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Editorial

Psychiatry training of trainees: Has COVID 19 affected it ?

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World has been reeling under the impact and consequences brought by the novel corona virus. With changes in societal norms beginning with social distancing, avoidance of close contact and wearing of face masks is a prerequisite for life and living in today's world. Two years are by and still waves of COVID keep coming with no end in picture near, change is necessity for every realm, every strata of society. Medical training involves a very close contact with the sick and within the pandemic, this has undergone a massive shift from close proximity to distance evaluation making clinical assessment and management much more difficult. Medical education is not only a requirement but its continuity in delivering it effectively and progressively is of paramount importance. COVID-19 has caused disruption to the traditional ways of learning by cessation of lectures, moving to virtual mode to online mode, clinical learning and skills training based on more of videos, you-tube, e-case formulation based rather than hands on and whatever is possible practically is done under extreme precautions and deliberations. A review by Seifman et al talks about disruption and adaptation of medical education and training where negative impact on satisfying training and career progression was highlighted. Redeployment to other specialties, significant reductions in their clinical exposures, assessment adjustment and training completion with lesser degree of clinical experience due to the given situation may raise issue of level of competence of the trainees and can have impact on their future role in society.[1]

Imagine the training in psychiatry which is prejudiced with talk therapy but is in actuality a lot more than that. Training in science of psychiatry is not easy and is similar to any other scientific field but with COVID-19 training had to evolve. India, where a very minimal budget is invested for health and health education had to learn not only to respond to these limitations but also to the massive crisis in form of shortage of health care workers, health set up and infrastructure imposed due to pandemic. While classroom lectures were either temporarily suspended due to lockdown and were shifted to online mode of teaching pros and cons of which are still under debate. Online lectures are argued that they do not have the same teacher-student interaction and hence are not very effective. Similarly clinical learning is based on one-to-one experience with practical applications and supervision specially in psychiatry. Here not only physical evaluation has to be done to rule out any physical, metabolic or any other deficits contributing to mental illness but also mental state examination constitutes the core of this training. Direct observation and interview in presence of mentor helps understanding the different and minute nuances of therapeutic relationship, its establishment which is very much in psychiatry which may be missed in a virtual set up.[2] One of the major key ingredients in mental health evaluation is assessment with facial expressions and reactions which were obscured due to the necessity of face mask and PPE kit in order to protect from infection. With COVID-19 and this came to a halt while students were shifted to see after those inflicted with viral infection in these emergency situations. Gnanvel et al even postulated that due to deployment in other specialty many residents were expected to assume

roles or acquire skills which were not a part of their prescribed specialty. Even in their own they had to undergo a premature promotion without adequate training leading to "*role confusion*".[3]

Research also plays a very critical role in medical training but with imposition of lockdown limitation of number of patients in psychiatry OPD along with consideration of safety of patients regarding risk of transmission of COVID this area also suffered by imposing restrictions on sample size, study involving limited interaction, avoidance of contact as much as possible etc. Continuing medical education, conferences also got limited to virtual set ups causing a lack in social connectedness within community which would otherwise happen when you physically attend these conferences apart from gaining knowledge and awareness of advances in these forums.

Though looking at the brighter side, all is not bad. Scientific society adapted to the new situation fast given the circumstances by online modality, convenience of learning from distance and being safe too, able to reach wider geographically through telemedicine. Most of the scientific forums and societies kept a running schedule by holding webinars, conducting virtual conferences, along with "quarantine curriculum" helping the postgraduate to learn from a wider network of teachers as well as enhance their knowledge in different areas wherever they felt deficient or less confident assisting them in staying up to date. Previous studies have reported the effectiveness of combined textbook and e-learning which can again be used for assessments and training in mental health competencies and can also be objectively synchronized country or worldwide.[4] The support from the institutional heads and guidelines setting committee in their curriculum changes helped relieving the anxiety of lot of trainees which would have been otherwise difficult to handle.[5] Also, many a places specially US, UK and Canada well being of the students were also considered of significant importance and appropriate measures were provided to keep them in check.[2,5-7] Ironically, India lagged behind where residents and doctors mental health was swung like a pendulum with both motivations and rejections going on side by side. There were apprehensions over training conclusion as many institutions had passed orders to not to relieve students in view of pandemic. An excerpt from a psychiatry resident emphasizes the humanness in every individual even a doctor.[7]

Pandemic acted as a teacher in many forms and confirmed the resilience in society but making advance preparations is always better. Telepsychiatry needs to be developed, finding newer technology assisted ways to enhance learning and continuing education has to be targeted. Guideline's formulation and standardization flexibility but in keeping the quality and standards of medical education should be framed at the earliest.

References

1. Seifman MA, Fuzzard SK, To H, Nestel D. COVID-19 impact on junior doctor education and training: a scoping review. Postgrad Med J 2021.
2. Bahadur A, Rosen B, Preisman M. Challenges facing medical education in psychiatry during the COVID-19 pandemic. Can Med Educ J 2021; 12(1) : e111.
3. Gnanavel S, Mathur R, Sharma P, Parmar A. COVID-19 and psychiatry training: A cross-national trainee perspective. World J Meta-Analysis 2021; 9(5) : 405-10.
4. Turk BR, Krexner R, Otto F, Wrba T, Löffler-Stastka H. Not the ghost in the machine: transforming patient data into e-learning cases within a case-based blended learning framework for medical education. Procedia-Soc Behav Sci 2015; 186 : 713-25.
5. Richards M, DeBonis K. Psychiatric training during a global pandemic: how COVID-19 has affected clinical care, teaching, and trainee well-being. Psychiatr Serv 2020; 71(12) : 1300-2.
6. Greig F. COVID-19, medical education and the impact on the future psychiatric workforce. BJPsych Bull 2020 Oct 21:1-5. doi: 10.1192/bjb.2020.112. Epub ahead of print. PMID: 33261711; PMCID: PMC7711332.
7. Chaturvedi SK, Pai NM, Singh N, Jha A. Embracing uncertainty during COVID-19 times: Psychiatry training, research, and practices in an institute. Indian J Soc Psychiatry 2020; 36, Suppl S1 : 151-3.

Presidential Address

Deepak Raheja

President, Delhi Psychiatric Society

Oration delivered at 30th Annual Conference of Delhi Psychiatric Society

I am honored and delighted to be here and humbled by the faith that you have reposed in me as the President of Delhi Psychiatric Society. Much water has flown under the bridge and the unexpected pandemic has tested the world's resilience in more ways than one. The loss of loved ones; the grief and despair eventually transitioning to acceptance and hope taught us to adapt to the new normal; albeit painstakingly. We at DPS have also dealt with our fair share of remorse and agony, having lost our esteemed colleagues and stalwarts of Indian psychiatry Dr. Neelam Bohra and Dr. Vimal Kumar; they shall always be with us in spirit.

Shifting focus to DPS, I would like to think that its most defining factor is in it's being a civic body at heart. As an association it has worked towards understanding the interplay between the environmental variables and their impact on the mental health of the population at large in the new COVID era. Despite the challenges presented by the pandemic, we the office bearers of DPS have attempted to ensure that every constitutional responsibility entrusted to our office was fulfilled in due time. Donning on a new avatar, the big stout conferences shrunk in size but the digital insurgency allowed us to keep the spirit of the Delhi Psychiatric Society alive.

The SARS-Cov2 as we know it, started its journey in November 2019 from where it stealthily crept up and enveloped the entire world. Millions suffered its impact and disastrous consequences. The physical, social, economic, and mental health issues related to this pandemic are unimaginable and as a society it may take us a number of years to heal from its devastating effects. In light of the pandemic some of the significant observations that we made as mental health practitioners were that most of our stable patients with or without medication relapsed, new cases of mental health issues were reported amongst the susceptible and vulnerable population. Illnesses such as phobia, depression, anxiety, mania, psychosis and substance- use escalated to an all-time high along with a significant rise in number of suicides among various age groups across the country. However, what the pandemic also did was that it created public awareness and as a society people understood the role of psychiatrists and mental health professionals. From stigmatizing mental health related issues and being quick to form labels, people were unified in their need to look for sources of help to work through their common stresses ranging from uncertainty, loss of income, job related pressures and COVID-19 related fears. We at DPS left no stone unturned in bridging this gap by holding and organizing professional, academic online conferences to understand and learn the nuances of the newer aspects of tele-psychiatry in a space and time where we could not provide comfort and relief to our patients in person. Not only this, our frequent conferences also helped us formulate new protocols to create modes of health-care delivery specifically in places where specialty services were lacking. I am aware that in spite of the feats that we have achieved, the challenges thrusted upon us by the pandemic are still humongous and a lot more work in that direction still needs to be accomplished.

To conclude, I would think that it has been a inimitable presidential year; unmatched in the history of the Association. I say this with utmost humility

keeping past difficult, unprecedented situations in mind and how my predecessors may have dealt with them or how they may have felt. Meeting virtually for a whole year was novel like many other chunks of this upsetting and trying year. I would unquestionably not have been able to get through without the support of my colleagues and peers who have unconditionally supported me. I am full of gratitude to all those who have served office along with me and waded through the challenges with me. I am thankful that we have emerged stronger together in these abstruse times.

On an ending note, I am happy to welcome Dr. Vishal Chhabra as the next President of the DPS. I wish him all the best.

Long Live DPS!

Review Article

Covid-19 Pandemic and Child Mental Health Care: Challenges and Way Forward

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Introduction

In December 2019, the world witnessed a unique challenge in the form of an illness 'Covid-19', caused by the novel coronavirus Sars-CoV-2. The first case was reported from the Wuhan city of Hubei province in China and in the blink of an eye it engulfed the world. At the beginning, management of the physical consequences of the infection was of prime importance, however, the current situation has its own share of significant mental health ramifications that needs due attention and care.[1]

The never seen before lockdown and social distancing brought in indefinite suspension of the traditional physical classrooms with evolving online education system, limited socialization and cancellation of outdoor activities. On top of that, there are overwhelming stress and stigma around Covid-19, widespread financial crisis and glaring uncertainties of the unseen future. Thus, the pandemic has put significant stress on children, families and the community at large which could give rise to various mental health problems.[2]

What are the Common Mental Health Problems in Children During Covid -19 Pandemic?

As the COVID-19 pandemic is raging through the world, it is causing immense stress among people across all ages. As children are in a critical period of development, they may be more susceptible to the negative mental health outcomes of the pandemic. There may be either new onset of mental health problems or worsening of the existing ones.

Common Mental Health Problems in Children During Covid -19 Pandemic

- Depression
- Anxiety disorders
- Fears and phobias
- Obsessive compulsive disorder (OCD, commonly reported cases are obsessions with cleanliness and compulsive hand washing)
- Adjustment problems in the new normal
- Acute stress reaction (commonly after sudden unexpected loss of a loved one)
- Post-traumatic stress disorder (PTSD)
- Complicated grief
- Sleep disorders
- Eating disorders (Common in adolescents gaining weight due to sedentary life style with limited opportunity of physical exercise)
- Psychosis (It may be precipitated by extreme fear, or in preexisting cases there may be poor compliance due to limited availability of medications)
- Internet addiction
- Survival guilt (In people who have suffered from the illness and eventually recovered but might have infected a close one who succumbed to the infection)

Covid-19 Pandemic and Child Mental Health: Is there a Real Concern?

A number of researches conducted across the world indicate that there is a surge in mental health

problems among children since the beginning of thepandemic; most common concerns were fear of contracting the virus, lack of social support, managing online classes etc. However, on the brighter side, some reports suggest bonding between the parents and their children improved during the lockdown as they got to spend quality time with one another (Table 1).

Time

The course of the ongoing pandemic can be viewed as three distinct phases; the phase of preparation when the cases are rising, the peak phase when the number of cases reaches the maximum, and lastly the phase of return to normality. With each new wave of infection, there is an intial overlap of

Table-1: Research findings on child mental health during Covid-19 pandemic

Country	Researchers	Sample size	Results
China	Zhou SJ, Zhang LG, Wang LL, et al	8079 school students	Symptoms of depression were present in 43.7%, anxiety in 37.4%, and both depression and anxiety in 31.3%.[3]
Bangladesh	Yeasmin S, Banik R, Hossain S, et al	384 parents	Depression, anxiety, sleep disorders were minimal (43%), mild (30.5%), moderate (19.3%), and severe (7.2%).[4]
Spain and Italy	Orgilés M, Morales A, Delvecchio E, et al.	1143 parents	85.7% reported changes in their children's emotions and behaviors.The most frequently observed changes were trouble concentrating (76.6%), boredom (52%), irritability (39%), restlessness (38.8%), nervousness (38%), loneliness (31.3%), uneasiness (30.4%), and worries (30.1%).[5]
Oman, Kuwait, Saudi Arabia, UAE, Qatar, Bahrain, Iraq, Jordan, Lebanon, Palestine, and Egypt	Omar Al Omari, Sulaiman Al Sabei et al	Young people aged 15 to 24 years	The total prevalence of depression, anxiety, and stress was 57%, 40.5%, and 38.1%, respectively.[6]
Nepal	Risal A, Shikhrakar S et al.	416 medical students (Mean age 22 years)	Anxiety in 11.8%, depression in 5.5%, comorbid anxiety and depression in 9.4%.[7]
India	Sandeep Grover et al.	1871 across differentage group	74% reported worry, 72% health anxiety, 30% low mood, 21% fear of death and 10% alcohol use. Around 50% of the participants reported marked improvement in their relationships with their spouse (47.4%), children (44.2%), and parents (47.3%).[8]

Three phases of the pandemic and related psychological stressors

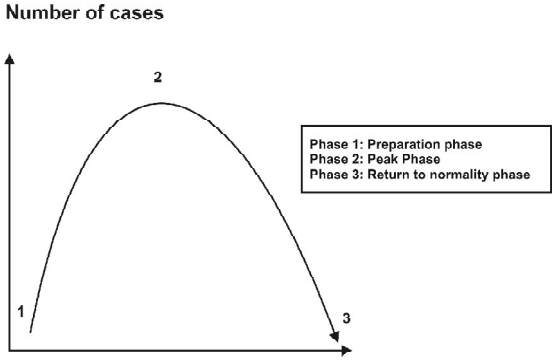

Fig. 1: Phases of the Covid-19 pandemic (Adopted from Fegert et al. Child Adolesc Psychiatry Ment Health (2020) https://doi.org/10.1186/s13034-020-00329-3)[9]

phase 3 and phase 1. Distinct psychological stressors exist in each phase of the pandemc.

Pandemic Related Stressors in Children (Phase 1 and 2)

- ***INDIVIDUAL STRESSORS***
- **Children with special needs**
  * Difficulty understanding complexity of ongoing situation due to lack of cognitive maturity
  * Missing opportunities of learning important developmental and behavioural skills and regression to past behaviours due to closure of special schools and therapy centres
  * Difficulty learning social skills and adjusting to the new routine in children with autism spectrum disorder (ASD)
  * Exaggerated hyperactivity in attention deficit hyperactivity (ADHD) children due to restricted physical activity
  * Limited opportunity of learning from virtual platforms for chldren with sensory impairments
- **Children with pre-existing mental health issues**
  * Likely to have exacerbation of symptoms due to overwhelming stress and lack of proper mental health care
- **Academic stressors**
  * Inability to grasp academic concepts in online classes
  * Stress due to postponement and cancellation of exams
  * Inability to maintain structure and routine
  * Poor motivation to complete academic work
- **Increased screen time**
  * Promotes negative emotions
  * Self-absorption
  * Cyber bullying and trolling
  * Social media addiction
  * Adults targeting children for sexual purposes
  * Harmful content – violence, sexual content, inciting suicide and self-harm etc.
- ***Family Related Stressors***
  * All family members staying together whole day: more chance of conflict, abuse and violence
  * Double work pressure: Managing household as well as professional commitments
  * No support from extended family and friends
  * Financial stress due loss of employment, decline in earning and debts
  * Family members isolated/ quarantined
  * Fear of losing family member who belong to a risk group such as geriatric population, people with comorbidities, frontline workers
  * Disruption of normal bereavement process due to restrictions imposed by the pandemic
  * Explaining children about the pandemic as well as managing own emotional wellbeing
- ***Community Related Stressors***
- **Disruption of/ limited access to routine mental health care**
  * Rearrangement of medical services with maximum resources and staff alloted to COVID care
  * Limited inpatient and daycare facilities
  * Outpatient services catering to emergency cases only
  * Inability to admit new patients due to the risk of infection and lack of hospital beds
- **Interruption of services of child protection organizations services**
- **Closure of educational institutions**
  * Limited access to online learning opportunities
  * Postponement of exams
- **Restricted leisure time activities**
  * Children not allowed to play outdoors
  * Social relations limited to family members only
- **Financial stress**
  * Loss of jobs or pay cuts
  * Families may not be able to afford available services

- **Stigmatization of infected children and families**

Pandemic Related Stressors in Children (Phase 3)

- Economic recession and its implications for mental health of children and their families
- Accumulated workload or major reorganization at workplace may add to the already existing family dysfunction
- Pressure from school to catch-up for time lost during the acute phase of the pandemic
- The health care system may be overburdened hampering adequate care of the children due to increased inflow of patients as lockdown is being eased
- The increased risk of child maltreatment not likely to diminish immediately after the pandemic
- The severity of the mental health issues may increase due to discontinuation of treatment and care in the acute phase of the pandemic
- Long-term effects of Adverse Childhood Experiences (ACEs) during pandemic include increased risk for mental and physical illnesses, poor quality of life, developmental and cognitive delays, problems in establishing and maintaining social relations and a reduction of up to 20 years of life expectancy

Can The Covid-19 Pandemic have any Favourable Outcome for Child Mental Health?

The present scenario is undoubtedly grim, and the negative consequences of the pandemic will continue to persist for a long time after it is over. However there is a glimmer of hope in these gloomy circumstances too.

- The absence of appointments, guests and business trips can bring the much needed rest and relaxation into family life.
- Facing the challenges of the COVID-19 crisis together may strengthen the sense of bonding and cohesion among family members.
- Children facing bullying or other stressors at school can experience the situation of home-schooling as relieving, as a main stressor in their everyday life ceases to exist.
- Mastering current challenges could contribute to personal growth and development in children, which in turn reinforces the sense of competence self esteemand becomes a protective factor for coping with future stressors.

How to address the challenges: What Have We Achieved So Far?

Since the beginning of the COVID-19 pandemic, we have come a long way in terms of providing mental health services to the children in need.

- Tele-psychiatry has been developed to ensure continuity of care even to the remote areas of the country.
- Doctors have partnered with pharmaceutical companies and pharmacies to deliver medications to the families.
- Psychotherapies and counseling services have been adapted to online platforms to help children experiencing trauma and grief.
- Online programs have been held to address various psychological and emotional issues faced by children and adolescents, parents, teachers etc such as handling loss and grief, addressing parent-child conflicts etc.
- Programs have been held via virtual platforms to empower the families to support children with special needs.
- Online workshops and educational webinars have been organized to train psychiatrists, pediatricians, psychologists, educators in various areas of child and adolescent mental health care.
- Crisis intervention: direct face to face care and support was provided for acutely ill, hospitalized children.

For practicing telepsychiatry for children (< 16 years of age), age of the child, identity proof of child and the family member as well as a document establishing the relationship between them should be verified.

What is the Way Forward?

- Do not be in a hurry to reach diagnosis and start treatment; try to understand the child and the family.
- Give the effective dose with minimal side effects/ maximum tolerable dose which should be

Table-2: Telepsychiatry operational guidelines 2020: relevant points[10]

List A drugs	List B drugs

• Relatively safe with low potential for abuse
• Can be prescribed during the 1st consultation (video consult only) and follow up consultation (text/ audio/ video)
• Includes:
  • Escitalopram
  • Fluoxetine
  • Imipramine
  • Clonazepam
  • Clobazam
	• Can be prescribed during the follow up consultation only (text/ audio/ video)
	• Includes:
	  • **SSRIs:** Sertraline, Fluvoxamine,
	  • Paroxetine, Citalopram
	  • **SNRIs:** Venlafaxine, Desvenlafaxine, Duloxetine
	  • **TCAs:** Clomipramine, Amitriptyline
	  • **Others:** Mirtazapine, Bupropion, Buspirone, Propranolol

Table-3: Telepsychiatry: benefits vs challenges

Benefits	Challenges
• Safe for families in COVID era • Can be reached to the remote corners of the country • Cost effective: expenditure of travel and accommodation is saved • Time of travel can be saved • Timing of the sessions can be flexible	• Rapport formation can be difficult in online sessions • Difficult to observe the child in online session • Some children are not comfortable discussing issues at home due to lack of privacy • Difficult to manage if client becomes overwhelmed during a session • Unstable internet connection • Distractions in the home environment, background noise

individually tailored.
- Avoid poly-pharmacy.
- Do not neglect the child; observe the child and talk to him/her individually. Do not depend entirely upon the parents' version.
- Educate the parents/child well; never under-estimate the families.
- Do not overlook the family dysfunction. Be vigilant about the possible abuse and violence.
- Address the comorbidities.
- Professionals have to be prepared and competent to take online sessions, and ready to shift to offline sessions whenever required.

Take Home Message

- There are a number of pandemic-related factors which put the mental health of the children at high risk. During the initial phases, the main stress has been associated with fear of infection, social distancing, online classes,and reduced access to care and support. After the pandemic, ongoing financial hardships,overburdened health care system, too much pressure from school and consequences of domestic abuse and violence may be predominant issues at hand.
- Despite the difficult circumstances, we have tried our best to adapt to the changing scenario and introduce innovative approaches to deliver mental health services through telepsychiatry thus possibly fostering a more efficient use of available resources.
- We have strived to maintain the continuity of care to ensure that no child and family are deprived of the required mental health care and services.

References

1. Dubey S, Biswas P, Ghosh R, Chatterjee S, Dubey MJ, Chatterjee S, et al. Psychosocial impact of COVID-19. Diabetes Metab Syndr 2020; 14(5) : 779-88.
2. Singh S, Roy D, Sinha K, Parveen S, Sharma G, Joshi G. Impact of COVID-19 and lockdown on mental health of children and adolescents: A narrative review with recommendations. Psychiatry Res 2020 11; 293 : 113429.
3. Zhou SJ, Zhang LG, Wang LL, Guo ZC, Wang JQ, Chen JC, et al. Prevalence and socio-demographic correlates of psychological health problems in Chinese adolescents during the outbreak of COVID-19. Eur Child Adolesc Psychiatry 2020; 29(6) : 749-58.
4. Yeasmin S, Banik R, Hossain S, Hossain MN, Mahumud R, Salma N, et al. Impact of COVID-

19 pandemic on the mental health of children in Bangladesh: A cross-sectional study. Child Youth Serv Rev 2020; 117 : 105277.
5. Orgilés M, Morales A, Delvecchio E, Mazzeschi C, Espada JP. Immediate Psychological Effects of the COVID-19 Quarantine in Youth From Italy and Spain. Front Psychol 2020; 11 : 579038.
6. Al Omari O, Al Sabei S, Al Rawajfah O, Abu Sharour L, Aljohani K, Alomari K, et al. Prevalence and Predictors of Depression, Anxiety, and Stress among Youth at the Time of COVID-19: An Online Cross-Sectional Multicountry Study. Depress Res Treat 2020; 2020 : 8887727.
7. Risal A, Shikhrakar S, Mishra S, Kunwar D, Karki E, Shrestha B, et al. Anxiety and Depression during COVID-19 Pandemic among Medical Students in Nepal. Kathmandu Univ Med J (KUMJ) 2020; 18(72) : 333-9.
8. Grover S, Sahoo S, Mehra A, Avasthi A, Tripathi A, Subramanyan A, et al. Psychological impact of COVID-19 lockdown: An online survey from India. Indian J Psychiatry 2020; 62(4) : 354-62.
9. Fegert JM, Vitiello B, Plener PL, Clemens V. Challenges and burden of the Coronavirus 2019 (COVID-19) pandemic for child and adolescent mental health: a narrative review to highlight clinical and research needs in the acute phase and the long return to normality. Child Adolesc Psychiatry Ment Health 2020; 14 : 20.
10. Rina K, Padhy S, Chadda R. The Telepsychiatry Operational Guidelines 2020 in India: a welcome step. https://www.cambridge.org/core/journals/bjpsych-international/article/telepsychiatry-operational-guidelines-2020-in-india-a-welcome-step/9290D2A3AA1A92C0FBF17920A1D2F0CC. Accessed on 20/08/2021.

Review Article

Substance use disorders: A "disguised disability"

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Introduction

The use of psychoactive substances has been a part of human civilizations for thousands of years now. Talking of the Indian scenario, there are approximately 160 million alcohol users, 22.6 million opioid users and 31 million cannabis users according to the national survey conducted in 2019. Amongst other substances, 1.08% use sedatives, 0.7% use inhalants around 0.18% use cocaine and amphetamine-type stimulants (ATS) each and 0.12% reported having used hallucinogens in past. There are an estimated 0.85 million people in India who inject drugs.[1] For certain substances or in some contexts this pattern can assume a pathological path, which needs to be addressed.

The drug use disorders are associated with significant levels of morbidity and disability. These constitute a burden on national resources and often cause immeasurable human suffering. The World Health Organization (WHO) estimated that the global burden of disease which was attributable to alcohol and illicit drug use amounted to 5.4 percent of the total burden of disease.[2]

Addiction is increasingly regarded as a disease of the brain, which has a biological and a genetic basis. However, there is a wide gap between such scientific facts and public perception. People see drug abuse and addiction as social problems, which are to be handled only with social solutions, particularly through the criminal justice system. Addiction is being stigmatized and subjected to discriminatory attitudes and practices. It is being regarded as a voluntary phenomenon.[3-5] On the brighter side, the legislative classification of various countries, classify addiction as an impairment, and treat some or most of the addicts as people with disabilities.[6]

The terms drug use, drug abuse, harmful use of drugs, drug dependence, and drug addiction are used somewhat ambiguously in the literature. The term substance includes drugs of abuse, including alcohol, opioids, cannabis, tobacco, medications, and other toxins. The substance use includes consumption of these substances which may or may not be problematic. According to the Diagnostic and Statistical Manual of Mental Disorders (DSM-IV), substance abuse is the maladaptive use of a substance (i.e., excessive use, compulsion to use, and continuation of use) despite negative consequences to self, others, or property. Substance dependence is defined as the compulsive use of substances with increased amounts of the substance required to achieve the desired effect, despite negative consequences to one's life. Tolerance for the substance and withdrawal are the two key elements that distinguish dependence from abuse. The term addiction is often used interexchangeable with substance dependence.[7,8]

DSM-IV placed dependence ahead of abuse in the hierarchy by stipulating that abuse should not be diagnosed when dependence was present. Amongst other problems pertaining to this DSM-IV hierarchy,there was also an issue of "diagnostic orphans". Hence, DSM-5 did away with terms abuse and dependence and introduced a new term for these 'substance use disorders'[9] (SUDs).

Substance abuse from being considered as a vice or a moral weakness to the now established pathogenesis, helps provide a useful way to understand the burden addiction poses. It is reflected in the years lost in disability-adjusted life years (DALYs) due to substance use and massive national resources spent directly and indirectly. Countries like USA, UK,

Australia, Canada, consider substance use disorders as disability under specific circumstances. As per the Gazette of India notification, disability certificates can be issued for all mental illness including substance use disorders. Substance dependence can contribute to development of other disabilities or present as co-morbidity in physical disabilities. It has been found that more severe is the substance dependence, the more is Quality of Life affected negatively and the more is the disability in the patients in the form of greater loss of cognitive ability and working capacity.

There are various definitions available in the literature as no single definition covers all the aspects. According to the International Classification of Impairment, Disability and Handicap (ICIDH, 1980), disability is any interference with the activities of the whole person in relation to the immediate environment.[10] Rights of Persons with Disabilities Act, 2016 defines "person with disability" as an individual with a long-term physical, mental, intellectual or sensory impairment which, in interaction with barriers, hinders his full and effective participation in society equally with others.[11] As per Centers for Disease Control and Prevention (CDC), disability is any condition of the body or mind i.e., impairment, that makes it more difficult for the person with the condition to do certain activities i.e., activity limitation, and interact with the world around them i.e., participation restrictions.[12]

The purpose of this review to summarize the magnitude of substance use disorders and its effect on functioning of individual and family in the background of huge treatment gap in India and need of serious policy reforms including welfare benefits. It is imperative to take steps to make the society more inclusive and non-discriminatory.

Methodology

For this review, a comprehensive electronic database search in Pub Med, Pubpsych, PsychINFO and Google Scholar was carried out in March-April 2021 using words substance use disorder AND disability, addiction AND disability. Additionally, manual reviews of the content pages of the major journals and the citations in any of the relevant articles published in English language were collected.

No systematic review discussing disability in relation to substance use disorder could be retrieved from Indian scenario.

A total of 5016 studies yielded on search and out of which 734 studies and 4282 abstracts were looked after removing the duplicate studies. Out of 734 studies, 114 full text articles were screened and further 72 articles were excluded due to inadequate information. Finally, 42 studies were included in the analysis as shown in Figure 1.

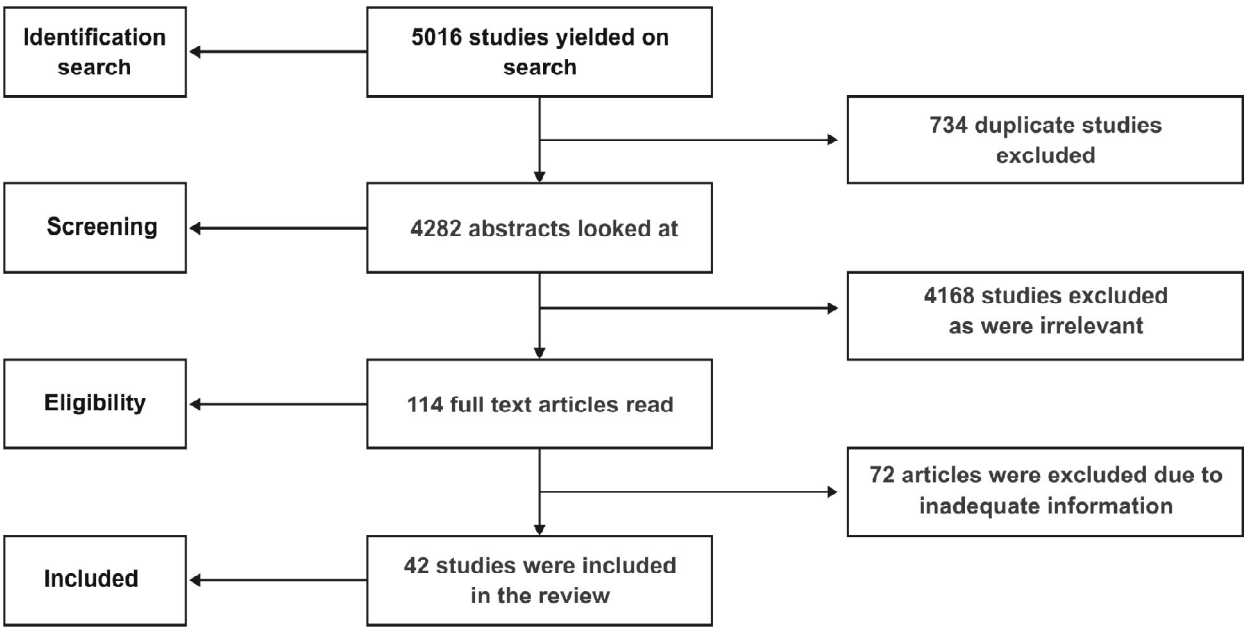

Fig. 1: PRISMA Chart

Global burden of substance use disorders and disability

Worldwide, mental and substance use disorders have accounted for 162.5 million disability-adjusted life years DALYs in 2016. Of the total DALYs lost due to mental and substance use disorders, alcohol use disorders accounted for 8% and other drug use disorders for 10%.[13]

In 2015, it was estimated that 28 million years of disability-adjusted life years (DALYs) were lost worldwide due to death and disability caused by the drug use. Almost 12 million DALYs, or 70 % of the global burden of disease attributable to drug use disorders, were attributable to the use of opioids.[14]

As per WHO reports, excessive use of alcohol has been identified as a major contributor to the global burden of disease. It leads to 5.9% of all the deaths world over. In addition, it is also responsible for 5.1% of the disability-adjusted life years.The WHO survey also indicated that those with alcohol use disorders have a significantly worse outcome in participation and work-related domains, when compared with other disorders and the least impairment is seen in self-care and mobility domains.[15]

Indian Scenario

National mental health survey (2015–16) suggests that at least 13.7% of India's general population has various mental disorders and 10.6% of them require immediate interventions.[16] The burden of these disorders is expected to increase by 23% in India, between 2013 and 2025.[17]

As aforementioned, the number of substance users in India is mounting. Summarizing, alcohol use is reported to be at 4.6%, with a male: female ratio being 17:1, followed by cannabis at 2.8% and opioids at 2.1%. Under the category of dependent use, 19% of alcohol users use it in a dependent pattern, whereas 0.25% of cannabis users use it in a dependent pattern.[1] Global Adult Tobacco Survey-2 (GATS-2) reported that 28.6% of the population of India consume tobacco in any form; 10.7% smoke and 21.4% use smokeless tobacco.[18] As per the National mental health survey, the prevalence of tobacco use disorder (moderate and dependence) is 20.9%.[16] As per NMHS, maximum disability proportion in alcohol use disorder in family life followed by social life and work life.[16]

An Indian study on disability in SUDs on WHODAS 2.0 reported that social functioning had the highest level of disability, the domain of cognitive functioning had moderate disability and mobility and self-care recorded minimum disability. However, findings were limited by inclusion of only male subjects and cross-sectional nature.[19] There is a dearth of research literature from India discussing the disability aspect of substance use disorder.

Disability Benefits Extended in Various Countries in Substance use Disorders-Globally and its Impact

In the USA, drug addiction is considered as a disability under Section 504 of their Rehabilitation Act, the Americans with Disabilities Act (ADA) of 1990, and Section 1557 of the Affordable Care Act, when the drug addiction substantially limits a major life activity. As per the act, constituents of major life activities include taking care of oneself, to be able to perform manual tasks, see and hear things, eat, sleep, walk, stand, lift objects, speak, learn, read, think, communicate, and work.[6] A person who was recognised as a former drug addict may be protected under the ADA. However, according to the technical assistance manual on the ADA, a former drug user is not protected.

Some authors support the notion of regarding SUDs as any other disabling illness; due to which persons may require government support in order to meet the basic needs. They support this view with an influential analysis documenting striking similarities among multiple factors between patients with SUDs and patients with diabetes, hypertension, and asthma.[20] Some however focused on the behavioral aspect of SUDs, worried that public programs may foster economic dependency and also encourage substance use by providing the resources that can be used to purchase the substances and by reducing the incentives to work.[21] Although recent studies do not support the claims that income support encourages substance abuse, policy for individuals with SUDs reflects the concern.[22,23]

Under the *Ontario Human Rights Code*, substance dependence has been recognized as a form of disability. Any discrimination or exploitation due to any disability is prohibited. Severe substance abuse is labelled when there is recurrent substance abuse

resulting in a failure to fulfil major obligations at work, use in situations that are physically hazardous, continued abuse despite persistent social, legal or interpersonal problems. Even where an individual is *perceived* as having an addiction or dependence the *Code* will protect that individual. For example, in case of discrimination at workplace. An individual who had a drug or alcohol dependency in the past no longer suffers from an ongoing disability, is still protected by the *Code*.[24]

Similarly, in Australia, addiction may be considered as a disability under Disability Discrimination Act (DDA).[25] In the United Kingdom, addiction/ substance use in not considered as a disability under the Equality Act 2010. Certain welfare benefits are available for persons with drug use (PDUs) e.g., Income Support (IS), Incapacity Benefit (IB), Jobseeker's Allowance (JSA), Disability Living Allowance (DLA) etc. Studies however revealed that PDUs find the welfare system difficult to negotiate with and some benefits are found to be complex to apply for.[26]

After public health reforms in 1990s in USA, supplemental security income (SSI) and disability insurance (DI) benefits which included cash assistance and medical benefits for disabling substance disorders were started. They would receive benefits via a representative payee. In order to obtain benefits, they were required to be in treatment and compliance was monitored by referral and monitoring agencies. In the March of the year 1996, the U.S. Congress passed a legislation barring the receipt of supplemental security income (SSI) and disability insurance (DI) benefits for substance use disorder.[27] Also, the disability support pension (DSP) benefits extended in substance use disorders in Australia were proposed to be recalled in 2017, however, the plan was scrapped later.

Impact of withdrawal of Benefits

An attempt to study the impact of repealing the benefits revealed that individuals with substance use disorders showed increased employment in the 1997 and 1998 surveys, but the rates of employment in the later years did not differ from those prior to the policy change. The expected disastrous consequences of losing health insurance and the heavier utilization of inpatient or emergency medical services did not occur. The income, changes in their drug use, changes in the rate or severity of mental health disorders, or changes in homelessness was however not studied.[21] A study cohort in the homeless population reported no change in drug use patterns between those substance users receiving the benefits and those without the benefits. Also, they had significantly more days housed and fewer days of being employed.[22] Another study even reported a decrease in substance use among those whose benefits were continued despite similar baseline substance use.[28]

Indian Laws, Various Research Articles on Disability Certification and SUDs

The Preamble of the United Nations Convention on the Rights of Persons with Disabilities (UNCRPD) acknowledges that 'disability' is an evolving, dynamic and complex phenomenon. To make the Indian legislature compliant with UNCRPD, the Rights of PWD Act, 2016 (RPWD Act, 2016) was passed and notified on December 28, 2016.

Persons with Disabilities Act, 1995 listed 7 conditions of disabilities. These were low vision, blindness, leprosy (cured), hearing impairment, locomotor disability, mental retardation, and mental illness.[29] In the RPWD Act, 2016, 21 conditions are included which are cerebral palsy, muscular dystrophy, dwarfism, acid attack victims, hearing difficulty, speech and language disability, specific learning disabilities (SLD), autism spectrum disorders (ASD), chronic neurological disorders such as multiple sclerosis (MS), certain blood disorders such as haemophilia, thalassemia, and sickle cell anaemia, and multiple disabilities.[11]

Considering substance dependence is a medical/ mental illness, persons with substance use disorder can ask for disability as their right under RPWD Act 2016.

There have been strong debates across the world whether substance use disorders and other disorders such as personality disorders, paraphilias, and gender identity disorder should be considered for disability benefits. As per the Gazette of India notification, disability certificates can be issued for all mental illnesses.[11] Psychiatrists have contrasting views on the issue of disability for a person with substance dependence. Samokhvalov et al[30] and Chaudhury et al[31] respectively state in their articles

that it has been established that these disorders do cause disability. Math SB et al[32] laid the emphasis on the amount of disability experienced than the diagnosis for disability certification. On reviewing the other available articles on disability, none discussed substance use disorders elaborately.

Need for Disability Benefits due to SUD in India and its Overall Implication

Substance use is a disease

For ages, substance use has been considered largely to be a social issue rather than a medical illness. In these recent years, extensive scientific research has narrowed down on predominantly two major brain pathways involved in addiction i.e., mesolimbic dopamine pathway (MDA), the 'go' pathway which underlies reward and mesocortical dopamine pathway (MCA), the 'stop' pathway which regulates decision making. Drugs of abuse can physically alter these decision-making pathways. Prolonged use of substances can cause pervasive changes which may persist despite discontinuation of substance. Stress, genetic or hereditary vulnerability and environmental stress can act as predisposing factors as well. Hence, addiction is a complex, chronic, relapsing disease of the brain for which the social contexts in which it develops are equally important.[33]

Functional impairment is one of the most enduring consequences of psychiatric disorders including substance use disorders. As per NMHS, mental morbidity among those with substance use disorder, particularly alcohol use disorder as it forms the largest chunk, caused high levels of disability in multiple domains.

A research group in the US, studied alcohol use disorders with respect to disabilities faced by these individuals and found a positive association between the two. They also concluded that the disability scores reduce once the individuals seek treatment for the same.[34] A systematic review of 47 articles, assessed the disabilities associated with alcohol and also confirmed the association of the same.[30] The duration of use is also directly linked to the severity of disability. Longer is the duration of alcohol use, greater is the disability, greater is the loss of cognitive ability and working capacity.[19,35] Association with severity, more severe is the alcohol dependence, the more is QoL affected negatively and the more is the disability in the patients.[36,37]

Balhara et al[19] while studying correlation of disability domains particularly in alcohol use disorder with sociodemographic and illness variables revealed some significant findings. Older the individual with AUDs, greater is the impairment in the work domain an indicator of poor employability and productivity. Moreover, unemployment is associated with higher disability making it a self-perpetuating process. While comparing the disability caused by SUDs with other disorders, it was found that disability associated with alcohol use disorder and anxiety was comparable to disability on account of obsessive-compulsive disorder (OCD). On Indian Disability Evaluation and Assessment Scale (IDEAS), 16.7% patients of alcohol use disorder and anxiety disorder had disability more than 40% each, while 16% patients of OCD had more than 40% disability.[31] The Quality-of-Life ratings are significantly impaired in substance users as reported by multiple studies across the globe.[36,38-42] Apart from many studies on alcohol use disorders, similar findings of high levels of physical and mental health distress and reduced QoL were also noted by some, amongst smokers and heavy cannabis users or Cannabis Use Disorders.[43,44]

Addiction can be a contributing factor in the development of many other disabilities. Individuals under the influence of substances are more likely to suffer serious bodily injuries that can cause disability, e.g., from a fall or a car accident. The WHO report observed that 45% of patients with injuries reporting to hospital casualty departments had consumed alcohol before the injury.[45]

Substance abuse also worsens the symptoms of many mental and intellectual disorders, leading to more severe episodes and greater disability. Injecting drug use (IDU) is another major avenue through which several life-threatening diseases (like AIDS) that causes disability, spread and having high-risk sexual practices that are more likely due to substance abuse. Additionally, the long-term abuse of many substances can cause physical illnesses, conditions that cause disability. Like, certain forms of alcohol can cause blindness, long-term alcohol use can cause hepatitis, inhalant use can cause nerve damage, long-term marijuana smoking can cause lung damage. The list is not exhaustive.

Physical Disability and Substance use Disorders

According to the Centres for Disease Control and Prevention (CDC), in the United States, around 54 million people experience some form of disability, out of which around 9% have both a substance use disorder and a co-existing physical disability.

Those suffering from intellectual disabilities (ID), suffer from astonishing rates of addiction, around 7%-26% of individuals with intellectual disabilities (ID) have addiction-related issues. It is to be noted that these rates are however influenced by some of the co-occurring mental health conditions.[12] Various authors have noted that substance use in persons with physical disabilities is related to increased impairment in self-care activities, an increase in medical complications, and a tendency to have a poorer health status.[46,47] Also, persons with disability who use substances to cope with stresses have reported more psychological distress.[48]

Treatment gap in Substance use Disorders

There is a significant gap in the availability of resources for treatment and rehabilitation services for substance use disorder. WHO has estimated that, globally, only 1.7 beds per 100,000 people were available for substance use disorders.[49] The United Nations Office on Drugs and Crime (UNODC) reports that, at the global level, only 1 out of 6 people in need of drug dependence treatment has access to treatment programmes.[14]

As per the National Mental health Survey (NMHS) in India, the treatment gap ranges from 28% to 83% for mental disorders. Highest gap exists for 86% for alcohol use disorders.[16] The Barrier to substance use treatment can be accessed from three standpoints: (a) individual level, (b) the intra-organization level, and (c) the inter-organization level.[50]

From the individuals' point, motivation for treatment, beliefs about availability and efficacy of treatment, experience of the physiological withdrawal symptoms, financial constraints, accessibility of services, lack of social support, and difficulty in taking time off work for treatment have been some of the identified barriers posing a great challenge in reducing the treatment gap and hence, improving the quality of life of individual and community as a whole.[51,52,53]

Conclusion

Substance use disorder affects both the health of the individual along with the health of the public. It is a dual-edged health issue. There is no iota of doubt that these disorders do lead to impairment in the individuals, affecting multiple spheres of life such as learning, working, socializing, interacting, communicating, and participating with others, etc. In India, persons with these illnesses have the right to ask for disability benefits under the RPWD Act, 2016. However, there has been a debate going ever since that such benefits might increase substance use as well and in turn to disability. Disability in substance use disorders remains a topic of discussion and to our concern, not much literature is available from the Indian context. Nevertheless, despite the meagre number of studies available, some studies do report benefits of introducing such allowances. There is a scope that in a country like India, the welfare measures can be made contingent upon attending treatment for drug addiction, and the welfare benefits can be transferred to a representative payee and expenses from the disability pension to be managed. Such measures have been tried in some parts of the world. It is imperative totake steps to make the society more inclusive and non-discriminatory. The clinicians should also aim at treating the complaints of the patients while at the same time monitoring the impact of the substance use on the person's quality of life (QoL) along with the disabilities faced by him in day-to-day life. Harmful substance intake is a contributing factor in the nation's social and economic loss. Despite this, substance use disorders still continued to be ignored when disability issues are addressed. Thus, these are still persisting in the community as hindrances to the global upliftment and well-being of the country.

References

1. Ambekar A, Agrawal A, Rao R, Mishra AK, Khandelwal SK. Magnitude of Substance Use in India. New Delhi: Ministry of Social Justice and Empowerment, Government of India; 2019. on Behalf of the Group of Investigators for the National Survey on Extent and Pattern of Substance Use in India.
2. WHO. Global Health Observatory (GHO) data. Resources for the prevention and treatment of

substance use disorders. Available at www.who.int/gho/substance_abuse/en/.
3. Bonnie R. Addiction and Responsibility. Soc Res 2001; 68 : 8 13-834.
4. Yaffe G. Recent Work on Addiction and Responsible Agency. Philos Public Aff 2002; 30 : 178–221.
5. Leshner AI. Addiction is a brain disease, and it matters. Science 1997; 278 : 45–47.
6. U.S. Department of Health and Human Services. Fact Sheet: Drug Addiction and Federal Disability Rights Laws. Available from https://www.hhs.gov/sites/default/files/drug- addiction-and-federal-disability-rights-laws-fact-sheet.pdf
7. American Psychiatric Association. Diagnostic and statistical manual of mental disorders. Text revised 4th ed. Washington, DC: American Psychiatric Association 2000.
8. Ebener D, Smedema SM. Physical disability and substance use disorders: A convergence of adaptation and recovery. Rehabil Counsel Bull 2011; 54 : 131–141.
9. Hasin DS, O'Brien CP, Auriacombe M, Borges G, Bucholz K, Budney A, et al. DSM-5 criteria for substance use disorders: recommendations and rationale. Am J Psychiatry 2013; 170(8) : 834-51.
10. Badley EM. An introduction to the concepts and classifications of the international classification of impairments, disabilities, and handicaps. Disabil Rehabil 1993; 15(4) : 161-78.
11. The Rights of Persons with Disabilities Act, 2016, Gazette of India; 28 December 2016. Available from: http://www.disabilityaffairs.gov.in/uploaad/uploadfiles/files/RPWD/ACT/2016.pdf
12. CDC. Disability and Health Overview. Available from: https://www.cdc.gov/ncbddd/disabilityandhealth/disability.html
13. WHO. Alcohol and drug use disorders: Global Health Estimates. Available from: https://www.who.int/substance_abuse/activities/fadab/msb_adab_2017_GHE_23June2017.pdf.
14. United Nations Office on Drugs and Crime, World Drug Report 2017. Available: https://www.unodc.org/doc/wdr2017/WORLD_DRUG_REPORT_2017_web.pdf.
15. Üstün TB, Chatterji S, Villanueva M, Bendib L, Çelik C, Sadana R et al. WHO. WHO multi-country survey study on health and responsiveness 2000-2001. Health systems performance assessment: Debates, methods and empiricism. Available from: https://www.who.int/responsiveness/papers/gpediscpaper37.pdf
16. Gururaj G, Varghese M, Benegal V, Rao GN, Pathak K, Singh LK, et al. National Mental Health Survey of India 2015-2016. National Institute of Mental Health and Neuro Sciences, NIMHANS Publication 2016.
17. Charlson FJ, Baxter AJ, Cheng HG, Shidhaye R, Whiteford HA. The burden of mental, neurological, and substance use disorders in China and India: A systematic analysis of community representative epidemiological studies. Lancet 2016; 388 : 376-89.
18. GATS-2. Global Adult Tobacco Survey: fact sheet, India 2016-17; http://www.who.int/tobacco/surveillance/survey/gats/GATS_India_2016-17_FactSheet.pdf published 2017.
19. Balhara YP, Singh S, Modak T, Sarkar S. A Cross-sectional Study to Assess Disability and Its Correlates among Treatment Seeking Individuals with Alcohol Use Disorders. Indian J Psychol Med 2017; 39 : 40-45.
20. McLellan AT, Lewis DC, O'Brien CP, Kleber HD. Drug dependence, a chronic medical illness: implications for treatment, insurance, and outcomes evaluation. JAMA 2000; 284 : 1689-95.
21. Chatterji P, Meara, E. Consequences of Eliminating Federal Disability Benefits for Substance Abusers. J Health Econ 2010; 29 : 226-240.
22. Rosen MI, McMahon TJ, Lin H, Rosenheck RA. Effect of Social Security payments on substance abuse in a homeless mentally ill cohort. Health Serv Res 2006; 41 : 173-91.
23. Swartz JA, Hsieh CM, Baumohl J. Disability payments, drug use and representative payees: an analysis of the relationships. Addiction 2003; 98 : 965-75.
24. The Ontario human rights Commission. Human Rights Code, RSO 1990, c H.19, Available from: https://canlii.ca/t/552kw last accessed on 2021-05-30.
25. Disability Discrimination Act 1992. Available from: https://www.legislation.gov.au/Details/C2018C00125

26. Bauld L, McKell J, Carroll C, Hay G, Smith K. Benefits and employment: how problem drug users experience welfare and routes into work. J Soc Policy 2012; 41 : 751-768.
27. Gresenz CR, Watkins K, Podus D. Supplemental Security Income (SSI), Disability Insurance (DI), and substance abusers. Community Ment Health J 1998; 34 : 337-50.
28. Watkins KE, Podus D. Alcohol & Drug Abuse: The Impact of Terminating Disability Benefits for Substance Abusers on Substance Use and Treatment Participation. Psychiatric Services 2000; 51 : 1371-1381.
29. The Persons with Disabilities (Equal Opportunities, Protection of Rights and Full Participation) Act. 1995. Available from: http://www.disabilityaffairs.gov.in/upload/uploadfiles/files/PWD_Act.pdf
30. Samokhvalov AV, Popova S, Room R, Ramonas M, Rehm J. Disability associated with alcohol abuse and dependence. Alcohol Clin Exp Res 2010; 34 : 1871 8.
31. Chaudhury PK, Deka K, Chetia D. Disability associated with mental disorders. Indian J Psychiatry 2006; 48 : 95-101.
32. Math SB, Gowda GS, Basavaraju V, Manjunatha N, Kumar CN, Philip S, et al. The Rights of Persons with Disability Act, 2016: Challenges and opportunities. Indian J Psychiatry 2019; 61 : S809-S815.
33. Clay SW, Allen J, Parran T. A review of addiction. Postgrad Med 2008; 120 : E01-7.
34. Hasin DS, Stinson FS, Ogburn E, Grant BF. Prevalence, correlates, disability, and comorbidity of DSM-IV alcohol abuse and dependence in the United States: Results from the National Epidemiologic Survey on Alcohol and Related Conditions. Arch Gen Psychiatry 2007; 64 : 830-42.
35. Rehm J, Room R, Graham K, Monteiro M, Gmel G, Sempos CT. The relationship of average volume of alcohol consumption and patterns of drinking to burden of disease: An overview. Addiction 2003; 98 : 1209–28.
36. Kim K, Kim JS. The association between alcohol consumption patterns and health-related quality of life in a nationally representative sample of South Korean adults. PLoS One 2015; 10 : e0119245.
37. Stranges S, Notaro J, Freudenheim JL, Calogero RM, Muti P, Farinaro E, et al. Alcohol drinking pattern and subjective health in a population-based study. Addiction 2006; 101 : 1265-76.
38. Muller AE, Skurtveit S, Clausen T. Many correlates of poor quality of life among substance users entering treatment are not addiction-specific. Health Qual Life Outcomes 2016; 14 : 39.
39. Smith KW, Larson MJ. Quality of life assessments by adult substance abusers receiving publicly funded treatment in Massachusetts. Am J Drug Alcohol Abuse 2003; 29 : 323-35.
40. Patkar P, Saldanha D, Chaudhury S, Singh I. Quality of life and disability in males with alcohol dependence syndrome. Ind Psychiatry J 2019; 28 : 262-271.
41. Giri O, Srivastava M, Shankar R. A comparative study of quality of life, social support and dysfunction in alcohol dependent men attending a de-addiction clinic in India. J Psychosoc Rehabil Ment Health 2016; 3 : 61-8.
42. Ortolá R, García-Esquinas E, Galán I, Rodríguez-Artalejo F. Patterns of alcohol consumption and health-related quality of life in older adults. Drug Alcohol Depend 2016; 159 : 166-73.
43. Campbell B, Yip D, Le T, Gubner N, Guydish J. Relationship between Tobacco Use and Health-Related Quality of Life (HRQoL) among Clients in Substance Use Disorders Treatment. J Psychoactive Drugs 2019; 51 : 48-57.
44. Goldenberg M, IsHak WW, Danovitch I. Quality of life and recreational cannabis use. Am J Addict 2017; 26 : 8-25.
45. Cheriptel CJ, Borges G, Giesbrecht N, Hungerford D, Peden M, Poznyak V, et al., editors. World Health Organization. Alcohol and Injuries: Emergency Department Studies in an International Perspective. Available from:https://www.who.int/substance_abuse/msbalcinuries.pdf. Published in 2009
46. Elliot TR, Kurylo M, Chen Y, Hicken B. Alcohol abuse history and adjustment following spinal cord injury. Rehabil Psychol 2002; 47 : 278–290.
47. Tate DG, Forchheimer MB, Krause JS, Meade MA, Bombardier CH. Patterns of alcohol use and abuse in persons with spinal cord injury: risk factors and correlates. Arch Phys Med Rehabil 2004; 85 : 1837–47.
48. Kennedy P, Marsh N, Lowe R, Grey N, Short

E, Rogers B. A longitudinal analysis of psychological impact and coping strategies following spinal cord injury. Br. J. Health Psychol 2000; 5 : 157-172.
49. WHO. Atlas on Substance Use (2010): Resources for the Prevention and Treatment of Substance Use Disorders. Available from: https://www.who.int/publications/i/item/9789241500616.
50. D'Aunno T. The role of organization and management in substance abuse treatment: Review and roadmap. J Subst Abuse Treat 2006; 31 : 221–233.
51. Digiusto E, Treloar C. Equity of access to treatment, and barriers to treatment for illicit drug use in Australia. Addiction 2007; 102 : 958–969.
52. Peterson JA, Schwartz RP, Mitchell SG, Reisinger HS, Kelly SM, O'Grady KE, et al. Why don't out-of-treatment individuals enter methadone treatment programmes ?. Int J Drug Policy 2010; 21 : 36–42.
53. Blevins CE, Rawat N, Stein MD. Gaps in the Substance Use Disorder Treatment Referral Process: Provider Perceptions. J Addict Med 2018; 12 : 273-277.

Original Article

A Pilot Study of Relapse Prevention and Quality of Life among Patients with Opioid use Disorder receiving Mindfulness based Relapse Prevention Therapy

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ABSTRACT

Background: *Relapse rate is very high among patients with opioid use disorder (OUD). Prolonged consumption of opioid also impairs their quality of life (QoL). Among all the treatment modalities, mindfulness-based relapse prevention therapy (MBRP) has been working out since last two decades as an effective intervention for substance use disorders and other psychological morbidities.* ***Aims:*** *To reduce severity and frequency of OUD and improve QoL of patients by MBRP therapy.* ***Settings and Design:*** *It is a pre-post research design with single group study conducted in the department of psychiatry of a tertiary care hospital of Uttar Pradesh, India.* ***Methods and Material:*** *15 patients diagnosed with OUD were taken by purposive sampling method. Prior to intervention, Severity of Dependence Scale (SDS), The Timeline Follow Back (TLFB)chart and WHO Quality of life scale (WHOQOL-BREF) were administered on all the patients for baseline data. Eight-week MBRP intervention was given to all the patients individually for two months along with treatment as usual (TAU). At the end of the therapy, all the tools were re-administered on the patients for obtaining post-assessment data.* ***Results:*** *Findings indicated that most of the patients were unmarried (80%), Muslims (80%), urban residents (80%), belong to middle socio-economic status (86.67%), intermediate students (53.33%) and unemployed (53.33%). Mean age of the patients and duration of illness were found 23.40 years and 5 years respectively. Post-assessment findings demonstrated that MBRP therapy significantly reduced severity and frequency of OUD and improved patients' physical health, psychological, social relationship and environment domains of QoL.* ***Conclusions:*** *Significant improvement was found in the mean score of the patients on severity and frequency of OUD and QoL at post-intervention. Consequently, we can say that MBRP therapy is an effective treatment for OUD and QoL for patients with OUD.*

Keywords: *MBRP, mindfulness, Opioid, quality of life, relapse, TAU*

Introduction

The term "opioid" is used for all the natural and synthetic drugs that are bind with the opioid receptors in the brain and act as endogenous opioid peptides and activate opioid receptors in the brain. Excessive use of opioid without medicinal purpose leads individual to opioid use disorder (OUD) which is diagnosed by the diagnostic criteria given in DSM-5.[1] OUD is a severe problem for young adults and severely affects their psychosocial domain of life. In India at least 2.26 crore people have been using opioids according to the survey conducted by National Drug Dependence Treatment Centre (NDDTC) in 2018.[2]

Consumption of opioids produces innumerable negative consequences on individual's psychological and physical health.[3-4] One of the most commonly affected areas is quality of life (QoL). As the severity of illness increases, individual's QoL impairs in the same way.[5] Prolonged consumption of opioid use deteriorates individual's cognitive abilities and physical health too, due to which she/he is not able to focus upon the surroundings.[6] Consequently, his connection to the physical world starts losing gradually. Individual starts living a destitute pattern of life and develops several morbidities.[7-9] Many studies have demonstrated poor QoL among patients with OUD.[10-12] QoL impairs more severely if patients have personality disorder, medical illness or multiple substance use disorders.[13-15] In one study, patients with OUD reported significant impairment in social relationship on WHO-QoL scale but such impairment was not found in physical, psychological and environmental domains.[16] Another study revealed high impairment in psychological and environmental domains of QoL among the patients with OUD.[17]

Since OUD came in to existence, pharmacotherapy has always been the first-line treatment for OUD, though long-term efficacy of such treatment is always questionable.[18] There is a large body of researches proved that if pharmacotherapy is combined with mindfulness-based relapse prevention therapy (MBRP), relapse rate decreases many folds.[19-20] In MBRP therapy, individual focuses upon the present moment and becomes completely aware of its each and every fragment. Jon Kabat Zinn (1994) writes that in mindfulness individual pays attention in the present moment non-judgmentally. Such efforts of focusing induce greater awareness in individual and nurture his ability to accept the present moment.[21] By unleashing the mind from its limited boundaries, the person can unlock the richness of present moment and can embrace the capacity of complete growth and nourishment. In MBRP, patients don't control themselves forcefully in the presence of triggers but they focus upon them and analyze them gently. They accept all these triggers without being judgmental. Studies reveal that focusing and accepting this experience of physical sensations under the craving of opioid intake or in the presence of environment related cues (like the place of opioid intake, mate, and the time) make the patient tolerant in the high-risk situations. Non-judgmental attitude for relapse related triggers helps patients to overcome craving for opioid intake.[22] Consequently, frequency and severity of opioid intake decrease significantly with the help of MBRP therapy in comparison to pharmacotherapy.[23-24] MBRP therapy also improves other major domains of life.[25] Asl & Hosseinalipour found in their study that mindfulness based stress reduction therapy helps patients with OUD in improving QoL.[26] Pagnini, Bercovitz, & Phillips also demonstrated the same results in their study and proved that mindfulness significantly improves QoL and decreases psychological symptoms among students.[27]

Though a lot of work has been done to examine the efficacy of MBRP therapy on different substance use disorders but there is a huge gap in Indian scenario. Effects of MBRP on OUD and QoL is still a less searched area in India. Due to increasing number of opioid patients in India and lack of researches on efficacy of MBRP therapy on OUD, researcher decided to work in this area and aimed to examine the effects of MBRP therapy on severity and frequency of OUD and QoL of patients with OUD.

