutic process with expansion to the patient's health condition and reduction of family's depression anxiety and stress.[9] Effectiveness and efficacy of family intervention for people with schizophrenia and their families,[10] including further confirmatory evidence.[11,12] Much of this work has tended to combine psycho educational groups for relatives and carers with single family therapy.[13-16] A major aim of psycho educational group work is to reduce the key relatives' levels of expressed emotion, above all the critical comments and over-involvement,[17]in line with the well-documented research findings of significantly reduced relapse rates if expressed emotion levels are lowered.[18]

Given the robust evidence, several treatment guidelines for individuals with schizophrenia state that individuals with schizophrenia who have ongoing contact with their families, including biological relatives and non-biological significant others (as defined by the patient), would be offered a family intervention lasting at least 6 months. It is recognized that families can have a hard time attending for 6 months, and there has been research on shorter interventions including those that last only 4 sessions. Briefer interventions include education, training, problem-solving, and support. Benefits include symptoms reduction, improved treatment adherence, and improved functioning. Family psychoeducation can also positively impact the family by reducing family burden, increasing knowledge, improved coping, and improved family functioning. Current study was plan to check the applicability of a brief family psychoeducation module in the hospital setup.

AIM

The present study was planned to assess the effectiveness of brief family psycho education in normalizing family burden, and reducing Depression, Anxiety and Stress among the family caregivers of patients with schizophrenia.

MATERIAL AND METHODS

Study was conducted in tertiary Mental Health Institute of North India. It was an experimental prospective, randomized trial with 2 parallel groups, intervention and treatment as usual with pre and post assessment. Sampling was done with the help of simple random sampling technique. Dyed of patient diagnosed with schizophrenia (as per ICD- 10 criteria[19]) and their caregivers approached to participate in the study. 684 patients were admitted from November 2017 to August 2018. Every fourth patient matching the study criteria were included for random allocation of the research. Total 171 patients along with caregivers were considered for primary screening 26 caregivers of the patients were secondary relatives (not living with patient), 5 caregivers were miners and 12 were refused for written consent to join Psychoeducational sessions (43) were excluded from the study. Final sample for the study was 128 whichwere further divided in two groups with random allocation by the computer generated lottery method. Group one was intervention group and group two was treatment as usual.

Inclusion Criteria

- Family caregiver living with patient for at least last 6 months
- Any Gender
- Aged 18 years or more
- Caregiver is able to read write and Understand Hindi

Exclusion Criteria

- Another family member with mental illness
- Severe Physical/Mental illness in the caregiver
- Caregivers who are not staying regularly (for the Hospital Care)

Tools for the study:

Depression Anxiety and Stress scale Hindi : A set of three self-report scales designed to measure the negative emotional states of depression, anxiety and stress among the adult population. It was originally developed by Lovibond and Lovibond[20] and translated and adopted in several languages including Hindi by Singh et al.,.[21] Psychometric property of Hindi adaptation was valid and coefficient alpha was rated .83 and test-retest validity was also found good.

Burden Assessment Schedule : It was a 20-Item questionnaire developed by Sell *et al.*, [22]to measures subjective caregiver burden.This scale measure the degree of burden in 5 areas they are impact on well being, Marital relationship, Appreciation for caring, impact on relations with others and Perceived severity of the disease. Inter-rater reliability for the scale was good (Kappa .80) the test-retest reliability, computed for a period of 3 months, is 0.91, and the alpha co-efficient is .92. The schedule uses a 3 point scale, marked 1-3. The responses were 1 for not at all, 2 for some extent and 3 for very much. Thus the maximum score in each area of burden is 12 with higher scores indicating high degree of burden.

Procedure : All the admitted patients with schizophrenia and their caregivers were approached for the study at the time of admission counseling. Caregivers who matched study criteria were included in the intervention. Participants received 6 consecutive sessions in 5 day interval.

Self structured socio-demographic datasheet that contain the basic information about patient and his/ her family caregiver was used for collecting the information. Depression Anxiety Stress scale and Burden Assessment Schedule were administered to the participants after the written inform consent. For the group one DASS Hindi and Family Burden scale were applied after the family psycho education completion and for group two both the scale were re-administered after 18-25 days (at the time of Pre discharge planning).

INTERVENTION

The intervention used in current study was the brief psychoeducation regarding schizophrenia for both the patients and caregivers by the Psychiatric Social Worker. Brief family Psychoeducation module wasdeveloped for Indian culture. The terms used in the sessionare similar to words and phrases often used by caregivers for expressing the psychotic symptoms of the patient. The terms reflect Haryanvi cultural ideas about psychotic illness, including black magic, spirit intrusion, or the myths regarding visiting to mental health establishment as well as religious ideas associated with understanding illness and seeking care in society. The interventions were conducted in 6 sessions, twice per week. The Participants were the caregivers matching the study criteria. The Psycho education was conducted individually for each caregiver, and one group interaction was planned in every fortnight for the caregivers although the patient was also invited to participate in group session. Dyadic method was used for the sessions and lasted approx 55 minutes. The sessions focused on (1) the definition and aetiology of Schizophrenia; (2) signs and symptoms of the Schizophrenia; (3) treatment and care for the disorder (services available for the patient care); (4) family expectation and expected role in patient care; (5) Importance of support system;and (6) Myth clarification with group discussion, and early signs and symptoms of exacerbation or relapse.

Brief family psychoeducation were focused on providing important medical information, not on undeceiveabout caregivers traditional cultural and religious ideas about mental illness and treatment. The module was designed using lay terminologies easily understandable in the culturalframework.

The second group was treatment as usual that receive

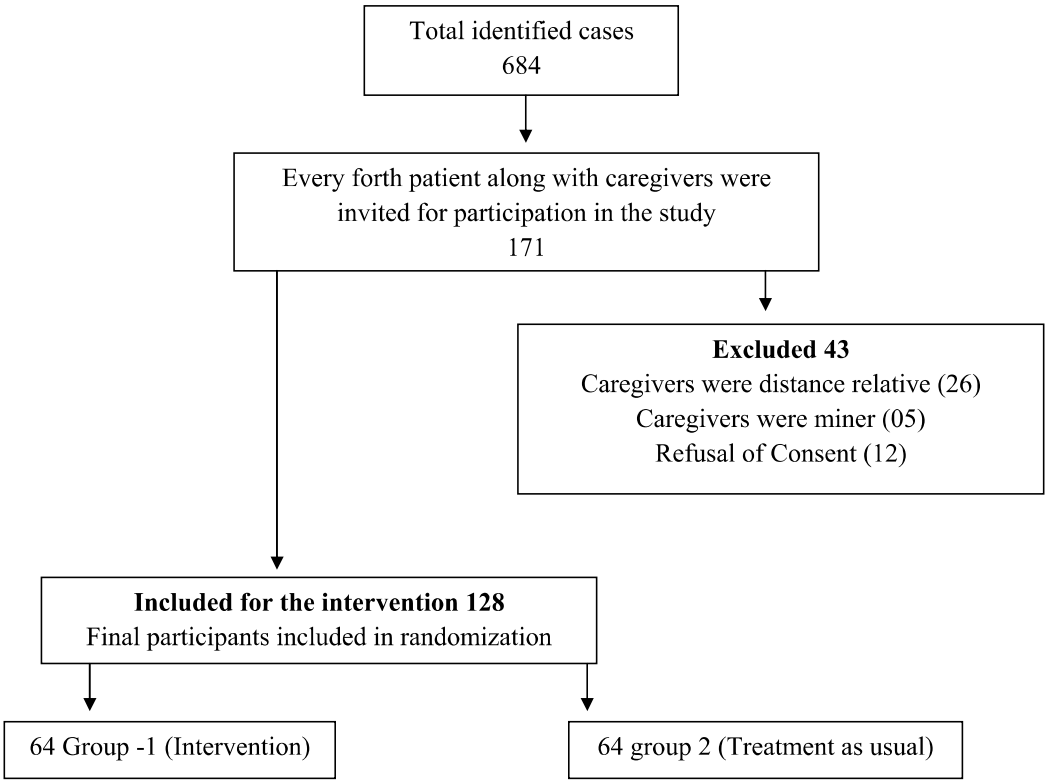

Figure: 1

regular monitoring of the patient Psychiatric Social Work interventions for issues which were reported during the treatment although participants from control group were also received the two brief sessions after post assessmentthat included (1) Importance of support system and (2) Myth clarification with group discussion, and early signs and symptoms of exacerbation or relapse.

RESULTS

Table number one shows the socio-demographic details of the participants. Data was normally distributed and sub-divisions for group one and two were made with the help of computer generated lottery numbers. Result reveals that patients with higher education are very less similarly the number of illiterates was also only seven percent. Sixty six percent caregivers are having good academic background they have completed at least their high school education. Only 42.96 percent patients and 55.46 percent caregivers were having a salaried job in any govt. or private sector. 38 percent patients are married and 28 percent caregivers are spouses with tiny rise biggest (29.68%) group of caregivers was sibling. Maximum (61%) participants are living in Joint family following (87.5) Hinduism and most (39.84 %) of them are residing in rural India.

Table two shows comparison of before and after psycho-education findings between the overall participants and findings reveals mean score of depression of the caregivers was significantly reduces from 22.23 to 12.08, for the anxiety it reduces around 8.74 from the pre score 20.5 similarly score of the stress were also improved from 36.11 to 15.45. Wilkinson Sign rank test score were –9.82 for the all three sub domains of this table that is statistically significant at 0.001 level.

Table three explains the changes in the family burden from pre assessment to post assessment. Wilkinson sign rank test used for the analysis finding indicate huge

Table 1: Socio Demographic Profile of Patient and Care givers

Variable		Patient N= 128 (%)	Care givers N= 128 (%)
Age	Mean (SD)	39.69 (5.98)	38.10 (12.76)
Education	Graduate or Higher	03 (2.34)	19 (14.84)
	12th	13 (10.15)	35 (27.34)
	10th	39 (30.46)	41 (32.03)
	5th	62 (48.43)	33 (25.78)
	Illiterate	09 (7.03)	(0)
Marital Status	Unmarried	48 (37.5)	27 (21.09)
	Married	49 (38.28)	79 (61.71)
	Separated/Divorced	26 (20.31)	14 (10.93)
	Widow/widower	05 (3.90)	08 (6.25)
Occupation	Govt. Employee	17 (13.28)	38 (29.68)
	Private Employee	38 (29.68)	33 (25.78)
	Self Employed/HW/Farmer	39 (30.46)	41 (32.3)
	Currently Unemployed	22 (17.18)	
	Unemployed	06 (4.68)	
	Students	06 (4.68)	16 (12.5)
Relationship with Patient	Parents		19 (14.84)
	Spouse		37 (28.90)
	Siblings		38 (29.68)
	Son/Daughter (In-laws)		24 (18.75)
	Grand Children		10 (7.81)
Family Type	Joint	79 (61.71)	
	Nuclear	38 (29.68)	
	Extended	11 (8.59)	
Religion	Hindu	112 (87.5)	
	Muslim	11 (8.59)	
	Sikh	04 (3.12)	
Domicile	Rural	51 (39.84)	
	Semi Urban	44 (34.37)	
	Urban	33 (25.78)	

reduction in the level of burden in the five sub domains of family burden. This change is having significant ($p>0.001$) positive improvement across the groups.

Table 4 shows the improvement in depression anxiety and stress in the post assessment. Improvement was seen across the groups from pre assessment to post assessment but the difference between intervention and treatment group is very nominal at pre assessment but its significantly lower in intervention group. Depression score was approximately 22 for both the groups but in the post assessment it reduces up 14.51 for treatment as usual group and 9.64 intervention group. Anxiety scores were also approximately 20 for both the groups without

Table 2: Depression Anxiety Stress among caregivers

Variable		Mean	SD	Z
Depression	Pre	22.23	3.52	-9.825*
	Post	12.08	3.55	
Anxiety	Pre	20.50	4.19	-9.829*
	Post	8.74	3.98	
Stress	Pre	36.11	4.78	-9.821*
	Post	15.45	6.34	

Table 3: Family burden among caregivers

Variable		Mean	SD	Z
Impact on Wellbeing	Pre	9.99	1.10	9.514*
	Post	5.87	1.85	
Marital Relationship (n=37)	Pre	10.18	1.12	5.351*
	Post	4.67	.88	
Appreciation for caring	Pre	9.81	.93	9.598*
	Post	5.95	1.87	
Impact on relation with others	Pre	9.96	1.11	9.677*
	Post	5.62	1.77	
Perceived severity of illness	Pre	9.63	1.29	9.287*
	Post	5.85	1.92	
Family Burden	Pre	42.085	5.46	9.740*
	Post	24.546	7.38	

any difference but in the post assessment score for anxiety were 11.89 and 5.56 for treatment as usual and intervention group respectively which indicate significant improvement in intervention group. Similarly stress scores were approximately 35 at pre assessment level and reduced 19.98 in treatment as usual group and 10.94 which falls under mild category whereas score for intervention group are 10.92 that stands for normal range.

Table five shows comparative analysis of pre and post scores of family burden sub-domains. All the five sub-domains scores reduced significantly that explain reduction in the family burden for both the groups. Result reveals that scores in the post assessment are much less in the intervention group in comparison to treatment as usual group that indicate more improvement in the intervention group.

Discussion

National mental health survey[23] reported prevalence of

Table 4 : Comparison of Depression Anxiety and stress among caregivers Variable

Variable			Mean	SD	t (df=126)
Depression	Intervention Group	Pre	22.14	3.65	22.870*
		Post	9.64	2.40	
	Treatment as usual group	Pre	22.31	3.41	14.234*
		Post	14.51	2.74	
Anxiety	Intervention Group	Pre	20.62	4.13	25.307*
		Post	05.56	2.28	
	Treatment as usual group	Pre	20.37	4.28	13.388*
		Post	11.89	2.81	
Stress	Intervention Group	Pre	36.89	4.50	30.685*
		Post	10.92	5.01	
	Treatment as usual group	Pre	35.43	4.99	19.725*
		Post	19.98	3.79	

* significant at 0.001 level

schizophrenia is highest (.59) in 40s and slightly less (.47) in 30s similarly in our research mean age of patients was 39.69 years that is very close to national mental health survey findings. Almost half (48.43%) of the patients are educated only at primary level and few (7.03%) were illiterate. Lack of knowledge and understanding about mental illness and treatment efficacy has been seen to increase non adherence with treatment, resulting in relapse and rehospitalization.[24] Relapse increases the care burden[25] and distress among the family and caregivers. Psychoeducation has been considered as effective method to increase caregivers knowledge and understanding about psychotic disorder[2,24,25] despite this fact it is not been used in Mental health institutions. In the current study we demonstrated that providing culturally reframed family psychoeducation in India significantly increase the knowledge about schizophrenia in the intervention group compared to treatment as usual group. Similar results were demonstrated in previous research which reported ethnic-cultural consideration for the psychoeducation schedules and group format yield higher level of satisfaction among the family members.[2,3] This is partly due to the fact that families have complex local cultural understandings of illness that affect how they interpret psychotic disorders and appropriate care.