Material and Methods

Aim: Aim of the present study was to reduce severity and frequency of OUD and to improve patients' QoL by using MBRP therapy.

Objectives

- To examine severity and frequency of OUD among OUD patients at baseline
- To examine QoL of OUD patients at baseline
- To examine the effects of MBRP therapy on severity and frequency of OUD at post-intervention
- To examine the effects of MBRP therapy on QoL of OUD patients at post-intervention

Source of population

Present research has been conducted as a pilot study on the patients who came to psychiatry OPD of a tertiary care center of Uttar Pradesh, India between January to August 2017. This study was approved by ethical committee of the institution. Before starting intervention, all the patients were assured about anonymity and confidentiality of data.

They were also informed about withdrawal from study at any point of time on their own. Informed written/oral consent was also taken from them. Initially, 18 patients diagnosed with OUD according to DSM-5 were taken as a sample by purposive sampling method. They were screened for inclusion-exclusion criteria by administrating semi-structured socio-demographic and clinical data sheet. Out of total sample, 3 patients were excluded from the study due to not meeting inclusion criterion. Remaining 15 patients were examined on Severity of Dependence Scale (SDS), Timeline Follow back (TLFB) chart and WHO-quality of life–BREF for baseline data. After completion of eight-week MBRP therapy, post-assessment of all the patients was done on the same assessment tools to examine the effect of MBRP therapy on severity and frequency of OUD and QoL.

Inclusion-exclusion criteria

Only those patients were included in the study whom age ranged between 15-50 years, male, had at least 2 years duration of illness and provided written/ oral consent while those who were suffering from any psychiatric or medical comorbidity, suffering from visual or hearing impairment, under withdrawal or intoxication, had less than 2 years duration of illness and those who refused to provide written/ oral consent were excluded from the study.

Tools

- Semi-structured proforma was prepared by researcher to register socio-demographic details of all the patients. Along with it, some other clinical details like amount and frequency of opioid use, family history of alcohol and other substance use disorder, sexual dysfunction, suicide attempt, criminal or legal offense, any psychiatric and medical comorbidity, previous treatment history were also collected through this proforma.
- Severity of Dependence Scale (SDS) is a 5 itemed short scale measures psychological dependency and behavioral pattern of substance use such as dose, frequency and duration of any substance. Possible score range on this scale is 0-15. Higher the score one gets on SDS, more severely he/she is dependent on that substance. Test-retest reliability for this scale has been reported 0.89. Construct validity and criterion validity were also found good for this scale.[28]
- The Timeline Follow back (TLFB)chart was used to record the frequency of opioid use prior two months of MBRP intervention and during the study period. Patients were asked to remember all those days in which they consumed opioid in the last two months and asked to put a mark (✓) before the days in which they consumed opioid. Mean of the total consuming days was taken as the baseline score and compared with the mean of consuming days during MBRP intervention for determining the efficacy of MBRP therapy. TLFB chart has been reported good validity and reliability.[29]
- WHO Quality of life scale (WHOQOL-BREF) is a short version of WHOQOL-100 developed by World Health Organization (1996). This scale contains four domains as physical health, psychological, social relationship and environment. Items on this scale are rated from 1-5 where 1 is given to "not at all" and 5 to "an extreme amount". Summed up scores on each domain are transformed by subtracting lowest possible raw score from actual raw score and dividing it by possible raw score range. Then final outcome is multiplied by 100. Score less than 50% on each domain was considered as low QoL and more than 50% as high QoL. Cronbach alpha value for this scale has been reported from 0.66 to 0.84 for all the domains.[30]

Technique

Session I: Patients were introduced with the nature of their thoughts and emotions. They practiced raisin exercise and guided body scan in the session. Mindful eating and guided body scan were suggested for home practice.

Session II: Mindfulness of breath and sitting meditation were practiced in the session and the same was

practiced at home.

Session III: Patients learned to expend mindfulness through mindfulness of sound, mindful walking and "STOP" (Stop, Take a breath, Observe, and Proceed) exercise in the session. Guided boy scan, mindfulness of sound and mindful walking were practiced at home.

Session IV: Patients increased awareness of their thoughts and emotions by practicing mindfulness through imagination exercise in the session and practiced guided body scan, mindful walking and sitting meditation at home.

Session V: Patients learned to challenge high risk situations by practicing coping breathing space. They practiced three minutes breathing space, mindful walking and sitting meditation at home.

Session VI: Mindfulness through silence and loving-kindness exercise were practiced in session. Mindful activities and silence exercises were practiced at home.

Session VII: Discussed positive changes in life style and practiced choiceless awareness in the session. Same was suggested for home practice.

Session VIII: Discussed all the previous sessions and outcome of the intervention in brief. Patients were suggested to carry on mindfulness in their daily routine.

Procedure

After getting baseline data on severity, frequency of OUD and QoL, all the patients were given a total of eight sessions of MBRP therapy once in a week individually for two months along with treatment as usual (TAU). Each session of MBRP therapy run approximately 40-50 minutes. Patients were also instructed for practicing MBRP therapy at home daily. Before receiving intervention, patients were asked that without informing therapist, they would not read any literature related to MBRP therapy or would not receive any other non-pharmacological treatment. After completion of all the sessions of MBRP therapy, post-assessment of all the patients was done on the same assessment tools. Statistical tests like descriptive measures and paired sampled t-test were applied to the data with the help of IBM SPSS version-20 to find out the results.

Statistical analysis

Out of the total patients (n=15), 20% were married, 80% unmarried, 80% Muslims, 20%

Table-1: Socio- demographic profile of the patients with OUD (n=15)

Variable	Frequency (n=15)	Percentage (%)
Married	3	20%
Unmarried	12	80%
Muslim	12	80%
Hindu	3	20%
Rural	3	20%
Urban	12	80%
Upper	1	6.67%
Middle	13	86.67%
Lower	1	6.67%
Primary	1	6.67%
Intermediate	8	53.33%
Graduate	5	33.33%
Post graduate	1	6.67%
Unemployed	8	53.33%
Private job	2	13.34%
Labourer	2	13.34%
Businessman	3	20%
Age	M=23.40 years	SD=6.35
Duration of illness	M=5 years	SD=3.27

Hindu, 20% rural residents and 80% were urban residents. Socioeconomic data revealed that majority of the patients belonged to middle class (86.76%) followed by lower (6.67%) and upper class (6.67%) equally. Most of the patients were students of intermediate class (53.33%) which was followed by graduates (33.33%), primary educated (6.67%) and post graduates (6.67%) equally. 53% patients were unemployed, 20% were running their own business, 13.34% were doing private job and the same 13.34% were laborers. Mean age of the patients was found 23.40 years while mean duration of illness was found 5 years (Table 1).

Table-2: Mean value on severity and frequency of OUD and quality of life at baseline

Variable	Mean	SD
Severity of dependence	8.47	2.32
Frequency of opioid use	41.73	10.56
Physical health	37.02	12.44
Psychological	40.67	14.55
Social relationship	45.11	12.17
Environmental	43.33	13.82

Descriptive results from baseline data demonstrated that mean value of the patients on severity of dependence was high (M=8.47, SD=2.32). Similarly, frequency of opioid use over the last two months was also high (M=41.73, SD=10.56). Findings from quality of life were reported low on physical health, (M=37.02, SD=12.44), psychological (M=40.67, SD=14.55), social relationship (M=45.11, SD=12.17) and environment (M=43.33, SD=13.82). Mean value on each domain revealed that opioid patients had low physical health, low psychological health, low social relationship and low environment related QoL (Table 2).

Findings from post-assessment data demonstrated that mean value of severity of dependence significantly reduced from baseline to post-assessment (M=8.47, SD=2.32 > M=3.53, SD=2.13). Frequency of opioid use was also found to be decreased from baseline to post-assessment (M=41.73, SD=10.56 > M=3.01, SD=3.29). Patients reported higher mean value at post-assessment in comparison to the baseline on physical health (M=37.02, SD=12.44 < M=55.99, SD=10.53), psychological (M=40.67, SD=14.55 < M=55.89, SD=10.97), social relationship (M=45.11, SD=12.17 < M=54.88, SD=10.97) and environment (M=43.33, SD=13.82 < M=54.73, SD=14.23) domains of QoL. Comprehensively, findings from QoL revealed that patients improved on all the four domains of WHOQOL-BREF at post-assessment [Table 3].

Results and Discussion

Findings of the study indicated that majority of the patients were unmarried, Muslims, urban residents, belonged to middle class, intermediate students and unemployed. Mean age of all the patients was found 23.40 years and duration of illness was found 5 years (Table1). Majority of patients participated in the study were teenagers. Studies have shown that this age group people often take substance due to curiosity, peer pressure or sometimes under the frustration of rejection or betrayal in love.[31-32] Higher education enhances knowledge and improve decision making abilities of individuals. This is the reason that highly educated people have lesser chances for addiction.[33-34] Marriage is not only a social contract between two individuals but is also a savior of mental health and positive energy. Marital status, family structure and

Table-3: Comparison between baseline and post-assessment findings on severity and frequency of OUD and QoL

Variable	Baseline (n=15)		Post-assessment (n=15)		t
	Mean	SD	Mean	SD	
Severity of dependence	8.47	2.32	3.53	2.13	12.46*
Frequency of opioid use	41.73	10.56	3.01	3.29	14.27*
Physical health	37.02	12.44	55.99	10.53	9.35*
Psychological	40.67	14.55	55.89	10.97	6.94*
Social relationship	45.11	12.17	54.89	10.97	5.12*
Environment	43.33	13.82	54.73	14.23	8.54*

*$p<0.05$**

presence of children stop people from substance intake.[35] This might be one of the reasons that in our study majority of the patients taking opioids were unmarried. Farhat et al (2015) also found majority of unmarried people taking substance.[36] Tertiary care centre where the data has been taken from was located in urban area densely populated by Muslims. That's why most of the patients of this study were Muslims and living in urban areas. Another reason might be the religion of the patients. In Islam, substance intake is strictly prohibited for its followers. Easy availability of medical facilities in nearby area and religious factors might reinforce Muslim patients to receive treatment for OUD. Due to growing individualistic life style in urban areas and easier availability of drugs also provides opportunity for substance intake.[37] Majority of the patients in the study belonged to middle socio-economic status. Contrary to the findings of the present study, previous studies reported that substance users are either from upper class or from lower class.[38] Easy availability of opioid, urban area, peer pressure, curiosity and stress might prompt middle class people to take opioids. OUD disturbs individual's life substantially. It makes them unable to perform their responsibilities efficiently. Negligence at work and inability to perform tasks also decreases employment rate among patients with OUD.[39] Most of the patients in this study were students and dependent on their parents for earning. All these factors may increase the chance of unemployment among patients taken for this study.[40]

At baseline, patients reported high severity of dependence, high frequency of opioid use and low QoL (Table 2). There are several opioid receptors like μ, delta and kappa in central nervous system. Among them, μ-receptors work as a nociceptor specifically involve in the mechanism of substance intake. Exogenous opioids primarily work upon μ-receptors and produce the same effects as endogenous opioids do. Prolonged opioid use produces desensitization in these receptors and prompt individual for taking higher amount of opioids to get the same pleasure feelings. Intake of high amount of opioids produces dependency among users.[41]. On the other side, brain reward pathways that involve mesolimbic reward system also work in OUD. When someone consumes opioids, this area activates and sends the signals to the ventral tegmental area. Consequently, dopamine is released in nucleus accumbens and produces pleasure feelings among users. Whenever individual feels lack of pleasure, consumption of opioid is left for him/her as the only way of getting the same pleasure feelings.[42] Therefore, in this study opioid patients reported high severity and high frequency of opioid use at baseline. Consumption of opioid for prolonged period detaches users from other people and from their surroundings which consequently impairs their physical and psychological health. Society also takes them as a less productive unit and devalues them.[43] Consequently, it affects their QoL and impairs it as the severity of OUD increases. That's why in this study patients reported poor QoL at baseline on all the four domains of WHOQOL-BREF.

In the present study, all the patients practiced MBRP therapy for two months. In this duration, they practiced MBRP therapy both in the laboratory and at home along with TAU. MBRP therapy teaches patients to deal with the craving related cues that trigger them for relapse. Patients gain mastery over their behavior by accepting these cues non-judgmentally rather than to behave accordingly. They allow their uncomfortable experiences to go gently. Whenever they are exposed to relapse related internal or external cues, they start practicing MBRP skills and break the chain of opioid intake.[44] Consequently, frequency and severity of OUD reduced at post-assessment. Improvement in OUD makes the patients able to focus upon their surroundings, their relation and other psychological domains which in turn enriches their life and improves QoL.[45] That's why comparison of baseline findings to the post-intervention demonstrated significantly lower mean on severity and frequency of opioid use and higher mean on QoL among patients at post-assessment (Table 3). Though the effect of MBRP therapy can't be separated from TAU but a large number of studies are available which has shown that outcome of MBRP therapy is better than TAU. Bowen et. al (2009) showed that eight weeks MBRP program stops relapse among patients with substance use disorder more effectively than TAU.[46] Similarly, Witkiewitz and Bowen reported that MBRP therapy decreases craving and depression among patients with substance use disorder. No follow up was done of the patients in this study so the long term efficacy of MBRP therapy could not be examined by

researcher[47] but Bowen et al (2014) found that MBRP therapy is more effective than cognitive behavior therapy for relapse prevention at twelve months follow up.[48] Yaghubi and Zargar also demonstrate that eight week MBRP program reduced craving and improved quality of life of opioid patients more than TAU and MBRP receiving patients maintained therapeutic gain after two months of intervention[49] Findings of the study also indicated significant reduction in severity and frequency of OUD and improvement in QoL at post-assessment among the patients with OUD.

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References

1. Sadock BJ, Sadock VA, Ruiz P: Comprehensive Textbook of Psychiatry, ed 9. Philadelphia, Lippincott Williams & Wilkins 2009.
2. Murthy P, Manjunatha N, Subodh BN, Chand PK, Benegal V. Substance use and addiction research in India. Indian J Psychiatry 2010; 52(Suppl1) : S189.
3. Ornstein TJ, Iddon JL, Baldacchino AM, et al. Profiles of cognitive dysfunction in chronic amphetamine and heroin abusers. Neuropsychopharmacol 2000; 23(2) : 113-26.
4. Gruber SA, Silveri MM, Yurgelun-Todd DA. Neuropsychological consequences of opiate use. Neuropsychol Rev 2007; 17(3) : 299-315.
5. Singh S, Kumar S, Sarkar S, Balhara YP. Quality of life and its relationship with perceived stigma among opioid use disorder patients: An exploratory study. Indian J Psychol Med 2018; 40(6) : 556-61.
6. Kehksha, Akhouri D, Azmi SA. Efficacy of Mindfulness based relapse PreventionTherapy on Executive Function of Patients with Opioid use Disorder. Delhi Psychiatry J 2018; 2 : 345-51.
7. Davis PE, Liddiard H, McMillan TM. Neuropsychological deficits and opiate abuse. Drug Alcohol Depend 2002; 67(1) : 105-8.
8. White JM. Pleasure into pain: the consequences of long-term opioid use. Addict Behav 2004; 29(7) : 1311-24.
9. Wright C, Bigelow GE, Stitzer ML, Liebson IA. Acute physical dependence in humans: repeated naloxone-precipitated withdrawal after a single dose of methadone. Drug Alcohol Depend 1991; 27(2) : 139-48.
10. Mitchell SG, Gryczynski J, Schwartz RP, et al. Changes in quality of life following buprenorphine treatment: relationship with treatment retention and illicit opioid use. J Psychoactive Drug 2015; 47(2) : 149-57.
11. Pasareanu AR, Opsal A, Vederhus JK, Kristensen Ø, Clausen T. Quality of life improved following in-patient substance use disorder treatment. Health Qual Life Outcomes 2015; 13(1) : 1-8.
12. Kapse NS, Thakre SS, Thakre SB, Kapse SN. A cross sectional comparative study of quality of life of treatments seekers at de-addiction centre in central India using WHO BREF scale. Int J Community Med Public Health 2017; 4 : 4266-71.
13. Fassino S, Daga GA, Delsedime N, Rogna L, Boggio S. Quality of life and personality disorders in heroin abusers. Drug Alcohol Depend 2004; 76(1) : 73-80.
14. Najafi M, Sheikhvatan M, Montazeri A, Sheikhfathollahi M. Quality of life in opium-addicted patients with coronary artery disease as measured with WHOQOL-BREF. Int J Soc Psychiatry 2009; 55(3) : 247-56.
15. Giri OP, Srivastava M, Shankar R. Quality of life and its correlates among substance dependent subjects: A study from a tertiary care centre in northeastern part of India. Int J Med Med Sci 2013; 3(6) : 464-9.
16. Kobra L, Mohammad BN, Alireza SS. Quality of life in patients on methadone maintenance treatment: a three-month assessment. J Pakistan Med Assoc 2012; 62(10) : 1003-7.
17. Dhawan A, Chopra A. Does buprenorphine maintenance improve the quality of life of opioid users?. Indian J Med Res 2013; 137(1) : 130.
18. Ricardo Buenaventura M, Rajive Adlaka M, Nalini Sehgal M. Opioid complications and side effects. Pain Physician 2008; 11 : S105-20.
19. Black DA. Mindfulness research publications

by year, 1980–2013. Retrieved from American Mindfulness Research Association website: https://goamra.org 2014.
20. Teasdale JD. The relationship between cognition and emotion: The mind-in-place in mood disorders. https://psycnet.apa.org/record/1997-97380-004. Accessed on 20/07/21.
21. Kabat-Zinn, J. Wherever you go, there you are: Mindfulness meditation in everyday life. New York: Hyperion 1994.
22. Bowen S, Chawla N, Grow J, Marlatt GA. Mindfulness-based relapse prevention for addictive behaviors: A clinician's guide. Guilford Publications 2011.
23. Marlatt GA, Bowen S, Chawla N, Witkiewitz K. Mindfulness-based relapse prevention for substance abusers: Therapist training and therapeutic relationships. Mindfulness and The Therapeutic Relationship. Hick SF, Bien T (Eds). NY: Guilford Press 2008; 107-21.
24. Grow JC, Collins SE, Harrop EN, Marlatt GA. Enactment of home practice following mindfulness-based relapse prevention and its association with substance-use outcomes. Addict Behav 2015; 40 : 16-20.
25. Witkiewitz K, Greenfield BL, Bowen S. Mindfulness-based relapse prevention with racial and ethnic minority women. Addict Behav 2013; 38(12) : 2821-4.
26. Asl NR, Hosseinalipour F. Effectiveness of mindfulness-based stress reduction intervention for health-related quality of life in drug dependent males. Iranian Red Crescent Medical J 2014; 16(9).
27. Pagnini F, Bercovitz KE, Phillips D. Langerian mindfulness, quality of life and psychological symptoms in a sample of Italian students. Health Qual Life Outcomes 2018; 16(1) : 1-7.
28. Gossop M, Darke S, Griffiths P, Hando J, Powis B, Hall W, Strang J. The Severity of Dependence Scale (SDS): psychometric properties of the SDS in English and Australian samples of heroin, cocaine and amphetamine users. Addiction 1995; 90(5) : 607-14.
29. Sobell LC, Brown J, Leo GI, Sobell MB. The reliability of the Alcohol Timeline Followback when administered by telephone and by computer. Drug and alcohol dependence 1996; 42(1) : 49-54.
30. WHOQOL Group. WHOQOL-BREF: field trial version. Program on Mental Health. World Health Organization 1996.
31. Ruiz P. Comprehensive textbook of psychiatry. Sadock BJ, Sadock VA, editors. Philadelphia, PA: Lippincott Williams & Wilkins 2000.
32. Field T. Romantic breakup distress, betrayal and heartbreak: A review. Int J Behav Res Psychol 2017; 5(2) : 217-5.
33. Mbiyu NM, Ombui K. Influence of Literacy levels on Drug and Substance Abuse Among the Youth in Kiyambu County, Kenya. Interl J Manage Commer Innov 2017; 4 : 367-73.
34. Sau M, Mukherjee A, Manna N, Sanyal S. Sociodemographic and substance use correlates of repeated relapse among patients presenting for relapse treatment at an addiction treatment center in Kolkata, India. African Health Sci 2013; 13(3) : 791-9.
35. Chapman A, Verdery AM, Monnat SM. Opioid misuse and family structure: Changes and continuities in the role of marriage and children over two decades. Drug Alcohol Depend 2021; 222 : 108668.
36. Farhat S, Hussain SS, Rather YH, Hussain SK. Sociodemographic profile and pattern of opioid abuse among patients presenting to a de-addiction centre in tertiary care Hospital of Kashmir. J Basic Clin Pharmacy 2015; 6(3) : 94.
37. Chavan BS, Arun P, Bhargava R, Singh GP. Prevalence of alcohol and drug dependence in rural and slum population of Chandigarh: A community survey. Indian J Psychiatry 2007; 49(1) : 44.
38. Rather YH, Bashir W, Sheikh AA, Amin M, Zahgeer YA. Socio-demographic and clinical profile of substance abusers attending a regional drug de-addiction centre in chronic conflict area: Kashmir, India. Malaysian J Med Sci 2013; 20(3) : 31.
39. Rhee TG, Rosenheck RA. Association of current and past opioid use disorders with health-related quality of life and employment among US adults. Drug Alcohol Depend 2019; 199 : 122-8.
40. Piontek D, Kurktschiev S, Kraus L, Hölscher S, Rist F, Heinz T, Scherbaum N, Bender S, Buchholz A. "This Treatment Can Really Help Me"—A Longitudinal Analysis of Treatment

Readiness and Its Predictors in Patients Undergoing Alcohol and Drug Rehabilitation Treatment. Alcoholism: Clin Exp Res 2017; 41(6) : 1174-81.
41. Gelder MG, Andreasen NC, Lopez-Ibor Jr IT, Geddes JR. New Oxford Textbook of Psychiatry. 2nd ed. Oxford: Oxford University Press 2009.
42. Kosten TR, George TP. The neurobiology of opioid dependence: implications for treatment. Sci Practice Perspect 2002; 1(1) : 13.
43. Crapanzano KA, Hammarlund R, Ahmad B, Hunsinger N, Kullar R. The association between perceived stigma and substance use disorder treatment outcomes: a review. Substance Abuse Rehabilit 2019; 10 : 1.
44. Tapper K. Mindfulness and craving: effects and mechanisms. Clin Psychol Rev 2018; 59 : 101-17.
45. Morone NE, Greco CM, Weiner DK. Mindfulness meditation for the treatment of chronic low back pain in older adults: a randomized controlled pilot study. Pain 2008; 134(3) : 310-9.
46. Bowen S, Chawla N, Collins SE, et al. Mindfulness-based relapse prevention for substance use disorders: A pilot efficacy trial. Substance Abuse 2009; 30(4) : 295-305.
47. Witkiewitz K, Bowen S. Depression, craving, and substance use following a randomized trial of mindfulness-based relapse prevention. J consult Clin Psychol 2010; 78(3) : 362.
48. Bowen S, Witkiewitz K, Clifasefi SL, et al. Relative efficacy of mindfulness-based relapse prevention, standard relapse prevention, and treatment as usual for substance use disorders: a randomized clinical trial. JAMA psychiatry 2014; 71(5) : 547-56.
49. Yaghubi M, Zargar F. Effectiveness of Mindfulness-based Relapse Prevention on Quality of Life and Craving in Methadone-treated Patients: A Randomized Clinical Trial. Addict Health 2018; 10(4) : 250.

Original Article

To evaluate the effect of Acceptance and Commitment Therapy in OCD - A Preliminary Study

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ABSTRACT

Background*:Obsessive-compulsive disorder is chronic and severity of its symptoms often make it a source of distress, and dysfunction and, disability; and has high comorbidity with mood as well as anxiety disorders. Exposure response prevention (ERP) is most researched and effective behavioral techniques despite this, 25% patients refuse to complete ERP due to distress associated with exposure.* ***Objective****: A study examining the effectiveness of mindfulness and meditation compared to the use of distraction in patients with OCD showed significant decrease and urge to perform compulsions. The current study thus attempted to assess effectiveness of acceptance and commitment therapy (ACT) in patients with OCD.* ***Method****: It was a single group pre-post intervention study design using purposive sampling method. Fifteen participants with diagnosis of OCD were recruited. The pre-post assessment measures used were; Yale-Brown Obsessive-Compulsive Scale (Y-BOCS)Global Assessment of Functioning (GAF)Clinical Global Impression-Severity Scale (CGI-S).* ***Results****: The paired t-test analysis revealed significant change in pre-post test scores on symptomatology (YBOCS), functioning (GAF) and clinical symptoms (CGI) with p vales significant at .001 level. However, on computing the effect size it was found that the change in pre-post test scores of obsession and compulsion ranged from small to medium effect size while the change in scores of functioning was large (d=.83).* ***Conclusion****: ACT unlike behavioral and other cognitive therapies emphasize on the patient's functioning than the symptom alleviation. This shift is approach is believed to reduce the chances of relapse and enhance better generalization of skills in day-to-day life.*

Keywords: *Obsessive Compulsive Disorder, Mindfulness, Meditation, Acceptance & Commitment therapy*

Introduction

Obsessive-compulsive disorder (OCD) is a common psychiatric condition characterized by obsessive repetitive thoughts or images mostly followed by compulsive ritualistic or repetitive acts with the prevalence rate of 1-2% worldwide and 0.6% in India.[1,2] The chronicity and severity of its symptoms often make it a source of distress, and dysfunction and, disability is comparable to schizophrenia.[3] There had been debate about types and categorization of OCD,[4] the current DSM 5 has excluded from anxiety disorders and an independent chapter titled Obsessive-compulsive and related disorders includes OCD with specifiers namely; with good or fair insight, with poor insight, with absent insight or delusional beliefs.[1] Its comorbidity with mood disorders is 63% while with anxiety disorders 76%.[1] Mood disorders and anxiety disorders further have been identified to be signi-ficantly contributing to global burden of diseases, lined up after schizophrenia.[5] This highlights that management of OCD must be inclusive and comprehensive targeting

core and associated psycho-pathology.

Cognitive behaviour therapy (CBT) and selective serotonin reuptake inhibitors (SSRIs) are recommended as safe and effective first-line treatments for OCD.[6,7] CBT that relies primarily on behavioural techniques such as exposure and response prevention (ERP) is recommended because it has the best evidentiary support for good prognosis with promising outcome.[8] Exposure and response prevention (ERP) appears to be the most effective treatment currently available, with 50-60% recovery rate.[9] Among all affected with OCD, about 7 out of 10 are expected to benefit from either medicine (40-60%) or CBT (60-80%).[10,11] Though ERP is most researched and effective behavioral techniques despite this, 25% patients refuse to complete ERP due to distress associated with exposure.[11]

Over the years behavior therapies and cognitive-behavior therapies (first wave and second wave therapies) have been proven to be efficacious in the management of OCD, and many has quoted CBT to be regarded as first line management of OCD.[12] The treatment being delivered in both inpatient as well as outpatient settings.

Therapy is often not considered as a feasible and economical choice of treatment under certain conditions as it includes multiple sessions spread over months or years, slow rate of progress, and high dropout, partial or no response as it involves talking or experiencing the symptoms.[13,14] The third wave therapies on the other are central to functioning and change than emphasis on the symptoms.[15,16] Acceptance and Commitment Therapy (ACT) is one such therapy where goal is to enhance the psychological flexibility by minimizing the gap between individual's suffering and functioning.[17] It has its roots in functional contextualism and relational framework theory (RFT) and enhances the acceptance of the unpleasant experiences without struggling to change it while maintaining commitment towards one's values and goals.[15] The practice of mindfulness; a principle derived from Zen philosophy, addresses the experiential avoidance, tendency to avoid distressing cognitive phenomena and associated emotions resulting from OCD.[18] Various studies have shown efficacy of ACT in managing generalized anxiety disorder, obsessive-compulsive disorder, and posttraumatic stress disorder.[19] A study examining the effectiveness of mindfulness and meditation compared to the use of distraction in patients with OCD showed greater decrease and urge to perform compulsions using mindfulness-based strategy in comparison to those who had engaged in distraction.[20,21] The current study thus attempted to assess effectiveness of ACT in patients with OCD.

Material and Methods

Study design and settings

The study was carried out in the out-patient department of Psychiatry of a government tertiary care center located in an urban area. It was a single group pre-post intervention study design using non-probability (purposive) sampling method.[22,23]

Participants

A total 15 participants were recruited. The participants having diagnosis of OCD, aged between 18-55 years, had minimum 10 years of formal education, had duration of illness for more than 1 year and those coming for first consultation in the walk-in clinic of the OPD. Those with psychiatric co-morbidity, clinical evidence of intellectual disability, suffering from comorbid acute unstable medical illness, having undergone electroconvulsive therapy (ECT) in last 3 months, seeking any other form of evidence-based psychotherapy currently or in the last 6 months, those practicing yoga, mindfulness, meditation or art of living currently or in the last 6 months were excluded.

Assessment tools

The socio-demographic sheet and clinical record sheet was prepared to record sociodemographic and clinical details of the participants. The following pre and post measures were used:

1. Yale-Brown Obsessive-Compulsive Scale (Y-BOCS): It assesses severity of OCD and to monitor improvement during treatment. It is also used as diagnostic tool with variable degree of symptoms. It measures the obsessions and compulsion separately and total score in assesses by combining these two.[24]
2. Global Assessment of Functioning (GAF): This tool is a numeric scale used by mental health clinicians and physicians to measure the level of functioning at a point of time

along with symptoms of mental illness. It encompasses the psychological, social and occupational functioning.[25]

3. Clinical Global Impression-Severity Scale (CGI-S): It is clinician rated tool which assesses the severity of symptoms from 1 to 7 i.e. normal to extremely ill during past 7 days.[26]

Procedure

The patients having OCD were referred to the behavior therapy (BT) unit for psychotherapy by the psychiatrists. Those referred between January to June were included into the study. Those who consented to participate and were willing to come for regular sessions were included. Their socio-demographic and clinical details were filled, those included were administered MINI to rule out comorbidities. Those excluded were enrolled for cognitive behavior therapy (CBT) or exposure and response prevention (ERP) while those included were recruited into the study for dissemination of acceptance and commitment therapy (ACT). The pre-assessment was carried out for each participant on outcome measures namely; YBOCS, GAF, CGI-S, along with the routine clinical assessment encompassing details of illness, personal and family history, personality and mental status examination. The first 2 sessions were about the routine clinical assessment and pre-test measures. ACT was introduced for each participant in the third session. Post-assessment was carried out for each participant at the end of 16 weeks from the point of recruitment.

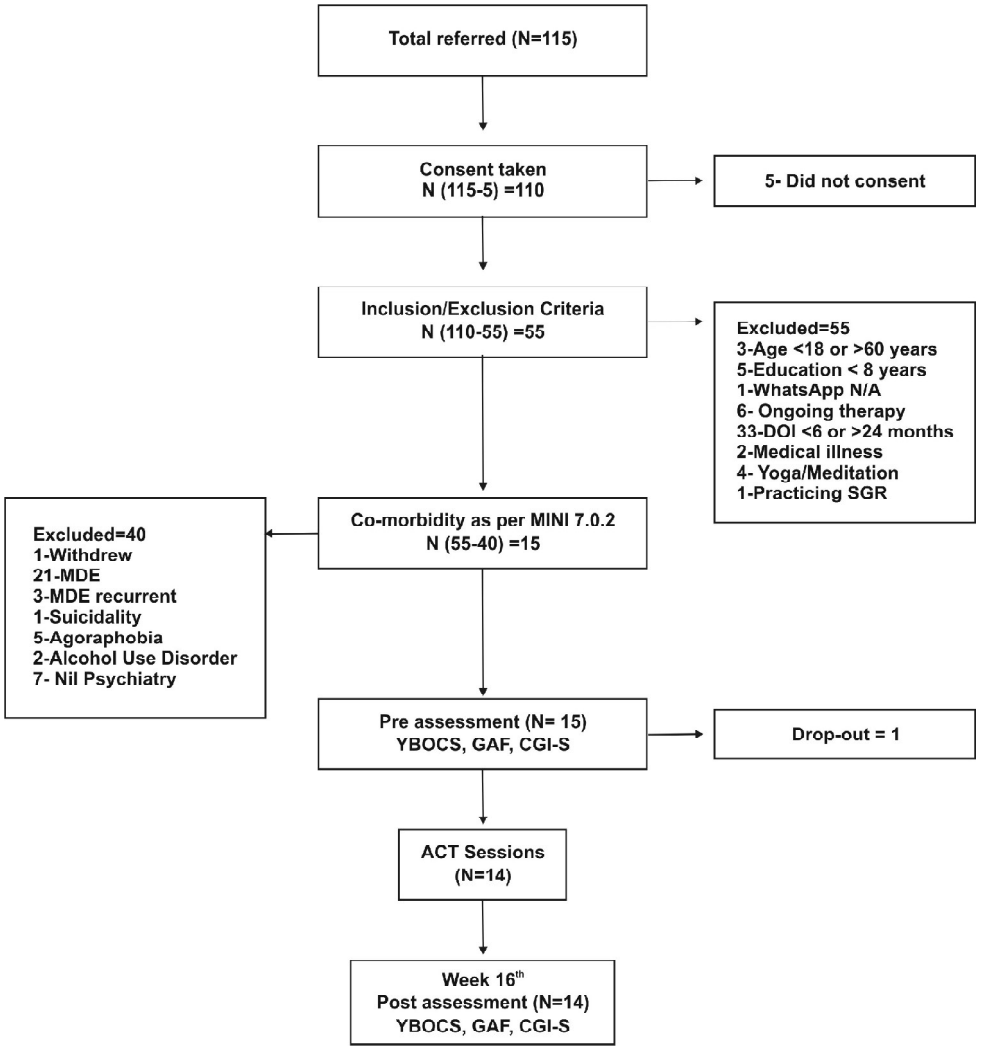

Fig. 1: Procedure

Intervention

The acceptance and commitment therapy (ACT) has six processes namely; acceptance, cognitive defusion, mindfulness, self-as-context, values, committed action. The authors began with introducing the concept of acceptance using metaphors and a small activity to further demonstrate. While explaining fusion in next session, conceptualization and role of beliefs was explained.[27] This involved explaining the fusion of cognitive phenomena such as obsessions, images, and impulses being perceived as real due to thought-action, thought object, thought event fusion. And how cognitive defusion and mindfulness results into progressing to detaching self from the symptoms and therefore observing self in light of contextual factors. Lastly, escalating to review life values and committed actions required to meet these life values.

Table-1: Description of six components of ACT

Component	Description and Goal	Dissemination
Acceptance	The individuals constantly struggle to end pain which consequently becomes source of suffering. In ACT, focus is not on struggling to change rather change occurs when one embraces the unpleasant experiences as it is by ending the struggle to change.	Concept of creative helplessness is introduced at this point and patient is encouraged to seize the struggle (performing compulsions) and work towards acceptance without changing the form and frequency of the obsessions. Metaphors such as tug of war using a book or object between therapist and client was used for demonstration and experience of struggle resulting in mental and physical exertion.
Cognitive defusion	The fusion; thought-event, thought-action, though-object; is the source of dysfunctional metacognitive beliefs and distress which tend to maintain the illness state. The cognitive defusion aims to detach mental events from reality. It attempts to change the way an individual relates to his mental event such as thoughts, ruminations, obsessions and private experiences by assuming it to be real. This emphasizes to detach self and reality.	Metaphors of dreams, fantasy was be used. For demonstration, patient was asked to imagine being in any place of choice or desire involving all 5 senses, for 3-4 minutes. After termination of creative visualization, difference between imagination and reality (being in therapist's room) was discussed to explain how the cognitive phenomena of imagination was different from the reality of being in therapist's room. Further, fusion with its 3 variations i.e. thought action fusion, thought event fusion and thought object fusion was explained with examples. Then, cognitive defusionwas attempted by identifying and labelling the fusion in obsession or symptoms of the OCD.Exercises used include: flowing stream, labelling thoughts.
Mindfulness	It refers to the ability to stay in the present moment with the increased awareness and mindful engagement with surroundings or physical space. It aims to strike the balance between inner obsessive phenomena and the outer experiences with a non-judgmental stance. It also intends to encourage the flexibility of behaviour as per the context and ultimately augment the behavioural outcome with enhanced attention.	To reduce the dysfunction or obsessive slowness it is important to help the patient to stay in the present moment rather in the shackles of obsessive thoughts and compulsions. Effort is made to focus on the present rather than the past or future ruminations.Exercise: Any mindfulness-based practice, guided imagery, relaxation exercises that enhance awareness of sensory experience may be used. This may be accompanied by mindful eating, listening to music and postponement of obsession or compulsion.
Self-as-Context	It attempts to modify the literal meaning of the "I", as the patient often associate the obsession and compulsions with one's identity and start believing oneself as mere OCD patient. This like cognitive defusion assists in having a detached viewpoint of	The emphasis is on the observing self than experiencing self. Metaphors are used to explain the difference between contextual- self and the observing self. The clouds in the sky as various experiences of one's life but underneath lies the blue sky and clouds may be thick, thin, dark,

Table-1: Contd...

Component	Description and Goal	Dissemination
	one's identity rather than viewing one's identity as per the changing contexts.	black, filled with rain water but underneath lies the blue sky and clouds appear to define but don't actually define the colour of sky. Or water which is colorless but waterbodies may vary in color. Similarly experiences of life are simulated to clouds, where underneath lies the individual with his set of skills and deficits, the observing self that looks at experiences as clouds and colour of sky may be explained contextually but can be defined only as blue. The exercises used were namely; writing down one's timeline, chess metaphor, cloud metaphor.
Values	It implies to the chosen life directions in various domains of life. In simplest words, doing what matters the most. It aims at the shift from cognitive planning to behavioural action.	Values are like choosing paths after evaluation, what one wants in life in personal, social, occupational domains of life. It act as a guide to direct behavioural activation. This may be mutually decided, reviving pre-morbid values, or identifying new paths of life using intellectual insight. Family may be involved, if needed.
Committed Action	It focuses on the development of the effective actions linked with chosen values.	Shifting the focus from illness to action. Making graded progress in doing things enhancing routine functioning. It may employ various techniques of behaviour therapy such as exposure, skill acquisition, shaping etc

Statistical analysis

The measures were scored and data was analyzed using software package for social sciences (SPSS) version 22. Paired t-test was computed to find significant differences between pre-post test scores. Further Cohen's *d* was computed to see the effect size.[28]

Results

Total fifteen participants were recruited into the study and 1 dropped out before pre-assessment hence, analysis was carried out for a sample of 14 (N=14). Table 2 shows the distribution of demographic and clinical characteristics of the participants, and number of session of ACT.

Table 3 shows mean and standard deviation (SD) of scores on the outcome measures. The paired t-test analysis revealed significant change in pre-post test scores on symptomatology (YBOCS), functioning (GAF) and clinical symptoms (CGI)with p vales significant at .001 level. However on computing the effect size it was found that the change in pre-post test scores of obsession and compulsion ranged from small to medium effect size while the change in scores of functioning was large (*d*=.83).

Table-2: Participants' characteristics (N=14)

Variables		M (SD) / *f* (%)
Age		22.64 (7.996)
Sex	Female	9 (64.3%)
	Male	5 (35.7%)
Education (yrs)		13.71 (3.173)
Marital status	Unmarried	10 (71.4%)
	Married	3 (21.4%)
	Divorced	1 (7.1%)
Occupation	Student	9 (64.3%)
	Unemployed	0
	Job	2 (14.3%)
	Housewife	3 (21.4%)
Locality	Rural	3 (21.4%)
	Urban	11 (78.6%)
Religion	Hindu	11 (78.6%)
	Sikh	3 (21.4%)
Family type	Joint	7 (50%)
	Nuclear	7 (50%)
DOI		22.64 (7.996)
Comorbidity	Grief	3 (21.43)
Sessions		19.57 (9.928)

M- Mean; SD- Standard Deviation;*f*- frequency

Table-3: Pre-post analysis of outcome measures of participants using paired t-test (df=13)

Measures		Pre	Post	Mean Diff	SD Diff	t	*p*	*d*
YBOCS	Obsessions	16.29 (2.13)	7.14 (3.39)	9.14	2.98	11.47	.000***	0.30
	Compulsions	14.57 (3.25)	5.50 (3.94)	9.07	5.27	6.44	.000***	0.30
	Total	30.86 (4.93)	12.64 (6.82)	18.21	7.56	9.02	.000***	0.59
GAF		50.14 (7.00)	75.64 (8.38)	25.50	9.48	10.05	.000***	0.83
CGI-S		4.64 (0.74)	2.43 (0.85)	2.21	.89	9.28	.000***	0.07

*p <.05, **p<.01, ***p<.001, Cohen's d 0.2=small effect, 0.5=medium effect, 0.8=large effect.YBOCS- Yale-Brown Obsessive-Compulsive Scale; GAF- Global Assessment of Functioning; CGI-S- Clinical Global Impression-Severity Scale; SD- Standard deviation

Discussion

The study revealed ACT was significantly effective in reduction of symptoms and improving functioning. The effects size was larger for functioning than symptoms. Out of the 14 participants who received ACT, 3 had comorbid grief. It was observed that process of acceptance and mindfulness was helpful in resolving grief as well as increase the functioning and valued living. The self-report of the participants also confirmed the findings where patients reported improvement in the associated symptoms as they were able to generalize the skills in other problem areas as well. In accordance to this ACT can be compared with the life style modifications, as the core principles of the ACT can be flexibly used in various psychiatric disorders simultaneously. It can address the one of the limitation of exposure based therapies and cognitive therapy for OCD where purely behavioral or cognitive techniques often fail to address all of the presented complaints or comorbidities. Thus, ACT can be promoted as comprehensive treatment plan catering to cognitive, emotional and behavioral aspects. Research has also highlighted the role of ACT not only in psychiatric conditions but also in the non-psychiatric conditions,[29] like in the current study delivery of ACT was beneficial or had clinical value to address ongoing grief issues without changing form of therapy or borrowing techniques from other therapies. The authors in their clinical experience often come across patients reporting the distress associated with exposure leading to either drop-out or change of clinician or requesting for alternative interventions. In addition, authors found that ACT was convenient than ERP or CBT to intervene with participants having obsessions with blasphemous content, or OCD involving only obsessions in the absence of compulsive acts.

ACT enhances the cognitive flexibility and deal with experiential avoidance using its six inter-related components. Its basis lies in the Relational framework theory (RFT) along with Thought belief model which highlights the role of the cognitive fusion in the genesis of the psychopathology. ACT attempts to alter the way one interacts with contexts using cognitive defusion rather than the cognitive content as in CBT.[27] Emphasis is made on enhancing the observing self unlike thinking self by putting self as context. It places a lot of importance on life goals and the values which one holds to strive in life in the various life domains such as family, religion, career etc. the ultimate aim is to reinforce behaviors towards attainment of chosen values using committed actions.[30]

Despite being such a comprehensive treatment plan addressing not just the psychopathology but striving for valued living, in 8 sessions tend to enhance the functioning of the patient having OCD.[31] The current study also revealed significant change in post assessment findings. It is a noteworthy feature and can be seen as the better alternative for the common psychotherapies including behavior therapy and cognitive therapy. Exposure and response prevention (ERP) in OCD usually requires frequent and a greater number of sessions and to be effective 5 sessions of ERP in a week is generally recommended.[32] Similarly in cognitive behavior therapy (CBT) for OCD 13-20 weekly sessions are advocated.[32] Thus, ACT is shorter than traditional approaches which can contribute in preventing premature/early dropout from the treatment. This also makes it more convenient and economical especially for country like India where treatment seeking is often dependent on socio-economic factors.[33] Exposure based treatments for OCD has been in use for decades with encouraging results but it is often

observed that patients having OCD are reluctant for psychotherapeutic intervention or tend to drop out early as the very idea of exposure is repugnant for them.[8] This can further affect their compliance to the treatment. In routine clinical practice at times habituation via exposure is not feasible for practical reasons and often offers limited generalization outside the therapeutic settings. To deal with this, ACT offers metacognitive exposure which has been shown to be efficacious than the tradition exposure approaches (34). ACT instead of focusing on the symptoms places more weightage on the enhancing functioning and well-being of the patient.[30] This change in approach magnify the compliance and treatment motivation because it is the dysfunction which brings the sense of discomfort and suffering in the patient.

Conclusion

One of the salient features of ACT is to identify the values an individual and making progress towards it thru committed actions. Thus, ACT unlike behavior and cognitive therapy emphasize on the patient's functioning beyond the symptom alleviation. This shift is approach is believed to reduce the chances of relapse and enhance better generalization of skills in day to day life.

The study had many limitations few being weak study design comprising of small sample size, purposive sampling and no comparison group. The strength was recruitment was extensively filtered to meet the defined criteria and subjective feedback of the patients in response to ACT. Clinical outcome was greater than seen in other interventions. The effect of ACT was promising and provided good basis for future studies comparing effectiveness of ACT with CBT in OCD.

References

1. American Psychiatric Association. Diagnostic and Statistical Manual of Mental Disorders: DSM-5: American Psychiatric Association, 2013.
2. Rajashekharaiah M, Verma P. Phenomenology of Obsessions and Compulsions in Indian Patients. Int J Contemp Med 2016; 3(7) : 2139-2143.
3. Eaton WW, Martins SS, Nestadt G, Bienvenu OJ, Clarke D, Alexandre P. The Burden of Mental Disorders. Epidemiol Rev 2008; 30 : 1-14.
4. Ruscio AM, Stein DJ, Chiu WT, Kessler RC. The Epidemiology of Obsessive-Compulsive Disorder in the National Comorbidity Survey Replication. Mol Psychaitry 2010; 15(1) : 53-63.
5. Whiteford H, Ferrari A, Degenhardt L. Global Burden of Disease Studies: Implications for Mental and Substance Use Disorders. Health Aff 2016; 35(6) : 1114-1120.
6. Rasmussen SA, Tsuang MT. Clinical Characteristics and Family History in DSM-III Obsessive Compulsive Disorder. Am J Psychiatry 1986; 143(3) : 317-322.
7. Fernández Córdoba E, López-IborAliño J. Use of Monochlorimipramine in Psychiatric Patients who are Resistant to other Therapy. Actas Luso Esp Neurol Psiquiatr 1967; 26(2) : 119-147.
8. Abramowitz JS, Taylor S, McKay D. Potentials and Limitations of Cognitive Treatments for Obsessive-Compulsive Disorder. Cogn Behav Ther 2005; 34(3) : 140-147.
9. Fisher PL, Wells A. How Effective are Cognitive and Behavioural Treatments for Obsessive-Compulsive Disorder? A Clinical Significance Analysis. Behav Res Ther 2006; 43(12) : 1543-58.
10. Iancu I, Dannon PN, Zohar J. Obsessive–Compulsive Cisorder. In: Gelder MG, Lopez-Ibor JJ, Andreasen N, Lopez-Idor JJ, editors. New Oxford Textbook of Psychiatry. Oxford: Oxford University Press 2003; 651-656.
11. WhittalML, Thordarson DS, McLean PD. Treatment of Obsessive-Compulsive Disorder: Cognitive Behavior Therapy vs. Exposure and Response Prevention. Behav Res Ther 2005; 43(12) : 1559-76.
12. Janardhan Reddy YC, Sundar AS, Narayanaswamy JC, Math SB. Clinical Practice Guidelines for Obsessive-Compulsive Disorder. Indian J Psychiatry 2017; 59(S1) : 74-90.
13. Ruiz FJ. Acceptance and Commitment Therapy versus Traditional Cognitive Behavioural Therapy: A Systematic Review and Meta-analysis of Current Empirical Evidence. Int J Psychol Psychol Ther 2012; 12(3) : 333-357.
14. Arch JJ, Eifert GH, Davies C, et al. Randomized Clinical Trial of Cognitive Behavioural Therapy

(CBT) versus Acceptance and Commitment Therapy (ACT) for Mixed Anxiety Disorders. J Consult Clin Psychol 2012; 80(5) : 750–765.
15. Hayes SC. Acceptance and Commitment Therapy and the New Behavior Therapies Mindfulness, Acceptance,and Relationship. In:Hayes SC, Follette VM, Linehan MM, editors. Mindfulness and Acceptance Expanding the Cognitive-Behavioral Tradition. NewYork: Guilford Press 2004; 5-6.
16. Manjula M, Sudhir PM. New-Wave Behavioural Therapies in Obsessive Compulsive Disorder: Moving toward Integrated Behavioural Therapies. Indian J Psychiatry 2019; 61(S1) : 104-113.
17. Hayes SC, Wilson KG. Acceptance and Commitment Therapy: Altering the Verbal Support for Experiential Avoidance. Behav Anal 1994; 17(2) : 289–303.
18. Wetterneck CT, Steinberg DS, Hart J. Experiential Avoidance in Symptom Dimensions of OCD. Bull Menninger Clin 2014; 78(3) : 253-269.
19. Eifert GH, Forsyth JP, Arch JJ, Espejo E, Keller M, Langer D. Acceptance and Commitment Therapy for Anxiety Disorders: Three Case Studies Exemplifying a Unified Treatment Protocol. Cogn Behav Prcat 2009; 16 (4) : 368-385.
20. Gava I, Barbui C, Aguglia E, et al. Psychological Treatments versus Treatment as Usual for Obsessive Compulsive Disorder (OCD). Cochrane Database Syst Rev 2007; 18(2) : CD005333.
21. Wahl K, Huelle JO, Zurowski B, Kordon A. Managing Obsessive Thoughts During Brief Exposure: An Experimental Study Comparing Mindfulness-Based Strategies and Distraction in Obsessive–Compulsive Disorder. Cogn Ther Res 2012; 37(4) : 752-761.
22. Aggarwal R, Ranganathan P. Study Designs: Part 4- Interventional Studies. Perspect Clin Res 2019; 10(3) : 137-139.
23. Singh AK. Tests, Measurements and Research Methods in Behavioural Sciences: Bharati Bhawan 1986.
24. Goodman WK, Price LH, Rasmussen SA, et al. The Yale-Brown Obsessive-Compulsive Scale: I. Development, Use, and Reliability. Arch Gen Psychiatry 1989; 46(11) : 1006-1011.
25. Blacker D.Psychiatric Rating Scales. In: Sadock BJ, Sadock VA, editors. Kaplan & Sadock's Comprehensive Textbook of Psychiatry. Philadelphia: Lippincott Williams & Wilkins Publishers 2000; 1642.
26. Busner J, Targum SD. The Clinical Global Impressions Scale: Applying a Research Tool in Clinical Practice. Psychiatry (Edgmont). 2007; 4(7) : 28-37.
27. Wells A. Metacognitive Therapy for Anxiety and Depression: NY: Guilford Press 2009.
28. Swailowsky SS. New Effect Size Rules of Thumb. J Mod Appl Stat Methods 2009; 8 : 597-9.
29. Dindo L, van Liew JR, Arch JJ. 2017. Acceptance and Commitment Therapy: A Transdiagnostic Behavioural Intervention for Mental Health and Medical Conditions. Neurotherapeutics 2017; 14 : 546-553.
30. Hayes SC, Luoma B, Bond FW, Masuda A, Lillis J. Acceptance and Commitment Therapy: Model, Processes and Outcomes. Behav Res Ther 2006; 44(1) : 1-25.
31. Twohig MP, Hayes SC, Plumb JC, et al. A Randomized Clinical Trial of Acceptance and Commitment Therapy vs. Progressive Relaxation Training for Obsessive Compulsive Disorder 2010; 78(5) : 705-716.
32. American Psychiatric Association. Practice Guideline for the Treatment of Patients with Obsessive-Compulsive Disorder: American Psychiatric Association 2007.
33. Sahoo AK, Madheswaran S. Socio-economic Disparities in Health Seeking Behaviour, Heath Expenditure and Sources of Finance in Orissa: Evidence from NSSO 2004-05. J Health Manag 2014; 16(3) : 397-414.
34. Melchior K, Franken I, Deen M, van der Heiden C. Metacognitive Therapy versus Exposure and Response Prevention for Obsessive-Compulsive Disorder: Study Protocol for a Randomized Controlled Trial. Trials 2019; 20 : 277-87.

Original Article

Assessing impact of Drug Use on Gastrointestinal Obstruction and Perforation: A Retrospective Review

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ABSTRACT

Introduction: *Pain is one of the most common complain that brings a patient to hospital. For this, usually the patient has already consumed various types of pain killer combinations either prescribed or over-the-counter. In some of these cases patient consumes these medicines unmonitored for a long time and then comes with the complications, most life threatening among them is GIT obstruction and perforation.* ***Material and Method:*** *Case files from the department of surgery were retrieved and studied. Patients were contacted telephonically for details of drug abuse history. These were then further studied in detail.* ***Results:*** *48 (68%) patients out of total 78 were having history of drug abuse. Most common abused pain killer was the combination of anti-inflammatory and other salts found in 22 (46%) patients followed by tramadol, nsaids, opium and alcohol (23%, 17% , 10% and 4% respectively). These groups were comparable in socio demographic details except in the mean age, occupation and gender distribution and difference was significant ($p < 0.01$). The most common cause of starting using any substance was persistent pain. The most common site of the obstruction in drug abusers is stomach (60%) followed by small intestine (38%) and large intestine (2%).* ***Conclusion****: Pain killers should always be prescribed with caution and for a short duration. Alternative options for pain relief should be made available and doctors should be trained. Drug abusers tend to have a gastrointestinal complication at an early age which means they are prone to further complications and recurrence if the problem is not addressed in time.* ***Limitations:*** *(1) This is an observational retrospective record review. (2) Records were studied in hospital setting so results should be generalized cautiously. (3) Risk of recall bias is present.*

Keywords*: Pain killers, Gastrointestinal Obstruction*

Introduction

Liaison in Psychiatry refers to the branch of Psychiatry involving assessment and treatment in the general hospital of referred patients, like in the casualty, or patients of deliberate self-farm. The Indian scenario also reveals major reference from medicine, surgery and orthopedics with psychiatric disorders like anxiety, depression and/or organic brain syndromes seen in about 40 to 50 % of the medical or surgical patients. Mental health consultation is the need of the hour and has been emphasized on since time immemorial.[1] Several researchers have found a lower referral rate in the Indian counterparts as compared to the western figures. Most studies quote about 60% of referrals from general medicine and 14% from surgery and surgical super-specialties.[2-18]

The use of mood-altering psychoactive substances has been part of human civilization for millennia. In India, a variety of psychoactive substances, like alcohol, cannabis and opioids have been used for hundreds of years. In modern times,

however, the pattern and dimensions of use of such psychoactive substances has assumed pathological proportions and thus has horrendous health implications.[19]

There has been a steep rise of reference consultation at our tertiary care hospital from Department of Surgery to Psychiatry for the patients presenting with intestinal obstruction or perforation as many of them were substance dependent particularly pain killers. Chronic pain (CP) is a major healthcare problem and is one of the most disabling problems with significant health, social, and economic repercussions. Efforts to determine the prevalence of CP in the general population are faced with various challenges such as variations according to the population sampled (general population vs. primary care), the methods used to collect the data, demographics (age, sex, income, and urban-rural divide) and the criteria used to define "CP". Pain perceptions and behavior are heavily influenced by culture and by the sociocultural context of people.

A global Chronic Pain prevalence survey found 19.3% of Indian adult population suffers from CP, and out of them 72% patients used analgesics. 35% were using pcm/nsaids/cox-2inhibitors and alarming 37% were using opioids.[5]

Despite strict guidelines, these pain killers are easily available in various combinations, without any clear indications and proven efficacy. Common combinations available in Indian pharmacies are of tramadol, paracetamol, NSAIDs, antispasmodics, muscle relaxants etc. Prescription painkiller abuse is the fastest growing drug problem in the India as well as other parts of world. Abuse of opioids pain killers is most disabling and alarming situation in these patients. Abuse of tramadol is classical example of this.