Despite limitations in mental health resources, poor social acceptance of mental health specialists are quite prevalent, without any structure providing for medical information to families and patients gave the minimal level of understanding about mental health and treatment that causes high level of distress among the family caregivers. Families who are not provided systematic psychoeducation thus often receive most information about mental illnesses from persons outside of the medical system this increase unscientific knowledge and ill social practices for the management of the symptoms. This poor practice adverse the illness and cause severe psychopathology that reflects negatively on the caregiver's mental health.[1, 25] Current findings are showing high level of depression anxiety and stress and also very high level of family burden among the family caregivers, that appropriately covered through treatment and management strategy for the patient and his caregivers. Level of Depression, anxiety and stress were reduced significantly from severe to mild in treatment

Table 5: Comparative analysis of Family burden among caregivers

Variable		Level	Mean	SD	t (df)
Impact on Wellbeing	Intervention Group	Pre	10.06	1.25	35.891 (126) *
		Post	4.25	.59	
	Treatment as usual group	Pre	9.92	1.05	12.701 (126) *
		Post	7.50	1.09	
Marital Relationship	Intervention Group (17)	Pre	9.94	1.14	18.455 (32) *
		Post	4.23	.56	
	Treatment as usual group (20)	Pre	9.90	1.41	12.181 (38) *
		Post	4.95	1.14	
Appreciation for caring	Intervention Group	Pre	9.70	.90	35.138 (126) *
		Post	4.34	.82	
	Treatment as usual group	Pre	9.92	.99	12.830 (126) *
		Post	7.56	1.08	
Impact on relation with others	Intervention Group	Pre	10.09	1.13	36.170 (126) *
		Post	4.21	.62	
	Treatment as usual group	Pre	9.82	1.09	12.580 (126) *
		Post	7.03	1.40	
Perceived severity of illness	Intervention Group	Pre	9.50	1.22	32.000 (126) *
		Post	4.15	.54	
	Treatment as usual Group	Pre	9.76	1.36	9.961 (126) *
		Post	7.56	1.12	
Family Burden	Intervention Group	Pre	42.00	5.61	29.769 (126) *
		Post	18.03	3.15	
	Treatment as usual Group	Pre	42.17	5.34	13.634 (126) *
		Post	31.06	3.72	

*significant at 0.001 level

as usual group and to normal level in the intervention group. Regardless of the source of the knowledge, the care givers need basic information about the disorders in order to provide better care for the patients. Despite their psychotic symptoms, patients will still make interpretations of the caregivers' emotional expressions and care. Providing family care givers information that can reduce negative expressed emotion is consequently important. Our findings showed that although the severity of the psychological distress and family burden exhibited by the care givers of both the groups were some what analogous prior to intervention, the intervention group showed more sustained improvement in all the target variables. The care givers able to use the knowledge they gained to better help their family members living with the illness[25] and to control their own emotional regulations in form of depression anxiety and stress. Our findings were in accordance with previous studies,

which also shown that increasing the knowledge of the family and care givers about psychotic disorders further benefits patient management.[25-29] This insists importance of that family involvement for the better management of the patients and for the good health of caregivers as well.

LIMITATION

Present study included only caregivers of the hospitalized patients. We did not include patients who received treatment from OPD or who failed to reach medical facilities. Consequently,current study samples did not reflect the early stage of schizophrenia. The second limitation was that we did not conduct a follow-up study to know the effectiveness of the intervention after a time period. Finally, care givers in both control and intervention groups were receiving treatment as usual from the treating teams. We cannot evaluate the extent to which increased knowledge of caregivers was due to information from sources other than the psychoeducation intervention.

CONCLUSION

Caregivers play decisive role in the management of patients from day to day life to hospitalization and follow-up, this continuous performance expectation make them valnarable for their own mental health. Addressing caregivers need and proper management of their distress increases the caregivers wellbeing and reduces the patients difficulties along with challenge of care for the treating team.

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REVIEW ARTICLE

Non-compliance to Medication in Psychiatric Patient

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ABSTRACT

Background : Non-compliance to medicine is the number one cause of increasing disability in chronic mental illness. Psychiatric disorders are growing public health concern. The management of major psychiatric disorders is challenging mainly due to medication non- compliance. However, there is a paucity of summarised evidence on the prevalence of psychotropic medication non-compliance and associated factors.

Purpose of review : Non-compliance to appropriately prescribed medication for psychiatric disorders prevents patients from realising the full benefits of their treatment and impacts negatively on patients, their families and the healthcare system. Understanding and reducing non-compliance is therefore a challenge to good care for patients with psychiatric disorders. Therefore, we aimed to summarise existing primary study's findings to determine the prevalence and factors associated with psychotropic medication non-compliance.

Recent Findings : Recent research has highlighted that non-compliance is a global challenge for psychiatry and has linked non-compliance to poorer outcomes, including hospital admissions, suicide and mortality.

Optimising medication regimens can reduce Non-compliance; however, multiple factors affect individual's motivation and ability to follow their prescription. However, non-compliance is often a hidden issue. New interventions using new technologies and tailoring techniques may have the potential to reduce non-compliance.

Keywords: Medication non adherence, Psychiatric disorder, review.

INTRODUCTION

Non-compliance can be defined as a discontinuation or failure of proper medication intake without prior approval from the treating physician. Non-compliance is more common than treatment refusal or discontinuation. Taking the prescribed dose of medication at the correct timeand for the full course of treatment is important to patients realising the full potential benefits of medications. However, between 30 and 50% of medicines for long-term conditions are not taken as prescribed, resulting in costs for individual patients and healthcare systems. [1] Research suggests that rates of non-compliance in patients with psychiatric disorders are comparable to those of patients with other long-term conditions. [2, 3] Non-compliance is the product of a range of perceptual factors (*e.g.* patient's beliefs about their illness and treatment) and practical factors (*e.g.* capability and resources) influencing their motivation and ability to start and continue with treatment. Specifically, the model emphasises that, even when patients have the ability

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and opportunity to take their medication as prescribed, they may lack the motivation to adhere. Thus to understand and address non-compliance, we need to view the illness and the treatment from the patient's perspective.

FACTORS AFFECTING COMPLIANCE

1. Treatment related-side effects, efficacy, lack of awareness, complexity of regimen, poor therapeutic alliance, access to treatment cost.
2. Disease related-Poor insight, disease severity, cognitive impairment, motivational deficits.
3. Psychological/social-Stigma (of disease and medication, environmental stressors, level of support from family/friends, irregular daily routine, substance abuse, religious believe.
4. Human nature- Full adherence is difficult for anyone to maintain *e.g.* Exercise, diets, Patient does not believe that medication is necessary, once the response is achieved.

NON-COMPLIANCE IS A GLOBAL CHALLENGE

Non-compliance to psychiatric medication is a global problem. Recent research has highlighted non-compliance as a key challenge to psychiatric care in Asia,[4-5] Europe, [6,7,8,] South America, [9] North America, [10,11–12,13] Australia, [14] the Middle East [14] and Africa [15]

In Africa, Alene et al.[15] evaluated adherence rates to antipsychotic medication in patients receiving care at an Ethiopian hospital. They found that, although 52.1% reported that they had never missed a dose or taken it outside the time instructed, only 19.6% were fully adherent, if assessed using pharmacy refill records, illustrating that non-compliance can be underestimated in this setting.

Pattern of non-compliance in psychiatric disorders:

– Total non-compliance – rare.
– intermittent /partial non-compliance.
– late compliance.
– rarely non-compliance by overuse of medication.
– Unintentional /intentional non-compliance.
– Drug holidays.
– White coat compliance.

IMPACT OF NON-COMPLIANCE

Non-compliance has been found to predict poorer outcomes for patients, including hospital admission, [17,18] violence,[19] suicide and premature mortality. San *et al.*[18] analysed the medical records of patients with schizophrenia/schizoaffective disorder admitted to acute care. Out of the 1646 patients to whom data were available, in 58.6% of patients, the main reason for hospital admission was listed as non-compliance.

Non-compliance can also be a risk factor for violence in psychosis, as confirmed by a recent meta-analysis. [19] Witt et al.[19] found a moderate association between violence (including a range of measures such as reported aggression and arrests) and adherence to medication [odds ratio (OR) 2.0] on the basis of nine studies.

In suicide research, adherence has been identified as the 'strongest modifiable protective factor' against suicide, in patients with bipolar disorder who were followed for 10 years . Lindstrom et al. analysed the autopsy blood samples of 33 patients from a psychosis clinic who had committed suicide over a 7-year period. They found that plasma drug levels for prescribed antipsychotic and antidepressant medications suggested that three out of 24 were Non-compliance to antipsychotics and 10 out of 10 were non compliant to antidepressants at the time of their suicide. Similarly, Ruengorn et al.[20] used a case–control methodology and estimated the odds of suicide attempts in patients with major depressive disorder as approximately twice as high for patients with low adherence.

Non-compliance has also been associated with premature mortality in schizophrenia. [21] Cullen et al.[21] retrospectively examined the records of a cohort of US patients with schizophrenia and found that low adherence to antipsychotics predicted mortality. As with previous research showing an association between mortality and adherence, [22] it is unclear whether adherence per se is

contributing to reduced mortality, or whether it is a marker for other factors. For example, as stated above, adherence could have a direct effect on psychiatric outcomes and associated risk. However, adherence may be a marker for a more direct causal effect, for example good social support or a tendency to engage in health behaviours, including exercise.

RECENT DEVELOPMENTS IN COMPLIANCE

Compliance interventions require three key components: content (*e.g.* information, feedback), delivery vehicle (*e.g.* face-to-face nurse support, telephone calls, e-mail) and a broader context (*e.g.* primary care setting, inpatient care).[5]

Intervention content

New developments have focused on intervention content, in particular tailoring, cognitive behavioural therapy (CBT) techniques and financial incentives. Sajatovic *et al.* [23,24] found improvements in adherence in a group of patients with bipolar disorder who were screened on factors including attitudes towards their medicines and assigned intervention content on this basis. However, a fully controlled trial is needed before strong conclusions can be drawn regarding the utility of this tailoring process. Gleeson et al.[25] addressed medication adherence as part of relapse prevention therapy for first-episode psychosis, a CBT-based intervention composed of 7 months of fortnightly individual therapy sessions along with family intervention. They found that medication adherence improvements were sustained at 30 months of follow-up. The use of financial incentives in order to motivate adherence is one strategy that a new systematic review has indicated, may be effective across long-term conditions including psychiatric disorders. [26]

Delivery vehicle

New methods of delivering interventions have been applied within psychiatric settings, including computerised decision tools, [27] electronic monitoring and feedback, [28] SMS and tele-monitoring. [29] Results from these approaches are promising, but the evidence for efficacy is mixed. Montes *et al.* reported improvements in adherence for patients with schizophrenia who were sent 3 months of daily SMS reminders; however, patients were only followed for 3 months post-intervention and a substantial proportion of intervention patients who did not receive all SMS messages were excluded from the sample. Velligan *et al.*[28] found that patients with schizophrenia who were given electronic pill cap reminder devices had equivalent improvements in adherence to those given 30 min of individualised support per week for 9 months. However, they found higher drop-outs in the electronic pill cap condition and did not follow up patients post-intervention. Questions therefore remain about whether these new intervention-delivery vehicles are suitable for all the patients and whether they result in long-term improvements in adherence.

Intervention context

Intervention content and delivery may need to be contextualised to environmental factors, including cultural variation. For example- Read [30] conducted qualitative interviews with patients taking antipsychotic medication in Ghana and highlighted reasons for Non-compliance, including side effects impacting on the ability to perform physical work and a desire for a permanent 'cure' rather than a maintenance therapy. Thus, particular beliefs may be more relevant to some individuals within particular settings. However, it is important to recognise that variations in treatment perceptions and behaviours such as adherence are likely to be greater within cultural groups than across groups . Hence, intervention content should be tailored to the individual rather than across a cultural group. Kopelowicz *et al.* reported a culturally adapted family intervention for Mexican American patients with schizophrenia, which improved adherence at 12 months post-intervention, illustrating ways in which the intervention content and delivery can be addressed to barriers specific to the patient group without relying on generalisations about which barriers patients would face on the basis of their background. For example, they tailored intervention content on the basis of the outcomes from individual interviews with patients. By personalizing intervention content based on individual attitudes, the researchers ensured culturally relevant content without making generalisations about the typical beliefs held by a specific group.

In summary, new interventions have been developed, and questions around their long-term effectiveness and relevance across diverse patient groups remain. By understanding the processes and active components within effective interventions, we may be able to open the 'black

box' of intervention techniques and produce brief interventions tailored to the needs of individual patients.

CONCLUSION

Non-compliance remains a challenge for patients with psychiatric disorders, their physicians and healthcare providers, resulting in poorer outcomes for patients. New developments in the field of psychiatry shed light on key modifiable determinants of Non-compliance within psychiatric disorders. Using this understanding to build theories of both adherence and behaviour change is a key challenge . New technologies may also be able to support adherence within low-resource settings.

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REVIEW ARTICLE

An Overview of Assessment Approach Towards Problematic Use of Internet

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ABSTRACT

The concept of internet addiction is now widely discussed and being studied in various ways. There are works of literature that pioneer in defining the concept and deciding the future path of research. Among entities defined, video gaming has found a place in the DSM-5 as internet gaming disorder and in ICD-11 as gaming disorder and hazardous gaming. However, the concept of problematic internet use or internet addiction still needs sufficient evidence to be placed in diagnostic systems. Research is mainly focused on self-report assessment methods, and there is a lack of literature about basic clinical interviewing, establishing symptom criteria, severity and frequency thresholds, and assessing the impairments caused due to the clinical condition. This paper attempts to formulate an approach for detail clinical interviewing based on variables used in different studies.

Keywords : Problematic Internet Use, Diagnosis, Assessment

INTRODUCTION

The term addiction has traditionally been associated with psychoactive substances such as alcohol and tobacco, but behaviors such as excessive internet use have more recently been identified as addictive.(1) It is associated with dysfunction and harm in multiple domains of life, including physical health, mental health, and socio-occupational functioning. Internet addiction was initially conceptualized as an impulse control disorder that later included compulsivity and addiction.(2) There have been controversies over its conceptualization and diagnostic criteria.(3,4) There are also taxonomical disagreements about using general terms like "Problematic Internet use" to Internet use disorders (IUD) or Smartphone Addiction to Smartphone Use Disorders or specific application or feature-based terminologies like social media addiction, gaming disorders, or pornography use disorders.(5) Internet use has dramatically increased over the past two decades, contributed largely by expanding telecom networks and the advent of smartphones. Problematic internet use (PIU) has become a public health concern and has been linked to addiction symptoms.(5) Though common in the current era, internet addictionhas not been included in DSM-5 or ICD-11 as a separate entity owing to lack of consensus regarding defining features, inadequate supporting research, and controversies regarding the validity of this diagnostic entity. On the other hand, Internet Gaming Disorder has been included in DSM-5 as a category for Section III, as a condition requiring further study for better evidence.