Apart from their analgesic property tramadol (Opioids) has pharmacological effects throughout the gastrointestinal tract. They decrease gastric emptying, stimulate pyloric tone, inhibit propulsion while increasing amplitude of non-propulsive segmental contractions among others. Tramadol abuse may develop aunique syndrome called *narcotic bowel syndrome* which is characterized by chronic abdominal pain often accompanied by nausea and vomiting in the absence of other identifiable causes.[6]

Use of tramadol may also contribute to increased surgical delay by masking symptoms of perforation (e.g., pain symptoms) and/or by enhancing the probability of misinterpreting and overlooking weaker, initial symptoms of perforated peptic ulcer.[7]

So, in the light of these facts, we planned to conduct a retrospective chart review of operated cases to examine the frequency of abused drugs and their association with surgical complications.

Aim and Objectives

1. To look for the drugs of abuse frequently associated with gastrointestinal obstruction and perforation and factors related to it.
2. To find out site of obstruction or perforation associated with drug abuse.

Material and Method

The study was conducted at a tertiary care level hospital of Rajasthan. The Institutional Review Board approved the study protocol.

This retrospective review ofmedical recordswas conducted among cases operated in emergency OT for gastrointestinal obstruction and perforation between 1 April 2019 and 30 June 2019. Out of total 88 files accessed from record room, 78 had proper record of drug history or contact was established telephonically. Out of 78 files of patients operated for gastrointestinal perforation or obstruction 48 cases i.e., 62% had history of drug abuse and were free from any other medical or surgical illnesses leading to GI complications. These were then further studied in detail individually and data were collected and analyzed.

Results

Table-1: Distribution of substance

Substance	Patient (percentage)
NSAIDS	8 (17%)
TRAMADOL	11 (23%)
COMBINATION	22 (46%)
OPIUM	5 (10%)
ALCOHOL	2 (4%)

Table 1 shows: In this study 78 were included out of which 48 (62%) were abusing some kind of pain killers or any other substance. Most common abused pain killer was the combination of anti-inflammatory and other salts with found in 22 (46%) followed by tramadol, nsaids, opium and alcohol (23%, 17% , 10% and 4% respectively).

Table-2: Socio Demographic parameters

	Substance Abuser (N=48)	Non-Substance Abuser (N=30)	p-value
Mean Age	42.4 +/- 12.5	58.54+/-14.73	**<0.01**
Gender			**<0.01**
Male	89.5%	44%	
Female	10.5%	56%	
Religion			0.833
Hindu	83%	86%	
Muslim	12.5%	10.5%	
Others	4.5%	3.5%	
Marital Status			0.679
Married	77%	76.5%	
Unmarried	14.5%	10%	
Others	8.5%	13.5%	
Family Type			0.990
Nuclear	52%	50%	
Extended Nuclear	8%	6%	
Joint	40%	44%	
Locality			0.768
Urban	35%	40%	
Rural	65%	60%	
Occupation			**0.010**
Student	2%	10%	
Unemployed/Homemaker	23%	53%	
Professional	3%	4%	
Farmer/Unskilled	72%	33%	
Education Status			0.203
Illiterate	21.5%	43%	
Primary	10.5%	18%	
Middle	29%	14%	
Secondary	20.5%	15%	
Higher	18.5%	10%	

Table 2 illustrates the comparison of socio-demographic parameters of the substance abuser and non-substance abuser group. Out of 48 patients with history of substance abuse 89.5% were male and rest were female, having mean age of 42.4±12.5 years. Amongnon-abusers, 56% were female and rest were male having mean age of 58.54±14.73 years. The difference of mean age and gender distribution was significant in both groups ($p<0.01$). Most of the patients were Hindus by religion, from rural background and from nuclear family in both groups. Majority of patients were married in both groups and there was no significant difference in sociodemographic background. Mostly substance abuser were employed 72% were farmer while 23% were unemployed or homemaker, 2% were student and rest were professional, whereas in non-substance abuser group, majority were employed in homemaking (53%), while 33% were farmers and remaining were students and professionals, there was a significant difference of occupation in both groups (p value 0.01). There was no significant difference in education status of both groups' majority had no or less than secondary education.

Table-3: Reason for starting abuse

Reason for Starting	Percentage
Recreation	15%
Peer Pressure	14%
Substitution	21%
Performance	12%
Pain	38%

Table 3 depicts 38% started abusing various substance due to problem of persistent pain. 21% patients started pain killers as a substitute of some other substance. 12% believed that their performance enhanced after abusing substance while 14 % started theseunder peer pressure and 15% started them as a recreational agent.

Table-4: Site of obstruction

Site of Obstruction	Percentage
Stomach	60%
Small Intestine	38%
Large Intestine	2%

Table 4 depicts that most common site of the obstruction is stomach (60%) followed by small intestine (38%) and large intestine (2%).

Discussion

We studied total of 78 patient files out of which 48 were drug abusers. In our study we found that overwhelming majority of patients in substance abusers' group were males (89.5%) of mean age around 42 years and it was significantly less than non-substance abusers (58.54 years).These findings are corroborated by a study conducted by Hána and Ryska where patients with history of drug abuse with non-traumatic acute abdomen were studied retrospectively, this group was characterized by a significantly lower age and by a considerable predominance of men.[8] This finding also implies maximum patients were in their 'working-age' and drug abuse hampers their productivity and complications like this further increase burden on the family, in both psychological and economical terms.

Majority of patients in our study were married, farmers or unskilled workers living in rural areas in nuclear families. Most common substance of abuse was combination drugs. Most common site found obstructed or perforated was stomach followed by small intestine. Similar result was found in a study by Hánaand Ryska, where they found the preference of perforated peptic ulcer over other sites.[8]

There was no statistically significant difference observed between two groups in religion, marital status, family type, locality and education status. In an earlier study also, it was observed that substance use was not very much affected by the residence of the drug seeker (DAMS2002).[20]

To address our first objective, this study has examined the various drugs which use frequently and cause the gastric perforation or obstruction. The substance abused by majority of patients was combination drugs which are locally known by various names (proxyvon, redley, fortaspas) and are easily available without prescription. These combinations most commonly include tramadol, diclofenac and dicyclomine in various strengths. Paracetamol may or may not be present in these formulations. These findings argued in favor of Danish population-based study of 1271 patients by Tørring etal[7] where tramadol was found to increase the rates of gastrointestinal perforation and mortality at least equal to NSAIDs.

Most common reason of starting to consume tramadol or these combination pain killers was found to be : Pain due to various musculoskeletal disorders and self-substitution of previously consumed natural opioids. This finding is in line with the facts of previous studies where tramadol initiated for pain was most common reason for its abuse.[12]

In this study, to focus on the second objective, we also explored the different sites in GIT, which are associated with perforation/obstruction due to various drug abuse. It was observed in the study that most common site of the obstruction is stomach followed by small intestine and large intestine.

Several medical professional organizations acknowledge the utility of opioid therapy and surveys report satisfactory reductions in pain and improvement in function.[9] Initial and short-term treatment outcomes for all the cases were satisfactory. This emphasizes the need for prompt and personalized management of such cases as early as possible and long term follow up to prevent relapses. We should recognize our dual obligations as the prescribers: to optimize the balance between analgesia and side effects, and to promote other favorable outcomes, while concurrently assessing and managing the risks associated with abuse, addiction and diversion.

Conclusions

The mean age of the patients was significantly less (> 10 years) in substance abusers when compared to non-users. The difference of gender and occupation between the patients of both groups was significant, males were significantly higher in substance user group. Farmers/unskilled workers were most common population in substance user group. Most common cause for starting substance use was reported to be various musculoskeletal pains. GI mucosal injury and changes leading to obstruction or perforation associated with use of NSAIDs, tramadol and combination are a serious

clinical concern. All of these drugs increase risk of perforation and obstruction and when combined pose more risk of abuse and injury.

Limitations

1. This is an observational retrospective record review.
2. Duration of use of substance was not taken into consideration which could have provided better insight.
3. Records were studied in hospital setting so results should be generalized cautiously.
4. Recall bias can also be accounted for as some information was gathered from patients telephonically.

References

1. Kirpal Singh. Mental Health Consultation. Indian J Psychiatry 1965; 4 : 215–6.
2. Jindal RC, Hemrajani DK. A study of psychiatric referrals in a general hospital. Indian J Psychiatry 1980; 22 : 108–10.
3. Prabhakaran M. Inpatient psychiatric referrals in a general hospital. Indian J Psychiatry 1968; 10 : 73.
4. Parekh HC, Desmukh BD, Bagadia VN, Vahia NS. Analysis of Indoor Psychiatric referrals in a General Hospital. Indian J Psychiatry 1968; 10 : 81.
5. Saxena A, Jain P, Bhatnagar S. The Prevalence of Chronic Pain among Adults in India. Indian J Palliative Care 2018; 24(4) : 472-477. doi: 10.4103/IJPC_141_18
6. Camilleri M, Lembo A, Katzka DA. Opioids in Gastroenterology: Treating Adverse Effects and Creating Therapeutic Benefits. Clin Gastroenterol Hepatol 2017; 15(9) : 1338–1349. Published online 2017 May 19. doi: 10.1016/j.cgh.2017.05.014
7. Tørring ML, Riis A, Christensen S, et al. Perforated peptic ulcer and short-term mortality among tramadol users. Br J Clin Pharmacol 2008; 65(4) : 565–572. doi: 10.1111/j.1365-2125.2007.03038.x.
8. Hána L, Ryska M. Acute abdomen in drug abusers. RozhlChir. Winter 2019; 98(1) : 14-17. PubMed PMID: 30781961.
9. Goldstein J, Cryer B. Gastrointestinal injury associated with NSAID use: a case study and review of risk factors and preventative strategies. Drug Healthcare Patient Safety 2015; 7 : 31–41. doi: 10.2147/dhps.s71976.
10. Rosenblum A, Marsch LA, Joseph H, Portenoy RK. Exp Clin Psychopharmacol 2008; 16(5) : 405–416. doi: 10.1037/a0013628
11. Wilcox J. Gastrointestinal considerations in patients with cardiovascular disease using nonopioid analgesics for mild-to-moderate pain or cardioprotection. Am J Cardiol 2006; 97(9 Suppl. 1) : 17–22.
12. Sarkar S, Nebhinani N, Singh SM, Mattoo SK, Basu D. Tramadol dependence: A case series from India. Indian J Psychol Med 2012; 34 : 283–5.
13. Topcu l, Ekici NZ, Isik R, Sakarya M. The effects of tramadol and fentanyl on gastrointestinal motility in septic rats. Anesth Analg 2006; 102(3) : 876-81.
14. Gabriel SE, Jaakkimainen L, Bombardier C. Risk for serious gastrointestinal complications related to use of nonsteroidal anti-inflammatory drugs. A meta-analysis. Ann Intern Med 1991; 115 : 787–96.
15. Gyawali S, Sarkar S. Tramadol for maintenance treatment for an elderly "doda" (poppy husk) user. J Geriatr Ment Health 2016; 3 : 179.
16. Tewari A, Sarkar S. Tramadol for maintenance in poppy husk dependence. J Med Soc 2017; 31 : 136.
17. Sarkar S, Varshney M, Patil V, Lal R. Maintenance treatment of opioid dependence with tramadol. J Neurosci Rural Pract 2017; 8 : S98–101.
18. Sarkar S, Lal R, Varshney M, Balhara Y. Tramadol for maintenance for opioid dependence: A chart review. J Opioid Manag 2017; 13 : 329–34.
19. Ambekar A, Agarwal A, Rao R, Mishra AK, Khandelwal SK, Chadda RK on behalf of the group of investigators for the National Survey on the Extent and Pattern of Substance Use in India (2019). Report 'Magnitude of substance abuse in India'. New Delhi: Ministry of Social Justice and Empowerment, Government of India, 2019.
20. Drug Abuse Monitoring System. Ministry of Social Justice and Empowerment, Government of India and United Nations Office on Drugs and Crime, Regional Office for South Asia, 2002

Original Article

Comparative Study of Odor Identification Test in First Degree Relative of Patients with Alzheimer's Disease and Control

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ABSTRACT

Background*: The sense of smell is one of the first things to change in Alzheimer's disease (AD), even before symptoms appear. Eventually it raised the idea that olfactory function test is an important clinical marker that measure early changes in olfactory bulb. In this stage individual's ability to identify odors could potentially reduced during early phase of the disease. In this study we sought to find out whether olfactory function in the first degree relatives of dementia changed in compared to normal healthy control.* ***Objective:*** *1. To assesses the olfactory function of first degree relative of patients with Alzheimer's disease. 2. To compare the olfactory function of first degree relative of patients with Alzheimer's disease and normal control.* ***Methods:*** *Design of study was observational case control cross sectional. Subjects were recruited from psychiatry OPD, Institute of medical sciences BHU, Varanasi, and were divided into two groups (case and control group).The exclusion and inclusion criteria were applied and finally 50 subjects in each group included for study. They were assessed through odor identification test, and their value measured by mean and unpaired t test.* ***Result:*** *Clinically, higher percentage of subjects have hyposmia in case group(50%)with compare to control group(22%).The finding also revealed that first degree relatives of patients with dementia have significantly impaired odor identification test. Their mean scores and std. were 10.76 (0.916) and 11.72 (0.28) in case and control group respectively and their p value was -6.641(0.000).* ***Conclusion****: In this study we found that olfactory dysfunction has been associated with first degree relative of patients with dementia, even before symptoms appear.*

Key Words: *Olfactory, First degree, Alzheimer's disease*

Introduction

Olfactory dysfunction occurs with normal ageing process[1] but in some neurodegerative diseases like Alzheimer's disease and Parkinson's disease it more intensely affected.[2]

The olfactory dysfunction also occurs in cognitive healthy individuals those have apolipoprotein E [(*APOE-4*)] allele, which is the main genetic risk factor for Alzheimer's disease.[3] In a recent study,[4] 20 load risk loci have been identified. The five new genome-wide loci are (IQCK, ACE, ADAM10, ADAMTS1 and WWOX), out of which two loci (ADAM10, ACE) were identified in genome-wide association (GWAS), which is responsible for familial-proxy of Alzheimer's dementia.

The neuropathology which characterized by deposition of amyloid and tau protein in the brain and biomarker changes in the Alzheimer's disease begins before the onset of symptoms.[5] A recent study suggested that abnormal amyloid deposition could be detected before 17 year, hippocampal atrophy around four year and cognitive impairment three year

before a clinical diagnosis of Alzheimer'sdisease is made.[6]

After initial presentation, a gradual progressive decline in cognitive function ensues and extents eventually to all cognitive domains including motor functioning apraxia and perception agnosia.[7]

The rate of decline is not necessarily steady as there may be period of plateau followed by period of decline Alzheimer's disease.[8] Several demographics (e.g., age and level of education), clinical (e.g., history of traumatic brain injury),[9] biomedical[10] (e.g., presence of ApoE4) and neurocognitive (e.g. worse episode memory) parameters of patients characteristically associated with the risk of developing Alzheimer's disease.[11]

As the illness progresses there will be greater functioning impairment and dependency needs. Eventually total care and constant supervision for assurance of safety is needed and patient will be bedridden. Patients often succumb to infection then Palliative care is helpful in the end stag to provide comfort measures and support for the family to ensure a peaceful and dignified death.[12]

The tests to assess episodic memory and executive functioning have shown their utility in the early detection of MCI, and their predictive value in the diagnosis of the incipient Alzheimer's disease.[13,14,15] Many studies using extensive neuropsychological batteries have shown that delayed recall is the first domain to be impaired in individuals with MCI who subsequently progress to AD.[16] In a study reported that delayed memory test were a more robust predictor of the risk developing Alzheimer's disease in the next 5 year, than the presence of alleles 3 or 4 of the ApoE genes.[17] In another study reported that beyond memory domain, verbal fluency has been shown to be decline early and to predict progression to Alzheimer's disease.[18] Some authors have attributed the visuospatial deficit in initial stage of Alzheimer's disease.[19] The persons with MCI and isolated executive deficits were less prone to develop dementia than people with MCI and deficits in episodic memory function.[20]

In early stage of MCI, executive and frontal functions compensate the hippocampal dysfunction (which causes in coding memory deficit). Thus subjects get benefits for cueing that help them retrieve newly learning material and seems to be remaining functional. As the disease progresses, frontal executive network are affected and are no longer able to compensate. At this stage the retrieval memory deficit becomes encoding memory deficits that does not improve with cueing and is more likely to progress to dementia.[21] There are numbers of studies approved that the first degree relatives of families with a history of AD have greater risk for development of AD than family members of healthy controls.[22]

The olfactory identification test is still one of the most sensitive and specific marker in the detecting prodromal phase of AD.[23]

The studies related to olfactory functions have highlighted the close link between olfactory function with AD, and their utility to identify the different odors.[24] Olfactory function mainly altered in early stage of Alzheimer's disease and their threshold continued deteriorated as disease progress.[25] The olfactory identification is processed in the mesial structures of temporal lobe, that strictly involved in cognitive function, whereas the olfactory threshold often influenced by peripheral deficits of the sense of smell.[26,27] A constant flow of sensory information and cognitive from the associative area is received by entorhinal cortex, which forwarded this information to hippocampus. Where those data are processed and then transmitted back through the entorhinal cortex to the association area and ultimately those data information are codified as mnemonic traces.[28]

In a study the neuropathological changes in Alzheimer's disease found that there is oxidative damage in the olfactory epithelium present in early stage of disease. It has been seen that typical lesions of Alzheimer's disease (i.e. the amyloid core and neurofibrillary tangles) are already detectable in preclinical stage in central olfactory pathway.[29] Based on these anatomio-pathological finding, it has been found that olfactory deficit could be present during the preclinical phases, and olfactory test used is an early diagnostic marker.[30]

Observational and clinical study have found a significant association between olfactory impairment and subsequent cognitive decline for example a large-scale study (N=1920) on the relationship between olfactory identification ability and general cognitive functioning as measured by the mini mental status examination(MMSE) indicated that olfactory dysfunction at baseline was significantly predictive

future cognitive impairment after 5 year.[31] An another study has reported that, the low sensitivity of 55.1% and high specificity 84.4% for olfactory assessment is predicting cognitive decline, and in this study term olfactory discrimination used in place of olfactory identification and their results were also significantly predicted subsequent cognitive decline (odds ratio = 0.869; p< 0.05; 95% confidence35 interval is= 0.-0.988).[32]

Compared with ability to detect odors (odor threshold test) is more challenging than odors identification (odor identification test), perhaps due to lack of access to verbal are visual representations of the odors.[33] The odor identification may represent a semantic memory function, therefore researchers suggested that olfactory identification is primary predictive of the memory decline however.[34] In this study we have aim to assess the olfactory function of first degree relative of patients with Alzheimer's disease those might share the same genetic risk factor, and we also, compared the olfactory function of first degree relative of patients with Alzheimer's disease and with offspring of normal control.

Material and Methods

Ethical consideration

The study was approved by the institute of medical sciences, Banaras Hindu University, ethics committee.

Study design

Observational case control cross sectional, Samples were collected from psychiatry OPD, institute of Medical sciences Banaras Hindu University, Varanasi, in between June 2018 to April 2019. The primary screening was done by trained residents under supervision of consultant in charge OPD.

The hematological biochemical investigations and radiographical, EEG, and other specific tests were done if required. The screening tools, semi-structured proforma, were applied on day one, and the specific test (odor identification test) was applied on day of appointment.

The sample size was calculated through, Sample size considering 48% as maximum prevalence of the Alzheimer disease in propend of patients with Alzheimer's disease and 19% as the maximum prevalence of Alzheimer's disease in propend of person without AD, the power of study was 90% and the level of significance was, p= 0.05, the sample sizes were estimated 54 case and 54 control.

Total 150 subjects were selected for study in OPD, out of which 70 subjects were in case group and 80 were in control group. The case group has consisted the attendants of patients those were patient's offspring and were sole care, and the control were subjects those were come with patient but were not directly of blood related to patient but has come with patients.

The inclusion criteria was, age between 18 to 60 year, belong to either gender male/female, first degree relative of patients with dementia and subjects of first degree relatives without dementia. The Exclusion criteria were history of significant head injury or any neurological disorders (other dementia, epilepsy Parkinsonism, stroke). History of significant medical disorder for example diabetes, hypertension, angina, MI, hyperthyroidism, sinusitis or upper respiratory tract infection, history of any psychiatric disorder as per MINI (international neuropsychiatric interview).[35] History of any substance use disorders, history of any regular medication use, educational below class 5th standard, mental retardation and not willing to give consent. Further in case group 15 subjects and in control group 25 subjects were screened out as they did not fulfilled the criteria, Finally 55 subjects in each group were selected for the study.

Semi structured Performa

Containing Socio demographic details (age, gender, residence, marital status, occupation, socio-economical status), psychiatric disorder, co-morbid general medical conditions, biochemical and systemic examination findings.

Tools

1. **ICD 10 DCR Criteria:** for establish diagnosis of Alzheimer's disease.
2. **The Odor identification test**: Sniffin sticks smell test (SSST) was a rapid subjective olfactory assessment that utilized 12 common odors. Based on the final score, adjusted for age and sex subjects were classified into three categories: normal osmic (SST-12≥11), hyposmic score (SST-12<10) an anosmic (SST-12≤6).

In the present study test was performed after 1 hour of food intake and participants were requested to drink small amount of water. Then a list of 30 common orders was presented to the participants to know about familiarity of odor.

They were then presented 12 tubes each containing separate order to which they are previously aware of, each tube was kept two centimeter apart from the edge of nostril and participants were requested to sniff not more than twice. Each order was exposed for 3-4 seconds followed by a 30 second interval, next tube was presented, during which participants were asked to name the odor. For right answer scored 1 and for wrong zero was given.

Results

the study, and we got maximum numbers of cumulative value of (case and controls) subjects in age group 40-49 years (n=43.43% of total subjects). The both study groups were equally matched in terms of number of subjects in each groups (18-29 years, N=14; 30-39 years n=37; 40-49 years N=43; 50-59 years N=6) and both study groups were comparable and there was no significant difference was present (x2=1.405; P=0.704) in age wise distribution. Result shown that equal percentage of both genders was present in case and control study groups. These samples were matched in term of gender wise distribution and comparable value was (P Value =0.579, X^2=0.00), which was not significant. In this study maximum percentage of total subject of both

Table-1: Socio-demographic details

Age	Case group		Control group		Total		p value
N	%	N	%	N	%		
18-29	6	12	8	16	14	14	P=0.704
30-39	20	40	17	34	37	37	X^2=1.40
40-49	20	40	23	46	43	43	5
50-59	4	8	2	4	6	6	
GENDER							
Female	23	46	23	46	46	46	P=0.579
Male	27	54	27	54	54	54	X^2=0.00
Education							
primary school certificate	3	6	2	4	5	5	P=0.993
middle school certificate	14	28	14	28	28	28	X^2=0.24
high school certificate	10	20	11	22	21	21	8
intermediate, diploma	5	10	5	10	10	10	
graduate or post graduate	18	36	18	36	36	36	
Marital status							
Married	47	94	47	94	94	94	P=0.661
Unmarried	3	6	3	6	6	6	X^2=0.00
Socio-economic status							
Upper	6+	12	6	12	12	12	P=0.999
Upper middle	9	18	8	16	17	17	X^2=0.93
Lower middle	14	28	15	30	29	29	
Upper lower	20	40	20	40	40	40	
Lower	1	2	1	2	2	2	
Domicile							
Urban	13	26	16	32	29	29	P=0.330
Rural	37	74	34	68	71	71	X^2=0.437
Family setup							
Nuclear	42	84	42	84	84	84	P=0.607
Joint	8	16	8	16	16	16	X^2=0.00

In this study 5 subjects in each group were dropped out due to (3 subject in case and 2 in control group not turned up, 2 subjects in case and 3 in control did not cooperated during test) reasons. Finally 50 subjects in each group were completed

groups were graduate n=36 (36%) followed by middle class standard n=28 (28%). Education of participants in both groups were comparable, and there value was not significant (p value=0.993, x2=0.248). In marital status N=94 (94%) subjects

were married and N=6 (6%) were unmarred, both groups were matched and no significant p value was found (p Value =0.661, X^2=0.00). Further the most subjects belong to rural background 71(71%) in compare to urban dwellers N=29, (29%), after matching of both the groups no significant difference in p value was found (p value =0.330, x^2=0.437). The result of family study, maximum numbers of subjects n=84 (84%) were from nuclear family set up, and N=16 (16%) subjects were from joint family, both the groups were comparable, and the p value was not significant (p value=0. 607, x^2=0.000).

Table-2: ShowsComparison of mean odor identification test in both study groups

Study groups	Mean odor identification test (Std. Deviation)	Unpaired t test (p value)
Cases	10.76 (0.916)	-6.641 (0.000)
Controls	11.72 (0.28)	

The result of mean score of odor identification test in case group was 10.764 (SD=0.916) and mean score of control was 11.72 (SD=0.454). Therefore significant difference was found between the two groups (unpaired t test= -6.641, p=0.000).

Discussion

During the past few decades there were major transitions in the clinical characterization of cognitive disorder has been taken place. At the same time there has been a growing interest in the pre-dementia phase, has been evolved, because during these times it has been suggested that we might able to identify the earliest clinical feature of these illness before functional impairment is evident. Towards in this direction mild cognitive impairment (MCI) has been evolved to capture this pre-dementia phase of cognitive dysfunction.

Ideal we would like to prevent or postpone the disease process by early intervening early. Though disease modifying therapy and effective lifestyle interventions are available, through those we could reach to the goal. Therefore one would want to diagnose and intervene as soon as possible.[36]

In this study, mean age of case and control group of subjects were 38.54 years and 37.66 years respectively. Therefore in our samples majorities of patients were middle aged males or females. In the previous study[37] it was found that, the odor identification abilities in children and adolescents are inferior to that of adults, and olfactory performance in adolescents also found an age-related co-development of odor identification abilities and verbal fluency. In another Study[38], odor identification scores of the youngest and the oldest participants were lower than the scores obtained by people aged 20–60.

Therefore, There was three reasons behind inclusion of middle aged subjects, (1) To avoid confounding factors of ageing effect in dementia. (2) To easy pick up subjects as most of subject come with patients were middle aged groups. (3) In advancing age there are many physiological and socio demographics (e.g. social, hormonal and metabolic) changes take place those could take role in decline of cognitive function. Therefore in this way we have minimized the biases in age groups.

In our study majorities of the subjects were graduate (36%) followed by middle school certificate. Both groups were matched for education and were statistically insignificant. Further in compared to socio economic status also no significant X2=0.93, P=0.999 difference were present among both the groups. This study supported that despite of insignificant difference between educational and economical status, score of odor identification test significantly affected in case group, where 18 subjects in case group and 4 in control group were hyposmic.

In contrast to our findings, a recent study[39] highlighted that, lower education levels and lower economic status were independently associated with an adverse influence on olfactory test scores and it was also observed the negative impact of socio-economic status on olfactory function could reflect worse cognitive development. However in our finding socio economic status and education were not leading cause of lower odor identification test score, while score of odor identifications test in offspring patients with dementia have significantly affected.

The probability behind controversial findings could be sampling biases, as in previous study sampling was population based, where the socio-economic disparities was major factor, and subjects were self reported their sniffing problem, on other hand in our study it was hospital based randomized sampling.

In our samples 71% subjects were from rural, and 29% were from urban background and in both the groups, there was no significant differences were found (X^2=0.437, P=0.330). It means that background of subjects were not affected their odor identification scores. While decline in odor identification test score in case group was independent of their rural or urban background (P=0.607, X^2=0.00).

In a previous study,[40] odor identification scores exhibited more variability, when some subjects were unfamiliar to common odors presented in odor testing. They suggested that, odorants used in an odor identification test should be highly familiar to the subjects because people of different cultural backgrounds differ greatly in terms of their familiarity with odors. In contrast to previous study we did not found significant differences among subjects background and its effect on result. The probable reason behind, controversial finding was; subjects taken in previous study were from different region of different countries and they were not culturally similar.

In this study we also compared mean score of odor identification test of both groups and found mean score of case was 10.7 6 (SD = 0.9 16) and mean score of control was 11.72 (SD 0.454). This difference was significant (unpaired t test = -6.641, P=0.000). Therefore in this study we found that the subject of case group has significant lower odor identification score than control group.

Further olfactory testing has been proven to be safe and productive method of gaining information about the central nervous system. This testing is also used for biomarker of AD, as olfactory identification deficit is well established in Alzheimer's disease. This test significantly impaired in early course of Alzheimer's disease process and progresses along with the cognitive decline.[41]

Behavioral research related to organic disorders has consistently indicated that person suffering from Alzheimer's disease perform worse in odor identification task as compared with age-matched control. This outcome was seen in both moderate and early stages of disease.[42,43,44].

It is possible that order identification dysfunction may be an early marker of disease expression in Alzheimer's disease prior to the advent of other clinical manifestations. Because of the familiar nature of this disease, it may be fruitful to seek early marker in the first degree relative of Alzheimer's disease patient. We therefore evaluated olfactory identification function in cases and control and on basis of mean score of both groups (cases perform poorer than control). The results of the present study indicate that olfactory threshold did not differ between participants in an early phase of Alzheimer's disease and age matched controls. However, offspring of AD patients exhibited more difficulties in identifying orders than normal older adults, suggesting that an odor identification deficit was present early in the pathogenesis.

This is study has also demonstrated that odor identification test could identify the early stage of Alzheimer's disease, in case and their match controls. It was also encouraging that this test was simple and could easily administer.

Our findings are congruent with finding of a previous, meta-analytic study where 39 studies were analyzed that olfactory ability was significantly affected in AD. They also concluded that olfactory odor identification test can be included in batteries of odor identification tests in AD.[45]

A systemic review conducted by sun and co-workers[46] evaluated the utility of olfactory identification test as prognostic tools for AD. Through 30 cross sectional studies and two potential longitudinal cohort studies, authors presented a large body of evidence and established a link between decreased olfaction (hyposmia) and AD. In this study they also highlighted the potential value of olfactory tests as predictor of onset of AD and in prognosis. The evidence suggested that olfactory dysfunction commonly affected odor identification test which extensively occurred within the initial stages of Alzheimer's disease process (where the patient shows MCI). It also suggested that the odor identification dysfunction occurred potentially prior to preclinical stage and hence can potentially be superior to other conventional AD biomarkers due to the ease of administration and being relative inexpensive and noninvasive.

Conclusion

Neuropathology and biomarker change of Alzheimer's disease begin indicates before the onset of symptoms characterized by deposition of myeloid and tau proteins in the brain. Cognitive changes that may occur before a person developed noticeable

symptoms; therefore early identification of changes in cognition can be detected by application of neuropsychological tests (like odor identification, odor discrimination, odor threshold) and their follow up. There were number of family studies those attempted to identify the inheritance pattern of AD and to quantify the risk to first degree relative in families with a history of AD, in comparison with family members of control individuals.

First degree relative of Alzheimer's disease is becoming an important topic of investigation in many research settings, and at present, it appears that early cognitive changes in the first degree relative of AD is condition that warrants further investigation and attention on this part. In this study we found higher percentage of subjects have hyposmia in case group (50%) in compare to control group (22%). The finding revealed that first degree relatives of patients with dementia have significantly impaired odor identification test than the control.

Key Messages

1. Through olfactory identification test, early changes in first degree relatives of dementia can be detected before pre-dementia phase of cognitive dysfunction or clinical presentation.
2. Olfactory identification test is much cheaper than other tests and can be easily applied at any setting.

References

1. Doty RL, Kamath V. The influences of age on olfaction: a review. Front Psychol 2014; 5 : 1–20.
2. Doty RL, Perl DP, Steele JC, Chen KM, Pierce JD, Jr, Reyes P, et al. Odor identification deficit of the parkinsonism-dementia complex of Guam: equivalence to that of Alzheimer's and idiopathic Parkinson's disease. Neurology 1991; 41(2) : 77–80.
3. Attems J, Lintner F, Jellinger KA. Olfactory involvement in aging and Alzheimer's disease: an autopsy study. J Alzheimers Dis 2005; 7(2) : 149–157.
4. Kunkle BW, Grenier-Boley B, Sims R. Genetic meta-analysis of diagnosed Alzheimer's disease identifies new risk loci and implicates Aâ, tau, immunity and lipid processing. Nat Genet 2019; 51 : 414–430.
5. Kotecha AM, Corrêa ADC, Fisher KM, Rushworth JV. Olfactory Dysfunction as a Global Biomarker for Sniffing out Alzheimer's disease: A Meta-Analysis. Biosensors (Basel). 2018; 8(2) : 41-53.
6. Beason-Held, Lori L et al. Changes in brain function occur years before the onset of cognitive impairment. J Neurosci 2013; 33(46) : 18008–18014.
7. Tarawneh, Rawan, and David M Holtzman. The clinical problem of symptomatic Alzheimer disease and mild cognitive impairment. Cold Spring Harb Persect Med 2012; 2(5) : 6148.
8. Murman DL. The Impact of Age on Cognition. Semin Hear 2015; 36(3) : 111-121.
9. Dams-O'Connor, Kristen et al. Traumatic brain injury as a risk factor for Alzheimer's disease: current knowledge and future directions. Neurodegener Dis Manag 2016; 6(5) : 417-429.
10. Liu C,Liu C, Kanekiyo T, Xu H, Bu G. Apolipoprotein E and Alzheimer disease: risk, mechanisms and therapy. Nat Rev Neurol 2013; 9(2) : 106-118.
11. Jahn H. Memory loss in Alzheimer's disease. Dialog Clin Neurosci 2013; 15(4) : 445–454.
12. Rome RB, Luminais HH, Bourgeois DA, Blais CM. The role of palliative care at the end of life. Ochsner J 2011; 11(4) : 348–352.
13. Albert M, Moss MB, Blacker D, Tanzi R, McArdle JJ. Longitudinal change in cognitive performance among individuals with mild cognitive impairment, Neuropsychology 2007; 21(2) : 158–169.
14. Chen P, Ratcliff G, Belle SH, et al. Cognitive tests that best discriminate between presymptomatic AD and those who remain nondemented. Neurology 2000; 55(12) : 1847–1853.
15. Huntley JD, Howard RJ. Working memory in early Alzheimer's disease: a neuropsychological review, Int J Geriatr Psychiatry 2010; 25(2) : 121–132.
16. Kirova AM, Bays RB, Lagalwar S. Working memory and executive function decline across normal aging, mild cognitive impairment, and Alzheimer's disease. Biomed Res Int 2015; 748212.
17. Weintraub S, Wicklund AH, Salmon DP. The neuropsychological profile of Alzheimer

disease. Cold Spring Harb Perspect Med 2012; 2(4) : a006171.
18. Bastin C, Salmon E. Early neuropsychological detection of Alzheimer's disease. Eur J Clin Nutr 2014; 68 : 1192–1199.
19. Quental NBM, Brucki SMD, Bueno OFA. Visuospatial Function in Early Alzheimer's disease—The Use of the Visual Object and Space Perception (VOSP) Battery. PLoS ONE 2013; 8(7) : 68398.
20. Saunders NLJ, Summers MJ. Longitudinal deficits to attention, executive, and working memory in subtypes of mild cognitive impairment, Neuropsychology 2011; 25(2) : 237–248.
21. Carlesimo GA, Perri R,Caltagirone C. Category cued recall following controlled encoding as a neuropsychological tool in the diagnosis of Alzheimer's disease: A review of the evidence. Neuropsychol Rev 2011; 21 : 54–65.
22. Bekris LM, Yu CE, Bird TD, Tsuang DW. Genetics of Alzheimer disease. J Geriatr Psychiatry Neurol 2010; 23(4) : 213-227.
23. Sohrabi HR, Bates KA, Weinborn MG, et al. Olfactory discrimination predicts cognitive decline among community-dwelling older adults. Transl Psychiatry 2012; 2(5) : 118-122.
24. Hyman BT, Arriagada PV, Hoesen GW. Pathologic changes in the olfactory system in aging and Alzheimer's disease. Ann NY Acad Sci 1991; 640 : 14–19.
25. Devanand DP, Lee S, Manly J, Andrews H, Schupf N, Doty RL et al Olfactory deficits predict cognitive decline and Alzheimer dementia in an urban community. Neurology 2015; 84(2) : 182–189.
26. Roberts RO, Christianson TJ, Kremers WK, et al. Association between olfactory dysfunction and amnestic mild cognitive impairment and Alzheimer disease dementia. JAMA Neurol 2016; 73(1) : 93-101. doi: 10.1001/jamaneurol. 2015.2952. Erratum in: JAMA Neurol 2016 Apr; 73(4) : 481. PMID: 26569387; PMCID: PMC4710557. Hyman BT, Arriagada PV, Hoesen GW. Pathologic changes in the olfactory system in aging and Alzheimer's disease. Ann NY Acad Sci 1991; 640 : 14–19.
27. Eichenbaum H, Yonelinas AP, Ranganath C. The medial temporal lobe and recognition memory. Annu Rev Neurosci 2007; 30 : 123-152.
28. Arnold SE, Lee EB, Moberg PJ, et al. Olfactory epithelium amyloid-beta and paired helical filament-tau pathology in Alzheimer disease. Ann Neurol 2010; 67(4) : 462-469.
29. Kotecha AM, Corrêa ADC, Fisher KM, Rushworth JV. Olfactory Dysfunction as a Global Biomarker for Sniffing out Alzheimer's Disease: A Meta-Analysis. Biosensors (Basel). 2018; 8(2) : 41.
30. Schubert CR, Carmichael LL, Murphy C, et al. Olfaction and the 5-year incidence of cognitive impairment in an epidemiological study of older adults. J Am Geriatr Soc 2008; 56(8) : 1517-1521.
31. Sohrabi H, Bates K, Weinborn M. et al. Olfactory discrimination predicts cognitive decline among community-dwelling older adults. Transl Psychiatry 2012; 2 : 118.
32. Nordin S, Monsch AU, Murphy C. Unawareness of smell loss in normal aging and Alzheimer's disease: discrepancy between self-reported and diagnosed smell sensitivity. J Gerontol B Psychol Sci Soc Sci 1995; 50(4) : 187-192.
33. Dintica CS, Marseglia A, Rizzuto D, et al. Impaired olfaction is associated with cognitive decline and neurodegeneration in the brain. Neurology 2019; 92(7) : 700–709.
34. Sheehan DV, Lecrubier Y, Sheehan KH, et al. The Mini-International Neuropsychiatric Interview (M.I.N.I.): the development and validation of a structured diagnostic psychiatric interview for DSM-IV and ICD-10. J Clin Psychiatry 1998; 59(20) : 22-33.
35. Lang AE, Espay AJ. Disease modification in Parkinson's disease: current approaches, challenges, and future considerations. Mov Disord 2018; 33(5) : 660-677.
36. Sorokowska A, Schriever VA, Gudziol V, et al. Changes of olfactory abilities in relation to age: odor identification in more than 1400 people aged 4 to 80 years. Eur Arch Otorhinolaryngol 2015; 272(8) : 1937–1944.
37. Oleszkiewicz A, Walliczek-Dworscha U, Klötze P,Gerber F, Croy I, Hummel T. Developmental changes in adolescents' olfactory performance and significance of olfaction. PLoS One 2016; 11(6) : e0157560.
38. Fornazieri MA, Doty RL, Bezerra TFP, et al. Relationship of socioeconomic status to

olfactory function. Physiol Behav 2019; 198 : 84-89.
39. Thomas-Danguin T, Rouby C, Sicard G, et al. Odour identification and discrimination: influence of culture and typicality on performance. Chem Senses 2001; 26 : 1062.
40. Woodward MR, Hafeez MU, Qi Q, et al. Validation of olfactory deficit as a biomarker of Alzheimer disease. Neurol Clin Pract 2017; 7(1) : 5-14.
41. Kesslak JP, Cotman CW, Chui HC, et al. Olfactory tests as possible probes for detecting and monitoring Alzheimer's disease. Neurobiol Aging 1988; 9(4) : 399-403.
42. Lutz Knupferlic. phil., Dr. René Spiegel PD Dr. phil. Differences in olfactory test performance between normal aged, Alzheimer and vascular type dementia individuals. Geriatr Psychiatry 1986; 1(1) : 3-14.
43. Morgan CD, Nordin S, Murphy C. Odor identification as an early marker for Alzheimer's disease: impact of lexical functioning and detection sensitivity. J Clin Exp Neuropsychol 1995; 17(5) : 793-803.
44. Alisha M. Kotecha, Angelo DC. Corrêa, Kim M. Fisher, Jo V. Olfactory Dysfunction as a Global Biomarker for Sniffing out Alzheimer's Disease: A meta-Analysis. Biosensors 2018; 8 : 241.
45. Sun GH, Raji CA, Maceachern MP, Burke JF. Olfactory identification testing as a predictor of the development of Alzheimer's dementia: a systematic review. Laryngoscope 2012; 122(7) : 1455-1462.

Original Article

Study the Prevalence and Psychosocial Correlates of Dissociative (Conversion) Disorder in Female In-Patients

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ABSTRACT

Introduction*: Dissociative (conversion) disorder patients constitute a major proportion of psychiatric patient population in developing countries. Beliefs and stigma have remarkable impact on treatment seeking behavior. Stressful life events contribute significantly to the development of dissociative (conversion) disorder.* ***Aim and Objectives:*** *To find out prevalence and various psychosocial correlates of dissociative (conversion) disorder in female in-patients.* ***Methodology:*** *This cross-sectional study was conducted at a tertiary care centre. Total 275 females were admitted in female psychiatry ward from December 2019 to February 2020, out of which 65 patients were diagnosed with dissociative disorder based on ICD-10 criteria. After application of selection criterion19 patients were excluded. Rest 46 patients were further evaluated on Semi-structured clinical proforma and Presumptive stressful life event scale. SPSS-24 was used for analysis.* ***Results:*** *Around fifty percent patients perceived dissociative (conversion) disorder, as a result of supernatural powers, visited faith healers before consulting psychiatrist and later contacted to psychiatrist on their own. Expenditure with faith healers was significantly higher and elaborated rituals like puja, was performed in majority of patients. The bulk of patients stated family conflicts, and excessive alcohol abuse by family member as major stressful event.* ***Conclusion:*** *Patients with dissociative disorders in this region seek treatment from a wide range of services before consulting a psychiatrist. Stigmas and old beliefs are still influencing treatment seeking in mental health.*

Key words*: Dissociative (conversion) disorder, Faith healers, Stigma, Belief.*

Introduction

Dissociation is defined as an unconscious defence mechanism involving the segregation of any group of mental or behavioral processes from the rest of the person's psychic activity. Dissociative disorders involve this mechanism so that there is a disruption in one or more mental functions, such as memory, identity, perception, consciousness, or motor behavior. The disturbance may be sudden or gradual, transient or chronic, and the signs and symptoms of the disorder are often caused by psychological trauma.[1] The presenting symptoms are unintentional and may mimic a neurological disorder.[2] Dissociative (conversion) disorder patients take in majority of psychiatric patient population in developing countries. In India, high occurrence of dissociative disorder has been reported in young adults of lower socio-economic joint families, and significantly higher in females.[3] Also, higher prevalence has been seen in illiterates and married housewives.[2,4] So, this study was conducted to assess prevalence of dissociative patients in admitted female patients in psychiatry ward.

Every society is profoundly ruled by its own

way of life known as culture. The culture is defined as a complex whole which includes knowledge, learned behavior, beliefs, values, customs and norms, deeply rooted in a society and acquired by society.[5] Every culture has got their belief system. These religious beliefs may play important role in perceptions of mental illness.[6] Belief is a powerful tool or mechanism that highly affects the health care system. In a country like India, blind beliefs in the supernatural etiology of mental illness are highly prevalent among major chunk of the population, especially in rural areas comprising lower-class population.[7] Beliefs hold by people about the causes of mental disorder has remarkable impact on their treatment seeking behavior. It was found that the factors like belief related to health, types of accesses, utilization, perceptions of quality care are involved in health seeking behavior.[8] Another factor which is very significant is stigma related to mental illness which has been found inversely related to treatment seeking.[9] The present study was conducted to investigate various health care facilities used by female in-patients with dissociative (conversion) disorder, reasons for using the services, various healing practices performed by faith healers and cost of treatment of different services. This knowledge can be helpful in developing awareness programs so as to remove stigma and misconceptions about dissociative (conversion) disorder and sensitize the people for mental illness.

Stressful events were defined as occurrences that were likely to bring about readjustment-requiring changes in people's usual activities.[10] Stressful life events contribute significantly to the development of major psychiatric and neurotic disorder.[11,12] Neuroticism, psychoticism and dissociative experiences, and abnormal illness behaviors are significantly associated with the stress perceived by the patient.[13] In previous studies, importance and role of stressful life events in the onset of dissociative (conversion) disorders and depressive illness in combination with other factors have been evaluated.[14,15] This study was conducted to assess various stressful life events experienced by female in-patients.

Aim and Objectives

- To find out the prevalence of dissociative (conversion) disorder in female in-patients.
- To assess the perceived attribution to causes of dissociative (conversion) disorder, treatment seeking behavior and cost of treatment per visit during previous visits to different services.
- To evaluate various stressful life events associated with dissociative (conversion) disorder.

Material and Methods

Study setting

The study was conducted in psychiatric inpatient setting at a tertiary care centre. Total 275 females were admitted in female psychiatry ward from December 2019 to February of 2020, out of which 65 patients were diagnosed with dissociative disorder based on International classification of disease (ICD-10) criteria. The patient and the accompanying family member were explained the purpose of the study and a written informed consent was taken. In cases of minor patients, information as well as the consent was gathered from the accompanying relative, who acted as an additional informant. After application of selection criterion, out of 65 dissociative patients 3 patients were excluded due to chronic medical illness, 1 patient excluded due to comorbid opioid dependence syndrome and 15 patients excluded due to previous history of psychiatrist consultation.

Inclusion criteria

- Female inpatients of dissociative (conversion) disorders with their first presentation to mental health establishment.
- Patients should accompany with their family member.

Exclusion criteria

- Previous history of consultation with psychiatrist.
- Female patients with history of chronic medical illness, neurological illness including seizure disorder.
- History of any substance dependence syndrome.

Procedure

- Consent form.
- Selection criterion - including the inclusion

and exclusion criterions.

- Sociodemographic proforma.
- Semi-structured clinical proforma - was used to elicit the information including details of illness, various treatment facilities contacted by the patients, source of referral, various rituals performed by faith healers or religious leaders, duration of treatment and total cost of treatment.
- Presumptive stressful life event scale (PSLES) was used for obtaining the details about various stressful life events of study sample. This scale was developed by Singh et al in 1981. It was based on fruitful collaboration of Holmes and Rahe, who believed that some kind of a list of commonly encountered stressors would be more useful than the relatively unregulated process of taking an unstructured history. It is an inventory of 51 stressful life events commonly experienced by normal Indian population. Hundred was the highest stress score and, zero was considered as no perceived stress. Both quantitative and qualitative analysis of life events can be possible with this scale.[16]

Study was approved by research review board and ethical committee of institution and SPSS-24 was used for statistical analysis.

Observations

During the study period out of total 275 in-patients, 65 inpatients had been diagnosed with dissociative (conversion) disorder hence the prevalence is 23.67%.

Table 1 shows the Sociodemographic profile of study sample. Out of 46 patients included in the study, maximum 27 patients (58.7%) belong to age group of 16-30 years. 25 patients (54.34%) were married, among rest, 20 (43.47%) patients were unmarried and 1 patient (2.17%) was widow. Majority of patients 20 (43.48%) had received middle school education. 6 patients (13%) were Illitrate and 5 patients (10.87%) had received higher education. Out of total patients, 25 patients (54.35%) were unemployed or housewife and 18 patients (39.13) were student. Patients from rural background (65.22%) and joint families (69.57%) were higher than urban background (34.78%) and nuclear

Table-1: Sociodemographic details of patients

Variable		n = 46 (%)
Age	1-15	12 (26.0)
	16-30	27 (58.7)
	31-45	6 (13.0)
	46-60	1 (2.2)
Marital status	Married	25 (54.34)
	Unmarried	20 (43.47)
	Widowed/divorced/ Separated	1 (2.17)
Religion	Hindu	42 (91.3)
	Muslim	3 (6.5)
	Sikh	1 (2.17)
	Others	0
Education	Illitrate	6 (13.0)
	Primary school	1(28.26)
	Middle school	20 (43.48)
	High school	2 (4.35)
	Graduate and above	5 (10.87)
Occupation	Clerical/professional/ semi-professional job	2 (4.35)
	Skilled/semiskilled worker	1 (2.17)
	Unemployed/ housewife/Student	25 (54.35) 18 (39.13)
Family income (monthly)	Below Rs. 5000	9 (19.6)
	Rs. 5001-10000	19 (41.3)
	Rs.10001-15000	6 (13.0)
	Rs. 15001-20000	3 (6.52)
	>20000	9 (19.6)
Family type	Nuclear	14 (30.43)
	Joint	32 (69.57)
Locality	Urban	16 (34.78)
	Rural	30 (65.22)

Table-2: Details of attribution about cause of illness, previous visits and source of referral to mental health facility

Attributions about cause of illness at time of onset of illness	Number of patients (n = 46)
Psychiatric illness	10 (21.73)
Medical illness	14 (30.43%)
Supernatural cause of illness	22 (47.83%)
Previous visits	
None (direct)	6
Faith healers/ religious leaders	22
Medical practioner and non-psychiatric physician	18
Both	11
Source of referral to psychiatrist	
Self	20 (43.48%)
Community	10 (21.74%)
Faith healer/religious leader	2 (4.35%)
Medical practioner and non-psychiatric physician	14 (30.43%)

families (30.43). Maximum 19 patients (41.3%) of the study population belonged to 5001- 10000 family income group and minimum 3 patients (6.52%) belonged to 15001-20000 family income group.

Table 2 depicts attitude of patients towards illness at time of onset of illness, their previous visits and source of referral to psychiatrist. Out of 46, 22 patients or their family members believed that they became ill because of some supernatural powers. Whereas, according to 14 patients their illness has some medical basis and rest 10 patients assumed their illness as a psychiatric disease. Maximum number of patients (22) consulted to faith healers followed by 18 patients who contacted to medical practioner and non-psychiatric physicians and 11 patients visited both medical practioner and faith healers. Only 6 patients reached directly to a mental health facility. Majority of patients (20) accessed to a psychiatrist by their own, among rest, 14 patients were referred by medical practioner and non-psychiatric physician, 10 patients were referred by community. Only 2 patients were referred by faith healers or religious leaders.

services before coming to our psychiatric centre. The Mean duration of treatment was longest with patients who were consulting both faith healers and medical practioner and non-psychiatric physician (20.04), followed with faith healers (11.90) and shortest with medical practioner and non-psychiatric physician. The expenditure included consultation fee, and expenses incurred on travel, investigations, and medications. The mean expenditure per visit was maximum with faith healers (3508.33) and minimum with medical practioner and non-psychiatric physician (2861.11)

Table 4 outlines different rituals performed by faith healers and religious leaders. Most commonly performed ritual was puja (hawan), which was done in 21 patients, followed by recommending tabeez, dora (16) and rings (5). In 1 patient imprinting with rods was done and exorcism was performed in 1 patient. Mean of visits to faith healers was 4.60.

Table 5A and 5B summarise about stressful life events experienced by patients. Maximum 16 patients (34.78%) reported family conflicts as stressful life event, followed by excessive alcohol

Table-3A: Details of duration of treatment taken from different services before presentation to mental health establishment

Duration of treatment	Patients consulted with Faith healers/ religious leaders (n = 22)	Patients consulted with Medical practioner and non-psychiatric physician (n = 18)	Patients consulted Both health services (n = 11)
<1 month	4	3	2
1-6 month	12	9	4
1year- 5 year	4	4	3
>5 year	2	2	2
MEAN (S.D)	11.90 (23.29)	11.69 (20.95)	20.04 (25.52)

Table-3 B: Details of expenditure per visit to faith healers/religious leaders, medical practioner and non-psychiatric physician

Cost of treatment per visit	Faith healers/ religious leaders (n = 22)	Medical practioner and non-psychiatric physician (n=18)
<1000	6	5
1000-5000	10	7
>5000	6	6
Mean (SD)	3508.33 (2351.40)	2861.11 (2318.79)

Table 3A and 3B summarise duration of treatment and total cost per visit to different health

Table-4: Various rituals performed by faith healers/ religious leaders (n = 22)

	Frequency	
Elaborate rituals (puja, hawan)	21 (95.45%)	
Recommending amulets (tabeez, dora)	16 (72.73%)	
Suggestions for wearing specific rings	5 (22.73%)	
Physical torture (Branding with rods)	1 (4.54%)	
Exorcism of jinn and ghosts	1 (4.54%)	
No. of visits to faith healers	(n = 22)	Mean (SD)
<5	15	4.60 (4.56)
5-10	4	
>10	3	

Table-5A: Common stressful life events associated with dissociative (conversion) disorder

S. No.	Stressful life event	Frequency (%)
1	Death of spouse	1 (2.17%)
2	Extra- marital relation of spouse	3 (6.52%)
3	Death of close family member	2 (4.38%)
4	Marital conflict	7 (15.22%)
5	Excessive alcohol or drug use by family member	12 (26.08%)
6	Conflict with in laws (other than over dowry)	5 (10.86%)
7	Broken engagement or love affair	10 (21.73%)
8	Financial loss or problems	8 (17.39%)
9	Illness of family member	4 (8.69%)
10	Sexual problems	5 (10.87%)
11	Self or family member unemployed	9 (19.56%)
12	Lack of son	2 (4.38%)
13	Family conflict	16 (34.78%)
14	Appearing for an examination of interview	7 (15.22%)
15	Getting married or engaged	7 (15.22%)
16	Birth of daughter	2 (4.38%)

Table-5B: Mean stress scores and life events

Mean stress score	122.5
Mean life events	2.48

or drug use by family member than broken engagement or love affair. Mean stress score that was 122.5 and mean of life events was 2.48.

Discussion

In current study the prevalence of female inpatients suffering from Dissociative (conversion) disorder was found 23.67 %. A previous study conducted in NIMHANS, Banglore had the proportion of patients diagnosed with dissociative (conversion) disorders ranged between 1.5 and 15.0 per 1,000 for outpatients and between 1.5 and 11.6 per 1,000 for inpatients. Female preponderance was seen in majority sub-types of dissociative (conversion) disorder.[17] In other Indian study, the prevalence of dissociative (conversion) disorder was reported up to 31% among inpatients.[18]

This study was conducted in a tertiary care hospital which has a large number of patients coming from rural areas. In this study majority of female belonged to rural joint families and most of them were housewives and students. Similar results were found in a study previously done in same region.[19] In current study maximum patients belong to age group of 16-30 years and about half of the females were married. These findings correspond with the previous Indian studies.[2,20] In our country married life begins around age of 18 to 20, which leads to many changes and adjustments in female lives and these changes may precipitate Dissociative (conversion) Disorders.[21]

The main purpose of this study was to evaluate attitude and treatment seeking behavior among the female inpatients of dissociative (conversion) disorder with first contact to mental health facility. In current study around fifty percent patients perceived dissociative (conversion) disorder, as a result of some supernatural powers and visited faith healers before consulting a psychiatrist. A study was conducted in psychiatric inpatients of Orissa to find out the belief and utilization of faith healing and associated sociocultural factors in psychiatric inpatients, discovered that majority (85.5%) of the patients believed in supernatural causation of mental illness and 75% attended faith healing before seeking medical help.[22] A study of Nepal showed majority of dissociative (conversion) disorder patient's family members treatment seeking behavior was found to be the faith healer (63.15%), followed by doctors (24.6%) and paramedics (12.3%) respectively.[23] Another study conducted in a psychiatric hospital of Madhya Pradesh state found faith healers as the first contact of help in 68% of the total sample.[24] Majority of people with mental illness and their family members have a strong belief in the supernatural causation of mental illness, and this belief brings them to consult traditional healers before resorting to modern health care.[7] However, a study from a psychiatric hospital in the state of Delhi found the psychiatrists as the first contact service provider.[25]

In current study majority of patients contacted to a psychiatrist on their own or referred by other services and community after visiting various services, this may be because of unsatisfaction with treatment or excessive spending of money. Similar results were revealed in a previous study wherein most common reasons to consult psychiatrist as second or third service provider were failure of other treatments (72%), recommendation by relatives or friends (32%), and less expensive treatment (24%).[26] In this study we found that expenditure on faith

healers was significantly high compared to medical practitioners and history of consultation with psychiatrist was an exclusion criterion so expenses could not be compared to psychiatrists. Other studies also discovered that treatment with faith healers is more expensive than other public health services[26,27] but Mishra et al. found that cost per visit was higher with non-psychiatric physicians than with faith healers.[25] In current study various healing practices was assessed, out of which elaborated rituals like puja and hawan, was performed in majority of patients followed by recommendation of wearing dora and rings. These observations are in line with previous studies.[7,28] Physical torture by imprinting with rod and exorcism were practiced only in 2 patients, similar results were uncovered in a previous study.[28]

In current study all patients had some psychosocial stressors. The bulk of patients stated family conflicts, and excessive alcohol or other drug abuse by family member as major stressful event. Other common stressors detailed by patients were, love affair/break ups, financial issues, unemployment, problems with education and marital conflicts. In a recent Indian study by Deka et al. studying 40 dissociative patients found all 100% had psychosocial stressors, and had common stressors,[2] similar to this study while studies from the western countries report the common stressors to be sexual abuse, emotional, and physical abuse likewise literature from the west lays more importance on the childhood sexual abuse as a precursor for dissociation.[29,30]

Conclusion

To conclude, we would say that the patients with dissociative disorders in our region seek treatment from a wide range of services, including traditional faith healers, non-psychiatric physicians, and alternative medicine practitioners before consulting a psychiatrist. Both people of rural and urban background have different attitude about dissociative (conversion) disorders and because of these sensitivities, they access to other health services rather than a psychiatrist. Treatment with faith healers and religious leaders is costlier than that with the others and these practices delay patients to seek medical help, thereby adversely affect the mental health and wealth. Stigmas and old beliefs are still influencing health seeking behaviors in mental health care. Many mental health programmes and policies are running to break these stigmas, still a long way to go and need to sensitize the people about mental illness and significance of modern psychiatric services. It is imperative that psychiatric care should be developed in consideration to the cultural beliefs and practices. Stressful life events are high and play a significant role in dissociative (conversion) disorders. Common stressful life events in Indian females are related to family/marital conflicts, excessive alcohol use by family members and love/break up issues. These finding can help during interviews and management of patients.