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RESEARCH ON ASSESSMENT OF PROBLEMATIC INTERNET USE

Diagnosing mental and behavioral disorders has been

difficult, and formulating the diagnostic criteria is time-consuming and based on evidence.Several researchers have proposed diagnostic criteria for internet addiction (Table1). Griffiths (1996) suggested six components that identified behavioural addiction - salience, mood modification, tolerance, withdrawal symptoms, conflicts, and relapse.(6) Young (1998) developed an eight-item questionnaire and modified the criteria for pathological gambling to provide a screening instrument for addictive internet use.(7) Shapira *et al.* (2003) proposed diagnostic criteria for problematic internet use, based on the criteria for impulse control disorders. They suggested that Criteria A should include preoccupation with internet use or the excessive use of the internet for more extended periods than planned. Besides, functional impairments should define Criteria B, and exclusionary diagnoses should define Criteria C.(8) Ko *et al.* (2009) and Tao *et al.* (2010) proposed more detailed diagnostic criteria, including the symptom criteria,exclusion criteria, clinically significant impairment criteria, and course criteria.(5,9) Musetti *et al.* (2016) asserted that the criteria for internet addiction disorder (IAD) proposed by Young (1996) had limitations, and the framework is too broad and general to make a definite diagnosis.(10,11)

The criteria for internet gaming disorder also broadly mirror the concepts proposed for Internet addiction or Problematic use by Young (1996), Griffiths (1996), and others.(6,11) DSM-5 indicates that the research using IGD criteria in internet addiction is needed to advance and understand these conditions. The proposed criteria for IGD in DSM-5 and the previous ones do not set any severity and frequency threshold. In their study of validity, functional impairment, and complications related to IGD in the DSM-5 and GD in ICD-11.(12,13) Ko *et al.* (2019) used a severity and frequency threshold for each criterion for internet gaming disorder. The thresholds set and the selection criteria were based on their previous research and clinical experiences in their interview. This study suggested the need for more refined criteria with definite cut-offs to improve research applicability.(14)

CHALLENGES IN DIAGNOSING THE ENTITY:

The diagnosis of internet addiction can be challenging in clinical setup due to the following reasons :

1. Lack of clear distinction, when internet use can be considered pathological,
2. Lack of attribution to internet addiction and technology use,
3. Presenting with symptoms of depression, concentration difficulties, obsessive-compulsive symptoms, or other ambiguous manifestations often confused with known psychiatric comorbidities,(15)
4. Most of the structured assessment tools are self-report questionnaires that may require language and technical adaptation to various populations, and
5. Lack of descriptive guidelines about what all clinical variables need to be looked for identifying problems associated with the internet use. Simply asking questions mentioned in rating scales may be indicative of the problem.

The diagnosis and use of tools to determine internet use needs careful screening, as the confounders and variables are often difficult to distinguish. Hence, there is a risk for misdiagnosis. Another patient-related issue that can be a serious confounder is their tremendously varied usage of the internet, and clinicians need to use screening tools comprehensively in addition to the public awareness measures regarding this clinical entity. Thus any visit to the care provider can be turned into an opportunity to screen for potential and actual problems. Along with self-report, information from key relatives, parents, or other settings should also be considered, especially in impairment in family functioning, academic functioning, or nother social scenarios.

AN APPROACH TOWARDS DETAIL CLINICAL ASSESSMENT

The assessment must be multifaceted and wholesome. A biopsychosocial approach is recommended for evaluating the clients in detail. The clinician should assess all the relevant domains and dimensions of functioning. Studies have reported the use of various measures to diagnose internet addiction, but the detailed interview is definitely a better method for holistic assessment.(3,15)

A detailed evaluation may need to interview both the patient and his/her concerned others. Information gathered from the school or workplace, or other places where the client spends time will help in formulating the case. In children and adolescents, interviews conducted in the presence of parent(s) maybe more productive.

However, it should be followed by individual interactions with both. Besides, Parents or guardians help validate the related symptoms as children and adolescents may be less expressive of their thoughts and may find it difficult to verbalize their emotions. The clients may not see their use of the internet as problematic, soestablishing rapport with them is crucial for effective evaluation. It involves gradually engaging the clients in the interview process, collecting information, and observing their actions. This may take two to four or more sessions.

Concerning the internet use purpose, previous studies have shown the males to outnumber females in engagement with video gaming, cyber pornography, and online gambling, whereas females are more likely to develop an addiction to social media, texting, and online shopping.(16)

To establish suggested core symptoms criteria of internet addiction following approach can be considered (table 1).

Table 1 : Assessment points for establishing the diagnosis of problematic internet use or internet addiction

Symptom Criteria	Points for evaluation during the clinical interview
Preoccupation : Preoccupation with the internet (thinks about a previous online activity or anticipates next online session)	● The account of duration and frequency of thinking about or anticipating accessing the internet ● A parental account of their child talking about internet activity.· The duration of non-essential internet activity; how many hours per day, and; how many days per week? ● Is there any change in the overall involvement or preoccupation over time? ● How do the child and parents feel about the preoccupation? Both child's and parental accounts must be taken and corroborated. ● How do they deal with it? Record recent examples of significant events.
Withdrawal: Withdrawal, as manifested by a dysphoric mood, anxiety, irritability, and boredom after several days without internet activity.	● Experience any emotional reaction like irritability, anxiety, dysphoric mood, boredom, or any other emotional reactions when asked or forced to stop an online activity or remove the device. ● Duration before experiencing such withdrawal symptoms should be recorded. ● An account that is of symptoms being transient or persistent. ● Is there any change in the severity of these symptoms over time? ● How does the child or parents deal with these withdrawal symptoms? ● Record recent examples of significant events.
Tolerance: A marked increase in internet use required to achieve satisfaction	● Based on previous suggestions tolerance can be recorded as below: 1. Need to spend more time on internet activity. 2. Need to increase the intensity of internet activity, for example, using more exciting features of social media, upgrading free to a paid subscription, more exciting gameplay, etc. ● The intensity of internet use may vary depending upon the content, feature, and purpose. (online chatting, dating, pornography, entertainment, hobbies, etc.) ● History of internet behavior coming from virtual life to real life (for example, online chatting to frequent meetings or dating.)

Symptom Criteria	**Points for evaluation during the clinical interview**
Loss of control: Persistent desire or unsuccessful attempts to control, cut back or discontinue internet use	• The number of failed attempts to control problematic activity on internet or use of internet per se. • Difficulty in controlling when required (*e.g.*, Before and examination or important work) • Details must be taken about how significantly does the child makes an attempt. • Is there only planning of attempt, mental decision, or actual effort? What effort has been made by others to cut down or decrease?
Negative consequences: Continued excessive use of the internet despite knowledge of having a persistent or recurrent physical or psychological problem likely to have been caused or exacerbated by internet use.	• A descriptive and careful account of impairment should be done, followed by its quantification. Knowledge of harm should be assessed (physical and psychosocial)
Loss of interests: Loss of interests, previous hobbies, entertainment as a direct result of, and except, internet use.	• Details should be recorded about the hobbies and interests before the Internet use period and after the internet use period for apparent changes over time due to internet activity. A personal and parental record should be corroborated.
Escape: Uses the internet to escape or relieve a dysphoric mood (*e.g.*, feelings of helplessness, guilt, anxiety)	• Detail account, as mentioned in the criteria, should be explored and recorded. It should be noted if there is an extended period of problematic use required to relieve stressful situations.
Deception: Had deceived a family member or partner about the time spent online	Same as the definition but it includes child deceiving other significant like teachers or school authority.
Functional impairment: Has jeopardized or lost a significant relationship, job, or educational or career opportunity because of online activity	• Physical harm: History about pain in thumbs, palm, wrist, neck and back, eye strain, headache, decrease in sleep or daytime sleepiness due to excess night use • Social, academic, interpersonal, and social impairment: History about objective loss, for example, decrease in academic performance, work performance. Conflict with family members or significant others • Psychological: Level of personal distress or dissatisfactions, boredom, etc. should be recorded.

For ease of understanding, the details assessment can be grouped as follows:

1. **Assessment related to the individual :** The basic sociodemographic details (name, age, gender, education, family type, etc.) of the individual should be recorded(2,17,18). A basic record should also include the patient's body measurements such as BMI, which may indicate obesity and a long-standing sedentary lifestyle due to excessive use of screen or internet activity.(19) Often the problematic internet use in adults is associated with comorbid mental illnesses, including depression, anxiety disorders, substance use disorders, and personality disorders. Even children and adolescents with Internet addiction tend to suffer from a variety of psycho-logical and social issues. PIU is linked to attention deficit hyperactivity disorder (ADHD), depression, social phobia, and aggression.(16) Besides, those at high risk for internet addiction are more likely to indulge in addictive behaviors. So, comorbidities, including drug misuse, should be assessed for and documented.(20) It has been found that Internet addiction, high levels of internet usage, and websites with self-harm or suicide content were all linked, (21) therefore, self-harm attempts and suicidal attempts in children and adolescents must be explored as well. Stressors from interpersonal and school-related problems, as well as anxiety symptoms, are found to be substantially linked to Internet addiction.(22)

2. **Assessment related to the family and social environment :** In family history, one should explore the parental use of technology (in the same way as mentioned in the table). The details should be recorded for each parent and siblings. History of parent's mediation or monitoring on technology use should be taken, and how it is done be explored.(2,11,17) An overall assessment of the family's attitude towards the child's condition needs to be done highlighting the a) Parental interaction and interpersonal communication patterns in the family b) family patterns and activity, conflict management, perceived level of understanding, disturbing dynamics will require exploration. c) the associated exploration about the emotional state and feelings of the child can occupy a major ground.(11)

3. **Assessment related to the work/school environment :** While assessing the child/ adolescent for problematic internet use, a clinician must consider the school environment for the regulations with gadgets, online groups, and communities and issues like bullying and availability of support in the school.(11) In situations where no detailed information is available, liaisons should be established with the teacher or school authority, or counselor to explore additional information.

4. **Assessment related to peer relationships** : History of peer group use of technology (type/purpose/ duration), any bullying or victimization, and history of peer support and bonding.(11) Perceived impact of peers on the technology used by the child as well as parents should be recorded.

5. **Technology specific assessment :** This can be considered as a new domain in psychiatric assessment.It is highly relevant that assessment of problematic internet use must include what the person is using and the understanding of generalized and specific, mobile and non-mobile PIU.(23) History should be tailored based on use, which features or applications are used predominantly. One's perception about "What is interesting in the feature or applications" can be an important factor in understanding the child's motivation towards excessive use. The history of the profile being blocked or restricted because of violation can be indicative of problematic use. The type of devices used, the reasons, duration, frequency, and types of websites visited should all be detailed in the history.(24)

Table 2. Details of the device used to access the internet

S. N.	Type of device[a]	Ownership and accessibility of device[b]	Purpose of use[c]	Duration (hours per day)[d]	The remark or comment[e]

a. Smart television/ television with internet box/gaming consoles/personalcomputer/laptops/tablets or I-Pad/ smartphones

b. Owned by the child or adolescent/mother's/father's/ sibling's/other family members/ friend's/neighbor's/ cyber café's/school or college lab's/ others.

c. Blogging/social media watching movies/ listening to music/browsing/chatting/dating/gaming/shopping/ auction/pornography (reading, pictures or video)/ using something that is secret or cannot be told/no purpose.

d. Duration in hours per day.

e. Predominant hours like late night use/ using during weekends or holidays/using when on vacation or when out of home or work or city due to privacy and secrecy, or any other significant reasons.

CONCLUSION

The phenomenon of excessive internet use is, in fact, a dynamic concept in this technology-dependent world. What remains excessive internet use and is considered problematic at one point in time may become acceptable with the changing times. Because of dramatically changing human-technology interaction with changing technology features, progressive linkage and merging of activities with each other, and newer human activities migrating to virtual spaces, the overall human internet interface duration has increased. Thus, it has become harder for clinicians to identify and diagnose problematic internet use (PIU). Quite a lot of things have moved online, including workspaces, shops, libraries. Online gaming and other virtual activities have also gained momentum. This makes it critical to accurately identify the individual-related factors in psychological, social, physical, and other domains of life to delineate the Problematic Internet use (PUI) disorder. Hence, a detailed assessment will help elaborate on proposed symptom criteria and also helps with the identification of key areas requiring intervention. Development of universally acceptable diagnostic criteria and comprehensive evaluation tools is also needed for the identification and care of patients with internet gaming disorder.

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REVIEW ARTICLE

Lacunae in Current Understanding of Opioid Substitution Therapy in Patients Dependent on Poppy Husk

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ABSTRACT

Substance use is a widely prevalent problem in India and has serious public health implications. Among various substances used in India, opioids hold a special place. Currently, the most common opioid being abused in the country is heroin. However, there is a large number of natural opiates users too. Current treatment regimens for opioid dependence follow either abstinence based approach or harm-reduction based approach. The latter is implemented through opioid substitution therapy (OST). Existing treatment protocols for OST are based on studies carried out in heroin users. Though OST is being used in natural opiate users too, research in this group is limited. Research on poppy husk users is scanty. As a result, users of natural opioids, especially poppy husk are being given OST on empirical basis. There is a need to carry out further studies in this group so as to reach at reasonable treatment protocol of OST for poppy husk users.

Keywords: Natural Opioids; Opioid dependence; Opioid Substitution Therapy; Poppy Husk

INTRODUCTION

Substance use is a complex problem with its own mental and emotional ramifications. It adversely affects several domains of life, viz. interpersonal relationships in family, physical health, social life, legal issues and the finances(1). Different psychoactive substances used by people in India include tobacco, alcohol, cannabis, opioids, sedatives and hypnotics,inhalants, cocaine, stimulants like amphetamine, and hallucinogens(2). Cannabis and opioids are the most commonly used substances in India after tobacco and alcohol(2). Opioids are the substances that act on opioid receptors in the body, namely mu, kappa, and delta(3). Opioids are broadly categorized into natural, semi-synthetic and synthetic. Opium poppies (Papaver somniferum) are processed into two commonly utilized natural opiates- the raw resinous exudate or the crude opium (locally known as “afeem” or “amal”) and the leftover bran, which is poppy husk (locally known as “bhukki” or “doda”)(4). Semi-synthetic class includes smack and its purer form, heroin (locally known as “white” or “chitta”). Pharmaceutical opioids (also known as medical nasha) include morphine, pentazocine, pethidine, tramadol etc.(3). The use of natural opioids dates back to 9thcentury AD and is still socio-culturally acceptable, especially among some rural and tribal communities(5).

WHY IS INDIA VULNERABLE TO OPIOIDS?

India is one of the largest legal producers of opium(6). India is located between the two largest illegitimate opium producing regions of the world – “Golden Crescent” and “Golden Triangle,” which makes it on the line for being both a harbour and shipment route for opioids(6).

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OPIOID DEPENDENCE

The International Classification of Diseases, 10th edition (ICD-10) defines opioid dependence as "a cluster of physiological, behavioral, and cognitive phenomena in which the use of opioids takes on a much higher priority for a given individual than other behaviors that once had greater value." The characteristic feature is a strong internal drive to use opioids, manifested by impaired ability to control its use, prioritizing the use of opioids over other activities, and continued use despite harm or negative consequences. According to ICD-11, opioid dependence is a chronic relapsing brain disorder of regulation of opioid use arising from repeated or continuous use of opioids. The features of dependence are usually evident over at least twelve months, but the diagnosis may be made if opioid use is continuous (daily or almost daily) for at least one month as per ICD-11.

THE PROBLEM STATEMENT

The data on prevalence of opioid use in the country comes from the study titled 'Magnitude of Substance Use in India', which is the most recent and robust study that has explored the epidemiology of substance use in India and was concluded in the year 2019. It reported the prevalence of opioid use (both natural and synthetic) in India to be three times that of the global average, *i.e.*, 2.1% in India compared to 0.7% globally(2). In India, the overall percentage of opioid users has increased dramatically from 0.7% in 2004 to 2.1% in 2019. The most common opioid use back then (in 2004) was opium, used by 0.5% of the population, but currently, it is heroin. This depicts a shift from low potency plant-based products to high potency synthetic products. Out of the 2.1% (~2.26 crores), 0.7% (~77 lakhs) are problem users (harmful use/dependent). The most commonly used opioid is heroin (1.14%), followed by pharmaceutical opioids (0.96%) and natural opioids (0.52%). A harmful or dependent pattern in half of all heroin users compared to one-fifth of all opium users was observed in the study. Thirteen states in India reported a prevalence of >1%, denoting a significant public health issue. North-Eastern states have the most significant problem of opioid use disorder as they share borders with illicit opioid-producing countries. Also, there is a high prevalence in states like Punjab, Haryana, and Delhi. A high prevalence of pharmaceutical opioid use is seen among southern states and Sikkim. A recent survey conducted in Punjab showed that 53% of opioid-dependent people used heroin, and natural opiates (opium or poppy husk) were the second most commonly used opioid at 33%. In India, there are around 8.5 lakh people with injectable drug use (IDU). In Chhattisgarh, the current use of opioids stands at 25.67%, out of which 3.26% is dependent population.

Quantum of work has been defined as the sum of estimates of harmful and dependent use. It was reported to be 0.70% for India, maximum for the state of Mizoram (6.9%), and a bit less than the national value for Chhattisgarh (0.60%) (2). National Mental Health Survey (NMHS) conducted in 2015-16 reported a treatment gap of 90% for substance use disorders(7). The treatment gap for tobacco and alcohol use disorders was 91.8% and 86.3%, respectively. They did not account treatment gap for opioid use disorder individually but documented the combined treatment gap for other drug use disorders was 72.9%(7).

CONSEQUENCES OF DEPENDENCE ON OPIOID

Opioid dependence contributes substantially to the global burden of diseases (8). It was estimated to account for 9.2 million disability adjusted life years (DALYs) globally *i.e.*, 0.37% of global DALYs in 2010 (9). It is also the highest contributor to the number of drug-related deaths (43.5 deaths/million people aged 15–64 years) (9). In India, opioids are the drugs most commonly injected (1). Injecting drug use (IDU) is strongly associated with HIV, hepatitis C, and other blood-borne infectious diseases (1). The burden due to opioid dependence,on the individual user and the community, arises from premature mortality (most marked in the 15 to 34 year age group) and significant morbidity (8). It also inflicts a considerable economic burden on society due to unemployment, absenteeism, crime and law enforcement costs, and health care costs (9).

TREATMENT OPTIONS FOR OPIOID USE DISORDERS

Opioid use disorders create a distinct set of obstacles for addiction treatment practitioners. Relapse to opioid use is almost always associated with short-term, stand-

alone therapy of acute withdrawal symptoms (or "detoxification") (10). As a result, most patients require a long-term treatment plan that includes psychological and pharmaceutical interventions. For long-term pharmaceutical treatment, there are two options: (a) agonist maintenance treatment or opioid substitution treatment (OST) and (b) antagonist treatment (11). The latter entails keeping opioid-dependent patients on an antagonist like naltrexone for a long time. This time-honoured method is tarnished by a lack of evidence of its efficacy. Because of low compliance and retention in treatment, naltrexone maintenance has only been found to work in a small subset of opioid addiction patients (12). As a result of the growing body of research, agonist therapy, or OST, is currently the internationally approved therapy technique. Most treatment guidelines, including those of the Indian Psychiatric Society, support OST as the preferred approach for long-term opioid dependence pharmacological treatment (13). Methadone and buprenorphine are the most commonly utilised drugs for OST worldwide. In comparison to buprenorphine, methadone as an agonist treatment option has been available for decades and is regularly used in many nations throughout the world.

The ultimate goal of treatment is to lead an individual to abstain from using opioids and improve his/her psychological, social, and adaptive functioning (1). OST is based on the concept of 'Harm Reduction'. Harm reduction implies the reduction of harms associated with drug use without reduction in drug use peruse. The main aim of harm reduction strategies is to keep drug users alive and productive until the treatment works, or they move beyond their drug use and can be reintegrated into the community (1). The treatment has to be given along with psychosocial and rehabilitation measures.

The idea of OST is generally misunderstood not only by the patients, laypersons but also by the doctors, caregivers, media, and policy-makers. The wrong notion that looms around OST is that it is substituting one addiction with another. Misconceptions of this sort create cavities in the understanding of OST and make it vulnerable to unwanted controversies (3).

WHAT CREATES THE LACUNAE?

The bulk of the evidence of OST emerges from its usage in the treatment of heroin users. Meagre data is available about treatment of natural opiate users (14). The situation worsens for the patients dependent on the poppy husk as the information is almost unsubstantial even though they form a substantial chunk of the total opioid using population. Therefore, due to the insufficient data available, the dose that we prescribe is still empirical. Even though OST has been established for quite some time in our country, we still tend to copy most of the policies from the western models and try to imply it here. We have our issues-financial, resources, political, etc. Therefore, we need to develop our indigenous system of dispensing OST (14).

LACUNAE IN DOSING AREA IN NATURAL OPIOID USERS

The Indian guidelines on buprenorphine and methadone put forward lower maintenance doses than those recommended in the guidelines from Western countries. Initially, when OST was rolled out, buprenorphine was used in doses ranging 1.2-2mg/day (15). Around the year 2000, higher strength (2 or 4 mg) formulations were made available. A multicentric study in 2005-2007 determined the mean dose for buprenorphine at 6mg/day in heroin users (16). Despite using low doses, the retention rates, rates of abstinence from opioids, and proportion of opioid withdrawals reported are comparable to international studies that have used higher doses of OST medicines. The multicentric research on methadone also determined the average dose of methadone required for each patient to be 40 mg/day (17) which is much less than the minimum recommended dose of 60 mg/day in most western guidelines (18). However, the reasons for using low doses among Indian patients have not been identified till date (6). Hence, more placebo controlled trials or pharmacogenomic studies can help understand the reasons for the same (6). OST has made a quantum jump in the last two decades; still, there islimitedevidence regarding treatment with OST in natural opioid users, the dose used, and the retention rates (19). It is due to sparse studies with a robust research design(20). *Overall, methodologically improved research is needed for the treatment of opium and low-potency pharmaceutical opioid dependence. There is a substantial chunk that uses natural opioids.* There is a shred of emerging evidence for the treatment of pharmaceutical opioids with buprenorphine-based OST. Still, it is wholly confined to high-potency pharmaceutical opioids only

(like hydrocodone and oxycodone) (21-23). These recommendations are unlikely to be replicated for the low-potency pharmaceutical opioid users of the country. Consequently, the blanket prescription of buprenorphine-based OST for opioid dependence needs to be weighed critically. Hence, individualized treatment decisions for opium and low-potency pharmaceutical opioid addiction should be formulated.

LACUNAE IN THE SPECIAL POPULATION GROUP

We have considerably less literature on OST provision in special population groups such as women and adolescents. Although literature from other countries shows similar benefits, it would be helpful to understand various aspects of OST concerning special population groups in India (6). Treatment outcomes for older adults are poorly understood as well (24). Problematic drug use (of which opioids account for the majority) was previously assumed to diminish as patients grew older. It is critical to establish an age limit for the term "older" as the demand for this group's drug addiction and healthcare services must be anticipated and prepared for (24).

LACUNAE IN AREA OF NATURAL OPIATES

A recently published meta-analysis has found inadequate data to offer specific treatment recommendations on pharmacologic therapy for maintenance treatment of "opium" dependence (25). However, it has been claimed that buprenorphine is the most preferred treatment modality as a substitute medicine (25). The substance use-related characteristics of "poppy husk" users have been described in a limited number of studies. In two articles, the authors discovered that the majority of natural opiate users consumed "poppy husk" and documented their characteristics (14, 26). Future research should evaluate the retention rates of various kinds of treatment (e.g., buprenorphine vs. tramadol vs. naltrexone) across different types of opioids (for e.g., heroin vs opium vs poppy husk). Randomized controlled trials should also be conducted to identify standard regimens in terms of varying dosages, dosing schedules, and other factors to improve the evidence basis for diverse treatment (4). While natural opiate usage has been identified in India, there is scant literature on comorbid substance use, addiction severity, rationale for starting, seeking treatment, high-risk behaviour, and quality of life in this population (14).

It is of utmost importance to realize that OST should have various choices to cater to the heterogeneous population in such a diverse economy as ours. The treatment should be custom fit rather than one size fits all approach (27). In India, a considerable population uses both alcohol and opioid together (28). Therefore, there is increased elbow room for naltrexone to be used as a treatment option. Some have advised Recovery-oriented OST. It is neither time-limited nor time-unlimited rather, it focuses on personal recovery as the ultimate outcome (29).

CONCLUSION

Opioid dependence is a real public health problem that contributes significantly to the country's burden. Despite the fact that a large cohort uses natural opioids, yet this zone is relatively unexplored. Their characteristics are poorly delineated. The majority of the evidence emanates from heroin users. Natural opioid users among special population group are also poorly studied.There is a need to assess the peculiar aspects needs of natural opioid users, especially the users of poppy husk so that to gain greater insight into their unique set of problems. Subsequently, the knowledge gained could be used in providing evidence-based treatment to the poppy husk users.

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REVIEW ARTICLE

Psychosocial Effects on Children and Adolescents During The Pandemic Covid-19

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ABSTRACT

The article aimed to discuss the psychosocial consequences of Covid 19-pandemic on children and adolescents who usually start interacting and socializing with peer groups.

The author's observations and experiences, along with a quick literature scan, are the basis for developing this manuscript. The manuscript describes the psychological and emotional problems children and adolescents face during the COVID-19 pandemic and lockdown along with possible solutions to reduce the adverse effects.

Literature reveals that the younger population feels more distressed, anxious, nervous, hopeless, desperate, helpless, frustrated and develop decreased personal interactions due to long-run lockdown. Young children were severely affected by the social and educational disruption. They experienced poor social and emotional wellbeing, irritability and forbearance. They were terrified of becoming infected and were also agitated due to their confinement. Children with special needs/low-income groups faced more significant challenges as they became more intolerant to uncertainty and symptoms of stress, uneasiness and discomfort.

Long periods of lockdown and excessive use of the internet and social media negatively impacted adolescents' mental health. Daily routines and sleeping habits were severely disrupted. Parents struggled to strike a balance between life and work, as well as raising their children. The article discusses various challenges and possible solutions to balance the situation for improving the psychosocial health of children and adolescents.

Key Message : This article is about issues and challenges,primarily psychosocial disturbances encountered by the children and adolescents during the pandemic COVID 19 and lockdown. It also discusses various strategic ways to deal with these issues. This article appeared necessary for sensitizing academicians, scientists, and researchers to acknowledge various psychosocial issues of this population segment to generate awareness and also sketches some ways outs to manage the challenges in these difficult times.

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BACKGROUND

The coronavirus disease (COVID) is an ongoing pandemic, which came into existence in December 2019. This disease is caused by Severe Acute Respiratory Syndrome Corona Virus 2 (SARS CoV-2), and the World Health Organisation (WHO) declared it a pandemic on Jan 30 2020, referred to be as COVID 19. It is probably one of the deadliest pandemics in history and has affected people from all work walks of life in every possible way across the world, including India. Because of the threatening effect, the Govt. of India declared nationwide lockdown on Mar 25 2020, for the first time. Since then, as per the adversity, the lockdown has been there on and off. Due to this instability, the population, in general, faced various constraints, which was hard to adapt to; hence, the community often suffered psycho-socially. There were significant changes and challenges in the overall lifestyle, including daily routine, living environment, social, recreational and refreshment activities; the lockdown affected the economic conditions of the individuals also. People of all ages faced one or the other psychosocial challenges.

The dynamics of short-term psychological, emotional, and social conditions like maintaining distance with peer groups developed a sense of insecurity, giving birth to many psychological and emotional issues. Distress, hopelessness, helplessness, frustration, loneliness, decreased interaction with peer groups and friends appear to be directly related to the dynamics of the pandemic outbreak. It is reported that fear of the pandemic has resulted in a slew of psychiatric manifestations in various age groups. Children and adolescents were found to be most affected psychologically during the lockdown. The present article aimed to provide a review and discuss the psychosocial effect on children and adolescents who recently started interacting and socializing with their peer groups.

Psychosocial effect of lockdown on Children

Children have suffered significantly due to disruption in social and educational activities.Anxiety, despair, lethargy, diminished capacity to socialize, poor appetite, and a poorly formed immune system were the most common psychological symptoms influencing children's mental health. Due to fear of the pandemic, children were barred from using parks and playgrounds for their everyday activities, and social relations and interactions were reduced to a bare minimum. Children were primarily left to interact with close family members, and their contact with friends was limited, which seemed problematic[1]. Poor social and emotional wellbeing, unpredictable sleeping patterns and physically unhealthy eating habits plagued the children. It is also reported that there is a significant decrease in physical activity of children, and that is developing many psychosocial difficulties, including behavioural and emotional issues among the children[2]. Due to confinement, children generally seemed upset, depressed, restless, irritable, frustrated, angry, and bored. However, wherever the family environment was comparatively healthy, those probably had less risk of developing any adverse symptoms; whereas, a family with some pathological issues or unable to manage the crisis,their children and adolescents suffer more. A study reports a clear link between parental mental health and that of their children[3]. Due to reduced education time and lack of enthusiasm in children at home may be a significant cause for frustration, stress or low confidence. It is revealed that paranoia, annoyance caused by school closures, and monotony in daily routine have exacerbated the psychosocial problems[4]. Children were said to be afraid of self-infection or infection of family members, and they were agitated and nervous due to the isolation/quarantine measures[5]. Children were also overfed unnecessarily as a result of the pandemic's alarming facts. The youngest children were the most afflicted, terrified of the symptom, severity, and mortality.

If a single parent was quarantined in the family, their children were severely affected, resulting in significant psychological distress. If the child had to stay with someone else due to infection in both the parents, the condition worsened. Separation of parents and children due to the pandemic had a similar effect on a child's mental health. It was difficult for school-aged children to cope with mental stress due to overall school routines. Sleep-related problems were also noticed[6]. Children experienced nightmares, nervousness, and separation anxiety (sometimes, the corresponding author received such complaints from parents).

Children with special needs such as autism spectrum disorder, cerebral palsy, attention deficit hyperactivity disorder, developmental delays, learning disabilities, and

emotional difficulties faced more problems due to forced and imposed restrictions with an unfriendly environment. A qualitative study reveals that parents of children with special needs felt changes in mood and behaviour in them and their children due to hasty alterations in the living style[7]. They probably faced more significant challenges than the general population. Sometimes the children became more intolerant of uncertainty and stress symptoms, which posed a challenge for their parents[8]. They are even reportedly involved in acts of self-harm due to these lockdown circumstances. Children with attention deficit hyperactivity disorder found it challenging to stay away from objects and be confined in one area for an extended time, significantly increasing their uneasiness and discomfort.

Children from low-income households, migrants' children, and street children were more vulnerable to abuse and mental health. They had to face more unfavourable economic, environmental, psychosocial, and cognitive settings. They were at a higher risk of being exploited and victims of violence and abuse.Non-availability of wages, financial support etc., made them feel frustrated and powerless.The majority of impoverished children could not participate in online learning or distance learning, which schools and institutions used during the lockdowns, leading to an increased feeling of insecurity; children without a parent/guardian were more vulnerable to exploitation[9].

PSYCHOSOCIAL EFFECT OF LOCKDOWN ON ADOLESCENTS

Studies have shown that although older people have a higher probability of serious caution in COVID-19 disease and death rate, psychological reactions in younger people appear to be more intense and prolonged [10]. *Adolescents* experienced moderate to severe psychosocial disturbances. A significant change and worsening in the behaviour were observed in children and adolescents during the lockdown. Literature reveals that stressful life, lengthy home confinement, and overuse of the internet and social media has affected adolescents' mental health[11]. During the lockdown, teenagers were more likely to use alcohol and cannabis because of increased stress and anxiety[6,12].When the daily routine is changed during the lockdown, frustration seemed to be there almost in each age group. Parents were persistently struggling for balancing their financial status, work and life. Families with adolescent children were facing additional challenges due to schooling and work both from home. Parents of many of these working in private set up were experiencing economic insecurity/financial burden,which develops fear and diffidence among these children.