Limitations

- This study included female inpatients only and the sample size was small so, results cannot be generalized.
- Stressful events, beliefs and healing practices can vary in different cultures.

References

1. Simeon D, Loewenstein RJ. Dissociative disorders. In: Sadock BJ, Sadock VA, eds. Kaplan & Sadock's Comprehensive Textbook of Psychiatry. 9th ed. Vol. 1. Philadelphia: Lippincott Williams & Wilkins 2009; 1965.
2. Deka K, Chaudhury PK, Bora K, Kalita P. A study of clinical correlates and socio-demographic profile in conversion disorder. Indian J Psychiatry 2007; 49(3) : 205-7.
3. Vyas JN, Bharadwaj PK. A study of hysteria-AN analysis of 304 patients. Indian J Psychiatry 1977; 19 : 71–4.
4. Saxena S, Pachauri R, Wig NN. DSM-III diagnostic categories for icd-9 hysteria: a study on 103 cases. Indian J Psychiatry 1986; 28(1) : 47-9.
5. Dein S. ABC of mental health. Mental health in a multi ethnic society. BMJ 1997; 315 : 473 6.
6. Shebabaw ME, Sewasew DT, Gebeyehu KF, et al. Perceived causal attribution of psychological disorders and treatment seeking behavior in gondar, northwest ethiopia. Innovare J Social Sci 2014; 2(4) : 58-4.
7. Biswal R, Subudhi C, Acharya SK. Healers and healing practices of mental illness in India: The role of proposed eclectic healing model. J Health Res Rev 2017; 4 : 89-95.

8. Kishore J, Gupta A, Jiloha RC, Bantman P. Myths, beliefs and perceptions about mental disorders and health-seeking behavior in Delhi, India. Indian J Psychiatry 2011; 53(4) : 324-9.
9. Corrigan PW, Watson AC. Understanding the impact of stigma on people with mental illness. World Psychiatry 2002; 1(1) : 16-20.
10. Ammati R, Kakunje A, Karkal R, Kini G, Srinivasan J, Nafisa D. Stressful life events and quality of life in patients with somatoform disorders. Indian J Soc Psychiatry 2019; 35 : 108-13.
11. Seedat S, Stein DJ, Jackson PB, et al. Life stress and mental disorders in the South African stress and health study. S Afr Med J 2009; 99 : 375 82.
12. Cooper B, Sylph J. Life events and the onset of neurotic illness: An investigation in general practice. Psychol Med 1973; 3 : 421 35.
13. Irpati AS, Avasthi A, Sharan P. Study of stress and vulnerability in patients with somatoform and dissociative disorders in a psychiatric clinic in North India. Psychiatry Clin Neurosci 2006; 60 : 570 4.
14. Aamir, Siddiqua. Stressful life events in the onset of dissociative (conversion) disorders. J Pakistan Psychiatr Soc 2005; 2 : 65-68.
15. Bowman ES, Markand ON. The contribution of life events to pseudoseizure occurrence in adults. Bull Menninger Clin 1999 Winter; 63(1) : 70-88.
16. Singh G, Kaur D, Kaur H. Presumptive stressful life events scale (PSLES)-A new stressful events cale for use in India. Ind J Psychiatry 1984; 26(2) : 107-14.
17. Chaturvedi SK, Desai G, Shaligram D. Dissociative Disorders in a Psychiatric Institute in India - A Selected Review and Patterns Over a Decade. Int J Soc Psychiatry 2010; 56(5) : 533-539.
18. Malik P, Singh P. Characteristics and outcome of children and adolescent with conversion disorder. Indian J Pediatr 2002; 39 : 747-52.
19. Verma KK, Solanki OP, Baniya GC, Goyal S. A study of the stressor, family environment and family burden in dissociative (conversion) disorder patients. Indian J Soc Psychiatry 2017; 33 : 196-201.
20. Kumar S, Tyagi S, Pardal PK. Co-relation of socio-demographic determinants with dissociative conversion disorder. Int Contemp Med Res 2020; 7(9) : I7-I9.
21. Khan MN, Ahmad S, Arshad N. Birth order, family size and its association with conversion disorders. Pakistan J Med Sci 2006; 22(1) : 38.
22. Nilamadhab Kar. Resort to faith-healing practices in the pathway to care for mental illness: a study on psychiatric inpatients in Orissa. Ment Health Religion Culture 2008; 11(7) : 720-740.
23. Sawant S, Karki U. Attribution and health seeking behavior of family members towards Conversion (Dissociative) Disorders. J Psychiatrists' Assoc Nepal 2018; 7 : 52-56.
24. Lahariya C, Singhal S, Gupta S, Mishra A. Pathway of care among psychiatric patients attending a mental health institution in central India. Indian J Psychiatry 2010; 52 : 333-8.
25. Mishra N, Nagpal SS, Chadda RK, Sood M. Help-seeking behavior of patients with mental health problems visiting a tertiary care center in North India. Indian J Psychiatry 2011; 53 : 234-8.
26. Upadhyaya SK, Raval CM, Sharma DK. The sociocultural factors and patterns of help-seeking among patients with mental illness in the sub-Himalayan region. Ind Psychiatry J 2018; 27 : 279-84.
27. Burns JK, Jhazbhay K, Kidd M, Emsley RA. Causal attributions, pathway to care and clinical features of first-episode psychosis: A South African perspective. Int J Soc Psychiatry 2011; 57 : 538-45.
28. Rajan B, Cherupushpam SD, Saleem TK, Jithu VP. Role of cultural beliefs and use of faith healing in management of mental disorders: a descriptive survey. Ker Jour of Psychiatry 2016; 29 : 12-18.
29. Greshuny BS, Najavits LM, Wood PK, Heppner M. Relation between trauma and psychopathology: Mediating roles of dissociation and fears about death and control. J Trauma Dissociation 2004; 5 : 101-17.
30. Ozcetin A, Belli H, Ertem U, Bahcebasi T, Ataoglu A, Canan F. Childhood trauma and dissociation in women with pseudoseizure-type conversion disorder. Nord J Psychiatry 2009; 63 : 462-8.

Original Article

Satisfaction with life, Loneliness and Social Comparison among College-going students

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ABSTRACT

Background: *Satisfaction with Life, Loneliness and Social comparison are important aspects of mental health.* ***Methodology:*** *Our study was conducted with aim to determine these factors among college going students. The data was collected by convenient sampling from Degree College, Ladakh with size of 155 participants. Instruments used for data collection was Loneliness Scale, Satisfaction with Life Scale and Social comparison scale.* ***Results:*** *The results shows that 82% of the population are having moderate level of loneliness, while 14.8% were severely lonely and some extent of loneliness is experienced by all as nobody scored between 0-2. It was 8% of the population who were substantially dissatisfied and 2% had moderate feelings of inferiority and general low rank self-perceptions.* ***Conclusion****: Everyone is lonely to some extent and 82% of the students are having moderate level of loneliness and some dissatisfaction is present. It's a call for alarm, as it shows that college students are vulnerable therefore some sort of support system and availability of counselling facilities at campus is highly recommended.*

Key Words: *Satisfaction with life, Loneliness, Social comparison*

Introduction

Life-satisfaction is one of the indicators of 'apparent' quality of life, together with indicators of mental and physical health, it indicates how well people thrive. Life-satisfaction is the degree to which a person positively evaluates the overall quality of his/her life as-a-whole or how much the person likes the life he/she leads. Appraisals of life can concern different periods in time: how life has been, how it is now, and how it will probably be in the future and usually inappropriate. When a person experiences loneliness, there is an admissible lack of (quality of) certain relationships which add meaning to life. This lack, however deep rooted creates perceptions, experiences, and evaluations of a person's isolation and lack of communication with other people. Loneliness is highly linked to mental and physical health,[1] it can be a risk factors for coronary heart disease and stroke[2] or negatively impact academics.[3] Festinger[4] says that people have an innate drive to evaluate themselves; people determine their own social and personal worth based on how they compare against others. Negative social comparison can be a cause of mistrust[5] and it has significant direct negative effect on psychological well-being[6] It is our tendency to use social comparison defensively to maintain and enhance subjective wellbeing. The downward comparison is explained as a coping mechanism to arrange comparison with others so that the outcome of the comparison is favourable to the self and in a way produces an enhancement of the person's psychological state,[7] whereas Upward social comparison is not ego deflating, infact it can serve as self-improvement or

self enhancing.[8] Hence, Satisfaction with Life, Loneliness and Social comparison are essential aspects of our health.

Materials and Methods

The aim and objective of the study is to measure social comparison, loneliness and satisfaction with life among general populations. The total sample size was 155, participants and convenient sampling method was adopted. The inclusion criteria were Participants who are undergraduates, Studying in Ladakh, Age between 17 to 23 years, both male and female and those who are willing to participate. In attempting to gather quality data, the tools used were the Loneliness Scale developed by De Jong Gierveld and colleague, Satisfaction with Life Scale is a 5-item scale designed to measure global cognitive judgments of one's life satisfaction and Social Comparison Scale (Allan & Gilbert)[9] to measure self-perceptions of social rank and relative social standing. The investigator personally contacted the participants for the purpose of data collection. The subjects were ensured that their responses would be kept confidential and would be used only for research purpose. Only those who were cooperative and willing to give the consent were taken for the study. SPSS is used for statistical analysis.

Results

For the present study the Mean age was 20 with 1.37 std deviation.

Table 1: Frequency on Loneliness, Satisfaction with life and social comparison. The table below shows that 82% are falling in the range of Moderately Lonely and nobody scored in the range of 0-2. 42% were average on their level of life satisfaction, 61% scored between 53 and 73 suggesting a balance on social comparison.

Table-1: Frequency on Loneliness, Satisfaction with life and social comparison

Range	Frequency	Percent
Loneliness		
0-2	0	0
3-8	127	81.9
9-10	23	14.8
11	5	3.2
N	155	100
Satisfaction with Life		
10-14	12	7.7
15-19	27	17.4
20-24	66	42.6
25-29	43	27.7
30-35	7	4.5
N	155	100
Social Comparison		
11—31	3	1.9
32-52	23	14.8
53-73	95	61.3
74-94	28	18.1
95-115	6	3.9
N	155	100

Discussion

The results indicate that 82% of the participants experience moderate level of loneliness. Furthermore, 14.8 % of the sample is suggestive of experiencing severe level of loneliness. It is interesting to note that fell in the score range of 0-2 meaning that has reported they are not lonely, hence, it can be safe to assume that some degree of loneliness is experienced by all. The findings of the present study are consistent with Ozdemir and Tuncay[10] study showing 60% of population having significant level of lonelineness. On Satisfaction with life, 42% scored between 20-24, suggestive of average level of life satisfaction. They are largely satisfied with most areas of their lives, may also be looking for improvement in various domains and would usually like to move to a higher of satisfaction with life by making some life changes. High level of satisfaction was found to be in 27%, the people scoring in this range like their lives and feel that things are going well in major domains of their live like work or school, family, friends, leisure, and personal development. They tend to draw motivation from the areas of dissatisfaction. Individuals experiencing a very high level of life satisfaction are at a significant advantage over those with average life satisfaction in terms of academic performance, greater student engagement and academic self-efficacy as suggested by Antaramian and Lee.[11] It was 8% who were substantially dissatisfied and if this dissatisfaction persists, it can indicate that things are going badly and life alterations are needed. For assistance needed in dealing with improving the dissatisfaction, it is recommended that people falling in this range should be talking to a friend, counselor, or other specialist who can often help the person get moving in the right direction. Nobody was found to be extremely

dissatisfied and only 4% were highly satisfied, for most people in this high-scoring range, life is enjoyable, and the major domains. In Social comparison, the scores indicate that higher the total score, more positive self perception of social rank and relative social standing. Low scores show feeling of inferiority and general low rank self perceptions. In the present study, it is found that 61% participants were between the score of 53-73 suggesting that college students were somewhat having balanced judgments concerning with rank, attractiveness and how well the person thinks they 'fit in' with others in society. 2% had moderate feelings of inferiority and general low rank self-perceptions where as 3% had highly more positive self perception of social rank and relative social standing. Zhang et al have demonstrated that providing mindfulness training to college students has resulted in greater self-awareness and self-acceptance, as well as non-judgmental, positive and emotionally balanced thinking. Similarly, we recommend on-campus social support, counseling, and suitable interventions like mindfulness to assist vulnerable students who experience loneliness and dissatisfaction with life.

Conclusion

Everyone is lonely to some extent. 82% experience a moderate level of loneliness. More than half have positive self perception of social rank and relative social standing. Some level of dissatisfaction is present but nobody is extremely dissatisfied with life.

References

1. Mushtaq R, Shoib S, Shah T, Mushtaq S. Relationship between loneliness, psychiatric disorders and physical health? A review on the psychological aspects of loneliness. Journal of clinical and diagnostic research: J Clin Diag Res 2014; 8(9), WE01–WE4.
2. Valtorta NK, Kanaan M, Gilbody S, et al. Loneliness and social isolation as risk factors for coronary heart disease and stroke: systematic review and meta-analysis of longitudinal observational studies. Heart 2016; 102 : 1009-1016.
3. Demir A, Tarhan, N. Loneliness and social dissatisfaction in Turkish adolescents. J Psychol 2001; 135(1) : 113–123. https://doi.org/10.1080/00223980109603684
4. Festinger L. A theory of social comparison processes. Human Relat 1954; 7 : 117-140.
5. Freeman D, Evans N, Lister R, et al. Height, social comparison, and paranoia: an immersive virtual reality experimental study. Psychiatr Res 2014; 218(3) : 348–352. https://doi.org/10.1016/j.psychres.2013.12.014
6. Lee JK. The effects of social comparison orientation on psychological well-being in social networking sites: Serial mediation of perceived social support and self-esteem. Current Psychology N.J.: New Brunswick 2020; 1–13. Advance online publication.
7. Wills TA. Downward Comparison as a Coping Mechanism. In: Snyder CR, Ford CE. (eds) Coping with Negative Life Events. The Plenum Series on Stress and Coping. Springer, Boston, MA, 1987. doi.org/10.1007/978-1-4757-9865-4-10
8. Collins RL. For better or worse: The impact of upward social comparison on self-evaluations. Psychol Bull 1996; 119(1) : 51–69.
9. Allan S, Gilbert P. A social comparison scale: Psychometric properties and relationship to psychopathology. Pers Individ Dif 1995; 19 : 293-299.
10. Ozdemir U, Tuncay T. Correlates of loneliness among university students. Child Adolesce Psychiatr Ment Health 2008; 2(1) : 29. https://doi.org/10.1186/1753-2000-2-29.
11. Antaramian S, Lee J. The importance of very high life satisfaction for students' academic success, Cogent Educ 2017; 4 : 1, DOI: 10.1080/2331186X.2017.1307622
12. Zhang N, Fan FM, Huang SY, Rodriguez MA. Mindfulness training for loneliness among Chinese college students: A pilot randomized controlled trial. Int J Psychol 2018; 53(5) : 373-378. Doi: 10.1002/ijop.12394. Epub 2016 Oct 5. PMID: 27704544.

Original Article

Ten Years Outcome of In-Patient with Substance use Disorder — A Study from North India

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ABSTRACT

Background: *Substance use disorders have a chronic relapsing course. In order to create meaningful endpoints along with abstinent or relapsed status, the area of assessment in substance use disorders should include indicators of psychosocial functioning and health effect of drugs.* ***Aims and Objectives****: To find out the current status of patients of substance use disorder after 10 years of post-discharge from de-addiction ward and to find out the association of baseline socio-demographic and clinical variables on final substance use status.* ***Materials and Methods****: Case record files of patients with diagnosis of Substance Use Disorder (SUDs) as per ICD-10 admitted in the de-addiction ward of department of psychiatry of tertiary care teaching hospital of North India from 1st January 2010-31st December,2010 were retrieved and analysed for socio-demographic and clinical details. Then these patients were reassessed after 10 years for their current status through follow up notes and telephonic interview after taking verbal consent.* ***Results****: A total of 386 patients were admitted in GMCH Psychiatry ward in the year 2010. Out of which, 92 were included in the study as their primary illness was substance use disorder. Out of 92 patients, 45 patients could not be contacted and were thus considered drop out. Out of 47 patients who could be contacted, 17% were abstinent, 48.9% relapsed and 34% were intermittent users at the end of 10 years. Individuals with Cumulative Abstinent Duration(CAD) of 5 years were found to have good outcome at the end.* ***Conclusion:*** *Study concludes contact rate of 51 % in patients with substance use disorders at the end of 10 years. About half of the patients were lost to follow up at 10 years. More than half of the follow up patients had good outcome at the end of 10 years.*

Key words: *Substance use disorders, In-patient, De-addiction, Outcome.*

Introduction

Substance use disorder (SUD) is a major public health problem throughout the world with vast implications on public health.[1] According to National Mental Health Survey (NMHS) conducted in 12 states of India, the prevalence of substance use disorders is 22.4% in those above 18 years (20.9% for alcohol use disorders,4.6% for tobacco use disorders, 0.6% for illicit substance use disorders).[2]

SUD is a chronic, relapsing condition. There is a pressing need to improve short- and long-term treatment outcome. There has been a conceptual shift in recognizing substance use disorder and its treatment as dynamic process rather than as one shot events.[3] The accepted endpoint for the treatment outcome for these disorders is identified to be sustained abstinence. In order to create meaningful endpoints for non -abstinence, the area of assessment in substance use disorders should include indicators of psychosocial functioning and health effect of drugs as opposed to overall functioning.[4] It is important to identify factors that have association with relapse after initiation of treatment. According to taxonomy of high-risk situations for relapse which was developed primarily to understand one or more

of five intrapersonal determinants (i.e., Negative Emotional State, Negative Physical State, Pleasant Emotional State, Testing Personal Limits, and Urges and Temptations), and/or three interpersonal determinants (i.e., Interpersonal Conflicts, Social Pressure to Use drugs, and Positive Emotional State) which may put the client at increased risk for relapse.[5] Social pressure and temptation to engage in substance use have been traditionally considered as the most common relapse triggers.[6] Thus Psychological factors and motivation for change in substance use are important targets.[7] The drop-out rate in SUD treatment is about 10-30%, depending upon the sample and setting.[8] The majority of people who drop out, has shown an association to SUD initial severity, individual beliefs and social issues.[9] Various predictors of substance use outcome that have been identified which includes severity of dependence, psychiatric co morbidity, substance related problems, length of treatment, negative affective states and multiple substance abuse.[10]

There has been association of higher relapse rates with increasing age, marriage, poor literacy, unemployment, living in nuclear rather than joint family, early age of initiation, longer duration of substance use and no follow up.[11] The factors that could promote abstinence in patients with long term substance use disorder are pressure and concern from the family members, being able to imagine a different life style, awareness of existing treatment options and acceptance.

In a study which was conducted for problem drinker patients, with follow up period of 11 years, reported decline in substance use pattern with time and age.[12] Another study which followed up alcohol use disorder patients for the period of 11 years who were earlier abstinent and relapsed afterwards had shown that relapse rates were higher in later part of the follow up, worst outcomes have been found with family history of alcoholism, history of Attention Deficit and neuropsychological impairment during inpatient treatment.[13]

Another study on patients with alcohol and drug abuse who took treatment from community de-addiction camps reported that 50% of the patients remained abstinent after 10 years of post-discharge.[14] Longer duration of treatment led to reduction in polysubstance use in another 3 years follow up study.[3]

The available literature did not take into account the severity of substance withdrawal at baseline, motivation for treatment and any associated co-morbidity with substance use. The index study was planned to assess the status of patients with substance use disorders after 10 years of discharge from de-addiction ward and simultaneously assess for socio-occupational functioning.

Material and Methods

Case record files of patients with diagnosis of Substance Use Disorder (SUDs) as per ICD-10[15] admitted in the de-addiction ward of Department of Psychiatry, a tertiary care teaching hospital of North India from 1st January 2010-31st December, 2010 were retrieved and analysed for socio-demographic and clinical details. According to prerequisite for admission in de-addiction ward, patients having moderate to severe dependence, past history of unsuccessful attempts on OPD basis, accompanied by reliable informant, willing to co-operate for surprised checks and urine screening are admitted. The socio-demographic and clinical details are recorded on the semi-structured Walk-in Performa for SUD which includes socio-demographic details i.e. age, gender, address, occupation, education, marital status, income, locality, family type and religion and clinical detail includes type(s) of Primary and Secondary substances, duration of use, duration of dependence, amount of substance, last dose, complications of substance use, family history, past treatment history, presence of any psychosocial stressor that lead to substance use, psychiatric co morbidity, diagnosis and treatment. Severity of dependence/withdrawal, motivation is assessed at baseline and at the time of discharge. All patients undergo routine blood investigations and special investigations, wherever required. Primary substance was identified as the substance, which patient was taking in dependant pattern and wanted to seek treatment for the same. Secondary substance was identified as the substance for which patient didn't seek any treatment. Average duration of stay in hospital is 2-3 weeks with follow ups schedule of every 2 weeks in the beginning and gradually increased to every 3-4 weeks. All the subsequent follow ups including subsequent admissions, duration of follow ups were recorded. As a routine follow up clinical notes by consultant includes drug

use pattern during follow up, which is recorded as (1) Abstinence (2) Intermittent use (3) Relapsed. For the purpose of the study, we identified abstinent users as those who did not consume any amount of substance after discharge; intermittent as those who consumed substance on 1-2 occasions during last 2 weeks without any significant socio-occupational dysfunction and relapsed means those who returned to their original substance use pattern. Craving is noted as no craving or minimal craving as 0/+ which can be managed by patient without any difficulty, significant craving (moderate craving) as ++ which leads to intermittent substance use and severe craving as +++ leads to more frequent substance use and socio-occupational dysfunction as reported in earlier studies from the same department.[16-17] Cumulative abstinent duration (CAD) was calculated on the basis of number of years patient was abstinent from substance during the whole follow up period of 10 years. Patient who lost to follow up during the period of 10 years were contacted telephonically from the records mentioned in files. Patients were contacted and consent was taken for the assessment. Patient who did not give consent and those who did not pick up phone were excluded from the study. Each assessment was done according to the questionnaire prepared for the study. Assessments were made for the current pattern of substance use (abstinent, intermittent/occasional use, relapsed), compliance to medication (regular/left medication), any other detoxification attempts, any negative life transition (eg-accidents, leaving of college, relocation, divorce, any drug related complication (medical, psychiatric, social, legal, occupational, marital, social etc), co-morbidities, current socio-occupational functioning). The study was approved by institutional ethics committee.

Statistical Analysis

All analyses were conducted using SPSS for Windows (version 25.0; SPSS Inc., Chicago, IL, USA). Discrete categorical data are presented as n (%).

Results

A total of 386 patients were admitted in psychiatry ward in the year 2010 out of which, 92 were included in the study as their primary illness was substance use disorder. Out of 92 patients, 45 patients were not coming for follow up and could not be contacted over phone also and were thus considered drop out. 47 patients were followed up for the period of 10 years and their final status was known. Out of the 47 patients 17% patients were abstinent, 34% patients relapsed and 48.9% patients continued to use substance in intermittent pattern without any socio-occupational dysfunction.

Table 1 compares the socio-demographic and clinical variables of the drop out patients and follow up patients. Both the groups were comparable on socio-demographic and clinical profile except, none of the patient in drop out group was at preparation and action stage of motivation at baseline.

Table 2 shows the association between socio-demographic parameters and substance use pattern during follow up. In the relapsed status group, there were more number of patients above 40 years of age group, less than matric pass, separated and from urban locality, though the difference was not statistically significant.

Table 3 shows that patients with abstinent status at 10 years had lesser co-morbidities at baseline and better motivation at baseline than the intermittent and relapsed status patients, though the difference was not significant statistically. Similarly, there were more percentage of patients followed up for 10 years, lesser negative transitions and lesser drug related complication in abstinent status group then relapsed group.

Table 4 shows that CAD at the end of 10 years amongst abstinent, intermittent and relapsed patient groupsand which is higher in abstinent group and statistically significant.

Discussion

The index study is unique in nature to assess the status of patients with SUDs after 10 years of post-hospitalization in de-addiction ward. The study also highlights the association between various socio-demographic and clinical variables (severity of substance withdrawal, motivation for treatment) at baseline with cumulative abstinent duration at the end of 10 years.

In the current study, the mean duration of follow up for patients in hospital setting was 8±2.52 months, which is greater than earlier study from India which reported that 63% of patients did not avail services at a de-addiction centre after 1 month of

Table-1: Socio-demographic and clinical profile of drop out and follow up patients

Mean age (in years)	37.75 ± 1.204 years (N=92)			
Age range	18 - 63 years (N=92)			
		N=45 (Drop out group)	N=47 (follow up group)	P Value
Age distribution	< 20 Years	2 (4.3%)	1 (2.2%)	0.156
	21-30 Years	15 (31.9%)	6 (13.3%)	
	31-40 Years	16 (35.6%)	14 (29.8%)	
	> 40 Years	16 (34%)	22 (48.9)%	
Occupation	Working	37 (82.2%)	33 (70.2%)	0.114
	Student	—	3 (6.4%)	
	Retired	5 (11.1%)	3 (6.4%)	
	Unemployed	9 (24.4)	7 (14.9%)	
Marital status	Divorced or separated	—	5 (10.7%)	0.073
	Married	36 (80%)	32 (68.1%)	
	Single	9 (20%)	10 (21.3%)	
Education:	Illiterate	5 (11.1%)	7 (14.9%)	0.114
	< 10th	11 (24.4%)	15 (31.9%)	
	10th-12th	23 (51.1%)	21 (44.7%)	
	Graduate	6 (13.3%)	3 (6.4%)	
	Postgraduate	—	1 (2.1%)	
Religion	Hinduism	30 (66.7%)	27 (57.4%)	
	Islam	4 (8.9%)	2 (4.3%)	
	Sikhism	11 (24.4%)	17 (36.2%)	
	Christian	-	1(2.1%)	
Family type	Nuclear	20 (44.4%)	21 (44.7%)	0.793
	Joint	25 (55.6%)	26 (55.3%)	
Locality	Urban	21 (46.7%)	23 (48.9%)	
	Rural	24 (53.3%)	24 (51.1%)	
Primary drug	Alcohol:	22 (48.9%)	33 (69.7%)	
	Opioid:	19 (42.2%)	13 (28.3%)	
	Cannabis:	2 (4.4%)	1 (2%)	
	Others	2 (4.4%)		
Secondary drug	Tobacco:	19 (42.2%)	20 (41.2%)	
Tertiary drug		3 (6.6%)	4 (8.5%)	
Drug use duration	Mean: 12.25 ± 1.02 years			
Psychosocial issue		22 (48.9%)	24 (51.1%)	
Family history of substance use	21 (46.7%)	30 (63.8%)		
Motivation	Pre contemplation:	21 (46.7%)	17 (36.2%)	
	Contemplation :	24 (53.3%)	17 (36.2%)	
	Preparation and action phase:	—	13 (27.7%)	
Treatment in the past undertaken		14 (31.1%)	21 (44.7%)	
MET/RPT session		1 (2.2%)	14 (29.8%)	
Anticraving agent used in		32 (71.1%)	41 (87.2%)	
Co-morbid medical illness		9 (20%)	10 (21.3%)	
Co-morbid affective illness		6 (13.3%)	12 (25.5%)	
Documented negative life transition at the end of 10 years		—	10 (21.3%)	
Occupational related issues identified at 10 years		—	14 (29.8%)	

initiation of treatment. [18]The authors were able to contact more than 50 % of patients (47 out of 92) after a gap of 10 years, which is a significant finding of the study. However, the contact rate is less than earlier study of long-term follow up of substance use disorders of camp approach from same department.[14]This could be because patients in the community/village settings are more closely connected with each-others and generally a stable populationand hence easy to trace and contact them even after a long gap after the initial treatment.

Drop out at first follow up was 27% which

Table-2: Association of socio-demographic parameters with abstinence status during follow up

Category	Sub-category	Status of substance use at follow up (%), N=47			P Value
		Abstinent (n=8, 17%)	Intermittent (n=16, 34%)	Relapsed (n=23, 48.9%)	
Age	< 20 Year	—	—	2 (8.7%)	0.717
	21-30 Years	3 (37.5%)	4 (25%)	8 (34.8%)	
	30-40 Years	3 (37.5%)	8 (50%)	3 (13%)	
	> 40 Years	2 (25%)	4 (25%)	10 (43.5%)	
Education	Illiterate	2 (25%)	1 (6.3%)	3 (13%)	0.294
	Less than matric	12.5% (1)	4 (25%)	11 (47.8%)	
	Matric to 12th	5 (62.5%)	9 (56.3%)	7 (30.4%)	
	Graduate	—	2 (12.5%)	2 (8.7%)	
Marital Status	Single	2 (25%)	2 (12.5%)	6 (26.1%)	0.689
	Married	6 (75%)	12 (75%)	14 (60.9%)	
	Separated	—	2 (12.5%)	3 (13%)	
Occupation	Student	—	—	3 (13%)	0.299
	Unemployed	3 (37.5%)	3 (18.8%)	2 (8.7%)	
	Working class	4 (50%)	12 (75%)	17 (73.9%)	
	Retired	1 (12.5%)	1 (6.3%)	1 (4.3%)	
Family type	Nuclear	6 (75%)	7 (43.8%)	8 (34.8%)	0.320
	Joint	2 (25%)	7 (43.8%)	10 (43.5%)	
	Extended	—	2 (12.5%)	5 (21.7%)	
Locality	Urban	3 (37.5%)	8 (50%)	12 (52.2%)	0.77
	Rural	5 (62.5%)	8 (50%)	11 (47.8%)	

Table-3: Association between baseline clinical variables and final substance use status

		Abstinent (n=8, 17%)	Intermittent (n=16, 34%)	Relapsed (n=23, 48.9%)	P value
Family history	Present	4 (50%)	12 (75%)	14 (60.9%)	0.446
	Absent	4 (50%)	4 (25%)	9 (39.1%)	
Past treatment	Present	4 (50%)	8 (50%)	3 (13%)	0.294
history	Absent	4 (50%)	8 (50%)	14 (60.9%)	
Comorbidities	Present	1 (12.5%)	7 (43.8%)	6 (26.1%)	0.248
	Absent	7 (87.5%)	9 (56.3%)	17 (73.9%)	
Motivation at baseline	Precontemplation	4 (50%)	3 (18.8%)	10 (43.5%)	0.303
	Contemplation	1 (12.5%)	8 (50%)	8 (34.8%)	
	Preparation and Action phase	3 (37.5%)	5 (31.3%)	5 (21.7%)	
Baseline	Mild	2 (25%)	5 (31.3%)	6 (26.1%)	0.622
withdrawal status	Moderate	4 (50%)	10 (62.5%)	11 (47.8%)	
	Severe	2 (25%)	1 (6.3%)	6 (26.1%)	
Anticraving agent	Used	7 (87.5%)	14 (87.5%)	18 (78.3%)	0.701
	Not used	1 (12.5%)	2 (12.5%)	5 (21.7%)	
Psychotherapy	Received	2 (25%)	5 (31.3%)	7 (30.4%)	0.947
(MET/RPT)	Not received	6 (75%)	11 (68.8%)	16 (69.6%)	
Years of follow up	<1 Year	4 (50%)	13 (81.3%)	14 (60.9%)	0.152
	1-5 Years	2 (25%)	1 (6.3%)	8 (34.8%)	
	>5 Years	2 (25%)	2 (12.5%)	1 (4.3%)	
Current	Present	3 (37.5%)	11 (68.8%)	17 (73.9%)	0.166
occupational issues	Absent	5 (62.5%)	5 (31.3%)	6 (26.1%)	
Drug related	Present	2 (25%)	3 (18.8%)	7 (30.4%)	0.712
complications	Absent	6 (75%)	13 (81.3%)	16 (69.7%)	
Negative life	Present	2 (25%)	9 (56.3%)	12 (52.2%)	0.321
transition	Absent	6 (75%)	7 (43.8%)	11 (47.8%)	

Table-4: Comparison of cumulative abstinent duration (CAD) amongst final status of the individuals at the end of 10 years using ANOVA

		N	Mean	Std. Deviation	F-value	p-value
CAD (in years)	Abstinent	8	5.75	2.25	11.321	.0001**
	Intermittent	16	2.53	2.63		
	Relapsed	23	1.67	1.56		

** Significant

increased to 48.9% over the course of 10 years.Drop-out rate increasing from first visit appears to be a major limitation in a clinical setup. A study from India reported initial drop out in the tune of 63% which is significantly higher than our study.[18] After detoxification, the main goal of continuing care is to provide ongoing support and counselling to help patients to cope up with craving and withdrawal symptoms, social and legal issues which arose during the substance use. Many patients experience new challenges after the initial phase of treatment and regular follow up provides opportunity for patients and their family members to discuss these challenges. The regular follow up also ensure management of brief episodes of use/lapse from escalating into more serious relapses that could jeopardise remission status. Thus, it is emphasised that continuing care interventions are hugely important in patients with substance dependence.

In our study,it is notable to see that even after long duration of 10 years,17% patients were still maintaining abstinentstatus, 34%of patientswere using substance in intermittent pattern without major socio-occupational dysfunction.Thus, we can say that more than 50 % of follow up group had good outcome at the end of 10 years of initial contact with de-addiction services and which is slightly higher than earlier study from same centre. [14]This can be attributed to the naturalistic course of substance use disorders as it has been found in another study that substance use disorders decline with time and age in many individuals.[14]

The mean age of the patients in our study was 37.75 $\pm$ 1.2 years. The mean duration of regular use of substance before admission was 11.43 years. This implies that majority of patients in this study were taking the substance for longer period of time and thus better outcome cannot be attributed to shorter duration and milder cases. Studies have reported that, lesser is the age of initiation of a substance, more are the chances of worse outcomes related to substance.[12]This is the major reason that there should be more emphasis on prevention of substance use disorders right from the very beginning at young age.

On comparison of clinical variables between drop out and follow up group of index study, more number of patients were in precontemplation and contemplation phase of motivation in drop out group. Thus, ,assessing motivation at baseline is of utmost importance,as it can help us to plan holistic management plan including motivation enhancement therapy sessions and also predict the future course of the illness.

The index study reported highest prevalence for alcohol use disorders (69.7%).This is in accordance to National Mental Health Survey.[2]It could be attributed to the easy availability as well as awareness about need of treatment for alcohol use disorders.There was decline in the consumption of opioids over the course of 10 years,this could be attributed to the stringent measures to control the availability and awareness created pertaining to opioid use disorders.Among secondary substance,highest prevalence was found to be for tobacco(41.2%). Measures needs to be taken through proper campaigns,which could provide relevant information to individualsregarding harmful effects of tobacco.According to another study,stopping smoking during first year of treatment predicts better outcome from alcohol dependence in a9 years follow up.[19]

In our studynone of the socio-demographic variables affected the final outcome at the end of ten years which is contrary to another study which reportedhigher relapse rates with increasing age, marriage, poor literacy, unemployment, living in nuclear rather than joint family, early age of initiation, longer duration of substance use.[11]

In our study mean Cumulative abstinent

duration in the individuals who were abstinent at the end of 10 years was 5 $\pm$ 2.25 years and it was found to be significant.Thus individuals who had longer cumulative abstinence duration had good outcome.In another study,it was found that patients who continued to stay abstinent for 3 years had a high likelihood of stable recovery at the end thus good outcome,which included physical , mental health and vocational involvement.[20]

The index study did not find any significant association between status of patients at 10 years with negative life transitions and drug related complications. There have been, several studies in the past which support that substance use and relapse increases whenever, there is stress associated and adverse life events.[21]

This study has a few limitations. Firstly, half of the sample could not be contacted/ interviewed. Secondly, the interviews were done telephonically and it is possible that many of the patients could have hidden the facts from the interviewer. Thirdly, no blood/urine screening was done to substantiate the claim of abstinence by patient and family members. The reporting of outcome in the study has been done on the basis of the verbal report of the patient only. Nevertheless, the study highlights the need of detailed assessment of every patient with substance use disorders including severity, motivation for treatment, regular follow up visit and abstinent status after a long gap of 10 years.

Conclusion

The study concludes that more than half of the patients with substance use disorders could be contacted after a gap of 10 years. More than 50% of the follow up sample could maintain the good outcome. Longer duration of cumulative abstinent duration (CAD) is associated with good outcome.

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Refrences

1. Murthy P, Manjunatha N, Subodh BN, Chand PK, Benegal V. Substance use and addiction research in India. Indian J Psychiatry 2010; 52 : 188-189.
2. Gururaj G, Varghese M, Benegal V, Rao G, Pathak K, Singh L, et al. National Mental Health Survey of India, 2015–16: Summary Bengaluru: NIMHANS 2015-2016; 17-18.
3. Sridharan S, Kawata JH, Campbell B, Tseng CW. Contemporaneous relationship between substance abuse treatment and poly-substance use: evidence from the persistent effect of treatment Studies. J Subst Abuse Treat 2005; 28(2) : 83-90.
4. Kiluk BD, Fitzmaurice GM, Strain EC, Weiss RD. What defines a clinically meaningful outcome in the treatment of substance use disorders: reductions in direct consequences of drug use or improvement in overall functioning?: overall functioning versus consequences. Addiction 2019; 114(1) : 9–15.
5. Marlatt GA.Taxonomy of high risk situations of alcohol relapse:evolution and development of cognitive behavioural model. Addiction 1996; 91 : 37-49.
6. Brown SA, Vik PW, Creamer VW. Characteristics of relapse following adolescent substance abuse treatment. Addict Behav 1989; 14(3) : 291-300.
7. Andersson HW, Wenaas M, Nordfjærn T. Relapse after inpatient substance use treatment: a prospective cohort study among users of illicit substances. Addict Behav 2019; 90 : 222-8.
8. De Leon G. Retention in drug-free therapeutic communities. NIDA Res Monogr 1991; 106 : 218-44.
9. Mckellar JD, Harris AH, Moos RH. Predictors of outcome for patients with substance-use disorders five years After Treatment Dropout. J Stud Alcohol 2006; 67(5) : 685–93.
10. Ciraulo DA, Piechniczek-Buczek J, Iscan EN. Outcome predictors in substance use disorders. Psychiatr Clin North Am 2003; 26(2) : 381–409.
11. Sau M, Mukherjee A, Manna N, Sanyal S. Sociodemographic and substance use correlates of repeated relapse among patients presenting for relapse treatment at an addiction treatment center in Kolkata, India. Afr Health Sci 2013; 13(3) : 791–9.
12. Delucchi KL, Kaskutas LA. Following problem drinkers over eleven years: understanding changes in alcohol consumption. J Stud Alcohol Drugs 2010; 71(6) : 831-36.
13. Jin H, Rourke SB, Patterson TL, Taylor MJ,

Grant I. Predictors of relapse in long-term abstinent alcoholics. J Stud Alcohol 1998; 59(6) : 640–6.
14. Sidana A, Chavan BS, Garg R, Singh J. Long term outcome of substance abuse treatment through Integrated Camp Approach. Indian J Soc Psychiatry 2014; 30(4) : 94-101.
15. World Health Organization. The ICD-10 classification of mental and behavioural disorders-clinical descriptions and diagnostic guidelines. Geneva World Health Organization; 2007.
16. Sidana A, Das S, Bansal S. Low dose and high dose naltrexone in opioid dependence syndrome: a three months outcome study. Open Journal of Psychiatry & Allied Sciences 2019; 10(2) : 151-4.
17. Sidana A. Oral naltrexone in opioid dependence syndrome: revisiting acceptance and effectiveness for relapse prevention. Delhi Psychiatry J 2020; 23(2) : 302-6.
18. Chandrasekaran R, Sivaprakash B, Chitraleka V. Five years of alcohol de-addiction services in a tertiary care general hospital. Indian J Psychiatr 2001; 43(1) : 58.
19. Tsoh JY, Chi FW, Mertens JR, Weisner CM. Stopping smoking during first years of substance use treatment predicted 9 years alcohol and drug treatment outcomes. Drug Alcohol Depend 2011; 114(2-3) : 110-8.
20. Dennis ML, Foss MA, Scott CK. An Eight-Year Perspective on the relationship between the duration of abstinence and other aspects of Recovery. Eval Rev 2007; 31(6) : 585–612.
21. Satre DD, Chi FW, Mertens JR, Weisner CM. Effects of age and life transitions on Alcohol and drug treatment outcome over nine years. J Stud Alcohol Drugs 2012; 73(3) : 459-68.

Original Article

A Study of Sexual Knowledge & Attitude Associated with Dhat Syndrome in a Tertiary Care Hospital

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ABSTARCT

Background: *Dhat syndrome or "Semen loss anxiety" is a culture-bound syndrome, characterized by discharge of whitish fluid or semen in urine. From many Asian countries around the world, it has been described; with majority of the literature emerge from India. This is mainly related to presence of phosphates or oxalates in the urine and misinterpreted as semen by the patient.* ***Methods:*** *After taking permission from Scientific and Ethical committee of National Institute of Medical Sciences & Research, Jaipur and on the basis of inclusion and exclusion criteria male patients were included in the study. A written consent from the patient was obtained after explaining the study to the patient. Diagnosis of Dhat syndrome was made according to ICD-10 Classification. Patient was given a Semi Structured Proforma designed especially for the study. Patient's socio-economic status was evaluated using B.G. Prasad's Socio-Economic Scale. Sexual Knowledge and Attitude Questionnaire (SKAQ-II) was used to quantify sexual knowledge and attitude in male patients.* ***Results:*** *Majority of patients belonged to age group of 20 to 40 years (77.5%), were Hindus (81.25%), hailing from rural area (71.25%), were married (66.25%), having education middle, secondary & Sen. Secondary (63.75%), with occupation farmer, student & self-employed (70%) and upper middle & middle socioeconomic status 58.75%. On the knowledge sub-scale of SKAQ-II, it was found that 76 (95.0%) believed that more is the size of penis, higher is masculinity, 75 (93.75%) believed that semen is an extract of blood, 73 (91.25%) believed that women can get pregnant easily if they have sex during menstruation, on the attitude sub-scale of SKAQ-II, it was found that 63 (78.75%) believed that masturbation in general is harmful for health while 10(12.5%) disagreed, 57 (71.25%) believed that masturbation often decreases sexual desire of women while 12(15.0%) disagreed, 57(71.25%) believed that virginity in unmarried girls should be promoted in our society while 11(13.75%) disagreed.* ***Conclusion:*** *Majority of the patients had poor sexual knowledge and had less liberal attitude towards sex. After evaluating the responses on various items of SKAQ-II this study suggests that poor sex knowledge in patients with Dhat Syndrome is not limited to the semen loss, but they also have poor knowledge in the other areas of sex education.*

Key words: *Dhat Syndrome, Sexual Knowledge, Attitude*

Introduction

Dhat syndrome or "Semen loss anxiety" is a culture-bound syndrome, characterized by discharge of whitish fluid or semen in urine. From many Asian countries around the world, it has been described, with majority of the literature emerge from India.[1] This is mainly related to presence of phosphates or oxalates in the urine and misinterpreted as semen

by the patient. Culture bound syndromes generally confined to specific geographical areas, have cultural explanations, and often have local names and usually they refer to certain circumstances that are conventional considered to be illnesses.[2] On the mind and behavior of the person, cultural faiths common in the society have a very severe impact. Sexuality is a very significant but under discussed estate in public as well as in our education system.[3, 4] This is because our society is bounded by many customs and conservative thoughts. Usually people try to get knowledge related to sex from unreliable and inappropriate sources, which are easily misinterpreted, thereby aggravating pre-existing anxiety related to sexual functioning and performance.[5] Especially in Indian context figures are difficult to estimate as a big numbers of male patients with Dhat syndrome frequently visit quacks and other sex clinics rather going to proper authorized centre.[10] Term 'Dhat syndrome', was given by eminent Indian psychiatrist Prof. N.N. Wig, (1960). He narrates as a specific syndrome raised as a result of culture related faith.[6] "*Dhat"* is originated from the Sanskrit word "dhatu", meaning "Metal" or "Elixir" which is considered to be powerful bodily substance.[7,8,9] Patients with Dhat Syndrome have high rates of comorbidity and poor sexual knowledge and less liberal attitude, which was not only limited to loss of semen but also involves other spheres of sexuality. Accordingly, psycho-education in patients of Dhat Syndrome should not be limited to addressing the myths and lack of knowledge about semen formation, but also should address poor sexual knowledge on all the aspects related to sexuality and the negative attitude towards sex. Dhat syndrome lies under "other specified neurotic disorders" (F48.8) in ICD-10 and "cultural concepts of distress" in DSM -V.

Material and Method

After taking permission from Scientific and Ethical committee of National Institute of Medical Sciences and Research, Jaipur and on the basis of inclusion and exclusion criteria male patients were included in the study. A written consent from the patient was obtained after explaining the study to the patient. Diagnosis of Dhat syndrome was made according to ICD-10 Classification. Patient was given a Semi Structured Proforma designed especially for the study. Patient's socio-economic status was evaluated using B.G. Prasad's Socio-Economic Scale.Sexual Knowledge and Attitude Questionnaire (SKAQ-II) was used to quantify sexual knowledge and attitude in male patients.

Technique:

1. Diagnosis of Dhat syndrome was made according to ICD-10 criteria (WHO-1992).[11]
2. Semi Structured Proforma designed especially for the study.
3. Sexual Knowledge and Attitude Questionnaire (SKAQ-II) (Avasthi et al., 1992).[12]
4. Modified B.G. Prasad's socioeconomic scale (B.G. Prasad's Classification 1961).[13]

Results

This study was aimed to assess of psychosexual knowledge and attitude associated with Dhat Syndrome patients.

Majority of patients belonged to age group of 20 to 40 years (77.5%), were Hindus (81.25%), hailing from rural area (71.25%), were married (66.25%), having education middle, secondary and Sen. Secondary (63.75%), with occupation farmer, student &self employed (70%) and upper middle and middle socioeconomic status 58.75%.

Sex knowledge

On the knowledge sub-scale of SKAQ-II, it was found that 76 (95.0%) believed that more is the size of penis, higher is masculinity, 75 (93.75%) believed that semen is an extract of blood, 73 (91.25%) believed that women can get pregnant easily if they have sex during menstruation, 72 (90.0%) believed that lower strata people do not give enough attention to family planning, 71 (88.75%) believed that women who have sexual contact with many men before marriage are lessûdel than others, 70 (87.50%) believed that women also masturbate, 69 (86.25%) believed that women should not enter kitchen during menstruation as it pollutes the food, 68 (85.0%) believed that the pleasure in sexual intercourse decreases after giving birth to child, 67 (83.75%) believed that excessive masturbation in youth cause semen to dryup, 66 (82.5%) believed that use of Nirodh (condoms) can help stop sex related diseases, 65 (81.25%) believed that sex related behaviour of children gets affected by reading porn books, 64

(80.0%) believed that masturbation causes impotency.

Attitude towards sex

On the attitude sub-scale of SKAQ-II, it was found that 63 (78.75%) believed that masturbation in general is harmful for health while 10 (12.5%) disagreed, 57 (71.25%) believed that masturbation often decreases sexual desire of women while 12 (15.0%) disagreed, 57 (71.25%) believed that virginity in unmarried girls should be promoted in our society while 11 (13.75%) disagreed, 53 (66.25%) believed that males should have sexual experience before marriage while 16 (20.0%) disagreed, 52 (65.0%) believed that parents should stop their children from masturbating while 21 (26.25%) disagreed, 46 (57.5%) believed that children develop sexual desire if they see family members naked while 14 (17.5%) disagreed, 33 (41.25%) believed that abortion should be permitted in all cases while 37 (46.25%) disagreed, 33 (41.25%) believed that abortion is not murder while 30 (37.5%) disagreed, 30 (37.5%) believed that women should have sexual experience before marriage while 42 (52.5%) disagreed, 30 (37.5%) believed that sexual contact with anyone other than husband/wife after marriage is always harmful while 35 (43.75%) disagreed, 30 (37.5%) believed that sex education is increasing the prevalence of pre-marital sex in the society while 25 (31.25%) disagreed.

Sexual knowledge and attitude of 80 patients having Dhat Syndrome was assessed using Sexual Knowledge and Attitude Questionnaire-II (SKAQ-II), which contains 35 questions for sexual knowledge and 20 questions for attitude.

Table-1: Socio-demographic Profile (N=80)

Domains		N=80	Percent (%)
Age groups	18-20 year	5	6.25
	20-30 year	45	56.25
	31-40 year	17	21.25
	41-50 year	10	12.5
	>50 year	3	3.75
Domicile	Urban	23	28.75
	Rural	57	71.25
Religion	Hindu	65	81.25
	Muslim	15	18.75
Marital Status	Married	53	66.25
	Unmarried	27	33.75
Education status	Uneducated	9	11.25
	Primary	9	11.25
	Middle	26	32.5
	Secondary/ Sen. Secondary	25	31.25
	Graduate/ Postgraduate	11	13.75
Family type	Nuclear	23	28.75
	Joint	42	52.5
	Extended nuclear	15	18.75
Socio-Economic Status	Upper class	7	8.75
	Upper middle class/Middle class	47	58.75
	Lower middle class/Lower class	26	32.5
Occupation	Unemployed	12	15.0
	Self employed	16	20.0
	Farmer	26	32.5
	Student	14	17.5
	Others	12	15.0
Duration of illness	<2 year	47	58.75
	2-4 year	23	28.75
	>4 year	10	12.5

Sexual Knowledge and Attitude in patients(N=80)

Discussion

This is consistent with study done by Grover et al (2015)[14] in which the mean age of the study sample was 26.76 years. Majority of the patients were educated beyond matriculation, Hindu by religion, employed and belonged to middle socioeconomic status and came from rural locality, and a study done by Verma et al (2013)[15] in which majority of the patients were Married (67%), Hindu (79.5%), Educated up to secondary (63%), Employed (82.7%), belongs to Middle Socio-economic status (51.7%).

This is consistent with study done by Grover et al (2015)[16] in which majority of patients had poor sexual knowledge and had less liberal attitude towards sex. Poor sex knowledge in patient with Dhat Syndrome is not limited to only semen loss but they also have overall poor sexual knowledge.

There are very few studies have been done on sexual knowledge and attitude towards sex among patients with Dhat Syndrome. Majority of the patients had poor sexual knowledge and had less liberal attitude towards sex. After evaluating the responses on various items of SKAQ-II this study suggests that poor sex knowledge in patients with Dhat Syndrome is not limited to the semen loss, but they also have poor knowledge in the other areas of

a) Sexual knowledge:

Table-2: Response rate on sex knowledge questionnaire (N=80)

Sr. No.	Sex Knowledge Questionnaire	Correct response rate of participants	
		N	Percentage
1	Sex related behavior of children gets affected by reading porn books	65	81.25
2	The habit of homosexual relationship increases by seeing and learning	46	57.5
3	Removal of testicles causes impotency	41	51.25
4	Masturbation by a married person denotes poor sexual relationship	59	73.75
5	The chances of pregnancy increases if a woman experiences orgasm during sex	47	58.75
6	Impotency is a common reason for not being able to impregnate	56	70.0
7	Few food items increase sexual desire	61	76.25
8	As long as a mother is breast feeding, she won't become pregnant	37	46.25
9	Excessive sexual desire leads to wrong sexual practices	48	60.0
10	Masturbation leads to many types of mental disturbances	66	82.5
11	Women who have sexual contact with many men before marriage are less than others	71	88.75
12	Age affects sexual activities of males more thanfemales	47	58.75
13	Most lower strata people use multiple ways to have sex	54	67.5
14	People who rape have increased sexual desire	49	61.25
15	Lower strata people have more sex than higher strata people	58	72.5
16	Lower strata people do not give enough attention to family planning	72	90.0
17	Excessive sexual activities during childhood and adolescence negatively affects marital relationships	60	75.0
18	Addictive drugs increases sexual desire	38	47.5
19	Excessive sexual activities weaken the sperm	56	70.0
20	More is the size of penis, higher is masculinity	76	95.0
21	Intact hymen is not a sure shot evidence of virginity	61	76.25
22	Women also masturbate	70	87.5
23	Masturbation causes impotency	64	80.0
24	Masturbation does not cause any physical weakness	30	37.5
25	Semen is an extract of blood	75	93.75
26	Pregnancy is possible even after menopause	59	73.75
27	Pregnancy is possible even before menarche	56	70.0
28	Excessive masturbation causes mental illness	50	62.5
29	Excessive masturbation in youth cause semen to dryup	67	83.75
30	Use of Nirodh (condoms) can help stop sex related diseases	66	82.5
31	Women can get pregnant easily if they have sex during menstruation	60	75.0
32	Women should not enter kitchen during menstruation as it pollutes the food	50	62.5
33	Women do not have sex with other women	58	72.5
34	The pleasure in sexual intercourse decreases after giving birth tochild	57	71.25
35	Sexually transmitted diseases (like syphilis) can get cured on having sex with a virgin girl	52	65.0

sex education. Patient with Dhat Syndrome should be psycho-educated on poor sex knowledge and attitude towards sex. In this study there is less liberal attitude towards sex is high in patient with Dhat Syndrome. It can be said that poor sexual knowledge & less liberal attitude towards sex makes people vulnerable to develop Dhat Syndrome.

Conclusions

This study signifies the patients with Dhat Syndrome have poor sexual knowledge and attitude which is not limited to Dhat but also involves other aspects of sexuality. It is important to educate patients with Dhat Syndrome on psycho-education on all aspects of sexuality.

Limitations of this study were that, it was conducted at a tertiary care hospital & it may be possible that the results obtained may not be the true representation of the patients of Dhat Syndrome in the community.

b) Attitude towards sex:

Table-3: Response on sex attitude questionnaire (N=80)

S. No.	Sex Attitude Questionnaire	Response of Participants, No. (%)		
		Agree	Not Sure	Disagree
1	Sex education is increasing the prevalence of pre-marital sex in the society	30 (37.5)	25 (31.25)	25 (31.25)
2	Homosexual contact between men often starts with mutual masturbation	21 (26.25)	45 (56.25)	14 (17.5)
3	Sexual contact with anyone other than husband/wife after marriage is always harmful	30 (37.5)	15 (18.75)	35 (43.75)
4	Knowledge about contraceptive methods often promotes wrong sexual methods	20 (25.0)	23 (28.75)	37 (46.25)
5	Parents should stop their children from masturbating	52 (65.0)	7 (8.75)	21 (26.25)
6	Women should have sexual experience before marriage	30 (37.5)	8 (10.0)	42 (52.5)
7	Abortion is not murder	33(41.25)	17 (21.25)	30 (37.5)
8	Women should be stopped from masturbating	43 (53.75)	16 (20.0)	21 (26.25)
9	All laws permitting abortion should be abolished	5 (6.25)	23 (28.75)	52 (65.0)
10	Sexual intercourse should happen only between husband and wife	17 (21.25)	18 (22.5)	45 (56.25)
11	Masturbation in general is harmful for health	63 (78.75)	7 (8.75)	10 (12.5)
12	It is not the doctor's responsibility to inform the husband or parents of the women who getting the fetus aborted	25 (31.25)	46 (57.5)	9 (11.25)
13	Abortion should be permitted in all cases	33 (41.25)	10 (12.5)	37 (46.25)
14	Males should have sexual experience before marriage	53 (66.25)	11 (13.75)	16 (20.0)
15	Children develop sexual desire if they see family members naked	46 (57.5)	20 (25.0)	14 (17.5)
16	Masturbation often decreases sexual desire of women	57 (71.25)	11 (13.75)	12 (15.0)
17	Women from lower strata participate more in sexual activity	24 (30.0)	9 (11.25)	47 (58.75)
18	Aborting an unwanted child is more wrong than giving birth	11 (13.75)	25 (31.25)	44 (55.0)
19	There should not be any prohibition from mutual masturbation during childhood	14 (17.5)	10 (12.5)	56 (70.0)
20	Virginity in unmarried girls should be promoted in our society	57 (71.25)	12 (15.0)	11 (13.75)

Conflict of Interest: None

References

1. Sumathipala A, Sribaddana SH, Bhugra D. Culture bound syndromes: The story of Dhat syndrome. Br J Psychiatry 2004; 184 : 200-9.
2. Prakash S, Sharan P, Sood M. A study on phenomenology of Dhat syndrome in men in a general medical setting. Indian J Psychiatry 2016; 58 : 129-41.
3. Prakash O, Rao TS. Sexuality research in India: an update. Indian J Psychiatry 2010; 52: S260S263.
4. Avasthi A, Grover S, Kaur R, Prakash O, Kulhara P. Impact of nonorganic erectile dysfunction on spouses: a study from India. J Sex Med 2010; 7 : 36663674.
5. Mittal AK, Gupta V, Kapoor A, Dang P. Sexual dysfunctions in rural population as indicators of psychiatric and addiction problems. Int J Scientific Study 2014; 2 : 86-90.
6. Wig NN. Problems of mental health in India. J Clin Soc Psychiatry 1960; 17 : 48 53.
7. Prakash O. Lessons for postgraduate trainees about Dhat syndrome. Indian J Psychiatry 2007; 49 : 208 10.
8. Shushruta S, editor. Vaidya Yadavji Tikamji Acharya. Bombay: Nirnaya Sagar Press 1938.
9. Money J, Prakasam KS, Joshi VN. Semen conservation doctrine from ancient ayurvedic to modern sexology theory. Am J Psychother 1991; 45 : 9 13.
10. Verma R, Mina S, Hassan S, Balhara Y. A descriptive analysis of patients presenting to psychosexual clinic at a tertiary care centre. Indian J Psychol Med 2013; 35 : 241-7.
11. World Health Organisation. ICD-10 classification of mental and behavioral disorder; clinic description and diagnostic guidelines. WHO; Geneva 1992.

12. Avasthi AK, Varma VK, Nehra R, Das K. Construction and Standardization of a sex knowledge and attitude questionnaire (SKAQ-II), in simple Hindi, for north Indian population. Indian J Psychiatry 1992; 34(1) : 24–27.
13. Pandey VK, Aggarwal P, Kakkar R. Modified BG Prasad Socio-economic Classification, Update - 2019. Indian J Community Health [Internet]. 2019 Mar. 31 [cited 2021 Dec. 1]; 31(1) : 150-2. Available from: https://www.iapsmupuk.org/journal/index.php/IJCH/article/view/1055
14. Grover S, Avasthi A, Gupta S, Dan A, Neogi R, Behere PB, Lakdawala B, Tripathi A, Chakraborty K, Sinha V, Bhatia MS, Pattojoshi A, Rao TS, Rozatkar A. 2015, Comorbidity in patients with Dhat syndrome: a Nationwide Multicentric Study. J Sex Med (April), http://dx.doi.org/10.1111/jsm.12899.
15. Verma R, Mina S, Deshpande SN. An analysis of paramilitary referrals to psychiatric services at a tertiary care center. Ind Psychiatry J 2013; 22 : 54-59.
16. Grover S, Gupta S, Mehra A, Avasthi A: Comorbidity, knowledge and attitude towards sex among patients with Dhat syndrome: A retrospective study. Asian J Psychiatry 2015; 745 : 6-11.