There was no fixed and scheduled time for routine activities. Sleeping patterns seemed to be disrupted, and people had difficulty falling asleep at any time of day due to the stress, anxiety, and depression they experienced [13]. During the lockdown, people had erratic eating habits, and some developed addictions to cope with high levels of stress and depression. Adolescents often felt stressed and tried to remain healthy; as a result, some of them started consuming the herbal drink, cooking and eating home-cooked food and practised exercises or yoga. At the same time, they tried avoiding all things that could cause the disease.

Here, the author (corresponding) would like to mention her observations experienced during an informal virtual meet with a group of adolescents, asking what did they prefer this time - to remain at home or go outside to have fun and eat some stuff. They revealed it is better to be at home than going outside and maintain distance, as they were scared of the disease. They further said that the 2nd wave of this deadly virus took a toll on many of their known friends, and thus, remaining at home would be the best option unless there is full immunization. It showed their concern and distress. However, some of the adolescents felt stress and anxiety about not going outside.

In the lockdown, another problem being faced by the adolescents is the change of role. At many houses where gender roles are divided, and male members are not supposed to participate in household chores, changes became a cause for distress. This change further had an adversative effect on the interpersonal relationship of the individual. Additionally, excessive phone and internet use hampered interactions between family members and friends. People have been fearful, disappointed, and anxious due to many deaths due to the second wave of COVID 19. Stress from the lockdown caused an increase in binge eating. Disturbed routine, haphazard sleep-wake cycle and working schedules often troubled their attention

and concentration, led to dissatisfaction, body disturbance, and fatigue, and showed poor mental health conditions in adolescents and children[11].

It is observable that children and adolescents are concerned about the cancellation of anticipated events due to school and college closures caused by the pandemic. It will be worth mentioning that the adolescents who have joined their colleges and are supposed to live independently were stuck at home, which developed anxiety and fear for their future. Students preparing for their internship got stuck. The internship phase of training students was halted, affecting their overall knowledge acquisition, as this phase is one of the essential parts of the curriculum. Such developments undoubtedly resulted in high levels of stress and depression among them. Social distancing and isolation have also increased the abusive environment risks at home because of economic insecurity and distress. Like this, the lockdown harms every walk of life and children and adolescents are suffering a lot.

MEASURES TO IMPROVE PSYCHOSOCIAL HEALTH

Children cannot be isolated indefinitely; they must be encouraged to interact with their peer group. Some old games with modified rules may be helpful. They may be allowed to interact with peers socially via phone or other online means.However, a scheduled routine must be followed to avoid any difficulty. They should be adequately educated about the coronavirus and its effects on society. This training is to be given practically so that the children and adolescents may participate in such activities actively. Clear cut information with possible consequences of contracting the virus needs to be provided. It was observed that people became casual after the declaration of unlocking, which may again uncontrol the virus spread. Thus, they must be given proper training about 'WHAT TO DO' and 'WHAT NOT TO'. If someone gets infected, strategies to handle the situation should be detailed appropriately.

There should be proper awareness-raising programs for anxiety, depression, fear, panic,and other mental health conditions. Such challenges must be identified, and training programs for coping strategies may be developed to strengthen the capabilities of self. COVID 19 management related information needs to be disseminated accurately to all across society. The adolescents may be given the training to learn the prevention strategies, which help them remain healthy and share the same in their respective communities. The information source should be accurate, and inappropriate and dramatic/ fake news should be avoided if symptoms of anxiety, distress, or depression are exacerbated; virtual contact with family members/ health care providers to be encouraged[14].It is reported that yoga and meditation (preferably both) improved mental wellbeing in the current pandemic[15]. There is a need to improve children and adolescents' mental health by helping them develop healthy coping mechanisms during the current crisis. The establishment of suitable coping mechanisms in the current crisis considers that innovative child and adolescent mental health policies with direct and digital networks of psychologists, paediatricians, psychiatrists and community volunteers are vital to the establishment [9]. Taking breaks from viewing, reading, listening to the news, taking care of one's body, and interacting with others are all healthy methods to cope with stress. New leisure activities to be explored by people to prevent stress, anxiety and depression during the lockdown. Online assistance organizations could be helpful in psychological symptoms management[16].

CONCLUSION

Confinement is necessary to prevent virus spread, but it has resulted in severe psychological disturbances among people of all ages, which should be addressed. Children and adolescents both have suffered psychologically during the lockdown;measures should be immediately taken to improve their mental health. Children from low-income families and migrant workers should be compensated for their online education. People should begin to adjust to the new normal of wearing masks and using hand sanitizers daily to avoid becoming infected at any time.

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Psycho-social Challenges Encountered in Containing the COVID-19 Pandemic in India

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COVID-19 pandemic created a great challenge throughout the world. During the ongoing pandemic, several key events occurred globally, that influenced the growth of COVID-19 cases. India, the second most populous country in the world, harbours 29,274,823 confirmed cases and 363,079 deaths by 11th June 2021.[1] The increased number of COVID-19 cases in India is largely influenced by several socio-cultural and policy related issues. Understanding these issues may help India and other countries in control of COVID-19.

Among the highly populated countries of the world, COVID-19 infected cases were relatively lower in India till the end of March 2020. Suddenly, there was an upsurge of new cases and deaths in the National capital of India, and the rapid spread of infection to several states of the country. The upsurge in the number of cases and deaths was attributed to a common cause. Despite the strict rule of the government to promote social distancing and prohibit mass gatherings, it was side-lined by groups of people with ***religious bias*** (extremist religious beliefs) as highlighted by the leading media houses of the country and abroad, leading to worldwide debate.[2–4] The government of India has enforced the law to ensure prevention of the spread of COVID-19, by introducing lockdown.[5] It is reported that there was non-cooperation by the religious group to the extent that required the interference of national security advisor and police force to escort the gathered mass to the hospital for evaluation. It is important to understand, what is important at this crucial moment of the global crisis; religious beliefs or national integrity. There may be various psychological models that explain violating behaviors during the phases of crisis.[6] These models explain the cognitive biases and emotional reaction resulting in non-acceptance of large-scale legislation.

Violence against healthcare workers increased during this COVID-19 pandemic. There have been news reports of incidents across India, where doctors, health professionals as well as police personals are attacked by a mob when they were approached for assessment for COVID-19.[7–9] It is a heinous and shameful act at the time of the global crisis. It is discouraging and demotivating for the health professionals and police personals, who are selflessly working day and night for the society. The reported incidents seem to be the tip of the iceberg, that caught the attention of media.[10] Though the government had announced amendments in legislation to take strict action against the offenders, the incidences still keep on happening. The government should be proactive to take strict disciplinary action against the individuals, who are responsible for the heinous acts of stone-pelting and spiting on health personnel.

Panic buying phenomenon was reported all over India, during the phase of lockdown resulting in exhaustion of essential goods.[11] During this period people purchased masks, sanitizers, toilet papers and many other essential daily use items in bulk, anticipating their shortage in future. Sensational media reporting and spread of rumours regarding the shortage of essential products were major triggers to the panic buying behaviour.[12]

COVID-19 Testing policy in India has been periodically revised (the sixth advisory was issued by Indian Council of Medical Research in September) based on the availability of the tests, testing capabilities and varying focus of target population to be tested. The implementation of the testing protocol has been extremely variable

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across the states of India.[13] The deficits in testing leads to poor implementation of interventions related to COVID-19 prevention and treatment.

Unlock that followed the nationwide lockdown occurred in stages and is still continuing. A major factor responsible for the decision to'Unlock' was the financial adversity faced by the people and the government and thus despite increase in the number of cases the restrictions have progressively been eased for institutes to function[14]. It has led to an increase in public movement, frequent violations of social distancing norms and the subsequent surge in infection.

The ***threat of war*** is also affecting the country's efforts to combat COVID-19 pandemic. During this pandemic, India had strained relationships with the bordering countries, particularly China due to the line of control conflict.[15,16] The continuing conflict and threat of war amid of this pandemic evokes worry and apprehension among the public. The media houses, continuously discuss these issues in a horrifying manner, which is likely to provoke panic and anxiety among people.

Migrant workers were one of the worst-hit population during the COVID-19 pandemic in India. The sudden announcement of nationwide lockdown resulted in loss of jobs of migrant workers employed in different corners of the country. Majority of these migrant workers struggled to reach their home places during the lockdown.[17] The mental health crisis of the migrant workers was substantially high.[18] Migration of these workers to their home state resulted in a rapid rise in the number of COVID-19 cases in the states.

Farmer's protest in Northern part of India against the new farmer's law brought by the government, has been intensified in late part of 2020, when the country was struggling to control the COVID-19 pandemic.[19,20] The protest was in such large scale that thousands of farmers were on the roads around the COVID-19 hotspot area (i.e., National capital of Delhi). During this process, all the COVID-19 precautionary measures were ignored and even the protestors refused to go for COVID-19 testing.[19]

Fear of vaccination is another big challenge encountered during this pandemic. The government of India, has started one of the historic vaccination drive against COVID-19 in large scale from Mid-January 2021, across the nation.[21] However, despite intensive awareness campaign, myths, misinformation and political propaganda resulted in development of mistrust among people about the COVID-19 vaccine.[21,22] Despite of intense efforts put by the government, still people are reluctant to go for vaccination in fear of side effects.

Election rallies and religious gatherings during second wave had also significant role in spread of infection. Second wave of the pandemic hit India in March 2021. Despite of increasing cases of COVID-19 during the second wave, the government promoted public gatherings like Kumbh Mela and there continued to have political rallies and road shows for election in several states of India. Despite of having an anticipation that India may have second wave anytime, there was not enough preparedness, that created a havoc in India.[23,24]

At this moment of crisis, there is a need for community participation and cooperation to prevent the spread of COVID-19 in the country as well as globally. Also, the government need to use the learnings from the immediate past, to prevent similar issues in near future. Learning from the mistakes, political commitment, adopting the policy of countries, that successfully contained COVID-19 pandemic may be beneficial.

Compliance with Ethical Standards

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A Burgeoning Social Media Infodemic Amid COVID-19 Pandemic : A Cognitive Behavioural Perspective

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ABSTRACT

Introduction : Ever since the outbreak of Covid 19 pandemic, there has been a sudden infodemic about the origin, spread, mitigation and treatment. Through various social media platforms the portrayal of information has impacted millions of people thereby increasing their stress levels, fuelling pre-existing anxieties and leading to cognitive biases and distortions.

Methodology : We reviewed information on portrayal of content by social media and its impact on people. We reviewed how information portrayed by social media had a deleterious impact on people thereby contributing to common errors in thinking.

Results : This paper discusses briefly about how the social media's portrayal of information on COVID-19 has led to common errors in thinking amongst people ranging from arbitrary inference, catastrophization, paranoia, cognitive polarization, overgeneralization, global labelling, emotional reasoning, discounting the positives and jumping to conclusions.

Conclusion : As social media plays a crucial role in disseminating information out to people, it holds a critical responsibility of adequately delivering its content. However as there is no body governing the content of information disseminated, it is imperative for people to be mindful of the content they expose themselves to as well as engage in adequate self-help practices to avoid falling prey to various cognitive distortions.

Keywords: COVID-19, social media, infodemic, cognitive biases, cognitive behavioural perspective.

INTRODUCTION

***"We're not just fighting an epidemic; we're fighting an infodemic"* (WHO, 2020)**

It is a historical fact that every outbreak is bound to accompany a tsunami of information. But a huge difference now is that with the universal presence of social media, information gets amplified and travels faster and further, with rumours and misinformation spreading just like viruses. Ever since the outbreak of Covid 19 pandemic, the internet is continuously brimming with countless bytes of information on its origin, spread, mitigation, treatment and so on. Misleading information spread across various social media platforms adds more fuel to the pre-existing anxiety among people. Under acute stress, this may lead to a number of cognitive

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distortions or biases in thinking. Such errors if not corrected can potentially become fixed beliefs with long term consequences on judgement and decision making. Reports of panic buying behaviour, emotional eating, behavioural addiction along with pertinent illness and death anxiety are few of the many psychological repercussions of errors in thinking in times of uncertainty.[1,2]

This article elucidates on the common cognitive biases which impact decision making during times of uncertainty, fear, and illness when one is exposed to information overload and miscommunication during times of unprecedented community health crisis.

MISINFORMATION: A COMMON SOURCE OF ERRORS IN THINKING

The use of information by social media has shown to be crucial in making health related. content easily available and accessible to people at large. [3] It not only encourages health promoting behaviour programmes but also makes people aware of prevention and control strategies. The role of information therefore becomes crucial as it is directly linked to perceptions about healthy and unhealthy behaviour. Moreover every individual's way of responding to the information obtained varies. Individual differences are an important underlying factor which determines the kind of response a person will elicit to the information they're exposed to.

As the information disseminated shapes the perception of people, it becomes necessary for social media platforms to convey information distinctly and in an impartial way. On the positive side information obtained can bring about awareness amongst people, however on the contrary information can also lead to development of unhealthy behaviours in which case the information takes a form of misinformation. As a result of misinformation, an individual might think in an irrational manner or develop various cognitive distortions.

Irrationality in thinking and behaviour might range from milder forms of arbitrary inference to severe cases of paranoia. For instance, in the early months of the pandemic, the media focussed on sanitization and hand washing as key precautionary measures against the disease spread. People who experienced mild symptoms of seasonal cold jumped to the conclusion that they had contracted the virus. Such errors occur when one arbitrarily infers an experience without substantiating it with any valid evidence. In another report, a suspected coronavirus patient, whose sample was sent for testing committed suicide by jumping off the 7th floor of Safdarjung hospital in New Delhi.[4] Unfortunately, other incidents of suicide have also been reported due to misconceptions and myths related to COVID 19 making people all the more psychologically vulnerable.

Cognitive theory explains that a situation which is perceived by an individual as highly stressful makes a person more vigilant of the surroundings leading to an overestimation of the potential for danger and catastrophizing. Thus, an individual's appraisal of the event is an important deciding factor of how he/she will respond. If an individual perceives the situation as a threat which is beyond his existing coping resources, stress is a likely response. With the given backdrop of pandemic and unavoidable stress it is essential that people engage in critical thinking while receiving any information. Deficit in critical thinking predisposes a person towards false judgements and cognitive distortions. Critical thinking keeps an individual away from jumping to any conclusions or engaging in any other form of cognitive distortion. In the light of the on-going pandemic, a lot of panic was induced due to people's inaccurate assumptions as well as poor evaluation of the information. Due to the media's portrayal of the condition of infected people on a consistent basis, some people became preoccupied with illness cognition and build up a general negative orientation. Then, even small news of discomfort is subjected to catastrophization and can result in paranoia.

Such biases occur due to the mind's habit of taking the peripheral route of processing information. The tendency to take cognitive short-cuts gets along in the way of central pathways of processing information. Critical thinking and critical appraisal is a product of detailed processing. An individual who looks for authentic sources and then calculates the reliability of information received is able to judge better and then decide accordingly. He isn't carried away in the herd mentality and can appraise a situation calmly without falling prey to errors in thinking.

FROM INDIVIDUAL COGNITION TO COLLECTIVE CONSCIOUSNESS AND VICE-VERSA

Communal prejudices and discrimination are standard examples of cognitive polarization, overgeneralization, and global labelling. An example of communal discrimination amidst the pandemic occurred after the Tablighi Jamat's Nizamuddin event. After the media headline about the Tablighi Jamat's Nizamuddin event an increasing number of new corona virus cases were reported. This followed mistreatment and blame and further strengthening of the pre-existing prejudice against a particular minority population in the country. This is an instance of 'Mirror Image Perception' wherein each group sees its own behaviour as caused by the actions of the other side. Such errors in perception strengthen the 'deindividuation' process and people get more concerned about others' actions rather than taking accountability of their individual responsibility. Similarly, false news was circulated by the United States Commission on International Religious Freedom reporting Hindu and Muslim patients being segregated into different hospital wards in Gujarat.

ACTIONS AMID CRISIS : A THEORETICAL UNDERSTANDING

There was an incident where 11 people suspected of infection and kept in isolation ran away from the hospital in Mumbai. [5]

This behaviour was attributed to social media misinformation that COVID causes serious irreversible respiratory damage in everybody. The fleeing away can be understood by trying to understand their cognitions in the context of theory of planned action. The theory of planned action states that the intention is contingent on three aspects- attitude, subjective norm and perceived behavioural control.[6] The attitude ("I don't want to be isolated like other people who are tested positive for corona virus"), subjective norm ("others are also running away so I can also run") and perceived behavioural control ("running away is an easy option and I can do it") will then determine the intention (should I run or not?). The intention is directly related to execution of the behaviour (running away). Moreover, with the media portrayal of fear during the nation-wide lockdown, a lot of people engaged in panic buying and 'hoarding behaviour' operating on the cognitive bias of catastrophization and thinking of the worst possible outcome ("the country will run out of ration") which led to poor decision making.

Media bears different impact on people depending on their age and stage of development. During teenage years, adolescents become increasingly self-conscious and hold a belief that others are noticing them. [7] Social conformity with others in their age group becomes increasingly important. They engage in behaviours which make them feel accepted by their peers and others around them. Since the corona virus cases are highlighted in by the media, adolescents and teens are following precautions to safeguard themselves. This stems from the belief that others are noticing their behaviour (imaginary audience) and to meet the criteria for social conformity. Invincibility is another characteristic of adolescents that has been associated with risky behaviour. [8] Recently media highlighted a case of a tik-tok user aged 25 who made fun of corona virus and mocked at the precautionary measure of wearing masks by people, and later tested positive for corona virus in Madhya Pradesh. Since then, a lot of tik-tok users have posted videos regarding the awareness and the reality of this infectious disease. The media subsequently updated people that not taking adequate precautions can make you test positive for corona virus. As a result of which the adolescents and teens had started taking precautions. The media has constantly been updating people about the trend of infected patients. As the likelihood of becoming infected with corona virus increases with age and the flashing headline provided by the media, the elderly have become cautious and have restricted their movement.

MISINFORMATION ON FAKE REMEDIES : A CULTURALLY ROOTED AND SITUATIONALLY CONDITIONED PHENOMENON

Misinformation spreads faster than a virus when it has an underlying religious connotation. An evident example is that of the members of a particular religious identity applying cow dung on their body as a 'protective shield' against the virus pathogen. From advocating for mass steam inhalation and recommendation of a YouTube video on the use of cow urine diluted with water as a way to defeat Covid-19 or a Facebook post regarding a particular herbal concoction for increasing falling

oxygen levels, bogus claims by prominent people multiply the deleterious effects of pseudoscientific information.[9] Treatments that rely on easily available materials go viral and spread across the community especially in times of uncertainty and fear for protection. Information then plays a central role in shaping the mass belief system.

THE SECOND WAVE : A TSUNAMI OF WORRY, PANIC AND DESPAIR

As India grapples with a devastating second wave with number of new cases and deaths taking a heavy toll on the existing health infrastructure, the panic is spreading like a wildfire. With the covid-19 running rampant and the prevailing scenario of shortage of oxygen, medicines, beds and mass cremations heavily loaded across the social media, many people are reporting psycho-somatic respiratory complaints due to irresistible panic anxiety.

Studies have also found associations between ongoing pandemic, negative emotions and increased psycho-somatic symptoms.[10] Perceived threat, biological rhythm and intolerance to uncertainty were factors associated with increased psychosomatic complaints during covid-19 breakout period [11]. Moderate to high levels of anxiety have been linked with covid-19 which directly has been associated to general somatic symptoms and gastro-intestinal and fatigue symptoms to be specific. [12]

Moreover due to nature of Covid illness and the fear of being infected, the second wave has also led to possible exacerbation of somatic symptom disorder people.[13] There have been reports from caregivers of mild symptomatic patients rushing for CT scans. This can be seen as a behavioural outcome of catastrophization and emotional reasoning.

VACCINATION : A THUMBS UP OR A NO?

Vaccine hesitancy is often fueled by both offline and online misinformation surrounding their importance, safety or effectiveness.[14] Information gaps often build on dormant doubts and increase public cynicism over vaccines.

Researches in the past have identified that both individual as well as situational factors influence behaviour and attitude toward vaccination. Risk perception and demographic charecterictcs are the most prominent of these factors.[16]

The apprehension to get vaccinated amongst the teenagers and youth can also be understood from the lens of social psychology's concept of invincibility wherein hold the belief that nothing can happen to them as result of which they undermine the severity of the nature of covid illness in general. Such a belief fades away as people grow old as they start becoming less apprehensive towards getting vaccinated. This is in line with results of a study wherein older people (55 and above) were found to be less resistant/hesitant than those aged 35-44 years towards getting vaccinated. Moreover the older people were more likely to show their intent to getting themselves vaccinated in case of vaccine availability. [17]

Moreover media reports of deaths after vaccination are received as 'arbitrary inferences' about the vaccine being 'unsafe'. Pre-occupation with the side-effects and overlooking the benefits is an example of the bias of 'discounting the positives', wherein one undermines the preventive side of vaccines. "If I take it, I am definitely going to have some serious long term side-effects" is known as 'jumping to conclusions', another commonly held cognitive bias in thinking.

As a result a number of individuals now hold apprehensions about getting vaccinated as they think that a vaccine developed in such a short frame of time wouldn't be safe and that without having years of trials, it is difficult to predict the long term side effects of the vaccine.[15] Consequently, such psychological barriers have the potential to adversely affect the aim of achieving mass coverage and community immunity.

CONCLUDING COMMENTS AND SUGGESTIONS

Regularly checking information and online media feeds can rapidly turn compulsive and counterproductive—adding fuel to pre-existing nervousness amongst people instead of easing it. Due to individual difference, the threshold may differ at which they start feeling uneasy, therefore being mindful of the information one is exposing them to becomes crucial. Moreover limiting media

consumption to a specific time may be deal with feeling overwhelmed. While being exposed to a plethora of information available during the time of COVID, people can avoid falling into the trap of cognitive errors such as catastrophization by gaining some perspective wherein they might think of times in the past which have been worse. This does not mean that people should discount the bad things happening around nor should just sit and wait for things to get better on their own. Rather a healthier way to deal with such a situation is to remind oneself of the things they are in control of and to take appropriate measures on their part. Worrying about things that are not in one's control or ruminating over information that might not be true will only create lead to more anxiety. Hence people should wait a while before they consume the information or belief it to be true. The portrayal of information by media is a risky affair. Reading or watching content based on speculations and fabrications will only serve as a source of misinformation and might even ignite it. Moreover with the on-going pandemic and infodemic, people should pick their sources right. Refer to sources which are authentic and offer a balance of information.

A lot of times people might experience significant distress due to the nature of content they are being exposed to as a result of which the information becomes misinformation. Here the role of mental health professionals (MHA) becomes crucial in order to alleviate the distress of the person and help them gain an understanding of their underlying cognitive processes which are in play and the subsequent distortions and how to rectify that. The MHA can begin to start helping the person by introducing them to the errors in their thinking and asking them for evidence for alternate explanations which might exist for their thinking. Such a view would help them gain an understanding of the situation in a more realistic way.

Overall the way people would heed to the early warnings depends upon whether infodemic causes them to give in to cognitive biases and become all the more fearful or they become mindful and habituated of the impact caused by alerts and safety protocols amidst the infodemic. It is imperative to note that clear, coherent, and consistent information by the government is crucial to building public faith in vaccine programmes. This encompasses explaining essential information ranging from how vaccines work, are developed and approved to the time needed for protection to generate required effects. Credible and culturally informed health related communication is vital in reinforcement of positive health behaviours.[18]

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Glorious History of the Central Zone of Indian Psychiatric Society : Reminiscing the Past

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It's been a pleasure and pain to compile the history of the Zone, which will be completing 50 years soon. This task was the brain child of the current Honorary General Secretary– Dr. Ganesh Shanker, and I (Shrikant Srivastava) am still wondering how I got involved in this. However, since I took the responsibility of writing the present monologue, I had to find ways of obtaining factual information. Luckily, the members who were actively involved in the earlier stages of the Zone - such as Profs A. K. Agarwal, R. K. Mahendru and K. C. Gurnani, were very helpful in giving narrative accounts of those past days.

My *modus operandi* in this instance, was to contact the senior members and get their reminiscences, which I would note down and later cross reference with other sources. From the information gathered, it became apparent that 1990 onwards, writer records such as letterheads and souvenirs of past conferences were available with the members, who were gracious enough to forward them to me. However, 1970s was enshrouded in mystery and lore, while some factual information was available for the 1980s whereas the data from 1990s is fairly complete with written records such as the list of office bearers published in the journal of the society. Needless to say that the following account given of the first two decades is based mainly on anecdotal evidence.

Another source of information was an article written by Prof. A. K. Agarwal in the Central Zone journal - Indian Journal of Behavioural Sciences in 2003, celebrating the 25 years of the history.

Thus, this is a work in progress, and I will be modifying it as new information becomes available. There is a spreadsheet containing factual information about the Zone such as office bearers, conference organisers and place for every year, which should be referenced along with this narrative. The spreadsheet can be accessed from the website of the zone (https://cpscentralzone.org).

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FORMATION OF THE ZONE

'In early 1970s, Indian Psychiatric Society mooted the concept of Zones, as it was felt that one annual meeting was not sufficient to provide the platform for professional advancement and discussion of regional and local issues'.[1] Thus, the states of Uttar Pradesh and Madhya Pradesh formed the Central Zone of Indian Psychiatric Society. Prominent personalities in the field were asked to nominate Zonal Representatives to be sent to the central body. Uttarakhand and Chhattisgarh were designated as States much later, and thus also became part of Central Zone of Indian Psychiatric Society.

Prof. B. B. Sethi (Lucknow) nominated himself and Prof. O. N. Srivastava (BHU) to form a Zone, and the former was nominated as the Coordinator for the Zone; the January 1973 issue of the Indian Journal of Psychiatry for the first time mentions 'Zonal Coordinators' and Prof. B. B. Sethi holds the post for the Central Zone. Prof. A. K. Agarwal took over as the Zonal Coordinator in 1975[2], and under his leadership, the first conference of the Zone was organised in 1975, and again in 1976; both the conferences were organised at Lucknow.

An interesting version of this period has been given by Prof. K. C. Gurnani.

Prof. Gurnani (2021-05-05)

> *The version of Prof. Sitholey has made me to recapture some old memories and his version just cannot be kept aside. It is great on the part of Prof.*

Agarwal that he has given credit to the two luminaries of their time but a few faint memories of mine give some different view to be pondered upon.

Along with Dr. V. K. Bhat, we three other faculty, Dr. Behere, Dr. Indira Sharma and myself, were involved in the initial process of organising the third conference.

The very natural question which would have arisen in any person's mind at that time would have been that when and where the last conference was organised and who were the office bearers. In the light of towering image of Prof. Sethi, we had presumed that it would be naturally him only who would be the president. And I get a kind of flash memory/or a kind of retrospective falsification, a conversation amongst we three, leaving Dr. Indira Sharma aside, as she had come from KGMC itself and the fact was not new to her, that it was not Prof. Sethi but Dr. Agarwal who was the president. And this information was a kind of wide opening of our eyes.

The young generation of psychiatrists may not be aware of the influence of those two towering figures of their time. I get a feeling that in the present group of central zone, beside Prof. Agarwal and myself there may not be any one else who had had close encounter with those two luminaries together, albeit in a different fashion. And hence, the news was a kind of shock to us.

And so, when Dr. Shashi Rai conveyed the version of Prof. Agarwal, it appears he stated so out of his respect for our seniors and the makers of psychiatry in UP and MP. The two states at that time had not further divided.

What I have narrated may be my retrospective imagination only, but Dr Indira Sharma, Dr Mahendru, Dr AK Tandon and Dr C S Rastogi were present in that conference and these all are the alumni of KGMC. They must be having a better information than me.

Incidentally Dr C. S. Rastogi (cf Dr. C. K. Rastogi) *was elected as Hon. Secretary of the association.*

From such humble beginnings, the Central Zone of Indian Psychiatric Society was officially registered in 1983 (almost 10 years after its inception), and in 2019 the name was changed and registered as Central Psychiatric Society (henceforth referred to as CPS), thus signifying a break from the 'apron strings' of the mother society.

ANNUAL CONFERENCES

The Zone organised the first conference in 1975 at Nur Manzil Hospital. It was attended by the leaders in the field such as Prof. K. C. Dube from Agra, Prof. O. N. Srivastava and Dr. Shabd Saran from Gwalior; Lucknow had the biggest representation with Prof.Sethi spearheading KG Medical College, Dr. V. R. Thacore and Dr. M. Foye from Nur Manzil hospital, and Commander T. R. DeNitho from the Command Hospital in the city. The attendees were requested to 'present the faculty present in their centers and to suggest the ways for advancement of psychiatry in their respective areas.'[(1)]

The next conference was held again at Lucknow in 1976, with Prof. A. K. Agarwal (Lucknow) as the Organising Secretary and was attended by a large number of delegates from both the states - 12 in total! (It is to be seen in the context that there were a handful of psychiatrists in the country, and the states of UP and MP were no exception, and at this time, only Lucknow, Agra and BHU (1973 onwards, with Prof. O. N. Srivatava as the first Head) were training centres in Psychiatry). To accommodate this large number of delegates, the conference was held in Brown Hall of KGMU which can accommodate at least 100 people. Prof.Agarwal endeavoured in these early stages, to involve prominent psychiatrists from both the constituent states of the Zone, who will then nurture the fledgling organisation in their respective geographical areas.

The next conference was held after a gap of 4 years (the story goes that Prof. Agarwal left for UK for 1 year fellowship in 1976, and as he was the impetus behind the fledgling organisation, and no further conference was organised for next 5 years).

Prof. V. K. Bhat of BHU took the lead in organising the next meeting in 1981, and at this meeting Prof. C. K. Rastogi (Gorakhpur) and Prof. Anil Kumar Tandon (Allahabad) were elected as General Secretary and Treasurer respectively. Prof. Gurnani was the organising secretary for the 3rd annual conference, heading the coordinated effort of all the faculty of BHU at that time - Dr. Prakash Behere and Dr. Indira Sharma.

Since then a conference is held every year, and the number of delegates and the choice of venues, increased consistently; subsequent conferences were organised in diverse places like Nainital, Faizabad, Raipur, to name a few.

The year 2020 was exceptional when the Corona pandemic stopped all such meetings. After many deliberations, in online EC meetings, the 2020 conference was held on the Zoom platform in Jan 2021.

THE EARLY DAYS

The early conferences were 'informal affair' where 'hospitality' was the onus of the organisers. The money generated for the organisation of the conference was earned through delegate fee and advertisements of pharmaceutical companies in the Souvenir published. In simple words, there was no sponsorship from pharmaceutical companies for the conferences, and the cost of hosting the conference was generated by the organisers.

Prof. P. K. Joel shared an interesting recollection from his memory. *These early conferences were a 'family affair', where the wife of the Organising Secretary, although the name was never mentioned in the Souvenir, had the responsibility for organising activities outside the conference, for the wife and children of the delegates attending!*

The conferences were also 'given' rather than 'bid for' in the Annual General Body Meetings.

CIPCON

The term - Annual Conference of Central Zone of Indian Psychiatric Society, continued till about 20 years since the inception of the Zone. The more familiar name of CIPCON was instituted only in the annual conferences in 1995 organised by Prof. Gurnani at Agra.