Original Article

Altruism and Mental Health amongst Young Adults

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ABSTRACT

Background: *Humans have been surviving Earth for these many generations because of Altruism as they have been helping each other in the name of Altruism. Many factors underlie altruistic behaviour including quantity of resources, gender and age.* ***Aims****: This study aims to unearth the relationship between altruism, languishing & flourishing wellbeing and moderately mentally healthy adults. This study also aims to find the effect of altruism on mental health of young adults.* ***Material and Methods****: For this purpose, a sample of 150 youngsters was taken. Self-report altruism scale developed by Rushton and others. Mental health continuum short form (MHCSF) by Corey L. Keyes were administered. Correlation analysis was done to find if there was a significant relationship between Altruism and languishing wellbeing, flourishing wellbeing and moderately mentally healthy young adults. It was also used to find the relationship between altruism and mental health.* ***Results:*** *It was found that there is no significant relationship between altruism and languishing wellbeing, flourishing wellbeing and moderately mentally healthy. It was found that there was a positive correlation between altruism and mental health. Separate regression analyses were run to find out the percentage of variance of altruism on mental health. Results of regression analysis showed that 19% of variance was contributed by altruism on mental health of young adults.* ***Conclusion****: There is a significant positive relationship between altruism and mental health.*

Keywords: *Altruism, Languishing wellbeing, Flourishing wellbeing, Mental health.*

Introduction

In Altruism, an individual is concerned about the wellbeing of others without thinking about one's own benefit which is called Egoism. Helping someone out of your own Interest is another definition of Altruism. Humans have been surviving Earth for these many generations because of Altruism, they have been selflessly helping each other in the name of Altruism. Many factors that underlie altruistic behaviour, People who have less resources are more Altruistic. Many altruistic acts are responsive: When humans see others in pain or danger, they respond compassionately. Some extraordinary altruists even put themselves at stern risk to help strangers in need, and researchers have found evidence of differences between their brains and those of other people who are not altruistic. Altruism is significantly shown by children. They start sharing with each other from a young age and when they see someone in pain, they become more empathetic and compassionate.

Mental Health consists of our emotional state, psychological state and social wellbeing. Mental health plays a major role in how we think, how we respond to certain situations, what we feel about different situations or people, why we like what we like, what makes us comfortable. Flourishing Well Being refers to understanding yourself in the positive light, making friends, having stable relationships, being happy with one's life. The ideal picture one

could have of his or her life where the individual is happy is called flourishing life. Languishing Well Being refers to not being able to accept happiness in one's life. The individual who has Languishing wellbeing, lacks stable mental health. This individual is usually on the risk of developing multiple mental health disorders and also is not very hopeful about one's future, faces difficulty in adjusting to new changes in life or maintaining relationships.

Feldman[1] wanted to find the why do we want to be altruistic to others in the first place so they came up with two different traits that could account for the same. One trait was empathetic concern which included being generally concerned when somebody else is in plight, one chooses to help this person at the cost of self while the other trait is related to personal distress in which we help others to satisfy our ego and our personal problems. Korchmaros[2] found that emotional closeness was a prominent cause of altruism which affects the genetic relation of that person with others and also the motivation of that individual to act altruistically. Batson[3] depending upon the definition of prosocial behaviour and altruism believed that there was no significant relation between them. The researchers believed that altruism can be a motivating factor for prosocial behaviour but prosocial behaviour cannot be the motivator for altruism. Hussin[4] wanted to know what motivated the youth, young adults to initiate volunteer work for the community. They found altruism to be one of the motivating factors for volunteerism, Altruism was positively correlated with it. This also explains that the youth wanting to work for the community has a very selfless basis behind it.[4-11] Farrelly[12] wanted to assess if altruism is one of the factors considered by people while choosing their life partners before initiating future relationships.It was found that people did consider altruism to be a prominent factor in their spouse as possessing altruism guaranteed presence of good character.Vollhardt[13] hypothesized that people who have gone through trauma or adverse effects were more likely to help an out group rather than people who have not faced anything like that in the past. It was seen that prosocial attitudes like altruism toward tsunami victims were highest among those who had suffered in a similar way. Brañas[15] wanted to assess gender difference in terms of Altruism as it was recently challenged if women were actually more altruistic than men which was found in earlier researches. They found that women were more Altruistic than men. In terms of expected altruism too, men and women both expected women to be more altruistic than men. They were expected to be more giving and helping than other gender, their Altruistic traits were expanded more than their capabilities too.

Kumar[5] assessed the relationship amongst positive variables likes happiness and altruism with mental health, they found that there was significant gender difference found in altruism but not found in happiness and mental health. They were also able to speculate that altruism and happiness were positively correlated with each other in adults. Feng[6] wanted to assess the effect of altruism on the mental health of people during Covid-19 and found that people who displayed high altruism also experienced more negative emotions than those who had low altruism. This increased their anxiety and depressive symptoms affecting their mental health negatively.

Keyes[7] divided flourishing and languishing in two different categories where flourishing was described as the presence of mental health and languishing was described as the absence of mental health. It was found that depressive symptoms and conduct symptoms decreased as mental health increased, mental health was found to be very important for adolescent development. Faulk[8] wanted to examine if the population was divided amongst flourishing, languishing and depressed based upon their coping styles. The research was done upon military spouses and school teachers. According to the results, people who were flourishing reported adaptive coping strategies and people who were languishing reported unhealthy coping strategies. Diehl[11] did cross sectional study and found that positivity reduced across the age span in such a way that as age increased, positivity decreased and negativity increased in terms of flourishing and languishing wellbeing. They were however not able to comment much upon their mental states based upon the critical value.Basson[14]was found that positive emotion regulation strategies were used by students who flourished and Students who were languished mostly used unhealthy emotion regulation strategies. People who are flourished maintain and increase positive emotions and stay away from negative emotions.

Material and Methods

AIM:

To investigate the effect of altruistic behavior on flourishing and languishing wellbeing among young adults.

Objectives:

1. To study the relationship between Altruism and Flourishing wellbeing among young adults.
2. To study the relationship between Altruism and Languishing wellbeing among young
3. adults.
4. To study the relationship between Altruism and moderately mentally healthy young adults.
5. To study the effect of altruism on mental health in young adults.

Hypotheses

1. There will be significant relationship between altruism and flourishing wellbeing among young adults.
2. There will be significant relationship between altruism and languishing wellbeing amongyoung adults.
3. There will be significant relationship between altruism and moderately mentally healthy young adults.
4. There would be a significant contribution of altruism in predicting mental health of young adults.

Participants

Sample/Participants:
Sample size: 150
Sample age range: 17-30
Locale of study: Gurgaon
Research design: Correlational and Regression

Variables

Independent variable: Altruism
Dependent variable 1: flourishing well being
Dependent variable 2: languishing well being
Dependent variable 3: moderate mental health well being
Dependent variable 4: Mental health

Measures

1. ***Self-Report Altruism Scale (1981)*** (SRA) contains 20 items. According to the instructions the respondents are required to rate the frequency with which they have engaged in the altruistic behaviours using the categories 'Never', 'Once', 'More Than Once', 'Often' and 'Very Often'. Convergent validity is seen in the scale. A correlation of 0.80 is suggested for one type of reliability. The highest score on the scale should be 80 and the lowest score should not be below 14.

For which the following scores are given:
1. 0 is given for never.
2. 1 is given for once.
3. 2 is given for more than once.
4. 3 is given for often.
5. 4 is given for more than often.

2. ***Mental Health Continuum Short Form*** (MHC-SF) has 14 items and was developed by Corey L. Keyes. Higher scores indicate a higher level of emotional wellbeing. Each of the 14 items on the MHC-SF can be scored between 0 and 5, which means that the total score on the scale can range from 0 to 70 points. The scores can also determine if the subject has flourishing wellbeing, languishing wellbeing or moderately mentally healthy.The MHC-SF contains 3 dimensions of well-being:

- Hedonic — emotional well-being
- Eudaimonic — social well-being
- Eudaimonic — psychological well-being

The scale and each subscale items had internal consistency coefficients above 0.70 and reliability coefficients ranging from 0.79 to 0.90. The MHC-LF form measures of social and psychological well-being have been validated.

Expected Outcome

People with altruistic behavior will experience greater sense of flourishing wellbeing.

Procedure

The form was circulated to children of two different schools of Gurgaon. Instructions for filling out the form were given to them and doubts were also cleared.

The administration of the questionnaires did not take much time.

The questionnaire was also distributed to students of MBA and BBA courses of some

universities.

The instructions were clearly stated and explained.

Data was also collected through google form to assess people who were aged 17-30. The form was circulated to HR employees of some organizations who did not take much time to fill the form.

Results

Table-1: Correlational Value between Altruism and Flourishing wellbeing, Languishing wellbeing and moderately mentally healthyamong young adults

	Altruism	Languishing wellbeing	Flourishing wellbeing	Moderately mentally healthy
Altruism	1			
Languishing wellbeing	0.177	1		
Flourishing wellbeing	0.119	-0.321	1	
Moderately mentally healthy	0.233	-0.033	0.036	1

Significance level at 0.05=0.273 0.01=0.354

Interpretation:

Table 1 shows correlation (r) of Altruism and moderately mentally healthy of young adults as 0.119. The variables were not correlated at 0.01 and 0.05 level. Correlation (r) of Altruism and languishing wellbeing of young adults as 0.177. The variables were not correlated at 0.01 and 0.05 level. Correlation(r) of Altruism and moderately mentally healthy of young adults as 0.233. The variables were not correlated at 0.01 and 0.05 level. However, Correlation(r) between flourishing and languishing wellbeing was also seen. The variables are negatively correlated at 0.05 level. The correlation (r) of flourishing wellbeing and languishing wellbeing is -0.033.

Interpretation:

Table 2 shows correlation (r) of Altruism and Mental Health of young adults as 0.043. The variables were positively correlated at the level of 0.01 and 0.05.

Interpretation:

To examine the fit of the regression model and to identify the best predictors of altruism, stepwise regression was used with mental health as predictors. In the model, mental health served as predictor variables and altruism as criterion variable. Table 3 shows that a total of 19.6% variance in altruism and mental health in young adults (F=36.191).

Discussion

In today's world everyone is busy in their own fast pacing lives. Today's generation does not choose to help themselves as long as they are living and earning. Millennials are obsessed with their own problems and are obsessed with themselves. This has made our surroundings full of people who want to mind their own business because of this they end

Table-2: Correlational Value between Altruism and Mental Health among young adults

Variables	N	r	P
Altruism	150	0.443	Sign***
Mental health	150		

Table-3: Contribution of Altruism and Mental health on young adults

Variables	Standardized Coefficients Beta	t	Sig.
Mental health		7.638	.000
Altruism	.443	6.016	.000

R^2=0.196; F=36.191; p=<.000

up alone and lonely. The older adults or adults do understand the importance of social support, meaningful social relationships and why do people need to be there for each other.

Japanese tend to live the longest and they have a history of people living till the age of 116 only because they do not choose to stop. They don't choose to stop working even after retiring, they maintain qualitative social relationships with friends and family. They go out with their friends every evening or just enjoy a sip of coffee. But here in this time, young adults are lonely. Depression and other mental health issues are very common among young adults with suicide rates rising equivalent to global warming. My research's aim was to show that young adults are miserable because they choose not to be giving in relationships, they are not trusting. They highly believe in a give and take relationship. They expect to get at least 15% in return if they have given out 20%.

This study has multiple variables. Independent variable is Altruism which refers to helping other people without expecting anything in return. This can be done when the person chooses to ignore one's own problems to aid someone else (Rising above your problems for someone else). This study has 3 dependent variables, which are:

Flourishing wellbeing refers to having a happy and satisfied life.

Languished wellbeing refers to low, hollow and miserable life. Moderately mentally healthy are people who are neither flourishing nor languishing. They are in the middle and have a well-balanced emotional and social life.

The aim was to find if there is a relationship between my variables. Table 1 shows the correlation between altruism and flourishing wellbeing which was r=0.119. The variables were not correlated. According to this there is no significant relationship between Altruism and Flourishing wellbeing. This means low altruism will not have any effect on flourishing wellbeing and high altruism will also not have any effect on flourishing wellbeing.

The correlation between altruism and languishing wellbeing which was r=0.177. The variables were not correlated. According to this, there is no significant relationship between altruism and languishing wellbeing. This means low altruism will not have any effect on languishing wellbeing and high altruism will also not have any effect on languishing wellbeing.

The correlation between altruism and languishing wellbeing which was r=0.233. The variables were not correlated. According to this, there is no significant relationship between altruism and moderately mentally high. This means low altruism will not have any effect on moderately mentally healthy and high altruism will also not have any effect on moderately mentally healthy.

Table 2 shows the correlation between altruism and mental health which was r=0.443. The variables were correlated. According to this, there is a positive relationship between altruism and mental health. This means low altruism will lead to unhealthy mental health and high altruism will lead to healthy mental health. Table 3 shows regression between altruism and mental health according to which altruism affects mental health by 19%.

Findings of the present research is supported by study conducted Kumar[5]who worked on the relationship between happiness, altruism and general health of elderly people. As per the results there was a significant gender difference observed in the scores of altruisms. It was also found that altruism was positively correlated with happiness in geriatric population whereas altruism and happiness were negatively correlated with general health of the elderly people.

Meyzari[9] found the relationship of happiness with altruistic behavior, empathetic sense, and social responsibility. As per the results there was a significant relationship between happiness and altruism, happiness and empathy, and happiness and social responsibility. However, it was found that people who are happy are more altruistic.Happiness plays an important role in producing altruism in an individual.

As per a study, meditators whose aim was to be altruistic had high empathy, agreeableness, conscientiousness, openness, resilience, and compassionate altruism towards unknown people and low chances of depression, neuroticism, empathic distress.[10]

Conclusion

There is a significant positive relationship between altruism and mental health. Altruism affects mental health by 19%. There is no relationship

between altruism and languishing wellbeing. There is no significant relationship between altruism and flourishing wellbeing. There is no significant relationship between altruism and moderately mentally healthy.

Limitations

1. The sample size was limited. 150 young people were taken for the research. Increase in sample size might yield better results.
2. Only literate population was considered. The questionnaires were filled by youngsters who were studying in universities and were working in companies.
3. There is a demographic difference in the sample. The variation between the ages and professions can impact the mental state of the individual, affecting the scores.
4. No control over independent variable. Altruism cannot be controlled; it is something that comes from within of an individual and is characterized by will power.
5. Cultural and geographical biases led by the questionnaire. The questionnaire had questions like, "have you pushed someone's car out of the snow?". This questionnaire was administered on Indian population. It has never snowed in India, cutting the opportunity of the subjects to showcase Altruism.
6. Urban population was considered. It has been found that urban population is busy with jobs and education. However, this cannot be said for rural settings where people are more giving and also have more chances to showcase altruism.

Suggestions for future work

1. Add more variables; Variables like empathy, compassion and will power could yield more positive results.
2. Sample size can be increased for more reliable result.
3. Illiterate population can be considered for more varied results. Consider older adults and adults for the data collection and not only young adults. As younger adults have not gotten opportunities to be altruistic.
4. Consider people with similar demographic information.

References

1. Feldman Hall O, Dalgleish T, Evans D, Mobbs D. Empathic concern drives costly altruism. Neuroimage 2015; 105 : 347-356.
2. Korchmaros JD, Kenny DA. Emotional closeness as a mediator of the effect of genetic relatedness on altruism. Psychol Sci 2001; 12(3) : 262-265.
3. Batson CD, Powell AA. Altruism and Prosocial Behavior. Handbook of Psychology 2003; pp 463-484. https://psycnet.apa.org/record/2003-04682-019. Accessed on 20/8/2021
4. Hussin Z, Arshad M. Altruism as motivational factors toward volunteerism among youth in Petaling Jaya Selangor. Int Proc Econ Dev Res 2012; 54 : 225-229.
5. Kumar A, Dixit V. Altruism, Happiness and Health among Elderly People. Indian J Gerontol 2017; 31(4).
6. Feng, Y, Zong, M, Yang Z, et al. When altruists cannot help: the influence of altruism on the mental health of university students during the COVID-19 pandemic. Glob Health 2020; 16(1) : 1-8.
7. Keyes CL. Mental health in adolescence: Is America's youth flourishing? Am J Ortho-psychiatry 2006; 76(3) : 395-402.
8. Faulk KE, Gloria CT, Steinhardt MA. Coping profiles characterize individual flourishing, languishing, and depression. Anxiety Stress Coping 2013; 26(4) : 378-390.
9. Meyzari Ali R, Dasht Bozorgi Z. The relationship of altruistic behavior, empathetic sense, and social responsibility with happiness among university students. Pract Clin Psychol 2016; 4(1) : 51-56.
10. O'Connor LE, Rangan RK, Berry JW, et al. Empathy, compassionate altruism and psychological well-being in contemplative practitioners across five traditions. Psychology 2015; 6(08) : 989.
11. Diehl M, Hay EL, Berg KM. The ratio between positive and negative affect and flourishing mental health across adulthood. Aging Ment Health 2011; 15(7) : 882-893.
12. Farrelly D. Altruism as an indicator of good parenting quality in long-term relationships: Further investigations using the mate preferences

towards altruistic traits scale. J Soc Psychol 2013; 153(4) : 395-398.
13. Vollhardt JR, Staub E. Inclusive altruism born of suffering: The relationship between adversity and prosocial attitudes and behavior toward disadvantaged outgroups. Am J Orthopsychiatry 2011; 81(3) : 307.
14. Basson MJ, Rothmann S. Flourishing: positive emotion regulation strategies of pharmacy students. Int J Pharm Pract 2018; 26(5) : 458-464.
15. Brañas-Garza P, Capraro V, Rascon-Ramirez E. Gender differences in altruism on Mechanical Turk: Expectations and actual behaviour. Econ Lett 2018; 170 : 19-23.

Original Article

The Role of Working Memory as a significant determinant of Academic Performance

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ABSTRACT

Introduction: *Working memory has a determining role in the overall academic performance of a child.* ***Aims:*** *The aim of the study is to analyze the cognitive profile of the three category of children; children with Specific Learning Disorder (SLD), children without Learning Disorder (NLD) and scholastically poor children.* ***Settings and Design:*** *Three groups of children in the age range of eight to twelve years studying in third to seventh standard were selected as the sample for the study.* ***Material and Methods :*** *The three categories of children selected are SLD children, NLD children and children who are scholastically poor. The three categories of children were assessed with the Wechsler Intelligence Scale for Children - WISC-IV (Indian Adaptation) test to analyze the cognitive profile. An analysis and comparison for the cognitive profile of each group is done.* ***Statistical analysis:*** *Independent sample t-test is done to compare the difference between each group.* ***Results and Conclusions:*** *The results show that there is deficit in the domain of working memory among the SLD and scholastically poor children, which indicates that working memory plays a determining role in academic performance.*

Key words: *Perceptual reasoning, Processing speed, Specific learning disorder, Verbal comprehension, Working memory, Cognitive profile*

Introduction

Learning disorder is one of the cause for the poor academic performance of the school going children.[1,2] Scholastically poor children are often categorized into a generic label of learning disorder without considering the inherent cognitive factors contributing to the difficulty in learning. Children with learning disorders and scholastic backward children are identified by their learning problems and their poor achievement in school.[3] Both learning disorder and learning difficulties, present with similar features. Deficit in working memory is a significant determinant in learning.[4] Children with low score in working memory always perform poorly in academics, and it has recently been suggested that deficits in working memory might be a cognitive phenotype for children who make slow progress at school, but who do not have general learning difficulties.[5]

The term 'working memory' refers to the capacity of the brain to store and manipulate information in mind for a short period during complex cognitive activities. Working memory is one of the executive functions responsible for goal-directed problem-solving behavior, in addition to inhibition, shifting, planning and other processes.[6] Working memory plays a crucial and significant role in learning. Deficiency in the working memory affects learning. Children with working memory difficulty have severe difficulty with academics, perform

poorly at school, and are more likely to be inattentive, forgetful and easily distracted in class, leading to careless mistakes while reading, writing and doing math problems. Many studies suggest of working memory as a key component in learning and academic performance. Working memory is important in learning, and is affected among children with specific learning disorder; such as reading disorder, mathematical disorder, and disorder in written expression.[7] Working memory affects learning, and any person with difficulty in learning may have a significant deficit in working memory.[8]

Many findings indicate of specific learning disorders, associated with working memory impairments.[9,10] Children with learning disorders show deficits in all measured aspects of working memory functions.[11] This is substantiated by other studies and may lead to the conclusion that these children are more severely impaired with respect to their working memory than children with either dyslexia (reading disorder) or dyscalculia (math disorder), a fact that might explain the broader learning disorder.[12]

Materials and Methods

The participants for the study include three categories of children; one, children with a clinical diagnosis of specific learning disorder-SLD (N-77), two, normal children termed as non- learning disabled – NLD (N-24) and three children with poor scholastic performance (N-20).

The total number of participants are 121. The SLD group were purposively selected from the outpatient clinic of a rehabilitation center. The NLD children and the scholastically poor children were selected from a local school and were ruled out for SLD.

Measures

The Wechsler Intelligence scale for children – Indian adaptation (WISC-IV) is used to assess the cognitive functions of each group of children. The Wechsler Intelligence Scale for Children Indian adaptation (WISC-IV) is an individually administered clinical instrument generally used for assessing the cognitive ability of children ranging from the age of 6 years to 16 years 11 months. It provides subtests and composite scores that represent intellectual functioning in specific cognitive domains, as well as composite scores that represent general intellectual functioning. The 10 subtests of WISC-IV were administered from which the composite scores were derived. The assessment measures the ability across four areas of cognitive functioning and produces scores that show how well he/she performed in these areas, as well as producing a composite score that represents his overall intellectual ability (FSIQ). The subtests are drawn from four areas of cognitive ability verbal comprehension, perceptual reasoning, working memory and processing speed.[13]

Data analysis

The data analysis is done by comparing the index scores and the full IQ score of the three groups derived using the WISC-IV. The study has examined the Verbal Comprehension Index (VCI), Perceptual Reasoning Index (PRI), Working Memory Index (WMI), Processing Speed index (PSI), General Ability Index (GAI) obtained from VCI and PRI, and the Cognitive Proficiency Index (CPI), obtained from WMI and PSI.[14] The scores were compared for the statistical difference of the mean scores using the independent sample t-test.

Results

Table-1: Mean, standard deviation, t-value and its significance, between the SLD and NLD

	Type	N	Mean	S.D	t
VCI	SLD	77	95.36	9.05	-5.03**
	NLD	24	106.33	10.23	
PRI	SLD	77	93.66	12.49	-4.22**
	NLD	24	105.46	10.03	
WMI	SLD	77	84.81	10.45	-7.75**
	NLD	24	103.29	9.33	
PSI	SLD	77	94.65	13.64	-3.19**
	NLD	24	102.79	9.94	
FSIQ	SLD	77	89.62	9.40	-7.78**
	NLD	24	106.33	8.45	
GAI	SLD	77	94.51	9.00	-5.53**
	NLD	24	106.00	8.53	
CPI	SLD	77	89.75	9.07	-6.87**
	NLD	24	103.33	6.04	

** significant at .05 level ** significant at .01 level*

The Table I shows the t-value and its significance between the SLD children and the NLD children with regard to the Index scores derived from WISC-IV. The results show significant differences

in all the four Index scores along with the GAI and CPI.

Table-2 describes the significant difference between the children with SLD and Scholastically poor children. The t value shows a statistically significant difference in the domain of VCI and PSI. The t value in VCI is be 3.02, (significant at 0.01 level) with the mean score of 95.36 for SLD children and 102.25 for the scholastically poor children. It is seen that children who are scholastically poor have an intact language skill, but less than the NLD group. The t value for the PSI is 1.93, which is significant at 0.05 level. The mean value for the SLD children is 94.65 and for the scholastically poor children it is 101.4.

Table-3 depict the t value between the NLD and scholastically poor children. Significant difference in the domain of PRI and WMI. The t-value for PRI is 3.96 significant at 0.01 level. The mean score is 105.46 and 93.05 respectively for NLD and scholastically poor children. The t-value for WMI is 5.44 significant at .01 level. The mean value is 103.29 and 89.35 respectively for NLD and scholastically poor children.

Table-2: Mean, standard deviation, t-value and its significance between the SLD and scholastically poor

	Type	N	Mean	S.D	t
VCI	SLD	77	95.36	9.05	-3.02**
	Scholastically poor	20	102.25	9.23	
PRI	SLD	77	93.66	12.49	0.20
	Scholastically poor	20	93.05	10.69	
WMI	SLD	77	84.81	10.45	-1.83
	Scholastically poor	20	89.35	7.27	
PSI	SLD	77	94.65	13.64	-1.93*
	Scholastically poor	20	101.40	15.15	
FSIQ	SLD	77	89.62	9.40	-2.51**
	Scholastically poor	20	95.40	8.20	
GAI	SLD	77	94.51	9.00	-1.45
	Scholastically poor	20	97.70	7.60	
CPI	SLD	77	89.75	9.07	-2.64**
	Scholastically poor	20	95.65	8.27	

** significant at .05 level ** significant at .01level*

Table-3: Mean, standard deviation t-value and its significance, between the NLD and scholastically poor

Type		N	Mean	S.D	t-value
VCI	NLD	24	106.33	10.23	1.37
	Scholastically poor	20	102.25	9.23	
PRI	NLD	24	105.46	10.03	3.96**
	Scholastically poor	20	93.05	10.69	
WMI	NLD	24	103.29	9.33	5.44**
	Scholastically poor	20	89.35	7.27	
PSI	NLD	24	102.79	9.94	0.35
	Scholastically poor	20	101.40	15.15	
FSIQ	NLD	24	106.33	8.45	4.33**
	Scholastically poor	20	95.40	8.20	
GAI	NLD	24	106.00	8.53	3.37**
	Scholastically poor	20	97.70	7.60	
CPI	NLD	24	103.33	6.04	3.55**
	Scholastically poor	20	95.65	8.27	

** Significant at .05 ** significant at .01*

Discussion

A significant difference in all the indexes between the SLD and NLD based on independent t tests is evident. Significant difference in all the index scores, specifically with a marked dip in the working memory index (which is 84) in children with SLD is relevant. The mean score for the LD shows average scores in all indexes except for working memory. The difference between both the groups is significant at .01 level. The cognitive profile for LD shows average scores in the three indexes except working memory index.

The index scores of SLD were further compared with scholastically poor children, who are also NLD, the index score of the scholastically backward children is more when compared to LD children in all the index scores except in PRI. There is a significant difference between the two groups concerning VCI and PSI, but there is no significant difference in PRI and WMI. The PRI score is average for both the groups indicating that the perceptual reasoning is not affected, whereas the WMI is below average for both the groups, indicating that the cause of poor scholastic performance is due to poor working memory skills.

The scores of scholastically poor children and NLD is compared, and the index score of the NLD children is more compared to scholastically poor children. There is significant difference in perceptual reasoning and working memory. It may be concluded that poor scholastic performance of children who are actually NLD may be attributed to working memory deficit, as a clear reason for their poor scholastic performance.

A study by Alloway shows that, impairment in working memory leads to learning difficulties and

difficulty in performing daily classroom activities. Poor working memory, affects the performance of simple classroom tasks, such as remembering instructions to more complex tasks, storing and processing information, and keeping track of progress in difficult tasks.[15]

Swanson et al, substantiates the results of working memory deficits among the children with learning disorder in the domain of reading, mathematics, and attentional process, which affects their normal achievement.[16] Henry studied the effect of the degree of impairment in working memory and, the severity of learning disorders, concluded that children with mild and moderate learning disorders, when compared with children of average abilities, the former were impaired in all the measures of working memory.[17] These studies substantiate our findings, assuming the scholastically backward children as normal children without any disorder, and belong to NLD group, and the group of SLD children both show gross deficit in the area of WMI. It is evident from the findings, that deficit in working memory; contribute to the poor academic performance.

Conclusion

The results show that working memory plays a key and significant role in determining the academics and scholastic performance of a child, irrespective of whether the child is LD or NLD.

It may be concluded that working memory deficits may be categorized as a disorder, affecting learning and other areas of life.

Key messages: Irrespective of whether the child has learning disorder or not, working memory deficits affects a child's academic performance. So working memory has a significant role in learning.

References

1. Karande S, Kulkarni M. Poor school performance. Indian J Pediatr 2005; 72(11) : 961-67.
2. Singh S, Sawani V, Deokate M, Panchal S, Subramanyam AA, Shah HR, Kamath RM. Specific learning disability: A 5-year study from India. Int J Contemp Pediatr 2017; 4(3) : 863-68.
3. Maehler C, Schuchardt K. Working memory functioning in children with learning disabilities: Does intelligence make a difference? J Intellectual Disabil Res 2009; 53(1) : 3-10.
4. Schuchardt K, Maehler C, Hasselhorn M. Working memory deficits in children with specific learning disorders. J Learn Disabil 2008; 41(6) : 514-23.
5. Holmes J, Gathercole SE, Dunning D. Poor working memory Impact and interventions. Holmes J In: Advances in Child Development and Behavior 2010; 39 : 1-43. 10.1016/B978-0-12-374748-8.00001-9.
6. Pennington BF, Ozonoff S. Executive functions and developmental psychopathology. J Child Psychol Psychiatry 1996; 37 : 57-87.
7. Mokhtar M, Aghababaei S, Ahmad A. Working memory and learning disorders. Int J Dev Disabil 2013; 59 : 35-46.
8. Swanson HL, Cochran KF, Ewers CA. Can learning disorders be determined from working memory performance? J Learn Disabil 1990; 23(1) : 59-67.
9. Alloway TP, Gathercole SE. Working Memory and Neurodevelopmental Disorders. Hove: Psychology Press 200610. Pickering SJ, Gathercole SE. Distinctive working memory profiles in children with special educational needs. Educ Psychol 2004; 24 : 393–408.
11. Pickering SJ. Working memory in dyslexia. In: Alloway TP, Gathercole SE (eds) Working Memory and Neurodevelopmental Disorders. Hove: Psychology Press 2006; 7-40.
12. Gathercole SE, Alloway TP, Willis CS, Adams AM. Working memory in children with reading disorders. J Exp Child Psychol 2006; 93 : 265–81.
13. Wechsler D. WISC-IV Technical and Interpretive Manual. Psych Corp Pearson 2003.
14. Raiford SE, Weiss LG, Rolfhus E, Coalson D. General Ability Index. WISC - IV, Technical Report # 4, 2005.
15. Alloway TP, Alloway RG. Investigating the predictive roles of working memory and IQ in academic attainment. J Exp Child Psychol 2010; 106 : 20-29.
16. Swanson HL, Siegel L. Learning disorders as a working memory deficit. Issues in Education 2001; 7(1) : 1-48.
17. Henry LA. How does the severity of a learning disability affect working memory performance? Memory 2001; 9 : 233–47.

Original Article

Loneliness is scary: An Impact of Emotional and Social Loneliness on Paranoia

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ABSTRACT

Background*: The discrepancy between what one wants in terms of interpersonal affection and intimacy, and what one has, can impact ideas of persecution and reference among student population.* ***Methodology****: The present study aims to determine the impact of Emotional and Social Loneliness in Paranoia. The total sample size of 155 college student studying in Ladakh was taken for the study based on purposive sampling method. For data collection, Paranoia Scale and De Jong Gierveld Loneliness Scale was adopted. SPSS is used for statistical analysis.* ***Results****: Study shows that Emotional Loneliness is significantly associated with Paranoia (r=.20) at .05 significant level. A linear regression analysis was carried out to test if Emotional Loneliness significantly predicted Paranoia. A significant regression equation was found F (1,153) = 6.633, p<.05. The 3.5 % of the variation in Paranoia is explained by Emotional Loneliness (r^2=.04). The predicted paranoia is equal to 51.90+ (1.50*Emotional Loneliness). For each unit increase in Emotional Loneliness, Paranoia will increase by 1.502 in college students.* ***Conclusion:*** *Emotional loneliness is significantly associated with paranoia and it can have a positive and significant impact in non clinical population*

Key words*: Emotional Loneliness, Social Loneliness, Paranoia*

Introduction

Paranoia is characterized as having intense anxious or fearful feelings and thoughts that are persecutory, threatening, and conspiring in nature. It is a perception of malevolent intent from another person or group and is described as 'the 21st-century fear'[1] of interpersonal threat to self. Paranoia is present in non-clinical forms to more severe clinical conditions.[2] It is seen that the nature of the existence of paranoia is not simply as dichotomous as to believe that its presence implies some psychopathology and its absence means that one is 'normal'. It can be present throughout demonstrating a continuum of increased frequency and intensity until it reaches a delusional level.[3] There are plethora of research that has attempted to increase the continuum on which we perceive paranoia and even seem to occurred in around one third of the general population.[4] This implies that the thoughts and feelings that characterize paranoia are a part of everyday life and actively experienced by people who do not have any psychopathology or psychological condition. And there is an association between psychosis and loneliness.[5] Loneliness is the unpleasant experience that occurs when a person's network of social relationships is deficient in some important way.[6] On a similar note, loneliness is also explained as a negative outcome of cognitive evaluation of a discrepancy between the quality and quantity of existing relationships and relationship standards.[7] It is believed that each type of relationship fulfils specific functions for the alleviation of

loneliness. Weiss[8] made a more specific differentiation between loneliness of emotional isolation, stemming from the absence of an attachment figure, and loneliness of social isolation, stemming from the absence of community. The subjective experiences of these two forms of loneliness are understood by a substantial common core of experience and both these types of loneliness meets different interpersonal needs. Therefore, it is more than being alone. Research suggested to examine adequately the differential consequences of social and emotional loneliness (Russell et al, 1984) and both these aspects of Loneliness seems to contribute in Paranoia. It is to examine that to what extent loneliness can impact paranoia is the research question.

Methodology

The aim and objective of the study is to determine the role of Loneliness in Paranoia. The study hypothesis is that Loneliness and Paranoia is not correlated. Paranoia will be dependent variable. The total sample size was 155 college students studying in Ladakh and data was conveniently collected over period of two weeks. The Paranoia Scale (PS; Fenigstein and Vanable, 1992) and De Jong Gierveld Loneliness Scale (2006) were used. The participants consent was taken and SPSS is used for Correlation regression analysis.

Results

The minimum age of the participant was 17 years and maximum was 24 years, all participants were college students studying in Ladakh. In the present study 85 percent of the participants were female and 85 percent were Buddhist whereas 15 percent were follower of Islam. Emotional Loneliness (EL) was found to be significantly related with paranoia and regression analysis shows that Emotional Loneliness can impact paranoia among general population.

Table 1: Relationship between Emotional and Social loneliness with Paranoia. Positive relation is found between Emotional Loneliness and Paranoia (r=.20) at .05 significance level.

Pearson correlations		
	SL	EL
PS	-.017	.204*
*. Correlation is significant at the 0.05 level.		

Y is a dependent variable (paranoia) and α is an intercept term (constant), β is a regression coefficient and ε is an error. From the table below it can be seen that value of intercept (α) is 51.86 and value of β is 1.525. It is to be noted that average error is always zero.

Table-2a: Regression Coefficient are derived for the linear model $y = \alpha + \beta X + \varepsilon$

Coefficients[a]						
		Unstandardized Coefficients		Standardized Coefficients		
Model		B	Std. Error	Beta	t	Sig.
1	(Constant)	51.858	2.292		22.623	.000
	EL	1.525	.592	.204	2.576	.011
a. Dependent Variable: PS						

Table-2b: 3.5% of the total variation is explained by the Independent variable

Model Summary				
Model	R	Square	Adjusted R Square	Std. Error of the Estimate
1	.204[a]	.042	.035	11.398
a. Predictors: (Constant), EL				

Table 2c: Shows that value of F-statistic is 6.633 which is significant at (1,153) degrees of freedom and at 5% level of significance because of p value

ANOVA[a]						
Model		Sum of Squares	df	Mean Square	F	Sig.
1	Regression	861.770	1	861.770	6.633	.011[b]
	Residual	19876.849	153	129.914		
	Total	20738.619	154			
a. Dependent Variable: PS b. Predictors: (Constant), EL						

(0.011) which is lesser than 0.05. This shows that fitted model is significant for the study.

Discussion

Although studies have shown in the past that loneliness is associated with Mental Illness and Paranoia in a clinical population. At the same time studies have also emphasized that paranoia can be on continuum and even non clinical population could have intense anxious or fearful feelings and thoughts that are persecutory, threatening, and conspiring in nature. The present study confirms that the emotional Loneliness is significantly correlated with paranoia where as no significant relationship was shown between Social Loneliness and Paranoia. Lamster et al (2016) reveal that negative schemata of other people seem to be an important link between loneliness and paranoia. The change in ideas of persecution and reference is positively related with Emotional Loneliness *(r=.20)* at .05 significant level (Table 1). Therefore, the hypothesis were not supported by the current findings. Our findings are consistent with another study by Lamster et al.[11] In their controlled setup, when loneliness was experimentally manipulated in a non-clinical population, loneliness was found to be positively associated with present paranoid beliefs. The same study have also shown that the risk to psychosis significantly moderated the impact of loneliness on paranoia which is on similar terms with present study where regression analysis was carried out to test if Emotional Loneliness predicted Paranoia. From Table 2a, it can be interpreted that when Emotional Loneliness value is 0 even than value of dependent variable will be 51.858 and when scores of Emotional Loneliness changes by 1 unit, paranoia will increase by 1.525 units. Also, it can be seen that p-value of 0.011 is lesser than 0.05 and its corresponding t value is 2.576 which is significant. Hence, we can say that increase in emotional loneliness can increase paranoia among college students, this change is small but it is significant.

Conclusion

Emotional loneliness is significantly associated with paranoia and it can have a positive and significant impact in non clinical population.

References

1. Freeman D, Freeman J. Paranoia: The 21st century fear. Oxford: Oxford University Press 2008.
2. Freeman D, Pugh K, Vorontsova N, Antley A, Slater M. Testing the continuum of delusional beliefs: an experimental study using virtual reality. J Abnorm Psychol 2010; 119(1) : 83–92. https://doi.org/10.1037/a0017514
3. Carvalho CB, Pinto-Gouveia J, Peixoto E, da Motta C. Paranoia as a Continuum in the Population. Asian J Humanit Soc Stud 2014; 2(3). Retrieved from https://www.ajouronline.com/index.php/AJHSS/article/view/1293
4. Freeman D, McManus S, Brugha T, et al. Concomitants of paranoia in the general population. Psychol Med 2011; 41 : 923–936.
5. da Rocha BM, Rhodes S, Vasilopoulou E, Hutton P. Loneliness in Psychosis: A meta-analytical review. Schizophr Bull 2018; 44 : 114–125.
6. Perlman D Peplau L. Toward a social psychology of loneliness. In Duck S, Gihour R (Eds) Personal Relationships in Disorder. London: Academic Press 1981; 31-43.
7. Gierveld J, van Tilburg T, Dykstra P. Loneliness and Social Isolation, 2006. 10.1017/CBO9780511606632.027.
8. Weiss RS. Loneliness: The experience of emotional and social isolation. Cambridge, MA: MIT Press 1973.
9. Russell D, Cutrona CE, Rosa J, Yurko K. Social and Emotional Loneliness. An examination of Weiss's typology of Loneliness. J Pers Soc Psychol 1984; 46 : 1313-1321.
10. Lamster F, Nittel C, Rief W, Mehl S, Lincoln T. The impact of loneliness on paranoia: An experimental approach. J Behav Ther Exp Psychiatry 2017; 54 : 51-57. Doi: 10.1016/j.jbtep.2016.06.005. Epub 2016 Jun 21. PMID: 27362838.
11. Lamster F, Lincoln TM, Nittel CM, Rief W, Stephanie M. The Lonely Road to Paranoia. A Path-Analytic Investigation of Loneliness and Paranoia, Comprehensive Psychiatry 2017; 74 : 35-43. doi: 10.1016/j.comppsych.2016.12.007

Original Article

Study on Forgiveness and Religiosity among Old Age Persons of Ranchi

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ABSTRACT

Background: *Forgiveness is a reaction that considers a guilty party liable for an offense while supplanting negative contemplations, feelings, and practices toward the offender with prosocial reactions. Religiosity plays a major part in the life of an elderly person.* ***Material & Methods:*** *The level of religious participation is greater among older people than among any other age group. The purpose of the study was to determine the level of forgiveness and religiosity among old age persons of Ranchi (Jharkhand).60 older adults (30 male and 30 female) were administered. The Heartland Forgiveness Scale (HFS) and Religiosity Scale were assessed. The statistical measures like percentage, mean, sd, 't-test' were applied.* ***Results****: The result shows the non-significant difference between forgiveness and religiosity aged persons.* ***Conclusions:*** *Females were found to have high level of forgiveness than males.Female old persons were more religious as compared to male old persons. The differences between male and female old persons were found to be non-significant in terms of their religiosity score.*

Keywords*: Forgiveness, Religiosity, Old Age Persons.*

Introduction

Forgiveness is a reaction that considers a guilty party liable for an offense while supplanting negative contemplations, feelings, and practices toward the offender with prosocial reactions. Forgiveness is worked with by sympathy and empathy for the mankind of the guilty party, however forgiveness additionally brings about more positive or even net positive feelings and inspirations toward the offender. The idea of the cycle and results are identified with numerous variables, including offense attributes, social setting of the offense, and regardless of whether one's forgiveness is a decisional responsibility or a shift in perspective (i.e., inspiration and feeling). Forgiveness in light of a specific offense is described as state forgiveness, while cross situational consistency in pardoning is portrayed as a generous person attribute or aura.

There are various elements that impact forgiveness that meet up to make older adults more sympathetic than more youthful ones.

To start with, individuals who are strict will in general pardon others more frequently than the individuals who are not strict. Older adults will in general be more-strict than more youthful ones. As older adults become more-strict, they become seriously lenient.

Second, considers propose that older adults experience less truly adversary connections with others than more youthful adults.

A couple of studies have inspected the connection among age and different kinds of forgiveness. This examination uncovers that older adult are almost certain than more youthful individuals to feel they have been pardoned by God.[1] Lawler-Column[2] reports the after effects of two examinations that were led with older adults. The main examination uncovers that forgiveness by God, self-forgiveness, and forgiveness of others intercede the connections between church attendance and the frequency of

prayer on five components of fruitful aging. Discoveries from the second study recommend that forgiveness of others mediates the connections among prayer and intrinsic religiousness on illness symptoms and the personal satisfaction.

Religiosity plays a major part in the life of an elderly person. It can provide hope in despair. In daily life, people report that they are able to experience deep peace even in the midst of mental distress,[3] such as psychosis, prejudice, self-esteem and intelligence. The level of religious participation is greater among older people than among any other age group.

Although much of the literature is suggestive of an overall positive effect of religion on mental health generally, some studies have found that at times religious practice might have a deleterious effect on mental health. Excessive devotion to religious practices might result in family break-up if the sole preoccupation of one spouse is towards religious practice. Religion can promote rigid thinking, overdependence on laws and rules, an emphasis on guilt and sin, and disregard for personal individuality and autonomy. Excessive reliance on religious rituals or prayer may delay seeking necessary help for their mental health problems, leading to worsening the prognosis of psychiatric disorder.

Forgiveness is a subject addressed in the teachings of all major world religions.[4,5] Moreover, recent research has shown that forgiving others is associated with a range of beneficial health outcomes including better mental health,[6] better physical health on dimensions including cardiovascular reactivity,[7] and lower mortality risk.[1]

Lawler-Row[2] study examined that religion influences health in late life by increasing forgiveness of others, the sense of being forgiven, and forgiveness of self, and found evidence of partial or full mediation across an array of religious constructs and health outcomes.

Material and Methods

Objectives of the study

- To study the level of forgiveness and religiosity among old persons.
- To compare the male and female old persons on the forgiveness and religiosity groups.

Hypotheses of the study

- Level of forgiveness and religiosity will be high among old persons.
- There will be significant differences between male and female old persons on the forgiveness and religiosity scores.

Sample of the study

The sample for the present study consists of 60 old persons (30 male and 30 female), selected purposively from different area of Ranchi town. The age range of sample was 60 to 80 years.

Design and Method

The research design used for the study was Ex-post facto design.

Tools of the study

- **Personal Data Questionnaire**
  Designed by the researcher, the personal data-sheet comprised details of the sample such as age, gender, education, occupational history, family relations etc.
- **Heartland Forgiveness Scale (HFS)**
  The Heartland Forgiveness Scale (HFS) was developed by Laura Yamhure Thompson in 2005, is an 18-item, self-report questionnaire that measures a person's dispositional forgiveness (the general tendency to be forgiving), rather than forgiveness of a particular event or person. The HFS consists of 18 items, 6 items for each sub-scale (Forgiveness of Self, Forgiveness of Others, and Forgiveness of Situations) which are responded on 7-point scale range from 1-7 (almost always false of me as 1 to almost always true of me as 7). The HFS report satisfactory internal consistency reliability is 0.84-0.87 and a correlation is administered as 0.77.
- **Religiosity Scale**
  This scale was developed by Dr L.I. Bhushan (1971) to measure religiosity or religious faith of an individual. The form (Hindi version) consists of 36 items out of which 25 items are positive and 11 items are negatively. The positive and the negative items are randomly distributed over the

scale. The items cover all important dimensions of religiosity. Religiosity scale is a five-point Likert type scale and the responses are keyed according to item as negative or positive. The range of the possible score is 36 to 180. The higher the score the greater is the degree of religiosity. The scale has a fairly high religiosity (.82). The test has also been found to be high on validity.

Procedure

The total sample was divided into sub groups based on gender status. The sample were administered the Heartland Forgiveness scale (HFS) andReligiosity scale. with proper instruction. Data was checked and scoring was done with the help of scoring key.

Results and Discussion

To verify the proposed hypotheses, the obtained data were analyzed in terms of percentage, mean, SD, and t-value. Analysis the results are recorded in following Table-1, 2 and 3.

An inspection of the result contained in Table 1 and Figure 1, shows that in the total sample of 60 aged persons, majority scored high level of forgiveness (55%) and some showed low level of forgiveness (45%). On the category of gender, female respondents (63.33%) had higher level of forgiveness than male respondents (36.67%).

Thus, it can be said that the females were found to have high level of forgiveness than males.

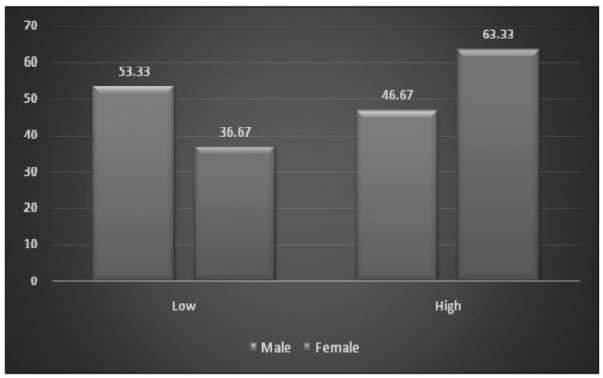

Fig. 1: Graph showing the Percentage distribution of low and high scorer on Heartland Forgiveness Scale

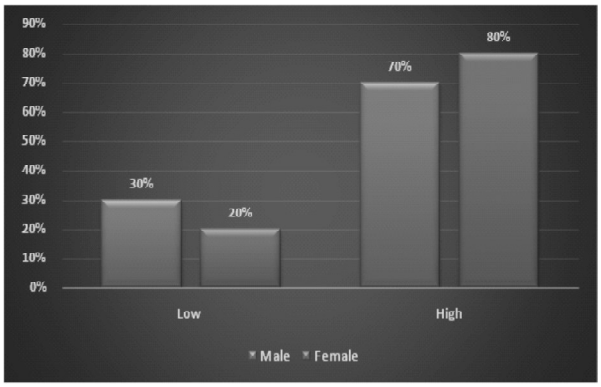

Fig. 2: Percentage distribution of low and high scorer on Religiosity Scale

Table-1: Percentage distribution of low and high scorer on Heartland Forgiveness Scale.

Groups	Low (0-87)		High (88 & above)	
	Response	%	Response	%
Male	16	53.33	14	46.67
Female	11	36.67	19	63.33
Total	27	45	33	55

Table-2: Percentage distribution of low and high scorer on Religiosity Scale.

Groups	Low (36-118)		High (119-180)	
	Response	%	Response	%
Male	9	30%	21	70%
Female	6	20%	24	80%
Total	15	25%	45	75%

From the Table 2 and Figure 2, it can be said that the percentage of religiosity scores in female old persons was (80%) higher than male old persons (70%). And in total sample maximum percentages (75%) of old persons were found to have high level of religiosity.

Table-3: Gender differences in Forgiveness and Religiosity scores

Forgiveness scores					Religiosity scores				
Male		Female			Male		Female		
Mean	SD	Mean	SD	t-value	Mean	SD	Mean	SD	t-value
84	17.65	89.43	14.79	1.23[NS]	128.73	14.91	128.03	13.13	0.19 [NS]

NS- Not significant, SD- Standard Deviation

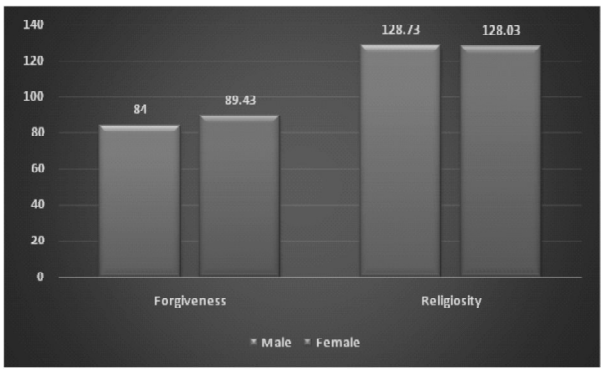

Fig. 3: Graph showing the Gender differences in Forgiveness and Religiosity scores.

From the data given in the Table 3 and Figure 3, it may be observed that, a non-significant difference was found between male (M=47.55, SD=8.38) and female respondents (M=47.55, SD=8.38) on forgiveness scores (t=1.23). On the other hand, in religiosity score, male (M=128.73, SD=14.91) and female (M=128.03, SD=13.13) old persons did not differ significant on their religiosity score (t=0.19), which denote that male and female were equally religious.

Conclusions

- Females were found to have high level of forgiveness than males.
- Non- significant difference was found between male and female old persons in terms of their forgiveness score.
- Female old personswere more religious as compared to male old persons.
- The differences between male and female old persons were found to be non-significant in terms of their religiosity score.

References

1. Toussaint LL, Owen AD, Cheadle A. Forgive to Live: Forgiveness, Health, and Longevity. J Behav Med 2011; 34 : 375-386.
2. Lawler-Row KA. Forgiveness as a mediator of the religiosity—health relationship. Psychol Relig Spiritual 2010; 2(1) : 1–16.
3. Underwood G, Teresi JA. The daily spiritual experience scale: Development, theoretical description, reliability, exploratory factor analysis, and preliminary construct validity using health-related data. Ann Behav Med 2002; 24(1) : 22 –33.
4. Farhadian CE, Emmons RA. The psychology of forgiveness in the world religions. In: Kalayjian A, Paloutzian RF (editors). Forgiveness and Reconciliation. Springer; New York 2010; 55–70.
5. Rye MS, Pargament KI, Ali MA, Beck GL, Dorff EN, Hallisey C, Narayanan V. Religious perspectives on forgiveness. In: McCullough, ME, Pargament KI, Thoresen CE, (editors). Forgiveness: Theory, Research and Practice. NY: Guilford Press 2000; 17–40.
6. Maltby J, Day L, Barber L. Forgiveness and mental health variables: Interpreting the relationship using an adaptational-continuum model of personality and coping. Pers Individ Dif 2004; 37(8) : 1629–1641.
7. Friedberg JP, Suchday S, Shelov DV. The impact of forgiveness on cardiovascular reactivity and recovery. Int J Psychophysiol 2007; 65(2) : 87–94.

Original Article

Dhat Syndrome: Present Understanding and Approach to Male Patients Attending Psychiatry OPD

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ABSTRACT

Background: *Dhat syndrome or "Semen loss anxiety" is a culture-bound syndrome, characterized by discharge of whitish fluid or semen in urine. From many Asian countries around the world, it has been described, with majority of the literature emerge from India.[1] This is mainly related to presence of phosphates or oxalates in the urine and misinterpreted as semen by the patient. Culture bound syndromes generally confined to specific geographical areas, have cultural explanations, and often have local names and usually they refer to certain circumstances that are conventional considered to be illnesses.* ***Methods:*** *Diagnosis of Dhat syndrome was made according to ICD-10 Classification. Patient was given a Semi Structured Proforma designed especially for the study. Patient's socio-economic status was evaluated using B.G. Prasad's Socio-Economic Scale. General health of the patient was evaluated by using General Health Questionnaire (GHQ-12) Co-morbidities like Depression, Anxiety and Obsession was assessed by using Hamilton Depression Rating Scale (HAM-D), Hamilton anxiety Rating Scale (HAM-A) and Yale Brown Obsessive Compulsive scale (Y-BOCS) respectively.* ***Results:*** *Majority of patients belonged to age group of 20 to 40 years (75%), were Hindus (75%), hailing from rural area (68%), were married (64%), having education middle, secondary & Sen. Secondary (66%), farmer & student (59%) were from upper middle & middle socioeconomic status (64%), patients had depression 48%, had anxiety disorder 40% & had obsessive features 22%.* **Conclusion:** Patients having more anxiety rural background and those having more depression were less educated and of low socioeconomic status.

Key words: *Dhat Syndrome, Present understanding, Approach.*

Introduction

Dhat syndrome or "Semen loss anxiety" is a culture-bound syndrome, characterized by discharge of whitish fluid or semen in urine. From many Asian countries around the world, it has been described, with majority of the literature emerge from India.[1] This is mainly related to presence of phosphates or oxalates in the urine and misinterpreted as semen by the patient. Culture bound syndromes generally confined to specific geographical areas, have cultural explanations, and often have local names and usually they refer to certain circumstances that are conventional considered to be illnesses.[2] On the mind and behavior of the person, cultural faiths common in the society have a very severe impact. Sexuality is a very significant but under discussed estate in public as well as in our education system.[3,4] This is because our society is bounded by many customs and conservative thoughts. Usually people try to get knowledge related to sex from unreliable and inappropriate sources, which are easily misinterpreted, thereby aggravating preexisting anxiety related to sexual functioning and performance.[5] Especially in Indian context figures are difficult to estimate as a big numbers of male patients with Dhat syndrome frequently visit quacks and other sex

clinics rather going to proper authorized centre.[10] Term, 'Dhat syndrome', was given by eminent Indian psychiatrist Prof. N.N. Wig, (1960). He narrates as a specific syndrome raised as a result of culture related faith.[6] "*Dhat"* is originated from the Sanskrit word "dhatu", meaning "Metal" or "Elixir" which is considered to be powerful bodily substance.[7-9] Patients with Dhat Syndrome have high rates of comorbidity and poor sexual knowledge and less liberal attitude, which was not only limited to loss of semen but also involves other spheres of sexuality. Accordingly, psycho-education in patients of Dhat Syndrome should not be limited to addressing the myths and lack of knowledge about semen formation, but also should address poor sexual knowledge on all the aspects related to sexuality and the negative attitude towards sex. Dhat syndrome lies under "other specified neurotic disorders" (F48.8) in ICD-10 and "cultural concepts of distress" in DSM -5.

Materials and Methods

After taking permission from Scientific and Ethical committee of the institute and on the basis of inclusion and exclusion criteria male patients were included in the study. A written consent from each patient was obtained after explaining study to the patient. Diagnosis of Dhat syndrome was made according to ICD-10 Classification. Patient was given a Semi Structured Proforma designed especially for the study. Patient's socio-economic status was evaluated using B.G. Prasad's Socio-Economic Scale. General health of the patient was evaluated by using General Health Questionnaire (GHQ)[12] Co-morbidities like Depression, Anxiety and Obsession was assessed by using Hamilton Depression Rating Scale (HAM-D), Hamilton anxiety Rating Scale (HAM-A) and Yale Brown Obsessive Compulsive scale (Y-BOCS) respectively.

Technique

1. Diagnosis of Dhat syndrome was made according to ICD-10 criteria (WHO-1992).[12]
2. Semi Structured Proforma designed especially for the study.
3. General Health Questionnaire (GHQ-12) (Goldberg 1970).[11]
4. Modified B.G. Prasad's socioeconomic scale (B.G. Prasad's Classification 1961).[13]
5. Hamilton Anxiety Rating Scale (HAM – A) for severity of Anxiety (Hamilton M, 1959).[14]
6. Hamilton Depression Rating Scale (HAM – D) for severity of Depression (Hamilton M, 1967).[15]
7. Yale Brown Obsessive Compulsive scale (Y-BOCS) for severity of Obsessive-Compulsive disorder (Goodman et al, 1989).[16]

Results and Discussion

This study was aimed to assess present understanding and approach by considering their socio-demographic characteristics, Depression, Anxiety and Obsessive features, to assess of psychosexual knowledge and attitude associated in patients with Dhat syndrome. The study also sought to examine the correlation between severity of anxiety, depression, Obsessive features and the main outcome variables.

Majority of patients belonged to age group of 20 to 40 years (75%), were Hindus (75%), hailing from rural area (68%), were married (64%), having education middle, secondary and Sen. Secondary (66%), farmer and student (59%) and upper middle and middle socioeconomic status (64%), patients had depression 48%, had anxiety disorder 40% and had obsessive features 22%.

This is consistent with study done by Grover et al[17] in which the mean age of the study sample was 26.76 years. Majority of the patients were educated beyond matriculation, Hindu by religion, employed and belonged to middle socioeconomic status and came from rural locality, and a study done by Verma et al[18] in which majority of the patients were Married (67%), Hindu (79.5%), Educated up to secondary (63%), Employed (82.7%), belongs to Middle Socio-economic status (51.7%).

In our study patients with Dhat syndrome, 49% patients were had depression and 37% had anxiety disorder, which is consistent with study done by Deb[19] who found that 40–66% of patients with Dhat syndrome have co-morbid Depressive disorders and the rate of co-morbid anxiety disorder have varied from 21-38%. In a study by Mehta et al[20]depressions was found to be the most common 39.5%, followed by anxiety neurosis in 20.8% and in a study by Bhatia et al[21] Depression was found in 39% patients followed by anxiety neurosis in 21%patients. 19%

Observations

Table-1: Socio-demographic Profile (N=100)

Domains		N=100	Percent (%)
Age groups	18-20 year	5	5.0
	20-30year	50	50.0
	31-40year	25	25.0
	41-50year	15	15.0
	>50year	5	5.0
Domicile	Urban	32	32.0
	Rural	68	68.0
Religion	Hindu	75	75.0
	Muslim	25	25.0
Marital Status	Married	64	64.0
	Unmarried	36	36.0
Education status	Uneducated	12	12.0
	Primary	11	11.0
	Middle	37	37.0
	Secondary/Sen. Secondary	29	29.0
	Graduate/Postgraduate	11	11.0
Family type	Nuclear	35	35.0
	Joint	50	50.0
	Extended nuclear	15	15.0
Socio-Economic Status	Upper class	9	9.0
	Upper middle class/Middle class	64	64.0
	Lower middle class/Lower class	27	27.0
Occupation	Unemployed	12	12.0
	Self employed	17	17.0
	Farmer	36	36.0
	Student	23	23.0
	Others	12	12.0
Duration of illness	<2 year	59	59.0
	2-4 year	31	31.0
	>4 year	10	10.0

Table-2: Severity of Depressive features according to HAM-D

Depression	N=100	Percent (%)
No depression	51	51.0
Mild depression	40	40.0
Moderate depression	07	7.0
Severe depression	02	2.0
Total	100	100.0

Table-3: Severity of Anxiety features according to HAM-A

Anxiety	N=100	Percent (%)
No Anxiety	63	63.0
Mild Anxiety	26	26.0
Moderate Anxiety	07	7.0
Severe Anxiety	04	4.0
Total	100	100.0

Table-4: Severity of Obsessive and Compulsive features according to Y-BOCS

OCD	N=100	Percent (%)
No OCD	81	81.0
Mild OCD	15	15.0
Moderate OCD	4	4.0
Severe OCD	0	0.0
Extreme OCD	0	0.0
Total	100	100.0

Table-5: Psychiatric comorbidity

GHQ-Scores	Comorbidity	Frequency	Percentage (%)
11 or more	Yes	49	49.0
Less than 11	No	51	51.0

of the patients were had obsessive compulsive disorder, which is higher than study done by Kumar et al[22] obsessive compulsive disorder were present in 10.8%.

Conclusions

Locality of patients had negative correlation with Anxiety by HAM-A which suggests that patients having more anxiety were rural background.

Education and socioeconomic status of patients had negative correlation with Depression by HAM-D which suggests that patients having more depression were less educated and low socio-economic status, and duration of illness had positive correlation which suggests that patients having more depression were suffering from long duration of illness.

In General Health Questionnaire screening of Dhat Syndrome patients identified caseness was 49%.

Limitations

It was conducted at a tertiary care hospital and it may be possible that the results obtained may not be the true representation of the patients of Dhat Syndrome in the community.

Conflict of interest: None

References

1. Sumathipala A, Sribaddana, SH, Bhugra, D. Culture bound syndromes: The story of Dhat syndrome. Br J Psychiatry 2004; 184 : 200-9.
2. Prakash S, Sharan P, Sood M. A study on phenomenology of Dhat syndrome in men in a general medical setting. Indian J Psychiatry 2016; 58 : 129-41.
3. Prakash O, Rao TS. Sexuality research in India: an update. Indian J Psychiatry 2010; 52 : S260S263.
4. Avasthi A, Grover S, Kaur R, Prakash O, Kulhara P. Impact of nonorganic erectile dysfunction on spouses: a study from India. J Sex Med 2010; 7 : 36663674.
5. Mittal AK, Gupta V, Kapoor A, Dang P. Sexual dysfunctions in rural population as indicators of psychiatric and addiction problems. Int J Scientific Study 2014; 2 : 86-90.
6. Wig NN. Problems of mental health in India. J Clin Soc Psychiatry 1960; 17 : 48-53.
7. Prakash O. Lessons for postgraduate trainees about Dhat syndrome. Indian J Psychiatry 2007; 49 : 208-10.
8. Shushruta S, editor. Vaidya Yadavji Tikamji Acharya. Bombay: Nirnaya Sagar Press; 1938.
9. Money J, Prakasam KS, Joshi VN. Semen conservation doctrine from ancient ayurvedic to modern sexology theory. Am J Psychother 1991; 45 : 9-13.
10. Verma R, Mina S, Hassan S, Balhara Y. A descriptive analysis of patients presenting to psychosexual clinic at atertiary care center. Indian J Psychol Med 2013; 35 : 241-7.
11. General health questionnaire (GHQ-12), Golderberg D and Williams P. (1988). A user's guide to the General Health Questionnaire. Windsor, UK: NFER-Nelson.
12. World Health Organisation. ICD-10 classification of mental and behavioral disorder; clinic description and diagnostic guidelines. WHO; Geneva 1992.
13. Pandey VK, Aggarwal P, Kakkar R. Modified BG Prasad Socio-economic Classification, Update - 2019. Indian J Community Health [Internet]. 2019 Mar. 31 [cited 2021 Dec. 1];31(1):150-2. Available from: https://www.iapsmupuk.org/journal/index.php/IJCH/article/view/1055
14. Hamilton Anxiety Rating Scale (HAM – A),The Hamilton Anxiety Scale: reliability, validity and sensitivity to change in anxiety disorders. J Affect Disord 1988; 14(1) : 61–8.
15. Hamilton Depression Rating Scale (HAM-D), Hamilton M. Development of a rating scale for primary depressive illness. Br J Soc Clin Psychol 1967; 6(4) : 278–96.
16. YBOCS: Goodman WK, Price LH, Rasmussen SA, et al.: The Yale-Brown Obsessive-Compulsive Scale (YBOCS): Arch Gen Psychiatry (46 : 1012-1016, 1989).
17. Grover S, Gupta S, Avasthi A. Psychological correlates and psychiatric morbidity in patients with Dhat syndrome. Indian J Psychiatry 2015; 57 : 255-261.
18. Verma R, Mina S, Deshpande SN. An analysis of paramilitary referrals to psychiatric services at a tertiary care center. Ind Psychiatry J 2013; 22 : 54-59.

19. Deb KS, Balhara YP. Dhat syndrome: A review of the world literature. Indian J Psychol Med 2013; 35 : 326-31.
20. Mehta V, Balachandran C. Dhat syndrome: A reappraisal. Indian J Dermatol 2009; 54 : 89.
21. Bhatia MS, Malik SC. Dhat syndrome: A usefuldiagnostic entity in Indian culture. Br J Psychiatry 1991; 159 : 691-695.
22. Kumar S, Rathi H, Sharma CS, Dixit V, Singh T. Psychiatric co-morbidities in patients of Dhat syndrome: A cross-sectional study in a tertiary care center. Panacea journal of medical sciences, January-April 2018; 8(1) : 10-15.

Original Article

Psychological Correlates of Alcohol Dependents

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ABSTRACT

Background: *Psychological dynamics of alcohol dependent individuals as it affects temperament and character, emotional intelligence and cognitive abilities.* ***Method:*** *The sample consists of 60 individuals, including 30 alcohol dependent individuals (Clinical Group) and 30 healthy normal controls (Control Group). All the participants selected for the study aged between 25-45 years, having a minimum qualification of 10th standard, and were screened using the Modified M.I.N.I Scale). The sample was selected by the means of purposive sampling method. Data was gathered using self-made Socio demographic details form, Temperament and Character Inventory, Schutte Self Report Emotional Intelligence Test and NIMHANS Neuropsychological Battery , Trail Making Test , Digit Span and Alcohol Use Disorders Identification Test.* ***Results****: The alcohol dependent individuals are more novelty seekers and reward dependents as compared to normal controls. Also, alcohol dependents have lower emotional intelligence as compared to normal controls. Furthermore, among alcohol dependents, personality, emotional intelligence, and cognitive functioning are interrelated. Alcohol dependentshas impaired neuropsychological functioning in all domains (working memory, executive functioning and visuo spatial functioning) when compared to normal controls.*

Keywords*: Alcohol dependence, Temperament, Character, Emotional intelligence, Neuropsychological functioning.*

Introduction

According to the World Health Organization (2014), about 30% of people of India tend to consume alcohol, out of which 4-13% there are who consume dailyand up to 50% of these people, comes under the category of hazardous drinking. In India it was also observed that the average age of initiation of alcohol use has come down from 28 years in the year 1980s to 17 years in 2007. Alcohol abuse also results in the huge number of annual losses due to problems related to alcohol in the workplaces. Nearly 25% of the accidents on the roads are under the influence of alcohol and it is also a relevant risk factor for increased number of domestic violence cases in India.[1]

Around 5-10% of the world population each year is affected by alcohol related disorders. The rate of prevalence and incidence of alcohol dependence are believed to be increasing.[2] Alcohol is considered to be a neurotoxic substance;[3] thus alcohol use can lead to various brain pathologies in brain. Addiction of the Alcohol tends to compulsive alcohol seeking, alcohol use for longer period and cravings for the alcohol which can persist and recur after prolonged periods of abstinence. From a psychological and neurological perceptive, addiction is a disorder of altered cognition.[4]

According to World Health Organization report 2014, globally alcohol consumption results in approximately 3.3 million deaths each year. It is the

third largest risk factor for disease and disability in the world. Alcohol consumption has shown to have both beneficial and harmful effects on human brain. Many studies have shown that moderate level of alcohol consumption may lower the risk of dementia.[5,6] A protective effect of alcohol was also seen in cerebrovascular and cardiovascular disease when it is used in moderate amount.[7]

Alcohol dependence is characterized by many researchers asthe compulsive alcohol use and presence of withdrawal symptoms when alcohol is not at all used.[8] It is considered as a psychiatric disorder as per, Diagnostic and statistical manual for psychiatric disorder 5th edition (DSM-5)[9] and international classification of disease 10th edition (ICD- 10)[10] each having different guidelines for making a diagnosing of alcohol dependence. Given the implications of alcohol dependence, researchers have tried to explore various factors contributing to this tendency. Factors which are psychological in nature such as personality elements (temperament and character), Emotional Intelligence and Neuro-biological/Neuropsychological and socio-cultural factors have been studied with interest as relevant factors in alcohol dependence.[11,12]

The relationship between substance abuse has been widely studied with personality constructs and found that substance use and personality traits are interrelated.[11,13,14] Hedge et al.[15] studied the relationship between personality types and alcohol dependency and found that alcohol dependent patients had ambivert (76.6%) and neurotic (70%) personality traits. Kumar and Mishra[16] have studied the relationship of temperament and character among opioids dependent individuals and found that opiod dependents were high on novelty seeking and self-transcendence and low on self-directedness and cooperativeness.

Ukermann et al.[17] found that alcohol dependent personshows deficits of affective prosody processing which manifests in ambiguous situations in which no additional cues could be used simultaneously for the interpretation of this prosody. Prakash et al[18] found that Alcohol Dependent patients were significantly deficient in almost all the areas of Emotional intelligence. A Number of the studies have outlined the primary cognitive deficits found in alcohol dependent individuals. These deficits are related to problems of memory, learning, abstraction, visuo spatial analysis and synthesis, psychomotor speed processing and speed of information processing.

In India, rate of alcohol consumption has increased for last few decades. A large number of people are becoming dependent on alcohol day by day, due to various factors like lifestyle, peer pressure, stress, etc. In the existing literature, studies regarding the neuropsychological functioning construct have been conducted on working memory, executive functions, and visuo-cognitive functioning, however current study focus on the overall neuropsychological profiling of alcohol dependents. Therefore, the current study aims at exploring personality traits, emotional intelligence and neuropsychological deficits in alcohol dependents. The current study aims to explore these dynamics of alcohol dependent individual and taps on various psychological correlates of individuals with alcohol dependence.

Hypothesis

1. There will be no significant difference in the normal control group and clinical group on temperament, character, emotional intelligence and neuropsychological functioning.
2. There will be no relationship between temperament, character, emotional intelligence, neuropsychological functioning and socio demographic variables in the clinical group.

Material and Methods

Sample

In the present study, 30 normal controls (non-alcohol dependents) and 30 clinical participants (diagnosed with alcohol dependence patients) were selected from psychiatry hospital and de-addiction centre of Jaipur city. Responded were matched as per their age, gender and education. Participants who were included are Patients diagnosed with mental and behavioural disorder due to use of alcohol, dependence syndrome, currently abstinent but in a protected environment, age ranging from 25-45 years of age, patients who are male, duration of substance intake is minimum 5 years. Dependence of caffeine, nicotine, tobacco and undergoing pharmacological and psychological treatment should be included, minimum age of onset of substance intake is 20 years

also included. Participants were excluding who were females and with known history of psychiatric and neurological disorder.

Screening Measures

Modified MINI screen[19]

The Modified Mini Screen (MMS) consist of 22 items, it is designed to identify individuals for an assessment in the domains of Disorders like Anxiety, Mood and Psychosis. The questions are built on gateway questions and threshold criteria found in the Diagnostic and Statistical Manual IV (DSM-IV), the Structured Clinical Interview for Diagnosis (SCID) and the Mini International Neuropsychiatric Interview (M.I.N.I.). The MMS was reliable with Cronbach's alpha=.92 and over time (rho=.71). In this study, MMS was used to screen out participants with other psychiatric disorders.

Alcohol Use Disorders Identification Test (AUDIT)[20]

The AUDIT was formed by the World Health Organization (WHO) as a method of screening for excessive drinking and to aid in brief assessment. This Test (AUDIT; Babor et al., 1993) was employed in this study as a measure of harmful alcohol use. It is made up of 10 items that utilizes a multiple-choice response format. This isdesigned for practitioners working in health care setup and a range of health care setting, but with relevant instructions it can be self-administered or used by professionals of non-health care setup (20< denotes dependence). The reliability and validity were satisfactory, internal consistency (total correlation coefficients for all items ranged from 0.38 to 0.69; Cronbach α index 0.85).

Measures

Temperament and character inventory (TCI)[21]

The TCI is a self-report test evaluating four temperament and three character dimensions. It has 240 items, which were answer in true / false format. It has extensively studied in clinical and non-clinical samples, across different cultures and ethnic groups. Empirical data supporting its psychometric characteristics and clinical applications described in the TCI Manual**.** The test retest reliability of the quantitative scores over six months is moderately high, (0.85) for TCI and was highly valid.

Schutte Self Report Emotional Intelligence Test (SSEIT)[22]

The construct of emotional intelligence was measured by SSEIT test. It is comprised of 33 items design to measure the individual's ability to solve problem situations of emotional charge, using the Salovey and Mayer (1990) model of emotional intelligence. This scale is a Likert type scale in which respondent rate themselves regarding emotions and or reactions associated with emotions, on the scale of 1 to 5. Schutte and her colleges report a reliability rating of 0.90 for their emotional intelligence scale. It was also found to valid on content validity.

NIMHANS Neuropsychological Battery[23]

Rey's Auditory Verbal Learning Test

Auditory Verbal Learning Test adapted for different cultures by WHO (Maj et al., 1994) was adapted to suit conditions in India. Rey originally developed the test in 1964. It consists of words designing familiar objects like vehicles, tools, animals and body parts. There are two lists A and B with different 15 different words in each list. It is considered as gold standard tool to assess verbal learning and memory.

Complex Figure Test

The test consists of a complex design which is abstract in nature and cannot be named easily. It has an overall structure and multiple subcomponents within it. Visual learning and memory is the capacity to learn and remember visual material. Visual learning and memory is tested with the learning and memory of abstract designs and faces. Two tests are described here. They are the design–learning test and complex figure test. The figure from the complex figure, it is copied and subsequently recalled. Score are obtained on the Immediate and delayed memory scale. The design-learning test on the other hand involves learning over trials, immediate memory, and delayed memory.

Digit Symbol Substitution Test

The Digit Symbol Substitution test is a test of visuo-motor coordination, motor persistence, sustained attention and response speed. Rapid information processing is required in the order to substitute the symbols accurately. The test consists of a sheet in which numbers ranging from1-9 are

randomly arranged in 4 rows of 25 squares each. The subject tends to substitute each number with a symbol using a number-symbol key given on the top of the page. The first ten squares are given for the practice. This test cannotbe administered on illiterate subjects.

Animal Naming Test

The Animal names test requires the subjects to generate names of animas for one minute. Category fluency is another form of verbal fluency. In category fluency, unlike in phonemic fluency, it is the content of the words, rather than the phonetic similarity of the words, that is regulated. In a test, which measures category fluency, the subject generates words, which belongs to a particular semantic category.

Controlled Oral Word Association Test (COWA)

COWA is a measure of phonemic fluency. The subjects generate words based on the phonetic similarity of words. The subject generates words beginning with the letters F, A, S. Proper nouns and names of numbers should be excluded. The same word should not be repeated with different suffixes. In our adaptation, the subjects who do not know the English language are asked to generate words in their mother tongue, commencing with the consonants "Ka", "Pa", "Ma". These consonants were chosen as they were effective in eliciting words in an earlier study (John, 1998). The whole battery has Inter-rater reliability of 0.90 and factorial validity has been reported by the authors.

Trail making test (TMT)[7]

It is one of the neuropsychological tests of visual attention and the task of switching and executive functioning. It consists of two parts in which the participant is instructed to connect a set of 25 dots as fast as possible while still maintaining accuracy of the numbers. It provides information about the visual search speed, scanning, speed of processing, mental flexibility, as well as the executive functioning. The first Trail Making Tests were developed in 1944 for the War Department of the United States Army, as part of the Army Individual Test of General Ability. The test-retest score above 0.70, generally ranging from 0.70 to 0.78, and the inter-rater reliabilities from 0.96 to 0.98.

Digit Span[7]

This is a test of attention/short term memory involving strings/series of digits (numbers) of varying length. It consists of 6 items for each in forward and reverse condition. Further each item has two trials. The test-retest reliability of this test ranges from 0.66 to 0.89 and has a significant validity.

Ethical Considerations

1. The participants were explained about the research beforehand.
2. Participation was according to their will.
3. A consent form was signed by the patient before the research procedure is started.
4. The data provided was confidential and only used for research work.

Results

SPSS 16.0 (Statistical Package for the Social Sciences) was used to analyses the obtained data. Normality assumption was examined, then the data assessed using parametric statistics. Overall differences between groups were examined using t test and clinical variables were compared using correlation. For all the statistical tests, p value < 0.05 were considered as statistically significant.

In the study 30 person with alcohol dependence and 30 normal controls fulfilling the inclusion and exclusion criteria were included. Both groups were matched for age and education. Following are the tables showing the results of the study.

Table 1 shows a comparison of age, education, socioeconomic status, habitat, occupation, marital status, history of medical illness, significant history of smoking, alcohol between clinical group and normal control group. The mean age of the clinical group was 30 years with the standard deviation of 3 years, whereas in normal group the mean age was 30 years with standard deviation of 2 years. In **Clinical group**, majority of people were belonging to urban habitat (80%), had education till the 12th standard (53.3 %), were married (56.7%) with middle socioeconomic status (76.7%), are working and were financially independent (83.3%), majority no significant past history of medical illness (80%) but have a significant history of smoking (60%). **In Normal Control group**, the same result was observed on education, marital status. Moreover, in

Table-1: Socio-demographics Details (Clinical and Normal Control Groups)

Variables Age (years) Variables		Clinical Group (N=30) (Mean ± SD) 30 ± 3		Normal Control Group (N=30) (Mean ± SD) 30 ± 2	
		n	%	n	%
Education	Till 12th Standard	16	53.3	16	53.3
	Beyond 12th Standard	14	46.7	14	46.6
Habitat	Urban	24	80	29	96.7
	Rural	6	20	1	3.3
Marital Status	Married	17	56.7	17	56.7
	Unmarried	13	43.3	13	43.3
Socioeconomic status	LSES	0	0	1	3.3
	MSES	23	76.7	20	66.7
	HSES	7	23.3	9	30.0
Occupation	Employed	25	83.3	22	73.3
	Unemployed	5	16.7	8	26.7
Medical illness	Yes	6	20	0	0
	No	24	80	30	100
Smoking	Yes	18	60	2	6.7
	No	12	40	28	93.3
Alcohol	Yes	30	100	0	0
	No	0	0	30	100

the normal group,a greater number of people belonging to middle socioeconomic status (96.7%), they were unemployed (73.3%) and most of them were non-smoker (93.3%).

Table 2.1 shows clinical group had significantly higher novelty seeking and reward dependence as compared to control group. On the other hand, clinical group had significantly lower harm avoidance, self-directedness, cooperativeness and self-transcendence.Table 2.2 indicates that the clinical group has significantly less emotional intelligence as compared to normal control group.Table 2.3 show that clinical group performed significantly lower on Auditory Verbal Learning Test (Trials, Immediate Recall, Delayed Recall and Recognition), Complex Figure Test (Copy,

Table-2.1: Comparison between Clinical and Normal Controls Group on Temperament and Character Inventory

Variables (Personality)	Clinical Group (N=30) (Mean ± SD)	Normal Control Group (N=30) (Mean ± SD)	t	p
Novelty Seeking	26.96 ± 2.64	12.93 ± 1.92	23.47	.001
Harm Avoidance	14.26 ± 2.47	27.90 ± 1.47	25.92	.001
Reward Dependence	26.23 ± 2.23	14.00 ± 1.96	22.49	.001
Persistence	5.56 ± 1.45	5.90 ± 0.99	1.03	.305
Self-Directedness	13.63 ± 1.69	28.26 ± 1.98	30.76	.001
Cooperativeness	24.9 ± 8.26	32.5 ± 3.14	4.70	.001
Self-Transcendence	16.6 ± 2.78	25.76 ± 1.92	14.77	.001

Table-2.2: Comparison between Clinical and Normal Control Group on Schutte Emotional Intelligence Test

Variables	Clinical Group (N=30) (Mean ± SD)	Normal Control Group (N=30) (Mean ± SD)	t	P
Emotional Intelligence	103.83 ± 9.75	133.27 ± 5.24	14.55	.001

Immediate Recall, and Delayed Recall), Animal Naming Test, Controlled Word Association Test and Digit Span Test (Forward and Backward). However, clinical group took more time to complete the Trail Making Test (A and B) and Digit Symbol Substitution Test does showing significantly lower performance as compared to the control group.

Table 3.1 shows that the subscale of Temperament and Character Inventory (Reward Dependence) was found to be positively correlated with Auditory Verbal Learning Test (List B) and with Trail Making Test (B).The self-directedness was positively correlated with test of Auditory Verbal Learning(List B). The sub scale of cooperativeness was found to be positively correlated with Auditory Verbal Learning Test (Trial 4, Immediate Recall, and Recognition), Complex Figure Test (Copy and Immediate Recall) and Animal Naming Test. Novelty seeking was found to be negatively correlated with emotional intelligence and animal naming test. Harm avoidance was found to be negatively correlated with Auditory Verbal Learning Test (Immediate Recall), Complex Figure Test (Copy and Immediate Recall) and Trail Making Test (A). The subscale of self-transcendence was found to be negatively correlated with Complex Figure Test (Copy).Table 3.2 indicates correlation of emotional intelligence with the neuropsychological test. Emotional intelligence was found to be positively correlated with Complex Figure Test (Immediate Recall and Delayed Recall) and Trail Making Test.

Discussion

The current study aimed to assess temperament, character, emotional intelligence and neuropsychological deficits in alcohol dependence patients. The main objectives were to compare temperament, character, emotional intelligence and neuropsychological functioning in clinical group and normal controlled group. Further we explored the relationship among temperament, character, emotional intelligence and neuropsychological functioning and socio-demographic variables in clinical group.

It was found that the clinical group's mean score was significantly higher than the control group's mean score on novelty seeking. Due to alcohol dependence the individual start losing temper frequently and also take decision impulsively which become his/her personality trait over the period of time. In general, novelty seeking behaviour much higher among the people who are into alcohol or any other substance related issues. Valsan et al.[24] indicated that executive functioning was found to

Table-2.3: Comparison between Clinical and Normal Control Group on Neuropsychological Tests

Variables		Clinical Group (N=30) (Mean ± SD)	Normal Control Group (N=30) (Mean ± SD)	t	P
Auditory Verbal Learning Test	Trial 1	4.70 ± 1.11	5.40 ± 0.85	2.73	.001
	Trial 2	6.86 ± 1.30	8.40 ± 0.93	5.23	.001
	Trial 3	8.56 ± 1.22	10.13 ± 1.19	5.01	.001
	Trial 4	9.83 ± 1.26	12.80 ± 1.27	9.07	.001
	Trial 5	10.80 ± 1.80	14.1 ± 1.06	8.62	.001
	List B	4.03 ± 1.88	4.13 ± 1.27	0.24	.811
	Immediate Recall	10.13 ± 1.54	14.0 ± 0.94	11.67	.001
	Delayed Recall	11.0 ± 1.41	14.3 ± 0.83	11.0	.001
	Recognition	12.70 ± 0.87	14.60 ± 0.49	10.31	.001
Complex Figure Test	Copy	28.56 ± 6.10	34.63 ± 1.88	5.20	.001
	Immediate Recall	12.86 ± 7.13	26.40 ± 5.84	8.03	.001
	Delayed Recall	13.73 ± 7.21	26.93 ± 5.02	8.23	.001
Trail Making Test	A	60.00 ± 23.50	34.43 ± 4.53	5.85	.001
	B	145.30 ± 52.42	72.93 ± 9.49.	7.43	.001
Digit Symbol Substitution Test		289.90 ± 94.85	141.20 ± 23.94	8.32	.001
Animal Naming Test		10.13 ± 2.11	12.56 ± 1.97	4.60	.001
Controlled Word Association Test		7.06 ± 1.43	10.50 ± 1.59	8.76	.001
Digit Span Test	Forward	4.46 ± 0.68	6.16 ± 0.64	9.90	.001
	Backward	3.06 ± 0.25	3.63 ± 0.49	5.62	.001

Table-3.1: Correlation of temperament and character with other test variables in Clinical group

Variables		Novelty Seeking		Harm Avoidance		Reward Dependence		Self-Directedness		Cooperativeness		Self-Transcendence	
		r	p-value	r	p-value	r	p-value	r	p-value	r	p-value	r	p-value
Emotional		-0.53	0.01	-0.27	0.14	-0.1	0.56	-0.26	0.16	0.14	0.45	-0.19	0.29
Intelligence	Trail 1	-0.21	0.25	0.32	0.07	0.22	0.23	0.01	0.94	0.13	0.49	0.16	0.39
	Trail 2	-0.22	0.24	0.03	0.86	0.18	0.32	0.32	0.08	0.31	0.08	0.18	0.32
	Trail 3	-0.13	0.48	-0.21	0.26	0.12	0.5	0.15	0.41	0.22	0.22	0.03	0.86
	Trail 4	-0.1	0.58	-0.26	0.16	0.21	0.26	0.26	0.16	0.51	0.001	0.11	0.53
	Trail 5	-0.24	0.18	-0.31	0.08	0.03	0.84	0.1	0.48	0.23	0.2	-0.3	0.1
Auditory Verbal Learning Test	List B	-0.1	0.56	-0.35	0.06	0.41	0.02	0.37	0.04	0.37	0.04	-0.12	0.51
	Immediate Recall	-0.11	0.56	-0.44	0.01	0.31	0.08	0.31	0.08	0.45	0.01	-0.26	0.16
	Delayed Recall	0.08	0.65	-0.02	0.89	-0.08	0.65	0.24	0.18	0.29	0.11	-0.08	0.64
	Recognition	-0.06	0.74	0.04	0.82	0.001	1	0.32	0.08	0.4	0.02	0.05	0.77
	Copy	-0.04	0.81	-0.38	0.03	-0.15	0.41	-0.08	0.65	0.42	0.01	-0.4	0.02
Complex Figure Test	Immediate Recall	-0.01	0.96	-0.41	0.02	-0.06	0.74	-0.06	0.74	0.45	0.01	-0.27	0.13
	Delayed Recall	-0.06	0.73	0.24	0.19	0.02	0.91	0.05	0.76	-0.21	0.25	0.03	0.85
Trail making Test	Part - A	0.2	0.24	-0.41	0.02	0.28	0.12	0.03	0.86	0.04	0.81	-0.15	0.41
	Part - B	-0.25	0.17	-0.17	0.34	0.38	0.03	0.03	0.86	0.01	0.93	-0.17	0.34
Animal Naming Test		-0.38	0.03	-0.06	0.72	-0.04	0.82	0.02	0.9	0.45	0.01	0.02	0.89
Controlled Oral Word Association Test		-0.22	0.22	-0.16	0.39	0.001	0.97	-0.03	0.86	0.33	0.07	0.04	0.79
Digit Span Test	Forward	0.1	0.58	-0.09	0.61	-0.11	0.53	0.15	0.41	0.13	0.47	-0.05	0.78
	Backward	-0.04	0.8	0.02	0.89	0.03	0.86	0.13	0.46	0.08	0.65	0.23	0.21

be impaired in the person with alcohol dependent when compared to normal controls. Schneider et al.[25] found that novelty seeking was significantly higher amongperson with alcohol dependence than normal group. Another study further supports the findings as it indicates that novelty seeking was significantly higher among person with alcohol dependence[11]. The person with alcohol dependence scored significantly lower on self-directedness than the control group. Self-directedness has been proved to be related with alcohol dependence[26] .

Reward dependence had positive correlation with executive functioning. Self-directedness was found to have positive correlation with verbal learning. Cooperativeness was found to be positively correlated with verbal learning, visual learning, and verbal fluency. Hence, it is concluded that temperament and character traits are correlated with neuropsychological functioning among alcohol dependents. Vitali et al.[27] found that relationship exists between temperament, character and cognitive functioning. Similarly, Barode and Malhotra[28] found that temperament, character and neurocognitive functioning were interrelated.

Though studies have related temperament and character trait with neuropsychological functioning, the literature is quite sparse in assessing relationship between specific components. As the results revealed

Table-3.2: Correlation of Emotional Intelligence with other test variable in clinical group

Variables		Emotional Intelligence (N=30)	
		r	P
Auditory Verbal Learning Test	Trial 1	-.07	.70
	Trial 2	-.11	.56
	Trial 3	.18	.32
	Trial 4	.23	.22
	Trial 5	-.07	.70
	Immediate Recall	.04	.79
	Delayed Recall	.16	.17
	Recognition	-.01	.94
Complex Figure Test	Copy	.33	.07
	Immediate Recall	.37*	.04
	Delayed Recall	.41*	.02
Trail Making Test	A	-.31	.09
	B	.65**	.00
Digit Symbol Substitution Test		-.15	.40
Animal Naming Test		.07	.69
Controlled Oral Word Association Test		-.01	.95
Digit Span Test	Forward	.24	.20
	Backward	.20	.29

*Significant at 0.05 level,

statistically significant negative correlation was found between novelty seeking and verbal fluency that means those who scored high on novelty seeking had low verbal fluency. Similarly, Noel et al.[29] found that novelty seeking has inverse relationship with cognitive functioning.

Patients in clinical group scored significantly lower on emotional intelligence as compared to normal control group. Alcohol dependence and addiction severely affects the emotional intelligence of an individual which results in poor emotional regulation ability. Similarly earlier researchers revealed that person with alcohol dependence face difficulty in handling emotions[30] . Alcohol dependence linked to aggression, anxiety and depression and our body is likely to release endorphins which make an individual relaxed and euphoric but it exacerbates the effects of psychological issue like anxiety and depression. Earlier researches also confirmed that emotional intelligence is less likely to be associated with alcohol dependence. Similarly, Claros and Sharma[31] found that emotional intelligence constructs were negatively correlated with alcohol dependence. The finding is further supported by Prakash et al.[18] as they also asserted that alcohol dependent patients were significantly deficient in almost all the areas of emotional intelligence. Similarly, Kopera et al.[32] reflected in their study that duration of alcohol drinking was associated with lower ability to utilize emotions.

In the present study, results indicated that alcohol dependent participants performed significantly lower than the normal controls on all the neuropsychological tests, including Auditory Verbal Learning Test (Trial 1 to 5, Immediate Recall, Delayed Recall and Recognition), Complex Figure Test (Copy, Immediate Recall and Delayed Recall), Trail Making Test (A and B), Animal Naming Test, Controlled Word Association Test, Digit Symbol Substitution Test, and Digit Span (Forward and Backward). The effect of alcohol addiction on neurological test have been supported by numerous studies[33,34,24].

Singh et al.[35] found that delayed recall, verbal and visual memory was found to be lower among alcohol dependent patients. Executive functioning of an individual will impair if he/she is into alcohol addiction or dependent which results of the study is also confirms. Jins et al.[36] found that on executive functioning, person with alcohol dependence performed poorly on being compared with the normal controls.

Conclusion

The main aim of the present study was to analyse

the relationship between temperament, character, emotional intelligence, and neuropsychological functioning in patients with alcohol dependence. The results indicated that the alcohol dependent individuals are more novelty seeker and reward dependent as compared to normal controls. On the other hand, they have lesser harm avoidance, self-directedness, cooperativeness, and self-transcendence when compared to normal controls. Also, person with alcohol dependence have lower emotional intelligence as compared to healthy normal group.

It was also indicated in the result that among person with alcohol dependence personality, emotional intelligence and cognitive functioning are interrelated. Moreover, there exists negative correlation between novelty seeking and emotional intelligence, indicating that as the novelty seeking increases emotional intelligence decreases. Person with alcohol dependence performed significantly poor on the Auditory Verbal Learning Test, Complex Figure Test, Trail making Test, Digit Symbol Substitution test, Animal Naming Test, Controlled Word Association test and Digit Span Forward and Backward. Therefore, it is suggested that person with alcohol dependence have significantly lower sustained attention, mental speed, visuo- spatial functioning, executive functioning, visual and verbal memory.

References

1. World Health Organization. Global Information System on Alcohol and Health (GISAH), 2014. Retrieved March 20, 2016, from http://www.who.int/gho/alcohol
2. Venkatesan J, Suresh SSD. Substance dependence: decades apart in a teaching hospital. Indian J Psychiatry 2008; 50 : 100-105.
3. Cunha PJ, Novaes MA. Neurocognitive assessment in alcohol abuse and dependence: implications for treatment. Braz J Psychiatry 2004; 26(1) : 23-27.
4. Gould TJ. Addiction and cognition. Addict Sci Clin Pract 2010; 5 : 4–14.
5. Zuccala G, Onder G, Pedone C, et al. Dose-related impact of alcohol consumption on cognitive function in advanced age: results of a multicenter survey. Alcohol Clin Exp Res 2001; 25 : 1743–1748.
6. Ruitenberg A, Swieten JC, Witteman JC, et al. Alcohol consumption and risk of dementia: the Rotterdam Study. Lancet 2002; 359 : 281–286.
7. Lezak MD, Howieson DB, Loring DW, Hannay HJ, et al. Neuropsychological assessment (4th ed.), 2004. Oxford University Press 2004.
8. Bruijnzeel AW, Repetto M, Gold MS. Neurobiological mechanism in addictive and psychiatric disorders. Psychiatr Clin North Am 2004; 27 : 661-674.
9. American Psychiatric Association. Diagnostic and statistical manual of mental disorders 2013. Washington D.C.
10. World Health Organization. The ICD-10 classification of mental and behavioural disorders: clinical descriptions and diagnostic guidelines. Geneva 1992.
11. Evren C, Evren B, Yancar C, et al . Temperament and character model of personality profile of alcohol-and drug-dependent inpatients. Compr psychiatry 2007; 48(3) : 283-288.
12. Oscar-Berman M, Valmas MM, Sawyer KS, et al. Profiles of impaired, spared, and recovered neuropsychological processes in alcoholism. Handbook Clin Neurol 2014; 125 : 183-98.
13. Chakroun N, Doron J, Swendsen S. Substance use, affective problems and personality traits: test of two association models. J Encephale 2004; 30 : 564- 10.
14. Marquez-Arrico JE, Adan A. Personality in patients with substance use disorders according to the co-occurring severe mental illness: A study using the alternative five factor model. Pers Individ Diff 2016; 97 : 76-81.
15. Hedge G, Sridhara P, Anand H. A Study of Relationship between Alcohol Dependence and Personality. Int J Indian Psychol 2015; 3(1) : 100-7.
16. Kumar R, Mishra D. Temperament and Character in Treatment Seeking Opioid Dependent Patients and their Personality Correlates. Indian J Clin Psychol 2012; 39(1) : 45-39.
17. Uekermann J, Daum I, Schlebusch, P, Trenckmann U. Processing of affective stimuli in alcoholism. Cortex 2005; 41 : 189–194.
18. Prakash O, Sharma N, Singh AR, et al. Personality disorder, emotional intelligence, and locus of control of patients with alcohol

dependence. Ind Psychiatr J 2015; 24 : 40-7.
19. Brandau S, Alexander MJ, Haugland G. Screening for co-occurring disorders using the Modified MINI Screen (MMS): User's guide, 2005. Retrieved January 11, 2016, fromhttp://www.oasas.state.ny.us/hps/research/documents/MINIScreenUsersGuide.pdf.
20. Babor TM, Kassebaum P, Grimaldi P, et al. Screening, brief intervention and referral to treatment (SBIRT): Towards a public health approach to the management of substance abuse. Subs Abuse 2007; 28 : 7-30.
21. Cloninger CR, Svrakic DM, Przybeck TR. A psychobiological model of temperament and character. Arch Gen Psychiatry 1993; 50 : 975-990.
22. Schutte NS, Malouff JM, Hall LE, et al. Development and validation of a measure of emotional intelligence. Pers Individ Diff 1998; 25 : 167–177.
23. Rao H, Mahadevappa H, Pillay P, et al. A study of stigmatized attitudes towards people with mental health problems among health professionals. J Psychiatr Ment Health Nurs 2009; 16 : 279–84.
24. Valsan N, Veetil SA, Beevi S. Executive Dysfunction, Frontal Lobe Dysfunction, Prefrontal Cortex, Neuropsychological Tests, Alcohol Dependence Syndrome. J Evidence-based Med Health Care 2016; 47(3) : 2351-2356.
25. Schneider Jr. R, Ottoni GL, Carvalho HW. de, et al. Temperament and character traits associated with the use of alcohol, cannabis, cocaine, benzodiazepines, and hallucinogens: evidence from a large Brazilian web survey. Braz J Psychiatry 2015; 37(1) : 31-39.
26. Smolejova E, Heretik A, Hajduk M. Specific features of the temperament and character of alcohol-dependent patients. Adiktologie 2016; 16(1) : 8-17.
27. Vitali M, Napolitano C, Berman MO, et al. Neurophysiological Measures and Alcohol Use Disorder (AUD): Hypothesizing Links between Clinical Severity Index and Molecular Neurobiological Patterns. J Addict Res Ther 2016; 5(2).
28. Barode P B, Malhotra, S. A study of personality and neurobiological correlates of relapse in alcohol dependent in-patients. Indian J Basic Appl Med Res 2016; 5(3) : 575-87.
29. Noel X, Brevers D, Bechara A, et al. Neurocognitive determinants of novelty and sensation seeking in individuals with alcoholism. Alcohol and Alcoholism 2011; 46(4) : 407-415.
30. Mahagheghi A, Amiri, S, Rizi SM, et al. Emotional Intelligence Components in Alcohol Dependent and Mentally Healthy Individuals. Sci World J 2015; 10 : 200-206.
31. Claros E, Sharma M. The relationship between emotional intelligence and abuse of alcohol, marijuana, and tobacco among college students. J Alcohol Drug Educ 2012; 56(1) : 8-17.
32. Kopera M, Jakubczyk A, Suszek H, et al. Relationship between emotional processing, drinking severity and relapse in adults treated for alcohol dependence in Poland. Alcohol 2015; 50 : 73–79.
33. Houston RJ, Derrick JL, Leonard KE, et al. Effects of heavy drinking on executive cognitive functioning in a community sample. Addict behav 2014; 39(1) : 345-349.
34. Jha M, Sinha VK. Conceptual Abilities of Alcohol Dependent Patients–An Analysis of WCST profile. Delhi Psychiatr J 2015; 18 : 77-85.
35. Singh LR, Singh SG, Singh MA, et al. Memory deficits among chronic alcoholics-A hospital-based study. East J Psychiatry 2009; 12(1) : 34-36.
36. Jins M, Senger KS, Singh AR. Neurocoginitive deficits among alcohol user, cannabis users and injecting drug users. Indian J Clin Psychol 2012; 2 : 132-137.

Original Article

Comparing Personality of Couples Undergoing Treatment for Infertility – A Hospital Based Study

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ABSTRACT

Introduction: *Fertility is a biological need and an existential necessity for human beings. Fertility has significant social and cultural dimensions. Inability to bring forth a biological offspring therefore becomes a highly traumatic experience for a couple as dyad and have major impact in them. The psychological aspect changes the person in many aspects including their personality.* ***Aim:*** *The current study is aimed at studying the personality dimensions of the men and women undergoing treatment for infertility.* ***Methods:*** *A cross sectional study with 253 couples attending the outpatient clinics in the departments of Reproductive Medicine at the Sevana Hospital, Pattambi in the Palakkad District of Kerala State India. Their personality was studied through Eyeseck's Personality Questionnaire. Data was analyzed through SPSS 21 for descriptive analysis.* ***Results & Conclusion:*** *The finding indicates no psychopathology or vulnerability among men and women undergoing infertility treatment but individual analysis depicts many significant details.*

Keywords: *Infertility, Males, Females, Personality profile, Psychosocial factors*

Introduction

Fertility is a biological need and an existential necessity. In the human, fertility assumes a significant social and cultural dimension. Inability to bring forth a biological offspring therefore becomes a highly traumatic experience for a couple. In India, as in many developing countries, for a woman to be socially acceptable, she should have at least one biological child.[1,2] Reproductive Desire, a biological processand a deeply personal emotion has become socially structured and socially constructed.[3]

Infertility according to World Health Organization (WHO) is "the failure to achieve a clinical pregnancy after 12 months or more of regular unprotected sexual intercourse".[4] Infertility medically is not a life-threatening condition. However, it carries with it, a **perceived undesirability** which creeps into the interpersonal relations, emotional and sexual bonding, and the social and spiritual aspects of the couple lives causing psychological distress, loss of self-esteem, social isolation, marital problems, sexual dysfunction, loss of social security, concerns about funeral traditions and continuity of family lineage.[5]

Personality traits are the individual characteristic and relatively lasting ways of thinking, feeling and behaving[6]. Hans Eysenck identified three personality factors: Psychoticism, Extraversion, And Neuroticism (PEN). Psychoticism means poor concentration, poor memory, insensitivity, cruelty, disregard for danger, creative,and liking unusual things[7], tough mindedness; thrill seeking, desire for novelty, preference for vocations involving interactions with others, tolerance for pain. Neuroticism

is considered as strong, prone to anxiety in case of excessive stress, below average emotional control, low will-power, slowness in thought and actions, lack of persistence, below average sensory acuity but high level of activation.

It has been postulated that the more stable the person in terms of personality and the healthier psychologically and spiritually, the better they would perform in acceptance and adjustment.[8] Neuroticism has been reported to be a risk factor for developing various psychosocial problems in infertile couples may lead to avoidant coping and maladjustment whereas optimism considered as a protective factor.[9,10]

In the past few decades there have been a large number of studies to understand the psychological, social, anthropological impact of infertility. This study was undertaken to explore whether there is any relationship with couples' infertility state and their Personalities. The study was done in a Tertiary Care Centre for Infertility Treatment. This is a clinic-based study conducted in the outpatient clinic of the first author. The geographical area is the Southern State of Kerala, India.

Material and Methods

This is a cross sectional single unit study. Couples with three years or more of infertility, attending the outpatient clinics in the departments of Reproductive Medicine at the Sevana Hospital, Pattambi, Palakkad District of Kerala, India. 253 couples have been selected as sample for the study.

Objectives

The purpose of the study is to study personality of couples undergoing infertility treatment using Eysenck's personality questionnaire.

Inclusion criteria

1. Couples who have been living together continuously for a minimum period of threeyears.
2. Wife's age should be less than 40years.
3. No major psychiatric illness in either of thepartners.
4. Age at marriage of female partner should be less than 30years.
5. Age at marriage of female partner should be more than 18years.
6. Couples where wife had one or more first trimester abortions wereincluded.

Exclusion criteria

1. Those couples where one partner lives abroad (very common inKerala)
2. Wife's age less than 20 or more than40.
3. Either of the partner having serious psychiatricproblems.
4. If marriage has taken place after 30 years for the femalepartner.

Measures used were Socio demographic Data sheet and Eysenck's Personality Questionnaire.

Statistical tools used for the analysis and interpretation of data

The data was analyzed using statistical software SPSS. Descriptive statistics like mean, median, variance, standard deviation, standard error& t-test.

Results

Table-1: Showing the mean, standard deviation and value of t-test for Husband and Wife on Eysenck's personality questionnaire

	Husband	Wife	t-value	p-value
Psychoticism	4.02±2.61	3.71±2.38	-1.588	0.114
Neuroticism	8.59±4.87	11.68±5.72	-7.164	0.001
Extraversion	13.12±3.07	12.72±3.07	1.602	0.110
Lie Scale	13.99±3.28	14.68±2.94	-2.671	0.008

On **psychoticism**, the mean score of wives is 3.71(±2.38) is slightly smaller than that of the husbands i.e., 4.0229 (±2.61) but the difference is not statistically significant. On **neuroticism**, the mean score of wives is 11.68 (±5.72) is greater than that of the husbands i.e., 8.59 (±4.87) and the difference is statistically significant. On extraversion and lie scale too husband has scored more than the wives but difference is found to be insignificant.

Discussion

Psychoticism – among infertile couples this study did not show any gender differences. The main findings were that in both men and women school level of education was associated with psychoticism. However, difference was observed in the level of occupation (Economic activity) among men. Psychoticism was found more in men engaged in elementary occupation (like manual labour etc).

Neuroticism among infertile couples in this study showed gender differences in that more women than men showed neuroticism. Women of age group 20-30 showed more neuroticism than other age groups. So also, women whose married life is 5-8 years showed more neuroticism than others. An infertile individual's diminished flexibility and expression of limited responses to stressful situations may be the factor bringing out the negativity of dimensions of neuroticism. Whether women of younger age undergoing treatment, the stress of infertility and its treatment brings out this personality trait strongly needs further study. Similarly, 5-8 years of married life in infertile couples is the time when they are more stressed. Whether this is related to the expression of the personality test needs further study.

Volgstenet al showed neuroticism in men to be associated with male factor infertility and un-explained infertility. However the current study did not show any such correlation.[11]

Extroversion in this study is found to have correlation with age as far women are concerned. Women of age group 20-30 have more extroversion than women of 30-40 years. Significant correlation is also found between extroversion and education among women. In women with graduate/post graduate/ professional level education, Extroversion is found to be more. Extroversion and duration of married life is found to be correlated in women only. Women with 3-5 years of married life show higher levels of extroversion compared to other groups. This correlation also needs furtherexploration.

Noorbala et al showed 50% women were found to be introverts and 50% percent extroverts. The duration of infertility was found to be related to introvert or extrovert personality. Specific personality types were found to have no relation with level of education or cause of infertility among the infertile couples (Neuroticism and psychoticism are not mentioned in this study, although Eysenk Personality Queationnare was used).[12]

Rashidi et al using Big 5 factor personality questionnaire showed a negative correlation between infertility stress and extroversion.[13]

Conclusion

- In a state with 96% overall literacy the women's employment rate islow.
- Certain personalities traits were found among men and women in this study and the relationship of these with some of the socio demographic factors (Educational Level, Occupation, Duration of married life were significant). But this needs further exploration.
- It is important to evaluate the social context in which personality traits areassessed.
- Certain person's vulnerable personality traits such as neuroticism may be very sensitive to the stress of infertility and its treatment and are there for at risk of developing depression.
- An increased awareness of these factors of vulnerability has implications for caregivers in infertility treatment and has to be given special attention by counselors. When treatment fails these individuals have to be followed up and given psycho social support to prevent psychological morbidities like depression.

Suggestions

It is found that personality does get affected by variety of psychosocial factors like age, demographic existence, gender, culture, education and family impact. In this current study these variables have shown their effect but, in this study, it was not the objective but for future it can be taken for consideration.

References

1. Baru A, Dhingra R. Community's Perception of Childlessness in Three Different Ecological Settings of Jammu, Jammu and Kashmir. Anthropologist 2004; 6(1) : 29-35.
2. Lavania V. Childless couples: Social consequences of sterility and infertility. Rawat Publications 2006.
3. Greil A, McQuillan J, Slauson Blevins K. The social construction of infertility. Sociology Compass 2011; 5(8) : 736-46.
4. Zegers-Hochschild F, International Committee for Monitoring Assisted Reproductive Technology and the World Health Organization (WHO) Revised Glossary of ART Terminology 2009' (2009) 92. Fertility and Sterility 1520.
5. Bennett, L. and de Kok, B. Reproductive Desires

and Disappointments. Med Anthropol 2017; 37(2) : 91-100.
6. Caspi A, Roberts BW, Shiner RL. Personality development: Stability and change. Annu Rev Psychol 2005; 56 : 453-84.
7. Eysenck HJ, Eysenck SB. Eysenck Personality Questionnaire. Educational And Industrial Testing Service 1976.
8. Samadaee-Gelehkolaee K, Mccarthy BW, Khalilian A, Hamzehgardeshi Z, Peyvandi S, ElyasiF, Shahidi M. Factors associated with marital satisfaction in infertile couple: a comprehensive literature review. Global J Health Sci 2016; 8(5) : 96.
9. Verhaak CM, Smeenk JM, Van Minnen A, Kremer JA, Kraaimaat FW. A longitudinal, prospective study on emotional adjustment before, during and after consecutive fertility treatment cycles. Hum Reprod 2005; 20(8) : 2253-60.
10. Gameiro, S, van den Belt-Dusebout AW, Smeenk JM, Braat DD, van Leeuwen FE, Verhaak CM. Women's adjustment trajectories during IVF and impact on mental health 11–17 years later. Hum Reprod 2016; 31(8) : 1788-1798.
11. Volgsten H, Ekselius L, Poromaa IS, Svanberg AS. Personality traits associated with depressive and anxiety disorders in infertile women and men undergoing in vitro fertilization treatment. Acta Obstet Gynecol Scand 2010; 89(1) : 27-34.
12. Noorbala AA, Ramezanzadeh F, Abedinia N, Yazdi SA, Jafarabadi M. Study of personality disorders among fertile and infertile women and some predisposing factors. J Fam Reprod Health 2007; 69-73.
13. Rashidi Batool, Hosseini Soheila, Beigi Pooya, Ghazizadeh Mahya, Farahani Mohammad Naghi. Infertility Stress: The Role of Coping Strategies, Personality Trait and Social Support. J Fam Reprod Health. 2011 [cited2021March 28];5(4) : 103-110. Available from:https://www.sid.ir/en/journal/View Paper.aspx?id=243206.

Original Article

A Prospective study on effects of Dhat syndrome in psychosexual life of male patients attending psychiatry OPD of Medical College & Hospital of Rajasthan

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ABSTRACT

Background: *Dhat syndrome or "Semen loss anxiety" is a culture-bound syndrome, characterized by discharge of whitish fluid or semen in urine and related tobeliefs about the relationship of semen to spiritual and physicalhealth.This also includes loss of semen through masturbation, excessive sexual intercourse or through day/night discharges. From many Asian countries around the world, it has been described; with majority of the literature emerge from India.[1]* ***Methodology:*** *After taking permission from Scientific and Ethical committee of the institute and on the basis of inclusion and exclusion criteria,male patients who attend the psychiatry OPD with complaints of Dhat syndrome were included in the study. A written consent from the patientwas obtained after explaining the study to the patient, the diagnosis of Dhat syndrome was made according to ICD-10 Classification. Patient was given a Semi Structured Performa designed especially for the study. Patient's socio economic status was evaluated using Socio Economic Scale.* ***Results:*** *In our study 49.1 % of the participants were between 18-30 ages, 75.2% hailed from rural background, 80.9% were Hindu, 78.9% were married, and 47.1% had education up to secondary/senior secondary level. 55.4% were from joint family, 61.2% were from upper middle class socio-economic status according to socio-economic scale and 42.7% were farmer by profession. Premature ejaculation was present in 36.3% of the participants which is the most common co-morbid sexual dysfunctions in our study. Most common mode of passage of Dhat was evaluated in participants in which mode of passage of Dhat in urine was present in 58.6% of participants. In our study duration of illness of Dhat syndrome was 56.03% for 1-2 years. Most common source of information about Dhat syndrome was media 41.4% followed by friends 38.2%. Frequency of passage of Dhat in our study 44.6% present with frequency of few days in a week and course of Dhat syndrome in participants, 38.2% had fluctuating course. In our study 59.8% participants were consulted quacks for Dhat syndrome treatment followed by doctors other than Psychiatrist.*

Key words: *Dhat Syndrome, Present understanding, Approach.*

Introduction

Dhat syndrome or "Pseudo-Semen loss anxiety" is a culture-bound syndrome, characterized by discharge of whitish fluid or semen in urine and related tobeliefs about the relationship of semen to spiritual and physicalhealth.This also includes loss of semen through masturbation, excessive sexual intercourse or through day/night discharges. From many Asian countries around the world, it has been described; with majority of the literature emerge from India.[1]

Especially in Indian context figures are difficult to estimate as a big numbers of male patients with Dhat syndrome frequently visit quacks and other pseudo self-claimed sex clinics rather going to proper authorized centres.[2]

The term 'Dhat syndrome', was given byeminent Indian psychiatrist Prof. N.N. Wig, (1960). He narrates as a specific syndrome raised as a result of culture related faith.[3]

"Dhat" is originated from the Sanskrit word "dhatu", meaning "Metal" or "Elixir" which is considered to be powerful bodily substance.There are seven "Dhatus" Chyle (Rasa), Blood (Rakta), Flesh (Maans), Fat (Meda), Bone (Asthi), Marrow (Majja), Semen (Veerya), in which most important is "Shukra Dhatu (semen)". In Sanskrit, semen is quoted as *"Shukra"* or*"Virya"*. This believes "Sukra" as theforce of life.The symptoms of semen-loss anxiety arewell known in Indian historical writing.[4,5,6]

Aims & Objectives

To determine the effects of Dhat syndrome in psychosexual life of male patients.

Inclusion criteria

1. All male patients with history or complaining of Dhat syndrome in the age group of 18 - 60 years attending psychiatry outpatient department.
2. Male patients who will give written informed consent to participate in the study.

Exclusion criteria

1. Patients who are aged below 18 years will not be included in the study.
2. Patients who are above age 60 years will not be included in the study.
3. Patients who do not give written consent will not be included in the study.
4. Patients having any significant medical and surgical co-morbidity.
5. Patients with psychotic disorders, Intellectual disability and organic brain syndrome.

Methodology

After taking permission from Scientific and Ethical committee of the institute and on the basis of inclusion and exclusion criteria, male patients who attend the psychiatry OPD with complaints of Dhat syndrome were included in the study. A written consent from the patientwas obtained after explaining the study to the patient, the diagnosis of Dhat syndrome was made according to ICD-10 Classification. Patient was given a Semi Structured Performa designed especially for the study. Patient's socio economic status was evaluated using B.G. Prasad's Socio Economic Scale.

1. The diagnosis of Dhat syndrome was made according to ICD-10 criteria (WHO 1992).[7]
2. Semi Structured Proforma for socio-demographic and psychosexual variables was designed especially for the study.
3. Modified B.G. Prasad's socioeconomic scale (B.G. Prasad's Classification 1961).[8]

Results

Table-1: Socio-demographic Profile (N=157)

Domains		N=157	Percent (%)
Age groups	18-30 year	77	49.1
	31-40year	38	24.2
	41-50year	27	17.2
	51-60year	12	7.6
	>60year	3	1.9
Domicile	Urban	39	24.8
	Rural	118	75.2
Religion	Hindu	127	80.9
	Muslim	30	19.1
Marital Status	Married	124	78.9
	Unmarried	26	16.6
	Others	7	4.5
Education status	Uneducated	12	7.6
	Primary	23	14.6
	Middle	32	20.4
	Secondary/ Sen. Secondary	74	47.1
	Graduate& above	16	10.3
Family type	Nuclear	43	27.4
	Joint	87	55.4
	Extended	27	17.2
Socio-Economic Status	Upper class	9	5.7
	Upper middle class	96	61.2
	Middle class	32	20.4
	Lower middle class	17	10.8
	Lower class	3	1.9
Occupation	Unemployed	16	10.2
	Self employed	26	16.6
	Farmer	67	42.7
	Student	17	10.8
	Service	25	15.9
	Others	6	3.8

Table-2: Co-morbid Sexual Dysfunctions

Co-morbid Sexual Dysfunctions

	Frequency (157)	Percent (%)
Loss of sexual desire	9	5.7
Loss of sexual enjoyment	27	17.2
Erectile dysfunction	38	24.2
Orgasmic dysfunction	12	7.6
Premature ejaculation	57	36.3
Excessive sexual derive	6	3.8
Other sexual dysfunction	8	5.2

Table-3: Mode of Passage of Dhat

Mode of passage	Frequency (157)	Percent(%)
Urine	92	58.6
Defecation	19	12.1
Nocturnal emission	33	21.0
Masturbation	11	7.0
Others	3	1.3

Table-4: Duration of Dhat syndrome

Duration	Frequency (157)	Percent (%)
01 year or less	37	23.57
1-2 years	88	56.03
2-5 years	26	16.6
More than 5 years	6	3.8

Table-5: Source of information about Dhat syndrome

Source of information	Frequency (157)	Percent (%)
Media	65	41.4
Friends	60	38.2
Relatives	17	10.4
Faith healers	9	5.7
Medical practitioner	4	2.5
Others	2	1.8

Table-6: Frequency of passage of Dhat

Frequency of passage	Frequency (157)	Percent(%)
Almost daily	65	41.4
Few days in a week	70	44.6
Many days in a month	22	14.0

Table-7: Course of Dhat syndrome

Course	Frequency (157)	Percent(%)
Fluctuating	60	38.2
Deteriorating	52	33.1
Improving	30	19.2
Static	15	9.5

Table-8: Treatment history for Dhat syndrome

Treatment history	Frequency (157)	Percent (%)
Consulted quacks	94	59.8
Consulted doctors other than Psychiatrist	38	24.2
Consulted Psychiatrist	18	11.5
Notreatment history	7	4.5

Discussion

In our study 49.1 % of the participants were between 18-30 ages,75.2% hailed from rural background, 80.9% were Hindu, 78.9% were married, and 47.1% had education up to secondary/ senior secondary level. 55.4% were from joint family, 61.2% were from upper middle class socio-economic status according to socio-economic scale and 42.7% were farmer by profession.