Significant Post Holders and Events of the CPS

For the decade of 1970s, the Zone only had a Coordinator. Subsequently, various posts such as it exists now, were instituted in later years. The posts for President, General Secretary, Treasurer and Editor were created at 1981 Varanasi conference.

1. **First conference** of the Zone was held at Lucknow in 1975 (mentioned above).
2. **First President** of the Zone was Prof. Bhat, elected to the office during the Varanasi 1981 conference, and he was succeeded by Prof. A. K. Agarwal next year.
3. **First Honorary General Secretary** was Prof. C. K. Rastogi (Gorakhpur), to the best of recollection of senior members of the Zone.
4. **First Treasurer** was Prof. A. K. Tandon (Allahabad)
5. **First Editor** of the Journal of Behavioural Sciences was Prof. JK Trivedi, as the Journal was instituted at the 1981 BHU meeting. However, no issue was published in that year as 'there were no articles submitted to the Journal'. After the completion the term of the Editor in 1983, Prof Indira Sharma took the charge of the post and published the very first issue of the Journal.
6. **First Election Commissioner** of the Zone was Dr. J. P. Narayanan, who conducted the election process in 2012. The proposal to have the office bearers to be elected, and not nominated of the 'floor' was taken in the 2011 conference at the behest of Dr. S. P. Gupta of Agra, who was the Honorary General Secretary at that time.

B. B. Sethi Oration

The Zone had instituted Central Zone Oration, the origins of which are lost in the mists of the time, and probably began in mid-80s when the Zone had become 'an adolescent'. Prof. B. B. Sethi, a nationally recognised figure and the first Coordinator of the Zone, passed away in 1996 (or 1997), and in 1998, Prof. Narottam Lal suggested that the CZ Oration be named after this towering personality, which was agreed. I am assuming that this would have taken place in the 1998 conference.

Tara Naidu Award

Dr. Hemant Naidu of Nur Manzil hospital at Lucknow, had been an active member of the Zone. In the 2002 conference at Faizabad, he proposed the aforesaid award in the memory of his late wife. The first Tara Naidu award was given at the Lucknow conference of 2003.

Both the above awards are seriously contested at the time of writing this missive.

Constitution of the Zone and other Important Decisions

1. From the recollection of senior members of the Zone, the Constitution was formulated in 1985. However, the names of the working group for this endeavour are not known.
2. With conferences being organised every year, and the number of delegates increasing, the position of the offices became a prestigious affair. However, a disturbing trend emerged where members wanted to be elected to an office, but had no inclination to participate in the target meeting - either due to personal or professional reasons. Prof. A. K. Agarwal formulated the rule that all the aspiring office bearers have to be present in the annual general meeting for them to be elected/nominated to the office. This rule till date exists and is followed both in letter and spirit.

Moving towards electronic era

The CPS has been gradually adopting the computers and digital ways of working. The election process of 2019 was made entirely transparent with every facet of the election process being recorded on a spreadsheet.

The Corona epidemic of 2020, and the accompanying lockdown, made a farce of the election process which necessitated some drastic changes in the ways of working. In 2021, Dr Shanker as the Honorary General Secretary, took the initiative of introducing computer driven process and electronic record keeping. Thus, with his efforts the CPS has a spanking new website, including a security enabled members directory.

At the time of writing this article - July 2021, an electronic membership form is being piloted, and the Indian Psychiatric Society has asked for a demonstration of the whole process!

In the present age of electronic communications, it is worthwhile to mention that the Central Psychiatric Society started a help line for psychiatric patients and caregivers. The infrastructure was formed in collaboration with a private company – CWTCH, and began working on 8-June-2021!!! A database of the calls is being kept, and audit of which will be carried out at periodic intervals to improve the service.

Last Remarks

I am acutely aware that this is a bare bone sketch of the Society, but historical information gathering is an arduous process, and I intend to keep this page updated on the website!!!!

Thank you.

ACKNOWLEDGEMENT

We are very grateful to all the members of the Zone who participated in the information gathering exercise to write this article. We like to mention some of such generous personalities here. In alphabetical order – A. K. Agarwal (Lucknow), A. K. Tandon (Allahabad), A. K. Trivedi (Raipur), C. K. Rastogi (Gorakhpur), Indira Sharma (Varanasi), K. K. Gurnani (Agra), Nand Kishore (Dehradun), P. K. Joel (Jabalpur), P. N. Shukla, P. Sitholey (Lucknow), Rajni Chatterjee (Indore), Shashi Rai (Lucknow).

We also like to acknowledge Dr Vidya K. L. who devoted time in cleaning up the manuscript and giving valuable suggestions.

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CASE REPORT

Trihexyphenidyl Withdrawal Parkinsonism : A Rare Case

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ABSTRACT

Trihexyphenidyl is a commonly prescribed antiparkinsonian medicine. Its use in psychiatry is especially prevalent because it is commonly prescribed with most of the typical and atypical antipsychotics such as risperidone. In Neurology it is used as adjunctive treatment in Parkinson disease and some other movement disorders such as dystonia, tremors etc. In both the settings the use of trihexyphenidyl is often prolonged. In such situations stopping trihexyphenidyl can be tricky as rapid stoppage can lead to parkinsonian symptoms. This article describes a rare case of Parkinsonism developed following sudden withdrawal of trihexyphenidyl after very long use. Furthermore, this case is being discussed as how such clinical conundrum was missed by neurologists and medical practitioners resulting in delay in diagnosis and management of the patient.

Keywords: Trihexyphenidyl, Anticholinergic, Antipsychotic, Movement disorder, Parkinsonism.

INTRODUCTION

Trihexyphenidyl belongs to class of anticholinergic drug.[1] It has multiple usage but in Psychiatry and Neurology its widely used in the treatment of movement disorders or prevention of movement disorders along with antipsychotics. Its beneficial property in ameliorating movement disorders is because of reciprocal increase in dopamine levels in nigrostriatal pathway following blocking of central muscarinic receptors.[2] After prolonged use however, when it is stopped suddenly, a cholinergic rebound occurs in the body which leads to parkinsonian and other movement disorders.[3] Managing Trihexyphenidyl withdrawal Parkinsonism is challenging in terms of appropriate selection of drugs. In elderly population this challenge increases as Trihexyphenidyl can cause cognitive deficits and it needs to be taken care of.[4]

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CASE REPORT

Mr. X, a 74 years old married retired hindu male hailing from rural background in Uttar Pradesh got admitted in male ward, of our department on 06/09/2016 with chief complaints of excessive salivation, slurring of speech, generalized weakness, decreased voice tone, stiffening of body, tremulousness in both hands, and forward bending of body for 3 months.

On detailed evaluation it was observed that patient was taking tablet Trihexyphenidyl 2 mg thrice daily and tab clonazepam 0.25 mg twice daily for 20 years. Whenever the patient tried to stop these medicines on his own, he

used to develop decreased sleep, restlessness and anxiety. For last 1 year he developed memory complaints which were occasional. Once he also forgot the way of his destination. For this he was taken to a Neurosurgeon on 13/06/2016 who stopped Trihexyphenidyl and clona-zepam and started tablet Rosuvastatin (20 mg), Piracetam (800 mg) and tab Donepezil 10 mg daily. With 10 days of this treatment the patient started to have excessive salivation, slurring of speech, generalized weakness, decreased tone of voice, stiffening of body, tremulousness of both hands and forward bending of body. With these complaints he consulted a Neurophysician who started tab Levodopa+ Carbidopa (125 mg TDS), and tab Glycopyrrolate (2 mg OD) but no improvement was seen. Following this, he was admitted in the department of Neurology of our hospital on 05/08/2016 and he was prescribed Levodopa+ Carbidopa (125 mg TDS), Amantadine (100 mg OD), Vitamin E (400 OD), and clonazepam (0.25 mg sos). With this treatment he showed some improvement but not to a satisfactory level. 8 days prior to admission his condition deteriorated further, his speech output further decreased, he was having difficulty in moving his body, showed hallucina-tory behaviors, and some muttering in sleep.

There was no history of fever, head trauma, seizures and any substance use. There was no history of weakness in any part of body, falls, loss of consciousness, delusions, his limbs not in his control, difficulty in looking upwards or downwards, inability to maintain balance and unawareness of micturation and defecation.

20 years back, the patient complained of seeing things not seen by others, fearfulness, suspicious that he might be harmed and decreased sleep. He was consulted to a Neurologist who prescribed Trihexyphenidyl (2mg TDS), Clonazepam (0.25 mg BD) and some other medicine (documents not available). His symptoms got improved within a month but he didn't go on follow-up visits. According to the patient since Trihexyphenidyl and clonazepam were cheaper medicines he continued with only these 2 medicines and always refilled his medicines on his own. At times, he tried to quit these medicines but he used to get severe withdrawal symptoms results in continuous consumption of medicines without consulting the Neurologist.

There was no family history of any psychiatric illness. Birth and early development history couldn't be elicited because of lack of proper informant. He studied upto class 10th and worked as farmer. He never consumed any substance of use and had well adjusted premorbid personality.

General examination revealed Blood Pressure of 120/70 mm Hg in supine position and pulse rate of 84/ minute, regular and normovolemic. Among systemic examination the prominent findings were flexed attitude of both upper limbs, cog-wheel rigidity in both upper limbs and lower limbs, power of grade 4-/5 in all 4 limbs, bilateral resting tremors in both upper limbs, slow gait with forward stooping, reduced arm swing with problem in turning and festination.

His mental status examination revealed that he was of mesomorphic built and was conscious, alert, oriented to time, place and person, cooperative and rapport was established. He maintained eye contact but had masked facies and decreased psychomotor activity. Attention was drawn and sustained. He felt good subjectively but objectively looked apathetic. Range of affect and intensity was decreased. No thought or perceptual disturbance was found. Immediate, recent and remote memory was intact; Intelligence was average, thinking abstract, judgment intact and insight of grade IV.

His Mini Mental Status Examination score was 27/30.

Investigations- Hemoglobin- 12.8 g/dl, total Leucocyte count- 7200 cells/mm3, DLC- N72 L22 E05 M01 B00, platelet count- 1.85 lakh cells/mm3, Random blood sugar-108 mg/dl, Liver function test- Normal, Serum Sodium-141.9 mmol/l, serum Potassium- 4.01 mmol/L, serum Calcium- 4.20 mg/dl, serum TSH-1.09 uIU/ml, Urine Routine Microscopy- Normal, MRI brain- Cerebral atrophic changes.

After detailed evaluation a provisional diagnosis of Trihexyphenidyl withdrawal Parkinsonism was entertained. The patient was given tab Trihexyphenidyl (2mg, TDS), Calcium (500mg, OD), Multivitamins (1 OD), Vitamin E (400 mg, OD). For sleep he was given tab Zolpidem (5mg HS). With this treatment he started showing improvement in sleep, excessive salivation, rigidity, tremors of hands, slowing in movements and tone of his voice increased. After waiting for 1 week on this treatment the patient showed improvement in most of the symptoms except rigidity in hands, which was

still present in considerable severity. Thus, Amantadine (50 mg BD) was added and the patient showed improvement in rigidity also. Till writing of this case report the patient has come for monthly follow-up regularly. On each visit the dose of Trihexyphenidyl was reduced by 1 mg/ month for 3 months. The patient didn't show any deterioration in motor symptoms on decreasing the dose of Trihexyphenidyl. However, he complained of memory deficits but not amounting to dementia on evaluation. After 3 months, on further decrease in dose of Trihexyphenidyl he again developed salivation and rigidity. So the rate of decrease in the dose was reduced to 0.5 mg every 3 months. Now he is maintaining on 1mg/day of Trihexyphenidyl. His memory complaints have also decreased by now.

DISCUSSION

From the history, clinical examination and mental status examination it was clear that the developed acute parkinsonian symptoms suggested by rigidity, slowness in walking with decreased arm swing and festination, tremor, forward stooped posture, masked facies, and excessive salivation. Start of these symptoms was temporally correlated with stopping of Trihexyphenidyl and clonazepam. In first instance it seemed to be a case of Trihexyphenidyl withdrawal parkinsonism. However, we entertained different other possible diagnosis also.

Antipsychotic induced Parkinsonism was ruled out because patient was not taking any antipsychotic medication. Idiopathic Parkinson's disease was also ruled out because the patient had sudden onset of symptoms and bilateral tremor along with poor response to Levodopa and Carbidopa. Vascular Parkinsonism was not a possibility because upper limb involvement was more than lower limb. Because of history of hallucinatory behavior and parkinsonian symptoms Lewy body Dementia seemed possibility but the patient didn't meet the core criteria such as fluctuating attention. There was one episode of forgetting his way to destination but that was an isolated episode and can't be conclusively said to be difficulty in navigation. Also there was no history of any syncope, REM behavior disturbance or presence of delusion. Presence of parkinsonian symptoms and difficulty in vertical gaze might point to Progressive supranuclear palsy (PSP). However, it's hard to imagine that PSP will have such an acute onset. Moreover, the patient didn't show backwards fall, and ocular manifestations of PSP. The patient didn't had any autonomic disturbance which is the hallmark of Multisystem atrophy (MSA).

Apart from movement disorder the patient was attentive, oriented to time, place and person, without any fluctuation in symptoms and there was no reversal of sleep wake cycle. Thus delirium was ruled out. Dementia was also ruled out from screening by MMSE.

Other primary psychiatric disorders were also ruled out.

After establishing the diagnosis the next challenge was treatment. Since the patient's symptoms responded to Trihexyphenidyl the next question was how long it should be given and how slow should be withdrawal. Withdrawal was necessary because patient had earlier complained of memory deficits.

Based on another study of Trihexyphenidyl withdrawal in schizophrenia we thought of withdrawing 1 mg of Trihexyphenidyl every month. The previous study recommended down titration of 1 mg/2 weeks[4].

Significant improvement in the subject, necessitate the importance of thorough clinical as well as treatment history in making a diagnosis, otherwise such kind of iatrogenic syndromes will be missed and medical fraternity will be at fault for the suffering of the patients.

Declaration of patient consent – An informed written consent was taken from the patient to report this case

Financial support – Nil

Conflict of interest – Nil

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A Case of Chronic Psychogenic Belching, Responded to ECTs -? Masked Depression

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INTRODUCTION

Belching is expulsion of air from the upper gastrointestinal tract. It's a physiological process in which the ingested air is expelled out through mouth to relieve the distention. An average rate of 30 belches/24 hours is considered normal.[1] Some patients present with excessive belching that markedly affects their day-to-day life and out of those 50% have symptoms of dyspepsia.[2]Belching can be of two types, gastric and supra-gastric belching. The physiological belching in which the ingested air originating from the stomach is expelled out, is called gastric belching. On the other hand, when air is expelled out before reaching the stomach, it is called supra-gastric belch.[3] It has been implied that supra-gastric belching begins as a voluntary attempt to relieve any upper GI discomfort and eventually becomes a learned behavior.[4] It has also been demonstrated that the frequency reduces when patient is distracted and disappears during sleep, implying that there might be a psychological factor associated.[5]

Belching, sometimes is the primary presenting complain in patients, who may become resistant to treatment and are difficult to treat. This case has been reported to present the challenges faced while managing one such patient.

CASE

A 36-year-old married female, handloom weaver, presented to the psychiatry OPD with her husband with complains of persistent belching for 15 days. Patient was apparently alright 15 days back when she developed belching, which would persist throughout the day with varying intensity and would stop only when the patient falls asleep. Due to excessive belching, patient would complain of heart burn and nausea and would eventually induce vomiting to relieve the discomfort. Patient was extremely troubled by it and reported it to be quite debilitating as it was affecting her day-to-day activities.