These findings are consistent with the study done by Grover et al[9] in which mean age of participants was 28.1 years, two-third were belonged to middle socio-economic status, more than two- third were Hindus and three-fifth were from rural background.

In our study majority were married which is in consistent with Grover et al[9]study where half of the participants were single. Another finding in our study 47.1% had education up to secondary/senior secondary level where as in Grover et al (2015)[9]half of the subjects were educated less than matriculation.

Premature ejaculation was present in 36.3% of the participants which is the most common co-morbid sexual dysfunctions in our study. This finding is consistent with the study done by Grover et al (2015)[9] in which premature ejaculation was the most common comorbid sexual dysfunction.

Most common mode of passage of Dhat was evaluated in participants in which mode of passage of Dhat in urine was present in 58.6% of participants. Which is consistent with the study done by Priyadarshni et al[10] where it was present in 68.2% of participants and by Prakash et al[11] in which it was present in 75% of the participants.

In our study duration of illness of Dhat syndrome was 56.03% for 1-2 years, where as in a study done by Kumar et al (2018)[12] it was 53% for 7-12 months.

Most common source of information about Dhat syndrome was media 41.4% followed by friends 38.2%. In the study done by Kumar et al[12] where most common source of information was from

friends 83% followed by faith healers 75%.Study done by Selvaraj et al (2020)[13] in which most common source of information was from friends 78% followed by media 74%.

Frequency of passage of Dhat in our study 44.6% present with frequency of few days in a week, which is consistent with the study done by Priyadarshni et al[10] in which frequency was present in every week in 60.9% and in study done by Grover et al[9] in 39.7% had frequency two to three times per week.

In our study course of Dhat syndrome in participants 38.2% had fluctuating course, which is consistent with the study done by Kumar et al[12] in which fluctuating course was present in 39% of participants.

In our study 59.8% participants were consulted quacks for Dhat syndrome treatment followed by doctors other than Psychiatrist, where as in study done by Priyadarshni et al[10] in which 67.3% done nothing followed by consulted quacks 21.8%.

Limitations

This study was conducted at a tertiary care hospital & it may be possible that the results obtained may not be the true representation of the patients of Dhat Syndrome in the community.

Conflict of interest: None

References

1. Sumathipala A, Sribaddana SH, Bhugra D. Culture bound syndromes: The story of Dhat syndrome. Br J Psychiatry 2004; 184 : 200-9.
2. Verma R, Mina S, Hassan S, Balhara Y. A descriptive analysis of patients presenting to psychosexual clinic at atertiary care centre. Indian J Psychol Med 2013; 35 : 241-7.
3. Wig NN. Problems of mental health in India. J Clin Soc Psychiatry 1960; 17 : 48 53.
4. Avasthi A, Kaur R, Prakash O, Banerjee A, Kumar L, Kulhara P. Sexual behavior of married young women: A preliminary study from north India. Indian J Community Med 2008; 33 : 163 7.
5. Behere PB, Natraj GS. Dhat syndrome: The phenomenology of a culture bound sex neurosis of the orient. Indian J Psychiatry 1984; 26 : 76 8.
6. Dudhmal A, Mokashi M, Sawant B, Thakur S, Bakre S, Herlekar. Klaibya: Ayurvedic concept of erectile dysfunction. National J Ayur Altern Med 2012; 1 : 157 62.
7. World Health Organisation. ICD-10 classification of mental and behavioral disorder; clinic description and diagnostic guidelines. WHO; Geneva 1992.
8. Pandey VK, Aggarwal AP, Kakkar R. Modified B.G. Prasad's socioeconomic scale, Indian Journal of Community Health [Internet]. 2019 Mar. 31 [cited 2021 Dec. 18]; 31(1) : 150-2. Available from: https://www.iapsmupuk.org/journal/index.php/IJCH/article/view/1055
9. Grover S, Avasthi A, Gupta S, et al. Comorbidity in patients with Dhat syndrome: A nationwide multicentric study. J Sex Med 2015; 12 : 1398–1401.
10. Priyadarshi S, Verma A. Dhat syndrome and its social impact. Urol Androl Open J 2015; 1(1) : 6-11.
11. Prakash S, Sharan P, Sood M. A study on phenomenology of Dhat syndrome in men in a general medical setting. Indian J Psychiatry 2016; 58 : 129-41.
12. Kumar S, Rathi H, Sharma CS, Dixit V, Singh T. Psychiatric co-morbidities in patients of Dhat syndrome: A cross-sectional study in a tertiary care centre. Panacea J Med Sci January-April 2018; 8(1) : 10-15.
13. Selvaraj K, Singh A, Bansal P, Viswanathan S, Raghavan S, Sathianathan R. Dhat syndrome – revisiting the phenomonolgy and related psychiatric co-morbidities. J Psychiatry Behav Sci 2020; 3(1) : 1036.

Original Article

To compare effect of self-guided Relaxation and progressive muscular relaxation in reduction of anxiety symptoms in psychiatric disorders

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ABSTRACT

***Background**: Mind and body are inseparable; it can understand through studies focusing on effectiveness of mind-body therapies (MBTs). MBTs or relaxation programs help the individual to switch from stress response to relaxed response. Self-guided relaxation (SGR) is one such technique that can be delivered in a single session and therefore feasible in-service delivery.* ***Objective:** The aim was to study and compare the effectiveness of SGR with Jacobson's progressive muscular relaxation (JPMR) in anxiety symptoms.* ***Method:** It was a prospective pre-post pragmatic study design and carried out in a tertiary care government hospital of urban locality. A sample of 60 participants with anxiety symptoms were recruited as per inclusion and exclusion criteria. The outcome measures used were Hamilton Scale for Anxiety (HAM-A) and Symptom Checklist 90 Revised (SCL-90R).* ***Results**: The pre-post pair wise with-in group analysis revealed that the change in scores on measures of anxiety and psychological distress was statistically significant for both JPMR ($p < .05$) and SGR ($p < .01$). The effect size using Cohen's d ranged from medium ($d = .5$) to large ($d = .8$).* ***Conclusion**: SGR can be an easy to use intervention to disseminatein an era where videoconference, mobile or tele services are being explored as viable and effective means of delivery of psychological interventions.*

***Keywords**: Self-guided relaxation, Mind-body therapies, Anxiety, JPMR, Relaxation*

Introduction

Mind and body are inseparable, it has been clearly understood that the bodily state affects mind and vice-versa.[1] Stress is inevitable to human existence, it can be a motivating force as well as a barrier in living a fulfilling life. Stress, be acute or chronic, affects both physical and psychological health.[2] The mind-body connection may be better understood through studies focusing on interaction between central nervous system and endocrine, peripheral, autonomic and immune system.[3,4] Mind-body therapies include various interventions like hypnosis, mental imagery, biofeedback, progressive muscle relaxation, yoga, meditation, tai chi, and visual imagery and so on.[2,5] Thus mind-body therapies (MBTs) or relaxation programs help the individual to switch from stress response to relaxation response.[6] The standard relaxation program ranges from 4 weeks[7,8] to 8 weeks[9,10,11] and has been proved beneficial in psychiatric conditions.[12] Jacobson's progressive muscular relaxation (JPMR) is one of the common technique used by various mental health professionals with patients having anxiety symptoms. It requires the individual to take 5 consecutive sessions from a specialist and later to be practiced at home for clinical gains. Many patients reported inconvenience due to geographical distance, job timings, household responsibilities, exams or school timings etc. This resulted in delivering self-guided relaxation (SGR) to a few patients seeking

clinical services in the OPD and the feedback received was positive, especiallysingle session and transferring the audio file into the phone, found to be most useful and convenient in practice of relaxation at home. SGR requires a single session delivered by any non-specialist and later can be practiced at home using the audio recording, hence no intensive training is needed. SGR was developed by the first author as part of the team in the past as a Research Fellow in a project and the feasibility and effectiveness has been published.[13,14] Consequently, the current study was planned to compare effectiveness of SGR with JPMR, which is a well-established relaxation technique.[14]

Material and Methods

Study design and settings

The study aimed to compare the effectiveness of SGR and JPMR in alleviating symptoms of anxiety in individuals having psychiatric disorders. The study design chosen was pragmatic clinical trial using quasi-experimental design with a pre-defined sample size of 60. The participants were patients with anxiety symptoms referred to the Behavior Therapy unit of the outpatient department (OPD) of Psychiatry of a government hospital of urban locality by the psychiatrist(s). It was a prospective pre-post study of 3 months duration, a 2 months period of induction and completion at 4-week post assessment. Total 60 participants were recruited after seeking individual consent, as per the inclusion/exclusion criteria.

Participants

Both males and females between 18-55 years age having diagnosis of only mood disorders (F30-39) and; neurotic, stress related and somatoform disorders (F40-49), as per ICD 10,[15] and on stable dose of medicine were included. Those having any other psychiatric comorbidity including substance dependence (except Nicotine and Caffeine) or currently suicidal were excluded. Those practicing any form of relaxation or yoga etc., undergoing any form of psychotherapy, having major or unstable medical illness, those having no smart phone or where audio file could not be transferred through WhatsApp, SHAREit or Bluetooth; were also excluded.

Assessment tools

The clinical outcome was measures of anxiety and psychological distress.

1. Hamilton Scale for Anxiety (HAM-A): It's a clinician-rated scale to assess severity of anxiety symptoms, it measures both psychic as well as somatic anxiety. It has 14 items administered in 10-15 minutes, each item is scored on a scale from 0 to 4, where 0 denotes 'not present' and 4 'very severe'. A total score range from 0-56, < 17 indicates mild severity, 18-24 mild to moderate severity, 25-30 moderate to severe, >30 very severe. It has good reliability and validity;[16] and is widely used in clinical research studies.
2. Symptom Checklist 90 Revised (SCL-90R): It was used to assess psychological distress. It consists of 90 items and takes about 30 minutes to administer. The respondent gives a score from 0 to 4 for the past one week's time, where 0 denotes 'not at all' and 4 'extremely'. SCL-90 has 9 symptom dimensions and three summary scores termed global scores. The global measures are referred to as the Global Severity Index (GSI), the Positive Symptom Distress Index (PSDI), and the Positive Symptom Total (PST). The Global Severity Index (GSI) is the single best indicator of the current level or depth of an individual's disorder. It combines information concerning the number of symptoms reported with the intensity of perceived distress. It is obtained by adding the scores of all 90 items and dividing by 90. The Positive Symptom Total (PST) is a reflection of the number of symptoms endorsed by the respondent regardless of the level of stress reported. It can therefore be interpreted as a measure of symptom breadth. The Positive Symptom Distress Index (PSDI) reflects the average level of distress reported for the symptoms that are endorsed; as such, it can be interpreted as a measure of symptom intensity. It is obtained by summing the scores of all 90 items and dividing by the PST score. The current study used only

global measures. The reliability and validity[17] of PST is well established and it has been widely used in Indian population.[18]

Procedure

The study proposed in the Department Research Committee and was proposed as a clinical service delivery. Individual consent was taken from each participant to choose between SGR and JPMR as it was a pragmatic trial. A total 133 patients were referred during the mentioned 2 months' time period, only 124 patients were delivered relaxation session and a sample of 60 was recruited. Those included were divided in two groups pragmatically as per their preference in coming to OPD. Accordingly, 25 participants were recruited to group A (JPMR) and 35 to group B (SGR). The significance of mind-body connection was explained to all participants before initiating the relaxation session following a standard set of statements as a routine clinical work. Once recruited, each participant was assessed using HAM-A and SCL-90R. There was only 1 participant who discontinued the assessment in middle of SCL-90R so the analysis was done only for 59 participants. The reason given for withdrawal was the participant received the phone call so had to immediately leave. The participants in group A received minimum 3 and maximum 5 session of JPMR whereas those in group B received a single session of SGR, delivered by the researcher. The individual relaxation sessions were delivered in a room specifically reserved for relaxation in the OPD of Psychiatry. The session was conducted in a supine position. The session(s) were delivered using an audio-recording to maintain uniformity in para-linguistic. For this, audio-recorded file of SGR was procured from the institute where it was earlier used and for JPMR the audio available in the OPD in routine clinical work was used. After the completion of intervention, the audio file was transferred in the participant's phone by the Trainee Clinical Psychology. The assessment on measures of HAM-A and SCL-90R was carried out before delivery of intervention and a post-assessment was at the end of 4 weeks. A telephonic call was made to each participant a day prior to the 4-week post-assessment session. Only 31 out of 60 participants came for post-assessment to the OPD. The remaining 28 were telephonically contacted to schedule the session for post-assessment, the participants whose appointment could not be scheduled for post-assessment after 2 consecutive phone calls in time span of 7 days, were considered to be a dropped-out, and shown in figure 1. The post assessment was done within a week after completion of 4 weeks. There were 15 participants lost to follow-up in group A and 13 in group B. Most of the participants at the time of post assessment reported to be practicing relaxation intermittently and daily practice was rarely reported (only three). Once the post assessment data was collected, scoring was done and the data was entered in excel sheet to be exported to SPSS for analysis.

Statistical analysis

The data was analyzed using software package for social sciences (SPSS) version 24. last observation carried forward (LOCF) was used for coding and statistical analysis as the number of post assessments were 10 in number in group A and 21 in group B. The descriptive statistics was computed for socio demographic variables, number of practice sessions, and scores on assessment measures. Further, to see if change in scores on pre-post assessment measures were significant paired t-test for within group differences and independent t-test for the between group differences was computed. Further Cohen's *d* was calculated to measure the effect size.

Results

A total of 60 participants were recruited and 1 discontinued, so data of 59 participants was analyzed. There were 25 participants in group A (JPMR) and 35 in group B (SGR). Table 1 shows that mean age and years of formal education of the participants in both groups did not differ much, though the groups were not matched and significance of difference was not computed. There male female ratio was almost balanced and not skewed in any of the group. About 50% of all the 60 participants were from tri-city comprising of 3 cities Chandigarh, Mohali and Panchkula. Rest of the participants were from neighboring states of Punjab, Haryana and Himachal Pradesh; and only one participant was from Rajasthan. The participants chose SGR over JPMR, even patients from tri-city preferred to come for single session than 3-5 sessions for JPMR. The mean number of sessions practiced by the

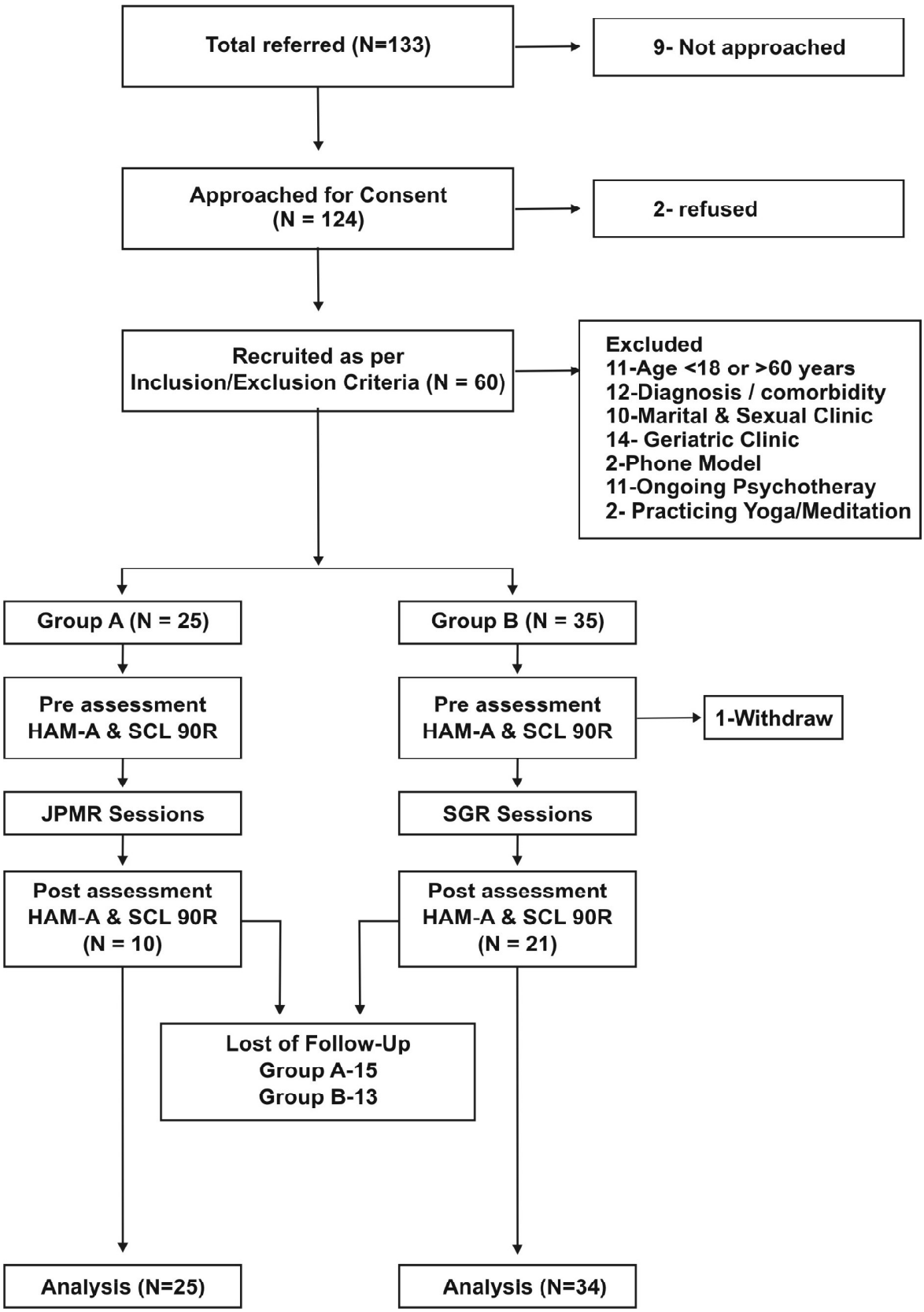
Total referred (N=133)
9- Not approached
Approached for Consent (N = 124)
2- refused
Recruited as per Inclusion/Exclusion Criteria (N = 60)
Excluded
11-Age <18 or >60 years
12-Diagnosis / comorbidity
10-Marital & Sexual Clinic
14- Geriatric Clinic
2-Phone Model
11-Ongoing Psychotheray
2- Practicing Yoga/Meditation
Group A (N = 25)
Group B (N = 35)
Pre assessment HAM-A & SCL 90R
Pre assessment HAM-A & SCL 90R
1-Withdraw
JPMR Sessions
SGR Sessions
Post assessment HAM-A & SCL 90R (N = 10)
Post assessment HAM-A & SCL 90R (N = 21)
Lost of Follow-Up
Group A-15
Group B-13
Analysis (N=25)
Analysis (N=34)

Table-1: Sociodemographic variables of participants in A and B groups (N=60)

Variables		A (N=25)	B (N=35)	A &B(N=60)
Age, years (Mean ± SD)		34.60 (8.63)	37.06 (7.89)	36.02 (8.23)
Education, years (Mean ± SD)		13.12 (3.54)	12.15 (4.61)	12.56 (4.19)
Sex, *n* (%)	Females	15 (60)	22 (62.85)	37 (61.67)
	Males	10 (40)	13 (37.14)	23 (38.33)
Residence, *n* (%)	TC	19 (76)	12 (34.28)	31 (51.67)
	HP	1 (4)	4 (11.43)	5 (8.33)
	HR	1 (4)	10 (28.57)	11 (18.33)
	PB	4 (16)	8 (22.86)	12 (20)
	RJ	0	1 (2.86)	1 (1.67)

A- JPMR group; B- SGR group; SD-Standard deviation; %-Percentage; TC-Tri-city; HP-Himachal Pradesh; HR-Haryana; PB-Punjab; RJ-Rajasthan

Table-2: Showing descriptive statistics of clinical outcome measures and intervention sessions of participants in A and B groups

Variables		A (n=25) Mean ± SD		B (n=34) Mean ± SD	
		Pre	Post	Pre	Post
HAM-A		21.40 ± 9.16	13.96 ± 11.23	20.56 ± 9.68	12.50 ± 11.49
SCL-90R	GSI	.97 ± .45	.66 ± .51	1.08 ± .69	.68 ± .74
	PSDI	1.96 ± .65	1.63 ± .69	2.25 ± .64	1.62 ± .65
	PST	39.44 ± 16.11	29.48 ± 18.23	41.85 ± 18.46	29.12 ± 22.21
Sessions		14	13	10	11

A- JPMR group; B- SGR group; SD-Standard deviation; HAM-A-Hamilton Scale for Anxiety; SCL90 R-Symptom Checklist 90 Revised; GSI-Global Severity Index; PSDI-Positive Symptom Distress Index; PST-Positive Symptom Total

Table-3: Pre-post analysis of clinical outcome measures within A and B groups using Paired t-test and Cohen's *d*

Measures		A (n = 25) Mean±SD				B (n = 34) Mean± SD			
		Pre	Post	p	d	Pre	Post	p	d
HAM-A		21.40 ± 9.16	13.96 ± 11.23	.002	.71	20.56 ± 9.68	12.50 ± 11.39	.000	.78
SCL-90R	GSI	.97 ± .45	.66 ± .51	.002	.70	1.08 ± .69	.68 ± .74	.000	.69
	PSDI	1.96 ± .65	1.63 ± .69	.003	.65	2.25 ± .64	1.62 ± .65	.000	.82
	PST	39.44 ± 16.1	29.48 ± 18.23	.002	.71	41.85 ± 18.46	29.12 ± 22.21	.000	.72

*p<0.05, **p<0.01, ***p<0.001.A- JPMR group; B- SGR group; d-Cohen's d; SD- Standard deviation; HAM-A- Hamilton Scale for Anxiety; SCL90R-Symptom Checklist 90 Revised; GSI-Global Severity Index; PSDI-Positive Symptom Distress Index; PST-Positive Symptom Total

participants in group A (13) was more than group B (10) shown in table 2. The pre-scores on anxiety (HAM-A) as well as on domains of psychopathology (SCL-90R) were almost similar in both the groups and change in pre-post scores on the measures was found. The pre-post pair wise with-in group analysis revealed that the change in scores on measures of anxiety and psychological distress was statistically significant for both groups A ($p < .05$) and B ($p < .01$), as shown in table 3. The effect size[19] computed using Cohen's *d* ranged from medium (*d*=.5) to large (*d*=.8).

Discussion

The study was aimed at proving effectiveness of SGR in comparison to gold standard JPMR, SGR being easy to disseminate in outpatient services on the first contact itself, addressing issues related to drop-outs in JPMR and improve the clinical services. The effect of contemporary living is bringing a

Table-4: Showing pre-post analysis of clinical outcome measures between Aand B groups using Independent t-test

Measures		Group	Mean ± SD	Mean difference	SE difference	t	*p*	CI	
HAM-A		A	28.43 ± 38.33	5.51	10.24	.54	.593	26.00	14.99
		B	33.94 ± 39.24						
SCL-90R	GSI	A	27.02 ± 35.89	7.04	9.80	.72	.476	26.67	12.60
		B	34.06 ± 38.15						
	PSDI	A	11.04 ± 14.86	2.61	4.14	.63	.531	10.89	5.68
		B	13.65 ± 16.29						
	PST	A	19.84 ± 29.61	6.41	8.33	.77	.445	23.10	10.27
		B	26.25 ± 33.02						

*p<0.05, **p<0.01, ***p<0.001. A- JPMR group; B- SGR group;SD-Standard deviation; CI-confidence interval; HAM-A-Hamilton Scale for Anxiety; SCL90 R-Symptom Checklist 90 Revised; GSI-Global Severity Index; PSDI-Positive Symptom Distress Index; PST-Positive Symptom Total

change in clinical services delivery system where e-interventions, tele-services are being explored for its effectiveness and overcoming barriers to treatment seeking behavior. SGR is one such technique that was developed with an aim to reach the unreached, a single session intervention that can be delivered by any non-specialist. This kind of instant delivery of SGR is expected to be more convenient and useful to those seeking clinical services at any tertiary care centers or through internet. The results of the current study proved SGR to be as effective as JPMR and to be considered as an easy alternative to improve clinical services.

The participants in 2 unmatched groups, received 3-5 sessions of JPMR and single session of SGR respectively. The groups did not differ much in mean age and years of formal education. The sex ratio also between two groups also was not skewed. More than half of the participants preferred single session intervention, that is, SGR; including those from the tri-city (51.67%) where distance was not a significant issue but the participants reported inconvenience in visiting OPD for 3-5 consecutive days for JPMR. The researchers managed convincing 25 participants for JPMR on grounds of the comparative research study. But it was interesting to find out once given an option, the participants chose SGR, this fact itself justifies the rationale behind the current study.

As it can be seen in table 2, the scores on anxiety and domains of psychological distress in the 2 groups changed before and after the intervention. The decrease in scores on HAM-A reveal that both SGR and JPMR as interventions were effective in reducing anxiety. Additionally, the scores on different global measures of SCL-90-R suggest that relaxation intervention also alters the intensity of perceived distress (GSI), symptom breadth (PST) and symptom intensity(PSDI).

No participant completed 5 consecutive session of JPMR, most of the participants received 3 sessions or lesser. The average number of practice sessions for the sample in group A was 14 (±13) ranging from 1 to 27 sessions (1 to 26) to whereas in group B was 10 (±11) ranging from 1 to 21 sessions. The sample in group A had greater average number of session as induction followed 3 sessions of JPMR whereas SGR was single session intervention. This does not imply that participants complied more withpractice of JPMR sessions at home than SGR. On enquiring in the post-assessment session, most of the participants reported SGR to be more convenient to practice at home.

The purpose to design the study was to study the effectiveness and it was statistically found significant that sample in group B (SGR) had experienced reduction in anxiety and psychological distress. It was also revealed in the feedback on post-assessment that SGR was convenient whereas those receiving JPMR sessions did not come for 3-5 session and most of the participants received only 1 session, which had been identified as the barrier in delivery of JPMR. SGR on the other hand can be given to patients for self-practice using an audio-file. This is corroborated by the feedback received from patients in routine clinical practice. Relaxation techniques have been reported in literature to be very effective in changing emotional and cognitive

reactions to stressors.[20] It's the psyche-soma interplay operating through hypo-pituitary pathway and other neural networks.[21]

Relaxation techniques have been rooted in Eastern culture and adopted in West to be used as an intervention to reduce anxiety and stress. It has been referred to as mind-body therapies (MBTs), have been identified as complementary and alternative medicine (CAM). [22] The application has been vast, it has been used as an adjunct for many psychiatric as well non-psychiatric clinical conditions.[20] In addition, its effectiveness is well proven in non-clinical population to enhance general health and well-being.[22,23] However, with current focus on mindfulness, both approaches involve awareness of experience.[24,25] Mindfulness being more common in last 3 decades and an integral part new wave of behavior therapy (BT) like ACT and DBT, it will be interesting to explore if MBTs have similar clinical outcome. Mindfulness plays role in mentalization[26] but research also reports change in cognitive and behavioral reactions in MBTs as seen in mindfulness. A common mechanism is stress reaction as well as release of oxytocin which in turn enhances social well-being.[27]

Thus, it might be interesting to explore if relaxation exercising enhances mindfulness and can be an easy alternative for mindfulness-based therapies. Mindfulness based programs/training is more structured whereas if an intervention like SGR can have effect on mindfulness along with stress reduction, then dissemination of SGR can be preventive measure as well as integral part of management plan for various psychiatric disorders of mood, thought and emotion. [20]

Conclusion

To conclude in an era where videoconference, mobile or tele services are being explored to be viable and effective means of delivery of psychosocial interventions,[28,29,30] SGR can be an easy to use intervention to be disseminated by any mental health professional as part of mental health service delivery system.

References

1. Jacobs GD. The physiology of mind–body interactions: the stress response and the relaxation response. J Altern Complement Med 2001; 7(1) : 83-92.
2. Taylor AG, Goehler LE, Galper DI, Innes KE, Bourguignon C. Top-down and bottom-up mechanisms in mind-body medicine: development of an integrative framework for psychophysiological research. Explore 2010; 6(1) : 29-41.
3. Morgan N, Irwin MR, Chung M, Wang C. The effects of mind-body therapies on the immune system: meta-analysis. PLoS ONE 2014; 9(7) : e100903:1-14. Available from: https://doi.org/10.1371/journal.pone. 0100903.
4. Chrousos GP, Gold PW. A healthy body in a healthy mind – and vice versa- the damaging power of "uncontrollable' stress. J Clin Endocrinol Metab 1998; 83(6) : 1842-45. Available from:https://doi.org/10.1210/jcem.83.6.4908.
5. Wahbeh H, Elsas S-M, Oken BS. Mind–body interventions. Neurology 2008; 70 (24) : 2321-2328.
6. Dusek JA, Benson H. Mind-body medicine: a model of the comparative clinical impact of the acute stress and relaxation responses. Minn Med 2009; 92(5) : 47-50.
7. Sheu SRN, Irvin BLRN, Lin HS, Mar CL. Effects of progressive muscle relaxation on blood pressure and psychosocial status for clients with essential hypertension in Taiwan. Holist Nurs Pract 2003; 17(1) : 41-47.
8. Sime WE, DeGood DE. Effect of EMG biofeedback and progressive muscle relaxation training on awareness of frontalis muscle tension. Psychophysiology 1977; 14(6) : 522-30.
9. Lolak S, Connors GL, Sheridan MJ, Wise TN. Effects of progressive muscle relaxation training on anxiety and depression in patients enrolled in an outpatient pulmonary rehabilitation program. Psychother Psychosom 2008; 77 : 119–125.
10. Kanji N, White A, Ernst E. Autogenic training to reduce anxiety in nursing students: randomized controlled trial. J Adv Nurs 2006; 53(6) : 729-35.
11. Hidderley M, Holt M. A pilot randomized trial assessing the effects of autogenic training in early-stage cancer patients in relation to psychological status and immune system responses. Eur J Onco Nurs 2004; 8(1) : 61-5. Available from:

https://doi.org/10.1016/j.ejon.2003.09.003.
12. Francesco P, Mauro MG, Gianluca C, Enrico M. The efficacy of relaxation training in treating anxiety. Int J Behav Consult Ther 2010; 5(3-4) : 264-9. Available from: http://dx.doi.org/10.1037/h0100887.
13. Malhotra S, Chakrabarti S, Aarzoo, Mehta A, Shah R, Kumar V, Sharma M. A Self-guided relaxation module for telepsychiatric services: development, usefulness, and feasibility. Int J Psychiat Med 2013; 46(4) : 325-37.
14. Manzoni GM, Pagnini F, Castelnuovo G, Molinari E. Relaxation training for anxiety: a ten-years systematic review with meta-analysis. BMC Psychiatry 2008; 8(41) : 1- 12. Available from: https://doi.org/10.1186/1471-244X-8-41.
15. World Health Organization. ICD-10: International Statistical Classification of Diseases and Related Health Problems. Tenth Revision. 2nd ed. World Health Organization 2004.
16. Hamilton M. The assessment of anxiety states by rating. Br J Med Psychol 1959; 32 : 50–55.
17. Derogatis LR. SCL-90-R: administration, scoring, and procedures manual 1. Baltimore: Clinical Psychometric Research 1977.
18. Derogatis LR, Unger R. Symptom Checklist 90 Revised. Corsini Encyclopedia of Psychology 2010.
19. Sawilowsky S. New effect size rules of thumb. J Mod App Stat Meth 2009; 8 : 597-9.
20. Jain S, Shapiro S, Swanick S, Roesch, S, Mills PJ, Bell I, Schwartz GE. A randomized controlled trial of mindfulness meditation versus relaxation training: effects on distress, positive states of mind, rumination, and distraction. Ann Behav Med 2007; 33 : 11-21.
21. Kachanathu S, Verma S, Khanna G. The effect of mindfulness meditation on HPA axis in reducing pre competition stress to improve performance of elite shooters. Natl J Integr Res Med 2011; 2 : 15-21.
22. Park CL. Mind-body CAM interventions: current status and considerations for integration into clinical health psychology. J Clin Psychol 2013; 69(1) : 45-63.
23. Wolsko PM, David ME, Roger BD, Russell SP. Use of mind–body medical therapies: results of a national survey. J Gen Intern Med 2004.
24. Chiesa A, Malinowski P. Mindfulness-based approaches: Are they all the same? J Clin Psychol 2011; 67 : 404-24.
25. Park T, Reilly-Spong M, Gross CR. Mindfulness: a systematic review of instruments to measure an emergent patient-reported outcome (PRO). Qual Life Res 2013; 22(10) : 2639–59.
26. Jain F, Fonagy P. Mentalizing imagery therapy: theory and case series of imagery and mindfulness techniques to understand self and others. Mindfulness 2018; DOI:10.1007/s12671-018-0969-1-30.
27. IsHak WW, Kahloon M, Fakhry H. Oxytocin role in enhancing well-being: a literature review. J Affect Disord 2011; 130 : 1-9.
28. Greene CJ, Morland LA, Macdonald A, Frueh BC, Grubbs KM, Rosen CS. How does telemental health affect group therapy process? Secondary analysis of a noninferiority trial. J Consult Clin Psych 2010; 78(5) : 746-50.
29. Chan SR, Torous J, Hinton L, Yellowlees P. Mobile tele-mental health: increasing applications and a move to hybrid models of care. Healthcare 2014; 2(2) : 220-33.
30. Malhotra S, Chakrabarti S, Shah R. Telepsychiatry: promise, potential, and challenges. Indian J Psychiatry 2013; 55(1) : 3-11.

Original Article

Mental Health Status of COVID - 19 Positive Patients and General Patients during Pandemic in Union Territory of Ladakh

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ABSTRACT

Background: *Pandemic situation has created a fear of uncertainty which is impacting the mental health of people. The present study aims to assess the mental health status of COVID-19 positive and general patients visiting hospital during pandemic in government SNM hospital Ladakh.* ***Methodology:*** *The objective of the study was to measure the occurrence and difference in any psychiatric condition between COVID- 19 positive patients and general patients. A cross- section descriptive study with total sample size of 208 consisting of covid- 19 positive and general patients, data was collected using DSM- 5 Self- Rated Level 1 Cross- Cutting Symptom Measure—Adult via purposive sampling and SPSS .20 is used for statistical analysis.* ***Results:*** *the mean age was 41 and 34 in COVID- 19 positive and general patient group respectively. There was not much difference on the occurrence of depressive symptoms and sleep problem among both the group. Other than anxiety and somatic symptoms the scores on all the domains were higher in general patients as compared to COVID -19 positive patients but no significant difference between both the groups was observed.* ***Conclusion:*** *In pandemic situation, general patients visiting hospital needs equal attention for mental health screening and care as much as COVID- 19 positive patients.*

Keywords: *Mental Health, Pandemic, COVID- 19*

Introduction

The pandemic has not only affected physical health but other aspects of economy, social integrity and mental health as well. The fear of uncertainty due to fear of contaminating with the virus, vulnerability of certain population and the consequences of quarantine and isolation is impacting the mental health. The viral infections have been associated with increased risk for psychiatric disorders and that the psychosocial stressors associated with the pandemic of COVID-19 have the potential to trigger new-onset psychiatric disorders as well as exacerbate existing ones.[1] Cases of suicide,[2] managerial crisis due to lockdown in alcohol dependence,[3] anxiety in teenagers[4] had also been a public health concern. In the initial days of outbreak, many people suffered with depression, anxiety and stress[5] which further increased during the peak time of the COVID-19 in China.[6] Studies done during the pandemic were primarily focused on mental health of covid-19 positive patients, health workers and general population. However mental health of general patients during the pandemic did not get much attention. As cases of COVID-19 increased in

Ladakh, there is a need to assess the occurrence of any psychiatric conditions in COVID-19 positive patients as well as general patients visiting the hospital during such situation. Mental health screening, psychological first aid and treatment needs to be a part of the plan therefore these measures will be helpful in guiding clinical decision-making, planning mental health support and allocation of adequate resources during pandemic.

Methodology

The present study aims to assess the mental health condition in COVID-19 positive and general patients visiting hospital during pandemic situation in government hospital Ladakh. The objectives of the study are to measure the occurrence and significant difference in any psychiatric condition in COVID-19 positive patients and general patients in Ladakh. This is a cross sectional descriptive study consisting of 104 COVID-19 positive patients and 104 general patients, the data was collected through purposive sampling technique. The socio-demographic detail and DSM-5 Self-Rated Level 1 Cross-Cutting Symptom Measure—Adult was used for screening. The DSM-5 Level 1 Cross-Cutting Symptom Measure is a self- or informant - rated measure that assesses various domains of psychiatric conditions in adults. After taking an approval from the District Ethical Committee Leh, the COVID-19 positive patients were personally contacted via telephone only after two weeks of COVID-19 positive diagnosis and tools were administered on each of the general patients visiting medicine, orthopedic, dental, gynecology and psychiatry OPD at SNM hospital during pandemic. All data was collected within 30 days in October-November, 2020. The participant's consent was taken and was ensured that their responses would be kept confidential and would be used only for research purpose. SPSS .20 is used for statistical analysis.

Results

In COVID-19 Positive patients the mean age was 41 with Std Deviation of 14.816 where as in General patient it was 34 with Std Deviation of 14.146.

Discussion

In both the group the majority of the participants were female 60% in COVID-19 positive and 62% in General Patient. 25% and 27% of the participants were educated between 6 to 10 grades in both the groups. Maximum (58%) participants were government servant in COVID-19 positive group whereas it was students (30%) and government servant (29%) in the general patient group. Only 1% had past history of mental illness and 14% had past history of medical illness in COVID-19 positive group. Approximately 16% and 4% had past history of Mental and Medical illness among general patient group.

Other than anxiety and somatic symptoms the

Table-1: Socio-demographic details

	COVID-19 Positive Patients			General Patients		
	Sex	**Frequency**	**Percent**	**Sex**	**Frequency**	**Percent**
	Female	62	59.6	Female	64	61.5
	Male	42	40.4	Male	40	38.5
Education	Up to 5 Grade	16	15.4	Up to 5 Grade	14	13.0
	6-10 Grade	26	25	6-10 grade	28	26.9
	11-12 Grade	25	24	11-12 grade	24	23.1
	Graduate	23	22.1	Graduate	26	25.0
	Post Graduate	14	13.5	Post Graduate	12	11.5
	House Wife	13	12.5	House Wife	16	15.4
	Student	16	15.4	Student	31	29.8
Occupation	Private/Self Employed	15	14.4	Private /Self Employed	27	26
	Government	60	57.7	Government	30	28.8
Past H/OMI	No	103	99	No	89	92.5
	Yes	1	1	Yes	15	15.6
Past H/O MedI	No	89	85.6	No	100	96.2
	Yes	15	14.4	Yes	4	3.8
	Total	104		Total	104	

Table-2: Occurrence of psychiatric symptoms in General Patients and COVID -19 positive patients

Domains	Threshold to guide further inquiry	General Patients		COVID-19 Positive Patients	
		Frequency	Percent	Frequency	Percent
Depression	0-1 not significant	81	77.9	83	79.8
	2-8 thresholds for further inquiry	23	22.1	21	20.2
Anger	0-1 not significant	91	87.5	99	95.2
	2-4 thresholds for further inquiry	13	12.5	5	4.8
Mania	0-1 not significant	99	95.2	103	99.0
	2-8 thresholds for further inquiry	5	4.8	1	1.0
Anxiety	0-1 not significant	89	85.6	80	76.9
	2-12 thresholds for further inquiry	15	14.4	24	23.1
Somatic Symptoms	0-1 not significant	92	88.5	89	85.6
	2-8 thresholds for further inquiry	12	11.5	15	14.4
Suicide Ideation	0 not significant	62	59.6	100	96.2
	1-4 thresholds for further inquiry	42	40.4	4	3.8
Psychosis	0 not Significant	73	70.2	103	99.0
	1-8 thresholds for further inquiry	31	29.8	1	1.0
Sleep Problem	0-1 not significant	86	82.7	88	84.6
	2-4 thresholds for further inquiry	18	17.3	16	15.4
Memory	0-1 not significant	83	79.8	97	93.3
	2-4 thresholds for further inquiry	21	20.2	7	6.7
Repetitive thought	0-1 not significant	78	75.0	99	95.2
and behavior	2-8 thresholds for further inquiry	26	25.0	5	4.8
Dissociation	0-1 not significant	78	75.0	104	100.0
	2-4 thresholds for further inquiry	26	25.0	0	0.0
Personality	0-1 not significant	74	71.2	101	97.1
Functioning	2-8 thresholds for further inquiry	30	28.8	3	2.9
Substance Use	0 not significant	61	58.7	101	97.1
	1-12 thresholds for further inquiry	43	41.3	3	2.9

Table-3: Comparing the difference between the two groups on various psychiatric domains

Independent Samples Test		
	t-test for Equality of Means	
	t	Sig. (2-tailed)
Depression	.338	.736
Anger	1.982	.049
Mania	1.660	.098
Anxiety	-1.601	.111
Somatic Symptoms	-.617	.538
Suicide Ideation	7.036	.000
Psychosis	6.259	.000
Sleep Problem	.373	.709
Memory	2.887	.004
Repetitive Thought and Behavior	4.243	.000
Dissociation	5.859	.000
Personality Functioning	5.455	.000
Substance Use	7.505	.000

*. *The mean difference is significant at the 0.05 level.*

scores on all the domains were higher in general patients as compared to COVID -19 positive patients (Table 2) which could be possibly due the higher number of participants having history of mental illness and the possibility that their coping was affected due to uncertain situation like pandemic. Hao et al when compared the immediate stress and psychological impact experienced by people with and without psychiatric illnesses during the peak COVID-19 epidemic, it was psychiatric patients who were higher on scores of PTSD symptoms, anxiety, depression, stress and insomnia.[7] There was not much difference on the occurrence of depressive symptoms and sleep problem among both the groups. 22% and 17% of general patients and 20% and 15% of COVID-19 positive patients were fulfilling the criteria at thresholds for further inquiry on depression and sleep problem. The findings on anxiety (23%) and depression (20%) in COVID-19 positive patients in Ladakh were lower than Xiangyu et al study where 144 inpatients diagnosed with COVID-19, 34.72% and 28.47% had symptoms of anxiety and depression.[8] No patients showed any significant symptoms of dissociation, 1% met the thresholds for further inquiry on psychosis and

mania, 3% reported significant difficulty in personality functioning and substance use, 4%, 5% and 7% were at thresholds for further inquiry on suicidal ideation, anger, repetitive thoughts and behavior and memory among COVID-19 positive patients. In general patients, 41% and 40% met the criteria at threshold for further inquiry on domains of Substance use and suicidal ideation. General Patients reported 30% difficulty in Personality Functioning and psychosis and 25% met the criteria at threshold for further inquiry on repetitive thoughts and behavior and dissociation, 20% and 12% had significant difficulty in areas of memory and anger, 5% reported to be having significant symptoms of mania. There was no significant difference between the groups (Table 3) on all the domains. The main limitation of the study is that patients were assessed only at a particular time; they were not followed for any significant changes. However, the study suggests that COVID-19 positive patients can have increased risk for depression, anxiety, somatic symptoms, sleep problems, memory and obsession thoughts and repetitive behavior. Also, that the general patients are equally vulnerable to developing a wide range of psychiatric symptoms and mental health care services need to be targeted for both the group of population during Pandemic.

Conclusion

In pandemic situation, general patients visiting hospital need equal attention for mental health screening and care as much as COVID-19 positive patients.

References

1. Banerjee DD. The other side of COVID-19: Impact on obsessive compulsive disorder (OCD) and hoarding. Psychiatr Res 2020; 288 : 112966.
2. Goyal K., Chauhan P, Chhikara K, Gupta P, Singh MP. Fear of COVID 2019: First suicidal case in India. Asian J Psychiatry 2020; 49 : 101989.
3. Rani S, Sahoo S, Parveen S, Mehra A, Subodh BN, Grover S. Alcohol related self harm due to COVID 19 pandemic: Might be an emerging crisis in the near future: A case report. Indian J Psychiatry 2020; 62 : 333-5.
4. Sahoo S, Rani S, Shah R, Singh AP, Mehra A, Grover S. COVID-19 pandemic-related anxiety in teenagers. Indian J Psychiatry 2020; 62 : 328-30.
5. Wang C, Pan R, Wan X, et al. Immediate Psychological Responses and Associated Factors during the Initial Stage of the 2019 Coronavirus Disease (COVID-19) Epidemic among the General Population in China. Int J Environ Res Public Health 2020; 17(5) : 1729.
6. Zhang Y, Zhang H, Ma X, Di Q. Mental Health Problems during the COVID-19 Pandemics and the Mitigation Effects of Exercise: A Longitudinal Study of College Students in China. Int J Environ Res Public Health 2020; 17(10) : 3722.
7. Hao F, Tan W, Jiang L, et al. Do psychiatric patients experience more psychiatric symptoms during COVID-19 pandemic and lockdown? A case-control study with service and research implications for immunopsychiatry. Brain Behav Immun 2020; 87 : 100–106.
8. Kong X, Zheng K, Tang M, et al. Prevalence and Factors Associated with Depression and Anxiety of Hospitalized Patients with COVID-19. doi.org/10.1101/2020.03.24.20043075.

Original Article

Impact of COVID 19 on psychiatric patients and their caregivers

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ABSTRACT

Introduction*: Pandemics are known to cause poor mental well-being and an increased risk of mental disorders. People with pre-existing psychiatric disorders have heightened risk of worsening of their psychiatric symptoms because of high susceptibility to stress under confinement measures, exacerbation of loneliness and despair, leading to reduced ability to cope with stress, low self-esteem, and treatment non-compliance, than the general population* ***Objectives****: To study the impact of COVID 19 pandemic on psychiatric patients and their caregivers.* ***Material and Methods****: This cross-sectional study was conducted in a tertiary care hospital on 100 clinically stable patients diagnosed with psychiatric disorders (based on 10th revised edition of International Classification of Diseases) and 100 caregivers of the patients (without any psychiatric illness) over a period of 1 month from 1/10//2021 to 31/10/2021. The psychological impact of COVID 19 was assessed using Depression, Anxiety and Stress Scale-21 Items (DASS-21) and Patient Health Questionnaire (PHQ 9) Scale.* ***Results:*** *Mean age of patients was 41.74 years while that of caregivers was 47.48 years. Mean depression, anxiety and stress scores of patients on DASS-21 were 13.56 ± 4.745, 10.86 ± 3.232, 18.89 ± 4.002 respectively while that of caregivers were 9.16 ± 2.112, 8.18 ± 2.328, 15.24 ± 3.801, suggesting higher scores in patients as compared to caregivers. Mean score of patients on PHQ 9 was 10.83 ± 3.854 while that of caregivers was 7.56 ± 2.100 suggesting moderate depression in patients and mild depression in caregivers.* ***Conclusion****: COVID 19 pandemic had a significant impact on psychiatric patients and their caregivers. After the COVID-19 pandemic, mental health preparedness and anticipation of future outbreaks will lead to an increased awareness of the needs of psychiatric patients and contingency plans to be put in place.*

Keywords: *COVID 19 pandemic, Psychiatric patients, Caregivers*

Introduction

The Coronavirus outbreak was declared as a pandemic by The World Health Organization on March 11, 2020.[1] A nationwide lockdown was implemented by the Government of India from March 25, 2020, and strict home confinement was enforced.[2] Increased psychological stress related to the pandemic and unprecedented lockdown increased the risk of developing mental health problems due to separation from loved ones, the loss of freedom, uncertainty over disease status, boredom, insufficient food and household supplies, and inadequate information.[3,4] This led to anger, confusion, and post-traumatic stress symptoms.[5]

To address the mental health needs of the population, the Government of India implemented multiple measures like mental health helpline, revised tele-medicine guidelines, empowered digital communication platform to disseminate mental health training and intervention in remote settings, strengthened District Mental Health Programme (DMHP) to deliver community care and to ensure availability of psychotropic medications to prevent relapse in psychiatric patients.[6] Global attention has

predominantly been focussed on the emotional disturbance in infected persons, front line health workers, and the general public.[7,8,9] However, concerns of patients with mental illness were left unaddressed. COVID-19 pandemic and the lock-down affected various service sectors badly, with health-care services being one of the same. Immediately after the lockdown, the outpatient services were closed at many places, and the health-care services were limited to emergency services or those dedicated to patients with COVID-19 infection.

A caregiver is an individual who has the responsibility of meeting the physical and psychological needs of the dependent patient. Psychiatric patients need assistance or supervision in their routine activities and this often places a major burden on their caregivers, which exposes the caregiver to an intense burden, thereby placing the caregiver at risk of mental and physical health problems.[10] The current study is focused on the impact of the pandemic on psychiatric patient and their caregivers.

Materials and Methods

Study Design

A type of cross- sectional study was undertaken.

Participants

The study included 100 patients diagnosed with Psychiatric illness according to 10th revision of International Classification of Diseases (ICD 10)[11] classification and their primary caregivers without any psychiatric illness presenting to Psychiatry department [In Patient Department (IPD) + Out Patient Department (OPD)] ata tertiary care hospital over a period of one month from 1/10/2021 to 31/10/2021. Convenience based sampling was done.

For Patients

Inclusion Criteria

- Patients diagnosed with psychiatric illness as per ICD 10.
- Patients of either gender, age between 18-60 years.
- Clinically stable for previous 3 months i.e. no major changes in medication and no hospitalisation in the 3 months preceding the pandemic as per the previous OPD/ IPD records.
- Patients who had given consent for the study.

Exclusion Criteria

- Patients who had not given consent for the study
- Not clinically stable for 3 months preceding the pandemic.

For Caregiver

Inclusion Criteria

- Aged 18 years and above
- Staying with the patient during the last 2 years.
- Doesnot have any history of psychiatric illness or not on any psychotropic medications.

Exclusion Criteria

- Less than 18years of age
- Has history of psychiatric illness or is currently on psychotropic medications.

Tools Used

1. A specially designed questionnaire to assess the awareness and impact of COVID 19 on patients and their caregivers.
2. Depression, Anxiety and Stress Scale - 21 Items (DASS 21) Scale[12]- The reliability of DASS -21 showed that it has excellent Cronbach's alpha values of 0.81, 0.89 and 0.78 for the subscales of depression, anxiety and stress respectively.
3. Patient Health Questionnaire (PHQ9) Scale[13]– It has sensitivity of 84%, specificity of 72% and a positive likelihood ratio of 2.86.

Statistical analysis

Data were described in terms of range; mean ± standard deviation (± SD), median, frequencies (number of cases) and relative frequencies (percentages) as appropriate.Comparison of quantitative variables between the study groups was done using Student t-test. A probability value (*p* value) less than 0.05 was considered statistically significant. All statistical calculations were done using (Statistical Package for the Social Science) SPSS 21 version (SPSS Inc., Chicago, IL, USA) statistical program for Microsoft Windows.

Results

The hospital based study was carried out on 200 subjects, of which 100 were patients and 100 were caregivers of the patients.

Table 1 shows socio-demographic and COVID 19 related parameters of patients with 63% males and 37% females. Majority patients were educated(92%). All patients had knowledge about one or more parameters of COVID 19 infection. 49% of them had fear of COVID 19 infection, 14% contracted COVID 19 infection, 56% were vaccinated and 7% were admitted for the same. 16% patients experienced suicidal ideations in last 6 months. 84% of total patients maintained good personal care during the pandemic. 23% patients started taking substances or increased intake of illegal drugs during the pandemic.

Table 2 shows socio-demographic and COVID 19 related parameters of caregivers with majority of them being males (62%). Only 9% were illiterate and rest were literate. All of them had knowledge about 1 or the parameter of COVID 19 infection. 48% experienced fear regarding COVID 19 infection. Only 1% experienced suicidal ideations

Table-1: Sociodemographic and Covid 19 Related Parameters of Patients

Parameters	Patients	N
Gender	Female	37
	Male	63
	Total	100
Education	Illiterate	8
	Upto Matriculation	7
	Matriculation	24
	Higher Secondary/Diploma	26
	Graduate	24
	Postgraduate	11
	Total	100
Knowledge about Covid 19 Infection	Respiratory Infection	26
	High Temperature	19
	Mode of Spread	1
	Knowledge Of Precautions	5
	Knowledge Of Any 2 Parameters	34
	Knowledge Of Any 3 Parameters	12
	Knowledge Of All 4 Parameters	3
	Total	100
Fear of Covid 19 Infection	Yes	49
	No	51
	Total	100
Whether Experiencing Suicidal Ideas in Last 6 Months	Yes	16
	No	84
	Total	100
Whether Contracted Covid 19 Infection	Yes	14
	No	86
	Total	100
Whether Admitted For Covid 19 Infection	Yes	7
	No	93
	Total	100
Whether Vaccinated For Covid 19	Yes	56
	No	44
	Total	100
Personal Care	Good	84
	Bad	15
	Worse	1
	Total	100
Started Taking Substances/Increased Intake of Illegal Drugs During Pandemic	Yes	23
	No	77
	Total	100

Table-2: Sociodemographic and Covid 19 Related Parameters of Caregivers

Parameters	Caregivers	N
Gender	Female	38
	Male	62
	Total	100
Education	Illiterate	9
	Upto Matriculation	17
	Matriculation	26
	Higher Secondary/Diploma	25
	Graduate	21
	Postgraduate	2
	Total	100
Knowledge About Covid 19 Infection	Respiratory Infection	17
	High Temperature	10
	Mode of Spread	0
	Knowledge of Precautions	5
	Knowledge of Any 2 Parameters	41
	Knowledge of Any 3 Parameters	20
	Knowledge of All 4 Parameters	7
	Total	100
Fear of Covid 19 Infection	Yes	48
	No	52
	Total	100
Whether Experiencing Suicidal Ideas In Last 6 Months A) Yes B) No	Yes	1
	No	99
	Total	100
Whether Contracted Covid 19 Infection	Yes	16
	No	84
	Total	100
Whether Admitted For Covid 19 Infection	Yes	12
	No	88
	Total	100
Whether Vaccinated For Covid 19	Yes	65
	No	35
	Total	100
Personal Care	Good	98
	Bad	2
	Worse	1
	Total	100
Started Taking Substances/Increased Intake of Illegal Drugs During Pandemic	Yes	5
	No	95
	Total	100

during the time of pandemic. 16% of them contracted the COVID 19 infection, 12% were hospitalised for the same and 65% had received vaccination for the infection. Personal care was well maintained in 98% caregivers and only 5% had started taking substances or increased intake of illegal drugs during the pandemic.

Table 3 shows patient's clinical status and treatment compliance during the pandemic. 47% patients missed psychiatric appointments with their treating mental health professionals, out of which 3% were self-medicating and 44% patients were non-compliant to psychotropic medications due to non-availability of medications or professional help or due to strict legal enforcement of lockdown, or due to fear of contracting COVID 19 infection. 51% of patients had worsening of psychiatric symptoms.Of the 53% patients who were compliant to psychotropic medications, majority contacted their mental health professionals directly (73.58%) while others contacted via message (13.20%) or phone call (13.20%).

Table 4 shows Mean Depression, Anxiety, Stress (DASS 21) scores of patients were 13.56 ± 4.745, 10.86 ± 3.232, 18.89 ± 4.002 respectively while that of the caregivers were 9.16 ± 2.112, 8.18 ±

Table-3: Patient's Clinical Status and Treatment Compliance during The Covid 19 Pandemic

Items in Questionnaires	Categories	n(%)
If Patient Missed Psychiatric Appointments	Yes	n1 = 47 (47%)
During Covid 19 Pandemic (N = 100)	No	n2 = 53 (53%)
	Total	100
Whether Patient Missed Psychotropic	Yes	44 (93.61%)
Medications (N1=47)	No	03 (6.38%)
	Total	
If Non Compliant To Medications,	Non Availability of Medications	4 (8.51%)
Reason For The Same (N1=47)	Non Availability of Professionals	6 (12.76%)
	Lack of Transportation	20 (42.55%)
	Fear of Covid 19	14 (29.78%)
	Self Medicating	03 (6.38%)
	Total	47
Mode of Consultation In Past 6 Months (N2=53)	Direct	39 (73.58%)
	Phone Call	7 (13.20%)
	Message	7 (13.20%)
	Total	53
Worsening of Psychiatric Symptoms	Yes	51 (51%)
During Pandemic (N=100)	No	49 (49%)
	Total	100

Table-4: Correlation of Patients and Their Caregivers' Parameters with DASS-21 And PHQ-9 Scales

	Patients		Caregivers			
	Mean	SD	Mean	SD	T	p-value
Age (in Years)	41.74	14.114	47.48	11.963	-2.939	.004
Depression Score	13.56	4.745	9.16	2.112	8.599	.000
Anxiety Score	10.86	3.232	8.18	2.328	7.692	.000
Stress Score	18.89	4.002	15.24	3.801	6.932	.000
Phq 9 Score	10.83	3.854	7.56	2.100	7.204	.000

2.328, 15.24 ± 3.801.Mean Patient Health Questionnaire (PHQ 9)score in patients (11.74) was significantly more than that of caregivers (7.88) suggesting moderate depression in patients and mild depression in caregivers

Discussion

The present study was done to assess the impact of COVID 19 on psychiatric patients and their caregivers.

The mean age of patients was 41.74 ± 14.114 years. Among patients, 63% were males and 37% were females. Similar results with respect to gender were seen in a study byJanagam et al.[14] In our study, 8% of patients were illiterate, remaining 92% were literate.

The mean age of caregivers was 47.48 ± 11.96 years. Among caregivers, majority were males (62%) and remaining were females (38%). 9% were illiterate and remaining 91% were educated. This could be because the study was conducted in a tertiary care center and mostly educated people present to a higher center.