Similar complaints were reported 4 years back when following a 2-day episode of vomiting and gastritis, patient developed belching for which she consulted multiple general practitioners and gastroenterologists, underwent multiple blood investigations, endoscopies and manometries, all of which were within normal range. Patient was tried on proton pump inhibitors, antacids and baclofen, however, did not report any improvement in symptoms. Patient was finally referred to a psychiatrist to rule out any functional etiology and was put on Dosulepin 75mg to which the patient showed almost 100% remission in belching for about 6 months. However, has currently worsened while on medications and was admitted.

While interviewing the patient and her mother, they informed about significant interpersonal issues and frequent fights between her and her husband and reported this worsening to have been preceded by one such incident.

On mental status examination, patient was conscious, cooperative, was seen belching during the interview, the belching used to stop while the patient was talking and would resume soon after. The frequency would increase when patient was spoken to about her stressors and interpersonal issues with husband. Patient had a depressed affect, was preoccupied with her presenting somatic complaints, had death wishes and ideas of helplessness, hopelessness and worthlessness.

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On routine investigations, patient's complete blood counts, liver function tests, serum electrolytes, TSH and kidney function tests were all within normal range.

Patient was shifted over to Desvenlafaxine 100 mg. During the ward stay, patient was seen to be quite distressed by the belching and would disturb the other patients at night and thus, had to be shifted to an isolation room. Patient was also started on inj. Lorazepam 6 mg in divided dosing for the same. Along with medications, patient was psycho-educated and explained about the mind-body relation. Supportive psychotherapy was done and interpersonal stressors with husband were addressed. Patient was also counselled regarding the negative consequences of belching and was explained positive coping strategies.

However, after 15 days of admission, patient reported no improvement and was then shifted to Sertraline 100mg and was started on ECTs. After 4 ECTs, patient reported almost 70% improvement and by the 6th ECT, reported 100% improvement. The patient was subsequently discharged and on follow up after 15 days, reported to be maintaining well.

DISCUSSION

The case described above was diagnosed as conversion disorder with dysthymia. It can be deduced that her psychological factors were contributing to her somatic complaints and her belching was masking her underlying depression. However, she did not show any improvement with antidepressants and responded to ECTs. ECTs have been reported to show improvement in somatic symptom and conversion disorders with comorbid depression previously. For example, a study done by Leong *et al.*, out of 21 patients suffering from somatic symptom disorder, 18 showed improvement in pseudo neurological symptoms and 14 showed improvement in pain symptoms upon receiving ECTs.[6] Similarly, a 55-year-old female with somatic symptom disorder with comorbid severe depression,who did not respond to medications, responded well to 7 ECTs.[7] This case report was intended to add on to the existing literature of effectiveness of ECTs in conversion and somatic symptom disorders who have underlying depression.

Declaration of patient consent –An informed written consent was taken from the patient to report this case

Financial support – Nil

Conflict of interest - Nil

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Risperidone Induced Angioedema with Extrapyramidal Symptoms : A Case Report

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ABSTRACT

Angioedema is a skin reaction similar to urticaria. It is most often characterized by an abrupt and short-lived swelling of the skin and mucous membrane. Angioedema is reported as a rare adverse effect with risperidone, clozapine, ziprasidone, droperidol and chlorpromazine. We report a case of risperidone induced angioedema in a patient, on treatment for first episode psychosis (Brief psychotic disorder with postpartum onset).

INTRODUCTION

Risperidone is an antipsychotic belonging to benzisoxazole derivative. Risperidone acts as an antagonist of dopamine type 2 (D2) and serotonin type 2 (5HT2) receptors. This effective antipsychotic is widely used in treating patients diagnosed with schizophrenia, bipolar disorder, autism spectrum disorder, tourette's syndrome, dementia and delirium [1]. Clinicians bring risperidone in use to address symptoms of psychosis, aggressiveness, irritability and hyperactivity. Weight gain, increased appetite, extrapyramidal side effects and sedation have been found as adverse effects of risperidone [1].

Angioedema is a rare adverse effect seen in patients taking risperidone, as described in recent case reports by Cooney 1995, Kores 2001, and Soumya 2010 [2,3,7]. Angioedema is an abrupt swelling of skin, mucous membrane which can include upper respiratory and gastrointestinal tracts. Angioedema can be life threatening if it compromises the airway. There are different varieties of medications which can cause angioedema like angiotensin converting enzyme inhibitors, insulin, aspirin, NSAIDs, beta-lactam antibiotics and sulfonamides [4].

We are reporting a case of risperidone induced angioedema with concurrent extrapyramidal symptoms and searching the mechanism behind these adverse events.

CASE

A 30-year-old breastfeeding woman presented to emergency department with 15 days history of swelling of perioral region, increased salivation, stiffness of all four limbs, up-rolling of eyeballs and difficulty in speaking. On taking detailed history of the patient from patient's attendant(s), she had an episode of disorganized speech, self-muttering, disturbed sleep and poor self-care few days after the delivery of child two months back. Patient was consulted to a private practicing psychiatrist who prescribed her tablet risperidone 4mg/day along with tablet trihexyphenidyl 4mg/day. Within two weeks of initial treatment, patient got fully improved. Retrospectively, the diagnosis of 'brief psychotic disorder, with post-partum onset' [DSM-V] can be made for this case. Though, patient had no functional deficits, thereafter, patient was continuing tablet risperidone 4mg/day along with tablet trihexyphenidyl 4mg/day on the advice of concerned psychiatrist.

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Figure 1. Angioedema of lips noted on admission in emergency department. *(Photograph was printed with patient's permission.)*

Patient developed extrapyramidal symptoms one week after the occurrence of perioral edema. On presentation at emergency department, she denied difficulty in swallowing, shortness of breath, chest pain or wheezing. There was no past history of any allergic reaction, asthma or food-related allergies. On examination, her vital signs were stable without evidence of impending airway obstruction :temperature 36.8 degree C, pulse rate 80 bpm, respiratory rate 16 per minute, blood pressure 116/72 mmHg, SpO_2 98% on room air and weight 40 kg. However, she had significant pallor on general examination. There were no breathing difficulties. She was noted to have stiffness around face, upper and lower lip swelling, drooling of saliva and increased muscle tone in all four limbs. She was alert and oriented to time, place and person.

After detailed examination, risperidone was stopped, and injection promethazine 50 mg intramuscular stat was given following which extrapyramidal symptoms resolved and patient became ambulatory and started speaking with no difficulty. Detailed investigations (hemogram, liver function test, renal function test, serum electrolytes, electrocardiogram) were sent. On hemogram, patient had hemoglobin level of 5.5 g/dl and all other investigations were found to be normal. Following this, a diagnosis of risperidone induced angioedema with concurrent extrapyramidal symptoms were made. Injection dexamethasone 4 mg along with tablet trihexyphenidyl 4 mg two times a day were given for 3 days. Later on, injection dexamethasone was replaced with tablet prednisolone 5 mg two times a day. She was closely monitored for the symptoms of psychosis and edema. Over the period of next 5 days, her edema got subsided following which she was started with tablet olanzapine 5 mg/day as treatment for first episode psychosis. For severe anemia, patient was transfused two units of packed RBCs after which patient's hemoglobin level increased satisfactorily.

DISCUSSION

Angioedema is characterized as painless, non-pruritic, non-pitting, and well circumscribed areas of edema involving deep layers of skin due to increased vascular permeability mediated by neurotransmitters like histamine, serotonin and bradykinin leading to dilatation of arterioles and vascular leakage in the venules [4]. It usually involves face, tongue, extremities, genitals and in severe cases can result in laryngeal edema and airway obstruction which may lead to death [5].

Angioedema, a rare side-effect was first reported in 1995 by Cooney et al. They reported a case of a 30-year-old female with a diagnosis of schizophrenia developed angioedema within two weeks of starting with oral risperidone 6 mg/day. When the dose was halved, angioedema subsided and when the dose was increased to 6 mg/day further, angioedema recurred in 3 days.

The most recent case reported in 2010 tells that a 15-year-old boy with a diagnosis of schizophrenia was started with oral risperidone 1 mg/day. Over the next 2 weeks, patient had 25% improvement following which dose of risperidone was doubled. Within a week of increment, patient developed periorbital edema and swelling around lips. When risperidone was discontinued, the angioedema resolved within one week [3].

In our case, angioedema developed after one and half months of treatment with risperidone implying that there is no specific time framework for the onset of angioedema. A commonly drawn conclusion after literature review is that risperidone induced angioedema occurs in a dose dependent manner. In the most reported cases, angioedema occurred when the dose was increased, and it resolved when the dose was reduced or on discontinuing the medication. There was no specific dose reported at which angioedema occurred. The doses

with reported adverse effects started from as low as 1 mg/day to as high as 10 mg/day. In our case, one unique finding was the occurrence of angioedema concurrent with extrapyramidal symptoms. Also, extrapyramidal symptoms occurred even on ongoing intake of trihexyphenidyl. Our patient was severe anemic with hemoglobin level of 5.5 g/dl at presentation. The association of anemia along with lean and thin built of patient with extrapyramidal symptoms could be made as it is evident from the established factors causing EPS due to antipsychotics. Moreover, anemia as a risk factor in causing angioedema could be further studied, as found in our case. Occurrence of both angioedema and extrapyramidal symptoms warrant our clinicians to make the patient aware of these adverse effects when patient starts taking risperidone and to seek help at emergency as soon as symptoms develop.

The mechanism of risperidone induced angioedema is unclear but there are few hypotheses which can be considered. Blockade of 5HT2 receptors with risperidone can potentially increase cAMP which relaxes vascular smooth muscle and lead to edema [6]. Second, it is possible that risperidone's action on muscarinic M1, histaminic H1, serotonin 5HT2 receptors can downregulate the adenosine triphosphate dependent calcium pump and lead to a secondary reduction in smooth muscle contractility, resulting in vasodilation and edema [6].

As concrete etiology of risperidone induced angioedema and EPS remain unclear, further research and clinical studies are needed to be done. Meanwhile, the present case from our medical college may act as eye-opener for practicing clinicians to consider angioedema concurrent with extrapyramidal symptoms as rare side-effect from risperidone.

Declaration of patient consent – An informed written consent was taken from the patient to report this case

Financial support – Nil

Conflict of interest – Nil

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Critical Appraisal of Gaming Disorder and Hazardous Gaming in ICD-11

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To,
The editor
Indian Journal of Behavioral Sciences

Subject : **CRITICAL APPRAISAL OF GAMING DISORDER AND HAZARDOUS GAMING IN ICD-11**

Respected Sir,

Gaming disorder has always been a diagnostic dilemma, till DSM 5 in 2013 characterized gaming disorderfor the first time, as the only behavioral addiction, under the category Internet Gaming Disorder(IGD)[1]. Over time variable definitions have been given for gaming disorder, the lack of proper operational definition made it difficult to clearly define it and identify people suffering from the disorder. DSM 5 proposed 9 symptoms of internet gaming disorder. Under the proposed criteria, a diagnosis of internet gaming disorder would require experiencing five or more of these symptoms within a year. Symptoms like preoccupation, tolerance, withdrawal symptoms and continuing use despite knowing harmful use could be assessed objectively. However the other 5 symptoms- Inability to reduce playing, loss of interest in previously enjoyed activities due to gaming, deceiving family members or others about the amount of time spent on gaming, use of gaming to relieve negative moods and having jeopardized or lost a job or relationship due to gaming being subjective symptoms lacked the validity. Screening tools were also found to be inconsistent due to this subjective variability of the inter-pretation of the problem by the individual[2]. No empirical evidence of cut-offs made the criteria highly variable. ICD 11 modified the criteria of IGD and redefined it as Gaming Disorder(GD) (6C50) shifting the focus from the cause of addiction to the actual content of addiction[3]. It emphasized on the end result *i.e.* the problem of gaming addiction specifying that gaming disorders can be both online and offline and internet per say need not be the only cause for it. ICD 11 requires the fulfilment of only 3 criteria-1) impaired control over gaming (*e.g.*, onset, frequency, intensity, duration, termination, context); 2) increasing priority given to gaming to the extent that gaming takes precedence over other life interests and daily activities; and 3) continuation or escalation of gaming despite the occurrence of negative conse-quences for a period of 12 months. This criteria is based on behaviourally oriented symptoms which can be assessed more objectively by the psychiatrist making it a more well defined criteria. They have narrowed it down to three criteria making it more concise while keeping in mind all the major domains affected by behavioural addictions, improving the application of this criteria. However, terms like-onset, frequency, intensity, duration, termination and context need to be defined further to make the criteria more objective which will help in standardizing the criteria for behavioural disorders.

ICD-11 also gives a separate code QE22 for the diagnosis of a new entity- "Hazardous Gaming"[3]. Instead of being classified under "Mental, behavioural or neuro develop-mental disorders" like other psychiatric illness, ICD 11 places it under another special category – "Factors influencing health status or contact with health services-

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Problems associated with health behaviours". Hazardous gaming differs from gaming disorder such that it focusses on the **hazardous outcome** of gaming (online or offline) on the individual as well as others around the individual rather than just focussing on the addictive behavioural problem of the individual[4]. The increased risk for hazardous outcome have been implicated to frequency of gaming, time spent on it, neglect of other activities and risky behaviour associated with it as well as persistent pattern of gaming despite being aware of the increased risk of harm to the individual or to others.

However, no clear criteria has been mentioned regarding the content, frequency and magnitude of hazardous outcomes that is needed to be classified under this category.

More research is needed to validate both the new criterias put forth by ICD-11 and a more discrete and standardized outline needs to be derived so that they can act as a model for other upcoming behavioural addictions like internet addiction, social media addiction and smart phone addiction which still lack a separate diagnosis in both ICD-11 and DSM-5.

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Music Therapy in Dementia

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"Music is the shorthand of Emotion."

– Leo Tolstoy

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Non-pharmacological methods for managing behavioural and neuropsychiatric symptoms of dementia have been the focus now to improve the quality of life in these individuals. Music therapy is a cost effective, easy to implement and promising intervention in elderly with dementia syndromes including Alzheimer's disease, which is the most common cause of dementia. Research has shown that music therapy has a role in reduction of mood symptoms including depression, anxiety and agitation and recent literature also supports the beneficial role of music therapy in improving the cognitive functions including attention, orientation, memory, psychomotor speed and executive functions, especially when combined with other activities like singing, rhythmic movements and dancing. Hearing music has been found to increase the involvement with the environment in individuals with late stages of Alzheimer's who were disconnected from their surroundings. Music therapy is a powerful tool with acute benefits in people with dementia and its efficacy has been well established. The theories of mechanism behind this effect of music include the role of music in neuroplastic and neuro-regenerative changes; increase in the level of hormones including cortisol, testosterone and oestrogen which have a preventive role in dementia; and also, interestingly the fact that music can invoke autobiographical memories. Personalised music therapy which is adapted as per the person's preferences can evoke positive emotions and help in controlling behavioural issues arising in individuals with dementia.[1–3]

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मन उपवन

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सहज मन खुशी का खज़ाना
तल्ख तेवरों से पड़े पछताना

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कहीं बीच में रुक मत जाना

नदी बांटती नीर सभी को
कहीं करती क्या मना किसी को

कस्तूरी बसे हृदय के भीतर
कहाँ कहाँ तू ढूंढे इसको

अपना ही मिले वापिस मय सूद
हंसी से मिले हंसी ही सबको

करुणा की करुणा है जननी
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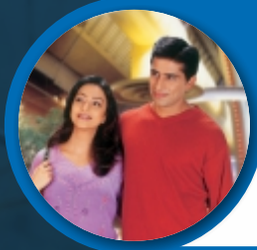

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