Since majority of the patients and their caregivers in our study were educated, they had knowledge about COVID 19 infection. Similarly, in an online-based survey from India exploring the knowledge, attitude, and anxiety among the general population in India during COVID-19, it was seen that all participants were aware of COVID-19, and more than 4/5th of the participants acknowledged the need for hand washing (97%), need for quarantine if symptomatic (96%), social distancing (98%).[15] A similar higher level of awareness among the general public was also noted in other countries like Saudi Arabia [clinical knowledge-90.7%],[16] Nepal [knowledge-60.0–98.7%],[17] Kenya [knowledge-63%].[18]

Psychiatric patients are not only vulnerable to increased risk of contracting the infection easily but

may transmit COVID-19 infection by not strictly following the safety measures. Similarly in our study, 14% patients contracted COVID 19 infection, of which 7% patients were admitted. The results were concordant with the report from China[19] where around 300 psychiatric inpatients were found COVID-19 positive during this pandemic. This could be due to cognitive impairment posing a challenge to process the informational overload in times of crises,[20] little awareness of risk, and diminished efforts regarding personal protection (i.e. social distancing, frequent hand-washing and home isolation), high rates of smoking, increased medical co-morbidities like diabetes mellitus, systemic hypertension[21,22] and under-reporting of physical symptoms.[23]

In our study, it was seen that 51% of psychiatric patients experienced worsening of psychiatric symptoms during COVID 19 pandemic. Some patients experienced suicidal ideations while some started taking/increased intake of substances during the pandemic. Similarly, in a case report of a patient with schizophrenia by Fischer et al.[24] in 2020, the potential of COVID-19 to precipitate entry into a psychotic phase and impact symptom manifestation was seen.

Our study recorded that 47 patients out of 100 patients missed psychiatric appointments with their treating mental health professionals, out of which 3 (6.38%) patients were self- medicating and 44 (93.61%) patients were non-compliant to psychotropic medications due to non-availability of medications-4 (8.51%), professionals-6 (12.76%), lack of transportation-20 (42.55%), fear of COVID 19-14 (29.78%).

Similarly, recent online survey from India by Grover et al[25] reported that the COVID-19 pandemic, lockdown, and resultant situations led to the marked disruption of mental health service provisions across the country involving brain stimulation, electroconvulsive therapy, inpatient services, outpatient services, psychotherapy, etc. Similarly, in an observational survey[26] in the People's Republic of China, high relapse rate and poor medication adherence was seen in the Chinese population with schizophrenia. Caregivers of psychiatric patients are at risk of being subjected to mental health consequences such as depression, anxiety, and burnout.[10] In our study, as well, 48% of caregivers expressed fear regarding COVID 19 infection, 1% experience suicidal ideas, 5% of them started taking substances or increased intake of illegal drugs during the pandemic. The reasons for distress among caregivers could be financial distress experienced by them during the time of COVID 19 pandemic, inability to procure psychotropic medications for the dependant patient and the ambivalent attitude of community towards the patient as well as the caregiver. Similar findings were reported in a survey by Janagam et al[14] in which it was found that 50% of caregivers suffered from emotional disturbances in the COVID 19 lockdown.

Furthermore in our study, it was seen that Mean Depression, Anxiety, Stress (DASS 21)[12] scores were significantly more than caregivers. Mean Patient health questionnaire (PHQ 9)[13] score in patients (10.83) was also significantly more than caregivers (7.204) which indicates that psychiatric patients are more vulnerable to psychological stress during the COVID 19 pandemic than normal healthy controls. Similarly in a study by Hao et al,[27] the psychiatric patients showed significantly higher levels of Post-Traumatic Stress Disorder (PTSD), Depression, Anxiety, Stress, and insomnia during the COVID 19 pandemic as compared to the healthy controls. This could be attributed to reduction in mental health services during the COVID-19 pandemic[25] leading to poor compliance to medications along with other factors like financial problems, social isolation and fear of COVID 19 which led to increased depression, anxiety and stress among the patients.

Limitations

The study was conducted on a sample of psychiatric patients and their caregivers, a large sample can give more accurate information regarding impact of COVID 19 on psychiatric patients and their caregivers.

Conclusion

The COVID 19 pandemic significantly affected the mental health of psychiatric patients and there is a need to perform longitudinal studies to further study the extent of issue and plan strategies to enhance mental health services. Necessary measures should be taken to improve the accessibility of psychotropic medicines to psychiatric patients along with institutional care. Also the distress of caregivers of the patients needs to be addressed and better access

to services needs to provided.

References

1. WHO Director-General's opening remarks at the media briefing on COVID19-March 2020.
2. Kumar SU, Kumar DT, Christopher BP, Doss C. The rise and impact of COVID-19 in India. Front Med 2020; 7 : 250.
3. Ahmed MZ, Ahmed O, Aibao Z, Hanbin S, Siyu L, Ahmad A. Epidemic of COVID-19 in China and associated Psychological Problems. Asian J Psychiatr 2020; 51 : 102092.
4. Rajkumar RP. COVID-19 and mental health: A review of the existing literature. Asian J Psychiatry 2020; 52 : 102066.
5. Brooks SK, Webster RK, Smith LE, et al. The psychological impact of quarantine and how to reduce it: rapid review of the evidence. Lancet 2020; 395 : 912–20.
6. Murty PP, Reddy PV, Muralidharan K. Mental Health in the times of COVID-19 Pandemic, in: guidance for General Medical and Specialised Mental Health Care Settings. Department of psychiatry, National Institute of mental health and neurosciences, Bengaluru, India-560029; 2020; 03–07.
7. Neto MLR, Almeida HG, Esmeraldo JD, et al. When health professionals look death in the eye: the mental health of professionals who deal daily with the 2019 coronavirus outbreak. Psychiatry Res 2020; 288 : 112972.
8. Spoorthy MS. Mental health problems faced by healthcare workers due to the COVID-19 pandemic–A review. Asian J Psychiatry 2020; 51 : 102119.
9. Wang C, Pan R, Wan X, et al. A longitudinal study on the mental health of general population during the COVID-19 epidemic in China. Brain Behav Immun 2020; 87 : 40-48.
10. Urízar CA, Castillo MC, Giráldez LS, Maturana SL, Pérez RM, Tapia MF. An updated review on burden on caregivers of schizophrenia patients. Psicothema 2014; 26(2) : 235-43.
11. World Health Organization. The ICD-10 Classification of Mental and Behavioural Disorders.Clinical descriptions anddiagnostic guidelines. Available on: https://www.who.int/classifications/icd/en/bluebook.pdf
12. DASS-21 Scoring Instructions. Available on:https://maic.qld.gov.au/wp-content/uploads/2016/07/DASS-21.pdf
13. Patient Health Questionnaire (PHQ-9). Available on: https://www2.gov.bc.ca/assets/gov/health/practitioner-pro/bc guidelines/depression_patient_health_questionnaire.pdf
14. Janagam J, Muraleedharan KC, Gilla D, Mohan ND. The effect of lockdown due to COVID-19 on mentally ill patients and their caregivers: a cross sectional study. Int J Community Med Public Health 2021; 8 : 1276-81.
15. Roy D, Tripathy S, Kar SK, Sharma N, Verma SK, Kaushal V. Study of knowledge, attitude, anxiety and perceived mental healthcare need in Indian population during COVID-19 pandemic. Asian J Psychiatry 2020; 51 : 102083.
16. Bawazir A, Al-Mazroo E, Jradi H, Ahmed A, Badri M. MERS-CoV infection: mind the public knowledge gap. J Infect Public Health 2018; 11 : 89–93.
17. Hussain A, Garima T, Singh BM, Ram R, Tripti RP. Knowledge, attitudes, and practices towards COVID-19 among Nepalese Residents: a quick online crosssectional survey. Asian J Med Sci 2020; 11 : 6–11.
18. Austrian K, Pinchoff J, Tidwell JB, White C, Abuya T, Kangwana B, et al. COVID-19 related knowledge, attitudes, practices and needs of households in informal settlements in Nairobi, Kenya. [Preprint]. Bull World Health Organ. E-pub: 6 April 2020. doi:http://dx.doi.org/10.2471/BLT.20.260281
19. Xiang YT, Zhao YJ, Liu ZH, Li XH, Zhao N, Cheung T, et al. The COVID-19 outbreak and psychiatric hospitals in China: managing challenges through mental health service reform. Int J Biol Sci 2020; 16 : 1741–4.
20. Guimond S, Keshavan MS, Torous JB. Towards remote digital phenotyping of cognition in schizophrenia. Schizophr Res 2019; 208 : 36-38.
21. Zorn JV, Schür RR, Boks MP, Kahn RS, Joëls M, Vinkers CH. Cortisol stress reactivity across psychiatric disorders: A systematic review and meta-analysis. Psychoneuroendocrinology 2017; 77 : 25-36.
22. Burke HM, Davis MC, Otte C, Mohr DC. Depression and cortisol responses to psycho-

logical stress: A meta-analysis. Psychoneuroendocrinology 2005; 30 : 846-56.
23. Sonoda Y, Ozaki A, Hori A, et al. Premature Death of a Schizophrenic Patient due to Evacuation after a Nuclear Disaster in Fukushima. Case Rep Psychiatry 2019; 2019 : 3284153.
24. Fischer M, Coogan AN, Faltraco F, Thome J. COVID-19 paranoia in a patient suffering from schizophrenic psychosis – a case report. Psychiatry Res 2020; 288 : 113001.
25. Grover S, Mehra A, Sahoo S, Avasthi A, Tripathi A, D'Souza A, et al. State of mental health services in various training centers in India during the lockdown and COVID-19 pandemic. Indian J Psychiatry 2020; 62 : 363.
26. Xiao J, Mi W, Li L, Shi Y, Zhang H. High relapse rate and poor medication adherence in the Chinese population with schizophrenia: results from an observational survey in the People's Republic of China. Neuropsychiatr Dis Treat 2015; 11 : 1161-7.
27. Hao F, Tan W, Jiang L, et al. Do psychiatric patients experience more psychiatric symptoms during COVID-19 pandemic and lockdown? A case-control study with service and research implications for immunopsychiatry. Brain Behav Immun 2020; 87 : 100-6.

Psychomicrobiology

Neuropsychiatric Sequelae of Malaria and Antimalarial Drugs

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Introduction

Malaria is a common and potentially life-threatening disease caused by a protozoan from the genus 'Plasmodium' of which there are five human species: (Plasmodium vivax, Plasmodium falciparum, Plasmodium ovale, Plasmodium malariae and Plasmodium knowlesi) that are transmitted through the bite of infected female Anopheles mosquitoes. Malaria continues to be a major cause of morbidity and mortality globally despite usage of effective anti-malarial drugs.[1] In 2019 alone the World Malaria report estimated that, there were an estimated 228 million cases of malaria in 89 countries. According to the WMR 2019, India represented 3% of the global malaria burden. Despite being the highest malaria burden country of the South East Asian region (58%), India has made a remarkable progress during the recent years in reducing the incidence of malaria with the estimated malaria cases reduced by 24% in 2017 compared to 2016 and 28% in 2018 compared to 2017.[2] Apart from usual clinical manifestations, mental and neurological manifestations are commonly seen in patients with malaria. It has been seen that survivors of severe malaria may exhibit a wide range of neuro-cognitive sequelae ,which include epilepsy, language deficits, motor and sensory deficits and many other neurobehavioral changes. Antimalarial drugs too have been found to be associated with significant neurological and mental manifestations, some of which are similar to those seen in acute malaria. Therefore, it is important to understand that the neuro-cognitive and behavioural sequelae observed after malaria may be related either to the underlying malarial illness or the antimalarial drugs used in the treatment.[1]

Malaria and Its Neuropsychiatric Association

Malaria is an acute febrile illness transmitted by the bite of the female Anopheles mosquito. Among the five parasitic species of Plasmodium that cause infection in humans *P. falciparum* and *P. vivax* pose the greatest threat. In 2018, *P. falciparum* alone accounted 50% of cases in the WHO South-East Asia Region. The initial symptoms of malaria which are primarily fever with chills and headache may be mild and difficult to recognize as malaria but one must keep in mind that if it is not treated within 24 hours, *P. falciparum* malaria can progress to severe illness, often lead to death.[3] Apart from the classical symptoms of malaria, psychiatric symptoms are also clearly found to be associated with even the mild chronic and relapsing forms of the disease. Even after successful malaria treatment there has been risk of chronic cognitive impairment with subclinical depression and anxiety symptoms as well as altered executive functioning, particularly following severe malaria infection. It was noted thatin the aftermath of World War 1, between 1916-1918, malaria was unexpectedly found to be the leading cause of psychiatric morbidity among soldiers which included prodrome of hallucinations, anxiety, crying, violence, agitation and a dreamy confusional state.[4] Similarly follow up of the malaria patients in the Vietnam War demonstrated changes in personality, depression, partial seizures, memory deficit and other chronic cognitive dysfunction on neuro psychological testing.[4]In an isolated incidence, Malaria has been reported to give rise to Guillian-Barre like syndrome which presented with facial palsy, retro bulbar optic

neuritis, trigeminal neuralgia, and involvement of ulnar, circumflex and lateral popliteal nerves. The pathogenesis is not precisely understood The possible mechanisms in such case might include the presence of parasitic emboli obstructing the vasa nervosum, liberation of neurotoxin from the parasite and / or associated metabolic or nutritional disturbances. Further research is in this field required.[5]

Cerebral Malaria associated manifestations

Cerebral malaria is the most severe neurological complication of Plasmodium falciparum malaria characterised by unarousable coma. This is attributed to the presence of encephalopathy. The pathogenesis is linked to abundance of parasitized red blood cells in small cerebral vessels, with the degree of sequestration of parasitized erythrocytes in the cerebral microvasculature correlating with the depth of coma. The surface of these parasitized red blood cells, close to their point of contact with endothelial cells show presence of electron-dense knobs. The white matter reveals numerous petechial ring haemorrhages as a result of the rupture of end arterioles proximal to the occlusive plugs due to parasitized red blood cells. High levels of the cytokine 'tissue necrosis factor' (TNF) found in the plasma of such patients may be responsible for the upregulation of nitric oxide synthetase activity leading to large amount of nitrous oxide being produced locally at the sites of sequestered parasites which then diffuse across the wall of the affected cerebral vessels into the brain, where it interferes with the activity of calcium influx mechanisms, inducing coma . In majority of the cases, thick and thin film examination of the peripheral blood will reveal malarial parasites. However, in anaemic children and in malaria associated with low parasitaemia the presence of malarial pigment in monocytes is a useful indicator for the diagnosis of malaria.[5]

The prognosis of cerebral malaria is poor even after receiving optimal care. Despite adequate treatment 10% to 18% of survivors develop neurological sequelae in the form of psychosis, cortical blindness, aphasia and extrapyramidal syndrome including ataxia, hemiplegia though it is more commonly seen in children. The mortality of adult cerebral malaria is 20% with death rates rising up to 50% when accompanied by organ failure.[6] Infrequently, permanent personality disturbances and dementia like picture have also been observed.

One must however remember that these psychiatric manifestations may be the presenting feature in acute uncomplicated malaria especially in association with hyperpyrexia. In acute phase it manifests as paranoid and manic syndromes but ultimately depression sets in as late sequelae.

Post Malaria Neurological Syndrome

Post-malaria neurological syndrome (PMNS) is a rare self-limiting neurological complication that can occur after recovery from malaria. The incidence of PMNS in patients after falciparum malaria can range from 0.7 to 1.8 per 1000 and it is 300 times more common in patients with severe rather than uncomplicated malaria. The exact pathogenesis of PMNS is not known though obstruction of cerebral microvasculature by parasitized red blood cell inducing cerebral hypoxemia and coinfection / reactivation of associated viral infection leading to encephalitis has been suggested as a potential mechanism. PMNS is characterized by a myriad of neuropsychiatric manifestations ranging from mild neurological deficit to severe encephalopathy and is classified into three categories based on clinical severity: a mild form which is characterized by isolated cerebellar ataxia or postural tremor; a diffuse, relatively mild encephalopathic form, associated with seizures or acute confusion ; and a severe encephalopathy characterised by motor aphasia and generalized myoclonus, postural tremor and cerebellar ataxia. PMNS should be strongly considered in patients with recent history of malaria that present with neuropsychiatric symptoms. For the diagnosis of PMNS, proven symptomatic malaria infection with full initial clinical recovery and clearance of parasitaemia following treatment, along with the development of neurological or psychiatric symptoms within 2 months of acute illness is required.[7]

Neuropsychiatric Effects associated with Antimalarial Drugs

Antimalarial drugs prescribed to prevent malaria are notorious for causing significant mental and neurological manifestations, some of which are similar to the manifestations seen in acute malaria. Therefore, the neuro-cognitive and behavioural

sequelae observed after malaria may be related either to the underlying malarial illness or the antimalarial drugs.[1] The earliest experience of side effects with antimalarial drug quinine were notably depression, mania, irritability and personality changes. Similarly quinacrine administration was associated with insomnia and anxiety which was particularly described as impression of impending death hallucinations and cognitive dysfunctions.[1] Although many classes of drugs used widely as anti-malarials are known to cause psychiatric effects (Table 2), the latest drug to go under the scanner for its neuropsychiatric side effects in pre-existing psychiatric disorders is Mefloquine, which is used as a prophylaxis as well as for the treatment of malaria. The severity of these neuropsychiatric side effects has prompted countries like the United States and the United Kingdom to update their drug boxes to include the warning of their usage.[8]

Table-1: Classification of Neuropsychiatric Manifestations of Malaria[1]

Psychiatric Disorders	Suicidibility
	Violence
	Hallucinations
	Delusions
	Psychosis
	Depression
	Phobias
	Anxiety
	Anorexia
Neurological	Stupor
	Dizziness
	Fainting
	Confusion
	Seizures
	Headache
	Vertigo
	Peripheral neuropathies
	Parasthesias
Personality changes	Mood changes
	Altered esteem
Cognition	Altered memory
	Concentration and speech problems

Conclusion

Malaria, regardless of its severity, has been associated in the past with certain common neuro psychiatric effects that resemble those now also known to be caused by certain anti-malarial drugs. Needless to say awareness regarding the adverse neuropsychiatric effects of anti-malarial drugs has grown in the modern day of medicine leading to a

Table-2: Classification of Antimalarial drugs and their Neuropsychiatric side effects

Class	Drug	Neuropsychiatric Adverse Effects
4 Aminoquinolines	Chloroquine	Sleep disturbances - insomnia[10,11]
	Amodiaquine	Headache[10,11]
	Piperaquine	Mood and personality change[13,14]
		Impulsivity[14,15]
		Flight of ideas[14,15]
		Inappropriate behaviour[14,15]
		Persecutorial and paranoid delusions[13-16]
		Delusional misidentification[17-18]
		Depersonalization[14]
		Visual and auditory hallucination[13,19]
		Mania[19,21]
		Restlessness[29]
		Agitation[29]
		Anxiety[29]
		Capgrass Syndrome[18]
		Transient amnesia[30]
		Difficulties with concentration[29]
		Delirium[13,32]
		Catatonia[4]
4 Quinolinemethanoles	Mefloquine	Idiosyncratic CNS toxicity[33]
		Abnormal dreams[34]
		Insomnia[34]
		Sleep disorders[48,49]
		Severe nightmares[48]
		Sleep paralysis and "flashbacks"[44]
		Asthenia[36]

Class	Drug	Neuropsychiatric Adverse Effects
		Melancholia[37]
		Anxiety[38]
		Phobias[13-40]
		Feelings of unrest[41,42]
		Increased self-esteem[43,44]
		Impaired judgment[42]
		Social disinhibition[36,43]
		Giddiness[44]
		Altered sexual libido[45]
		Manic behaviour and Paranoid delusions [38,43,45,47]
		Hyperreligiosity[47]
		Depersonalization[36,42,48]
		Concentration and cognitive problems[41]
		Problems with word finding[44]
		Disorientation[37,42,49]
		Symptoms of amnesia and confusion[36,37,46]
		Suicidal ideation[52]
		Suicide[24,53-55]
		Increased risk of PMNS[4]
		Balance disorder[8]
		Convulsions[8]
		Memory impairment[8]
		Neuropathy (including paraesthesia, tremor, and ataxia)[8]
8-Aminoquinolines	Pamaquine	Apprehension[56]
	Primaquine	Restlessness[56]
	Tafenoquine	Extensive brain and brainstem neurotoxicity[56]
	Pentaquine	Confusion[57,58]
		Amnesia[57,58]
		Depression[57,58]
		Abnormal dreams[59]
		Agitation[59]
		Anxiety[59]
		Amnesia[59]
		Paranoia[59]
		Insomnia[60]
		Depression[60]
		Neurological deficits[9]
Other antimalarials	Tetracycline	Insomnia[61,62]
	Doxycycline	Nightmares[61,62]
	Minocycline	Anxiety and suicidality – rare[63]
		Personality changes [1]
		Vertigo[1]
		Headache[1]
		Vertigo[1]
	Pyrimethamine used in combination with sulfadoxine	Insomnia[64]
		Depression[64]
		Sleep disturbance[65]
	Malarone (Atovaquone and Proguanil combination)	Sleep disturbance[4]
		Abnormal dreams[4]
	Artemisinins	Neurological perturbations[1]
	Artemether	Sleep disturbance[1]
	Artesunate	Headache[1]
		Vertigo[1]
	Lumafantrine	Mild neurological[1]
		Perturbations[1]
		Sleep disturbances[1]

steady decline in the number of psychiatric effects commonly attributed to antimalarials.[4] Assessment of potential adverse effects should be done after using antimalarial drugs, particularly following prophylactic use with an effort to develop newer effective and safer antimalarial drugs.[1] It would be especially beneficial if special attention is paid to the adverse effects while including these drugs used for the prophylaxis as well as treatment of malaria in the various elimination programmes as well.

References

1. Bitta MA, Kariuki SM, Mwita C, Gwer S, Mwai L, Newton CRJC. Antimalarial drugs and the prevalence of mental and neurological manifestations: A systematic review and meta-analysis. Wellcome Open Res 2017; 2 : 13. doi: 10.12688/wellcomeopenres.10658.2. PMID: 28630942; PMCID: PMC5473418
2. .https://www.who.int/india/health-topics/malaria (WHO report Dec 2020)
3. https://www.who.int/news-room/fact-sheets/detail/malaria (WHO report Dec 2020)
4. Nevin RL, Croft AM. Psychiatric effects of malaria and anti-malarial drugs: historical and modern perspectives. Malar J 2016; 15 : 332. https://doi.org/10.1186/s12936-016-1391-6)
5. Garg RK, Karak B, Misra S. Neurological manifestations of malaria : an update. Neurol India 1999; 47 : 85-91.
6. Zahid A, Mark IT, Gilbertson JR, Johnson DR. Cerebral malaria with extensive subcortical microhemorrhages, Oxford Med Case Rep2021; 5: omab028. https://doi.org/10.1093/omcr/omab028
7. Yadava SK, Laleker A, Fazili T. Post-malaria neurological syndrome: a rare neurological complication of malaria. Infection 2019; 47(2) : 183-193. doi:10.1007/s15010-019-01267-9
8. Ahmad SS, Rahi M, Ranjan V, Sharma A. Mefloquine as a prophylaxis for malaria needs to be revisited. Int J Parasitol Drugs Drug Resist 2021; 17 : 23-26. doi: 10.1016/j.ijpddr.2021.06.003
9. Berman J, Brown T, Dow G, Toovey S. Tafenoquine and primaquine do not exhibit clinical neurologic signs associated with central nervous system lesions in the same manner as earlier 8-aminoquinolines. Malar J 2018; 17(1) : 407. doi: 10.1186/s12936-018-2555-3. PMID: 30400893; PMCID: PMC6219089
10. Bhatia MS, Malik SC. Psychiatric complications of chloroquine. Indian J Psychiatry 1994; 36(2) : 85-87.
11. Reis J. Insomnia induced by chloroquine in the treatment of lupus erythematosus disseminatus. Presse Médicale 1991; 20 : 659.
12. Bhatia MS. Chloroquine-induced recurrent psychosis (brief report). Indian J Med Sci 1996; 50 : 302–4.
13. Maxwell NM, Nevin RL, Stahl S, et al. Prolonged neuropsychiatric effects following management of chloroquine intoxication with psychotropic polypharmacy. Clin Case Rep 2015; 3 : 379–87.
14. Brookes DB. Chloroquine psychosis. BMJ. 1966; 1 : 983.
15. Mohan D, Mohandas E, Rajat R. Chloroquine psychosis: a chemical psychosis? J Natl Med Assoc 1981; 73 : 1073–6.
16. Rab SM. Two cases of chloroquine psychosis. BMJ 1963; 1 : 1275.
17. Bhatia MS, Dhar NK, Singhal PK. Capgras' syndrome in chloroquine induced psychosis. Indian Pediatr 1988; 25 : 905–6.
18. Bhatia MS, Singhal PK, Agrawal P, Malik SC. Capgras syndrome in chloroquine induced psychosis. Indian J Psychiatry 1988; 30 : 311–3.
19. Sapp OL. Toxic psychosis due to quinacrine and chloroquine. JAMA 1964; 187 : 373–5.
20. Mustakallio KK, Pihkanen TA, Putkonen T. Toxic psychosis during chloroquine treatment. Ann Med Intern Fenn 1962; 51 : 223–8.
21. Bogaczewicz J, Sobow T, Bogaczewicz A, et al. Exacerbations of bipolar disorder triggered by chloroquine in systemic lupus erythematosus - a case report. Lupus 2014; 23 : 188–93.
22. Good MI, Shader RI. Behavioral toxicity and equivocal suicide associated with chloroquine and its derivatives. Am J Psychiatry 1977; 134 : 798–801.
23. Good MI, Shader RI. Lethality and behavioral side effects of chloroquine. J Clin Psychopharmacol 1982; 2 : 40–7.
24. Jousset N, Rougé-Maillart C, Turcant A, Guilleux M, Le Bouil A, Tracqui A. Suicide by skull stab wounds: a case of drug-induced

psychosis. Am J Forensic Med Pathol 2010; 31 : 378–81.
25. Burrell ZL, Martinez AC. Chloroquine and hydroxychloroquine in the treatment of cardiac arrhythmias. N Engl J Med 1958; 258 : 798–800.
26. Sahoo S, Kumar M, Sinha VK. Chloroquine-induced recurrent psychosis. Am J Ther 2007; 14 : 406–7.
27. Ragan E, Wilson R, Li F, Spasoff R, Bigelow G, Spinner N. Psychotic symptoms in volunteers serving overseas. Lancet 1985; 2 : 37.
28. Biswas PS, Sen D, Majumdar R. Psychosis following chloroquine ingestion: a 10-year comparative study from a malaria-hyperendemic district of India. Gen Hosp Psychiatry 2014; 36 : 181–6.
29. Telgt DS, van der Ven AJ, Schimmer B, Droogleever-Fortuyn HA, Sauerwein RW. Serious psychiatric symptoms after chloroquine treatment following experimental malaria infection. Ann Pharmacother 2005; 39 : 551–4.
30. Cras P, Martin JJ. Transient global amnesia following ingestion of chloroquine. J Neurol Neurosurg Psychiatry 1990; 53 : 926.
31. Stuiver PC, Ligthelm RJ, Goud TJ. Acute psychosis after mefloquine. Lancet 1989; 2 : 282.
32. Collins GB, McAllister MS. Chloroquine psychosis masquerading as PCP: a case report. J Psychoactive Drugs 2008; 40 : 211–4.
33. Nevin RL. Mefloquine and posttraumatic stress disorder. In: Ritchie EC, editor. Textbook of military medicine. Forensic and ethical issues in military behavioral health. Washington, DC: Borden Institute 2015; 277–96.
34. Nevin RL, Byrd AM. Neuropsychiatric adverse reactions to mefloquine: a sysmetic comparison of prescribing and patient safety guidance in the US, UK, Ireland, Australia, New Zealand, and Canada. Neurol Ther 2016.
35. Ritchie EC, Block J, Nevin RL. Psychiatric side effects of mefloquine: applications to forensic psychiatry. J Am Acad Psychiatry Law 2013; 41 : 224–35.
36. Recasens C, Zittoun C, Féline A. A psychotic episode in a patient coming home from Africa: the possible role of mefloquine. Ann Psychiatr 1993; 8 : 100–3.
37. Hennequin C, Bourée P, Bazin N, Bisaro F, Feline A. Severe psychiatric side effects observed during prophylaxis and treatment with mefloquine. Arch Intern Med 1994; 154 : 2360–2.
38. Oueriagli Nahib F, Touhami M, Laffinti A, Abilkacem L. Mood disorder after malaria prophylaxis with mefloquine (two case reports). Encephale 2011; 37 : 393–6.
39. Colebunders R. Cured of fear of flying. Travel Med Infect Dis 2011; 9 : 82.
40. Clattenburg RN, Donnelly CL. Case study: neuropsychiatric symptoms associated with the antimalarial agent mefloquine. J Am Acad Child Adolesc Psychiatry 1997; 36 : 1606–8.
41. Weinke T, Trautmann M, Held T, et al. Neuropsychiatric side effects after the use of mefloquine. Am J Trop Med Hyg 1991; 45 : 86–91.
42. Nevin RL. Limbic encephalopathy and central vestibulopathy caused by mefloquine: a case report. Travel Med Infect Dis 2012; 10 : 144–51.
43. Dietz A, Frölich L. Mefloquine-induced paranoid psychosis and subsequent major depression in a 25-year-old student. Pharmacopsychiatry 2002; 35 : 200–2.
44. Peterson AL, Seegmiller RA, Schindler LS. Severe neuropsychiatric reaction in a deployed military member after prophylactic mefloquine. Case Rep Psychiatry 2011; 2011 : 350417
45. Tor PC, Lee HY, Tan CH. Mefloquine-induced mania in a 22-year-old Chinese man. Singapore Med J 2006; 47 : 549–50.
46. Folkerts H, Kuhs H. [Psychotic episode caused by prevention of malaria with mefloquine. A case report. Nervenarzt 1992; 63 : 300–2.
47. Piening RB, Young SA. Mefloquine-induced psychosis. Ann Emerg Med 1996; 27 : 792–3.
48. Nevin RL. Organic depersonalization as a chronic sequela of mefloquine intoxication. Psychosomatics 2015; 56 : 103–5.
49. Carme B, Nevez G, Peguet C, Bories C, Andrejak M. Neuropsychiatric intolerance during mefloquine prophylaxis. 5 case reports. Médecine Mal Infect 1996; 26 : 728–9.
50. Van Puijenbroek EP, Meyboom RHB. Sleep disorders during mefloquine use. Pharmaceutisch Weekblad 1995; 130 : 477–9.

51. Chester AC, Sandroni P. Case report: peripheral polyneuropathy and mefloquine prophylaxis. Am J Trop Med Hyg 2011; (85) : 1008–9.
52. Burke BM. Mefloquine. Lancet 1993; 341 : 1605–6.
53. Arznei-Telegramm. Psychoses, suicides, etcetera. Should mefloquine (Lariam) still be allowed? Arznei-Telegramm 2002; 33 : 89.
54. Nevin RL. Hallucinations and persecutory delusions in mefloquine-associated suicide. Am J Forensic Med Pathol 2012; 33 : e8.
55. Scrip. Roche's Lariam linked to a suicide in UK. Scrip 1998; 2321 : 23.
56. Loken AC, Haymaker W. Pamaquine poisoning in man, with a clinicopathologic study of one case. Am J Trop Med Hyg 1949; (29) : 341–52.
57. Schlossberg D. Reaction to primaquine. Ann Intern Med 1980; (92) : 435.
58. Vale N, Moreira R, Gomes P. Primaquine revisited six decades after its discovery. Eur J Med Chem 2009; (44) : 937–53.
59. Nasveld PE, Edstein MD, Reid M, et al. Randomized, double-blind study of the safety, tolerability, and efficacy of tafenoquine versus mefloquine for malaria prophylaxis in nonimmune subjects. Antimicrob Agents Chemother 2010; (54) : 792–8.
60. Charles BG, Miller AK, Nasveld PE, Reid MG, Harris IE, Edstein MD. Population pharmacokinetics of tafenoquine during malaria prophylaxis in healthy subjects. Antimicrob Agents Chemother 2007; (51) : 2709–15.
61. Wallace MR, Sharp TW, Smoak B, et al. Malaria among United States troops in Somalia. Am J Med 1996; (100) : 49–55.
62. Ohrt C, Richie TL, Widjaja H, et al. Mefloquine compared with doxycycline for the prophylaxis of malaria in Indonesian soldiers. A randomized, double-blind, placebo-controlled trial. Ann Intern Med 1997; (126) : 963–72.
63. Atigari OV, Hogan C, Healy D. Doxycycline and suicidality. BMJ Case Rep 2013; (2013) : 2013–5.
64. Steffen R, Fuchs E, Schildknecht J, et al. Mefloquine compared with other malaria chemoprophylactic regimens in tourists visiting east Africa. Lancet 1993; (341) : 1299–303.
65. Briand V, Bottero J, Noël H, et al. Intermittent treatment for the prevention of malaria during pregnancy in Benin: a randomized, open-label equivalence trial comparing sulfadoxine–pyrimethamine with mefloquine. J Infect Dis 2009; (200) : 991–1001.

Psychophysiotherapy

Role of Psychophysiotherapy for CKD Patients

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Poor physical functioning among patients with chronic kidney disease (CKD)/ End Stage Renal Disease (ESRD) is well-recognized. ESRD results in a negative clinical status, which in turn results in both structural and functional changes in the musculoskeletal system.[1] Consequently, the patient is faced with a sedentary life, making the patient even further dependent. Low functional capacity, exhaustion and under nutrition was found to be prevalent among incident dialysis patients.[2] Patients with CKD typically have approximately 50% of the exercise capacity of non-uraemic, healthy, sedentary people. In CKD patients on dialysis, a reduced ability to exercise has an important effect not only on quality of life but also on morbidity and mortality.[3]

Important factors responsible for poor physical functioning in CKD patients are increased body weight, reduced endurance, skeletal muscle wasting, increased risk for cardio vascular diseases and decline in functional status. Increased body weight due to inactive life style, immunosuppressant drugs and water retention is the root cause of most physical problems. This along with electrolytic imbalance may lead to neurological dysfunction in CKD patients. Reduced exercise endurance further reduces as the renal dysfunction advances. Skeletal muscle wasting occurs due to the combined effects of uremic acidosis, protein-energy malnutrition and inflammatory cachexia and a sedentary lifestyle. Increased risk to develop functional impairment is associated with falls and fractures. Furthermore, initiation of dialysis has been associated with a significant decline in functional status. The 'de-conditioning' associated with progression of kidney disease is aggravated by many factors such as peripheral muscle, cardiac, nutritional and psychosocial dysfunction.[4] In addition, patients with ESRD have been reported to have poorer Quality of Life (QoL) and mental health including higher levels of depression[5-7] negatively affecting their social, financial and psychological well-being.[8] Depression may be linked to haemodialysis treatment modality, since the patient has to be continually connected to the hemodialysis machine during dialysis and so experience significant restrictions in independent living.[9]

Unlike other long-term conditions, people with CKD are not generally offered exercise-based rehabilitation. This discrepancy needs to be read-dressed and exercises should be prescribed for this patient population. During this stage of treatment, there are two considerations: to increase both the quality of life and the life expectancy. To improve and enhance the quality of life through dialysis or transplantation, a well-planned exercise program also must be included. As the exercise program entails a risk in itself, the implemented program must be carefully planned, coordinated, and supervised based on health related fitness in this population.

Benefits of exercises in patients with ESRD

1. Exercises are particularly important in delaying the progression of musculoskeletal disorders and preserving functionality which is associated with associated with improvements in self-esteem, quality of life, aerobic fitness, and percent body fat.[2]
2. Exercise has also been shown to decrease the risk of depression and anxiety that exists for most of patients with ESRD and improve

glycemic control, blood pressure, and serum triglyceride levels, which could cumulatively lower cardiovascular disease risk.

3. Exercises have been shown to counteract/reverse the side effects of steroidal treatment, such as muscle wasting, bone thinning and weight gain after transplant[10]
4. Exercise reduce muscle protein loss and hence its function. Exercise has a direct stimulating effect on synthesizing speed of muscle proteins.[11-13]
5. Exercises have been proved to prevent bone loss. Effective exercise that can load femoral neck was proved to increase bone mass in femur neck.[14,15]
6. Resisted exercises have been shown to increase mitochondrial function and reverse sarcopenic changes which occurs in chronic kidney disease.[16]
7. Exercise may even improve the effectiveness of the dialysis by releasing phosphates and potassium built up in the muscles.[17] and have been proved to improve patient's functional status by improving Independence and ability to perform daily life activities, flexibility, balance and muscle strength, improving mood, reducing anxiety and depression, reduction of cardiovascular risk, efficacy of dialysis, need for antihypertensive medication, weight loss and maintenance.[18]
8. Exercises have been proved to improve Primary outcomes like physical functioning (6-minute walk test, stair-climbing capacity, activities of daily living, sitting-standing), fatigue, quality of life and adverse effects (musculoskeletal injury, cardiovascular adverse events, hernias, leaks, mortality) and Secondary outcomes like nutritional measures (albumin, prealbumin, energy intake, protein intake, body mass index), lipid profile, blood pressure changes, maximum heart rate, resting heart rate, maximal oxygen consumption, muscle development, cognitive function, and markers of inflammation (serum interleukin 6, lymphocytes, protein catabolic rate).[19]
9. Aerobic exercises, including jogging, swimming, cycling, walking, gardening, and dancing, have been proved to reduce anxiety and depression. These improvements in mood are proposed to be caused by exercise-induced increase in blood circulation to the brain and by an influence on the hypothalamic-pituitary-adrenal (HPA) axis and, thus, on the physiologic reactivity to stress. This physiologic influence is probably mediated by the communication of the HPA axis with several regions of the brain, including the limbic system, which controls motivation and mood; the amygdala, which generates fear in response to stress; and the hippocampus, which plays an important part in memory formation as well as in mood and motivation.[20]

Exercise during hemodialysis

In hemodialysis patients with ESRD with morphologic, electrophysiological and metabolic changes, weak muscles should be strengthened at early stage. Research shows that exercise during hemodialysis increases functional performance and exercise tolerance. Exercise may even improve the effectiveness of the dialysis by releasing phosphates and potassium built up in the muscles.[21] Hemodialysis is a time consuming approach which is applied to ESRD patients as one of the basic renal replacement therapy with a frequency of 3-5 h/day and 2-3 times/week. As a result, exercise programs in patients who received hemodialysis are structured as intradialytic and home exercise programs.[22] Exercise can be divided into active exercises, Strengthening or resistance exercise (weights, bands), Aerobic exercises (running, cycling, swimming, dancing) and Flexibility Exercises. Aerobic exercises are provided to improve cardiovascular fitness. Aerobic exercises during intradialytic phase includes cycling on dialysis. Cycling on dialysis is achieved by using a modified exercise bike that can be attached to the end of the patient's couch. Exercise is considered to be safe during the first hour or two of dialysis and is particularly attractive to patients as it does not require additional hospital visits. Exercise intensity should be based on patients rate of perceived exertion (RPE) during pedaling (mild to slightly difficult); patient's ability to speak without difficulty during exercise; patients level at training heart rate according to heart rate reserve for very low exercise intensity; blood

pressure values, presence of other symptoms and patient feedback.[23] Breathing Exercises including the diaphragmatic, segmental, thoracic expansion and spirometer exercises for respiratory muscle strengthening are also added.

Exercises during Peritoneal dialysis

Peritoneal Dialysis patients have a Dialysate Period in which patients carry peritoneal dialysate in their peritoneal cavity continuously or intermittently followed by indulgence of Dry Period depending upon individual tolerance for reasons of patient comfort or convenience. Different set of exercises are prescribed during Dialysate Period and Dry period. For patients treated with continuous ambulatory PD and/or with daytime dialysate dwells, there are potentially concerns about safety and discomfort, especially for exercises involving core and abdominal musculature.[23,24] PD is usually done independently every day at home so homebased exercises are more acceptable for these patients than for in-center haemodialysis patients. Furthermore, in PD patients, the lower risk of hemodynamic instability and absence of vascular cannulation potentially permits greater safety compared with intradialytic exercise in haemodialysis patients.

For patient undergoing Peritoneal Dialysis all exercises including active exercises, flexibility exercises, aerobic exercises, resisted exercises and breathing exercises can be given during the Dry period whereas during Dialysate period resistance exercises, abdominal exercises or any other exercise leading to increased intra-abdominal pressures should be discouraged to prevent development of hernias and leaks. Researchers have demonstrated that PD patients have increased intra-abdominal pressures during various activities, including coughing, straining, and heavy weight lifting. This increasing pressure creates higher tension on the abdominal wall. This, in combination with the surgery for PD catheter placement, has been thought to increase risk for the development of hernias and leaks in these patients. In PD patients cardiovascular training involving walking or cycle ergometry, 10 to 30 minutes thrice weekly at moderate intensity along with twice-weekly resistance training including upper- and lower-extremity exercises and core strengthening, with modifications to minimize abdominal discomfort is recommended. Intensity must be calculated via validated rating of perceived exertion scales.

Specific exercises during Peritoneal Dialysis include Self - Stretching Exercises for all large muscle groups, Range of Motion and Active Strengthening exercises for bilateral upper and lower limbs to maintain joint play, muscle strength and improving blood circulation throughout the body, Resistance exercises using weight cuffs and therabands during dry period helps in preventing muscle atrophy and improve the strength of all major muscle groups, lifting weights are recommended to avoid harm to vascular access both in patients with hemodialysis or peritoneal dialysis. Lifting even light weights every other day can help increase blood flow, build muscle and help patients become stronger. Cardio exercises using a treadmill or stationary bike, jogging in place or walking for at least 30 minutes a day helps in maintain better cardio pulmonary functioning, breathing exercises including segmental and diaphragmatic breathing exercises along with incentive spirometry without breath holding are important for respiratory muscle training.

Physiotherapy after Renal Transplantation

Physical functioning after kidney transplantation does not return to the level of normal healthy due to a persistent sedentary lifestyle, a decrease in aerobic capacity, muscle strength and an increase in body weight because of the use of immunosuppressive medications. Despite the benefits of kidney transplant for end-stage renal failure, cardiopulmonary and musculoskeletal dysfunctions are common after surgery. As with any intra-abdominal procedure, patients undergoing kidney transplant have impaired postoperative pulmonary function due to general anesthesia and diaphragmatic inhibition. Postoperative muscle weakness and reduced exercise toleranceare also frequently seen after surgery and may have an important impact on a patient's quality of life. It is unclear whether this is a result of disease-related changes in skeletal muscle physiology or due to a reduction in physical activity after the transplantation.[25] Physiotherapy sessions including Post-Operative Chest and Limb physiotherapy sessions help reducing pulmonary secretions and enhancing lung and limb functions. Later on, both exercise class and consultations can prove effective for newly transplanted patients in

improving their functional status. Physical activity as part of a weight management approach can help to minimize obesity in this patient group.[26]

Psycho-physiotherapy for ESRD patients

Patients with CKD often have psychiatric difficulties in the form of depression and anxiety which if overlooked, can affect the patient's treatment prognosis and mortality. Mood disorders, especially depression and anxiety, are important issues that negatively impact CKD treatment.[27] A recent meta-analysis identified exercise as the best non pharmacological treatment for reducing depression in CKD patients.[28] Exercise induced improvements in muscle and physical function leads to beneficial changes in depression and anxiety and seems to be associated with a better Quality of Life.[29-31] Exercise interventions have been showing positive effects on general health, Quality of Life and vitality, in addition to reducing the demand for medication intake, disability, episodes of cramps, and fatigue.[32-33] Anxiety and depression in hemodialysis patients can be reduced by different methods, such as therapy with antidepressants, psychological interventions, regular exercise[34,35] as well as with relaxation techniques.[36] Psychological interventions modify illness perception and reduce depressive symptoms.[37] Additionally, physical exercise leads to improved self-care ability and sleep quality, as well as decreased fatigue[38] low level of depression and increased quality of life.[39] Cognitive Behavioral Therapy (CBT), Exercise and Relaxation techniques probably reduce depressive symptoms for adults treated with dialysis.[40]

Cognitive behavioral therapy is the most effective and frequently used psychotherapeutic method for reducing anxiety and depression in haemodialysis patients,[41] while it improves their compliance with dialysis treatment.[42] CBT includes well-structured methods in order to help patients reorganize their negative thoughts and obtain control over them.[41] Cognitive-behavioral therapy includes a variety of methods, such as techniques of relaxation, cognitive restructuring and exposure which can be applied individually or in groups.[43]

Regular Exercises can reduce anxiety and depression among people on hemodialysis, since it can increase the levels of serotonin, norepinephrine and dopamine, which in turn can stimulate the brain to produce endorphins making people feel happiness and relaxation.[44] Exercise also reduces fatigue and pain in musculoskeletal system,[45] increases strength of muscles, while it leads to an improvement of physical and mental function[46] and improving function of the cardiovascular system.[45] Similarly, aerobic exercises improve physical well-being, nutritional status and inflammatory cytokines.[47] Lopes et al.[48] found that aerobic exercises had a significant association with low depressive symptoms, while individuals who were following regular physical activity for 1 or more times per week had increased sleep quality and low mortality rates.

Relaxation techniques includes a variety of rhythmic breathing techniques of relaxation, such as slow breathing, deep breathing, breathing meditation and abdominal breathing[49] which leads to reduction of stress and anxiety in patients on haemodialysis. Social support improvement leads to a reduction of depressive symptoms and has a positive effect on patients' compliance with dialysis treatment.[50] Researchers found that meeting friends leads to a reduction of anxiety, while going on excursions are protective factors of depression.[51] Additionally, social support was related with a reduction in respiratory and musculoskeletal disorders in dialysis patients since it improves physiological functioning, leads to a decrease in negative emotions and improves survival rates.[51] Patients with higher levels of religiosity and spirituality have found to receive better social support via their large social network,[52] while the use of positive religious coping methods lead to a decrease in depression among dialysis people.[53] Creation of networking support groups have also found to be effective in reducing anxiety and depression in CKD patients.

Conclusion

This literature review focuses on the role of Physical Therapy methods in the management problems associated with End Stage Renal Disease patients. Regular physical therapy sessions including different forms of exercises, relaxation techniques and Cognitive-behavioral therapy are effective methods for reducing physical and mental problems in these individuals. Additionally, intradialytic exercise training programs have a positive effect on

patients' physical and psychological functioning. Moreover, social support from family and social environment and the provision of education to patients usually lead to a reduction of anxiety and depressive symptoms.

References

1. Afifi WM, Abo Elsaoud AM, Elgawish MH, et al. Musculoskeletal manifestations in end-stage renal disease patients on hemodialysis and relation to parathyroid dysfunction. Saudi J Kidney Dis Transpl 2019; 30(1) : 68-82.
2. S. Ufuk Yurdalan Physiotherapy in the Patients on Hemodialysis February 27th 2013.
3. Kirkman DL, Edwards DG, Lennon-Edwards S. Exercise as an Adjunct Therapy in Chronic Kidney Disease. Renal Nutr Forum 2014; 33(4) : 1-8.
4. Neto JR, e Castro LMF, de Oliveira FS, et al. Comparison between two physiotherapy protocols for patients with chronic kidney disease on dialysis. J Phys Ther Sci 2016; 28(5) : 1644-1650.
5. Nilsson J, Masud Rana AKM, Nahar Kabir Z: Social Capital and Quality of Life in Old Age. J Aging Health 2006; 18 : 419-34.
6. Borglin G, Jakobsson U Edberg AK, Halberg IR. Older people in Sweden with various degrees of present quality of life: their health, social support, everyday activities and sense of coherence. Health Soc Care Community 2006; 14 : 136-46.
7. Demura S, Sato S: Relationships between depression, lifestyle and quality of life in the community dwelling elderly: a comparison between gender and age groups. J Physiol Anthropol Appl Human Sci 2003; 22 : 159-66.
8. Griffin KW: Comparison of quality of life in haemodialysis and peritoneal dialysis patients. In Advances in peritoneal dialysis Edited by: Khanna R. Toronto: Peritoneal Dialysis Publications 1994; 104-08.
9. Yucedal C, Olmez N, Gezen G, et al Depression in renal dialysis patients. European Dialysis and Transplant Nurses Association-European Renal Care Association Journal 2003; 3 : 160-4.
10. Ýkizler TA.Exercise as an Anabolic Intervention in ESRD Patients. J Ren Nutr 2011; 21(1) : 52-56.
11. Biolo G, Maggi SP et al. Increased Rates of Muscle Protein Turnover and Amino Acid Transport After Resistance Exercise in Humans. Am J Physiol 1995; 268 : E514-20.
12. Wolfe RR. Protein Supplements and Exercise. Am J Clin Nutr 2000; 72 : 551S-7S.
13. Kouidi EJ, Grekas DM Deligiannis AP.. Effects of Exercise Training on Noninvasive Cardiac Measures in Patients Undergoing Long-term Hemodialysis: A Randomized Controlled Trial. Am J Kidney Dis 2009; 54 : 511-521.
14. American College of Sports Medicine: ACSM Position Stand on Osteoporosis and Exercise. Med Sci Sports Exer 1995; 27(4) : 1-7.
15. French SA, Fulkerson JA, Story M: Increasing Weight-Bearing Physical Activity and Calcium Intake for Bone Mass Growth in Children and Adolescents: A Review of Intervention Trials. Prev Med 2000; 31 : 722-731.
16. Takhreem M. The Effectiveness of Intradialytic Exercise Prescription on Quality of Life in Patients with Chronic Kidney Disease. The Medscape J Med 2008; 10(10) : 226.
17. Chen JLT, Godfrey S, Ng TT, et al. Effect of Intra-dialytic, Low-intensity Strength Training on Functional Capacity in Adult Hemodialysis Patients: A Randomized Pilot Trial. Nephrol Dial Transplant 2010; 25(6) : 1936-1943.
18. Gordon EJ, Prohaska T, Siminoff LA, Minich PJ, Sehgal AR. Needed: Tailored Exercise Regimen for Kidney Transplant Recipients. Am J Kidney Dis 2005; 45(4) : 769-774.
19. Kohl LM, Signori LU, Riberio RA, Silva AMV, Moreira PR, Dipp T, Sbruzzi G, Lukrafka JL, Plentz RDM. Prognostic value of the Six-minute Walk Test in End-stage Renal Disease Life Expectancy: A Prospective Cohort Study. Clinics 2012; 67(6) : 581-586.
20. Guszkowska M. Effects of exercise on anxiety, depression and mood [in Polish] Psychiatr Pol 2004; 38 : 611–620.
21. Parsons TL, Toffelmire EB, King-VanVlack CE. Exercise training during hemodialysis improves dialysis efficacy and physical performance. Arch Phys Med Rehabil 2006; 87(5) : 680-7.
22. Koh KP, Fassett RG, Sharman JE, Coombes JS, Williams AD. Intradialytic versus home-based exercise training in hemodialysis patients: a randomised controlled trial. BMC Nephrol

2009; 10 : 2.
23. Koh KP, Fassett RG. Sharman JE, Coombs JS, Williams AD. Effect of intradialytic versus home-based aerobic exercise training on physical function and vascular parameters in hemodialysis patients: a randomized pilot study. Am J Kidney Dis 2010; 55(1) : 88-99.
24. Seliger SL. Exercise Training in Peritoneal Dialysis: Delivering Exercise and Rehabilitation in the Home. Kidney Med 2020; 2(3) : 239-241.
25. Alradaydeh MF, Khalil AA. The Effectiveness ofPhysical Exercise on Psychological Status,and Sleep Quality among Jordanian Patients Undergoing Hemodialysis: Literature Review. Open J Nurs 2019; 9 : 1267-1280.
26. Onofre T, Fiore JF, Amorim CF et al. Impact of an early physiotherapy program after kidney transplant during hospital stay: a randomized controlled trial Braz J Nephrol (J Bras Nefrol) 2017; 39(4) : 424-432.
27. Lauanna T. Exercise interventions improve depression and anxiety in chronic kidney disease patients: a systematic review and meta-analysis. Int Urol Nephro 2021; 53 : 925–933.
28. Wen X, Wang Y, Zhao Q et al Nonpharmacological interventions for depressive symptoms in end-stage renal disease: a systematic review. West J Nurs Res 2019; https ://doi.org/10.1177/0193945919 8575
29. Mitrou GI, Grigoriou SS, Konstantopoulou E, et al Exercise training and depression in ESRD: a review. Semin Dial 2013; 26 : 604–613.
30. Barbosa L, Mendonça M, Pacheco M, et al Predictors of quality of life in chronic hemodialysis patients luciana. Brazilian J Nephrol 2007; 29 : 222.
31. Bohlke M, Nunes DL, Marini SS, et al. Predictors of quality of life among patients on dialysis in southern Brazil. Sao Paulo Med J 2008; 126 : 252–256.
32. Henrique DMN, de Reboredo M, Chaoubah A, de Paula RB. Aerobic exercise improves physical capacity in patients under chronic hemodialysis. Arq Bras Cardiol 2010; 94 : 823–828.
33. Cheema BS, Chan D, Fahey P, Atlantis E. Effect of progressive resistance training on measures of skeletal muscle hypertrophy, muscular strength and health-related quality of life in patients with chronic kidney disease: a systematic review and meta-analysis. Sport Med 2014; 44 : 1125–1138.
34. Gerogianni G, Kouzoupis A, Grapsa E. A holistic approach to factors affecting depression in haemodialysis patients. Int Urol Nephrol 2018; 50(8) : 1467–1476.
35. Lacson E, Li N, Guerra-Dean S et al. Depressive symptoms associate with high mortality risk and dialysis withdrawal in incident haemodialysis patients. Nephrol Dial Transpl 2012; 27 : 2921–2928.
36. Clarke A, Yates T, Smith A, Chilcot J. Patient's perceptions of chronic kidney disease and their association with psychosocial and clinical outcomes: a narrative review. Clin Kidney J 2016; 9(3) : 494–502.
37. Xing L, Chen R, Jiang X. Do psychological interventions reduce depression in hemodialysis patients? A meta-analysis of randomized controlled trials following PRISMA. Med 2016; 95(34) : e4675.
38. Anand S, Johansen K, Grimes B. Physical activity and self-reported symptoms of insomnia restless legs syndrome and depression: the comprehensive dialysis study. Hemodial Int 2013; 17(1) : 50–58.
39. Rajan E, Subramanian S. The effect of depression and anxiety on the performance status of end-stage renal disease patients undergoing hemodialysis. Saudi J Kidney Dis Transpl 2016; 27(2) : 331–334.
40. Natale P, Palmer SC etal. Psychosocial interventions for preventing and treating depression in dialysis patients. Cochrane Database Syst Rev 2019; 12(12) : CD004542.
41. Duarte P, Miyazaki M, Blay SL, Sesso R. Cognitive-behavioral group therapy is an effective treatment for major depression in hemodialysis patients. Kidney Int 2009; 76 : 414–421.
42. Cukor D, Halen N, Asher D, et al. Psychosocial intervention improves depression quality of life and fluid adherence in hemodialysis. J Am Soc Nephrol 2014; 25 : 196–206.
43. Wolgensinger L. Cognitive behavioral group therapy for anxiety: recent developments. Dialog Clin Neurosci 2015; 17 : 347–351.
44. Chiang H, Livneh H, Yen M, Li T, Tsai T.

Prevalence and correlates of depression among chronic kidney disease patients in Taiwan. BMC Nephrol 2013; 14 : 78.
45. Dziubek W, Kowalska J et al. The level of anxiety and depression in dialysis patients undertaking regular physical exercise training—a preliminary study. Kidney Blood Press Res 2016; 41 : 86–98.
46. Mafra D, Fouque D. Lower physical activity and depression are associated with hospitalization and shorter survival in CKD. Clin J Am Soc Nephrol 2014; 9(10) : 1669–1670.
47. Grigoriou S, Karatzaferi C Sakkas GK. Pharmacological and non-pharmacological treatment options for depression and depressive symptoms in haemodialysis patients. Health Psychol Res 2015; 3(1) : 1811.
48. Lopes A, Lantz B, Morgenstern H, et al. Associations of self-reported physical activity types and levels with quality of life depression symptoms and mortality in hemodialysis patients: the DOPPS. Clin J Am Soc Nephrol 2014; 9(10) : 1702–1712.
49. Mahdavi A, Gorji M, Gorji AMH, Yazdani J. Implementing Benson's relaxation training in hemodialysis patients: changes in perceived stress anxiety and depression. North Am J Med Sci 2013; 5(9) : 536–540.
50. Perales-Montilla C, Garcia-Leon A, Reyes-del Paso, GA. Psychosocial predictors of the quality of life of chronic renal failure patients undergoing haemodialysis. Nefrologia 2012; 32 : 622–630.
51. Perales Montilla C, Duschek S, Paso G. The influence of emotional factors on the report of somatic symptoms in patients on chronic haemodialysis: the importance of anxiety. Nefrologia 2013; 33(6) : 816–825.
52. Lucchetti G, Camargo de Almeida L, Granero A. Spirituality for dialysis patients: should the nephrologist address? J Bras Nefrol 2010; 32(1) : 126–130.
53. Santos P, Júnior J et al. Religious coping methods predict depression and quality of life among end stage renal disease patients undergoing hemodialysis: a cross-sectional study. BMC Nephrol 2017; 18 : 197.

Drug Review

Role of Pimavanserin in Parkinson's Disease Related Psychosis

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Introduction

Parkinson's disease (PD) causes a gradual degeneration of nerve cells in a portion of the midbrain called the substantia nigra, which results in a constellation of motor abnormalities, such as bradykinesia, resting tremor, cogwheel rigidity, and postural instability, as well as neuropsychiatric symptoms, including depression, dementia, apathy, hallucinations, and delusions.[1]

Approximately 20% to 50% of PD patients develop psychosis, with the most common symptoms being hallucinations and/or delusions.[2-4]

Characteristics of PDP predominantly include visual hallucinations, paranoid delusions, and other sensory disturbances. The exact cause of PDP is unknown; it may be multifactorial as research suggests intrinsic factors of visual processing abnormalities, sleep dysfunctions, and structural and neurochemical changes as contributors.[4]

Blockade of acetylcholine is thought to induce psychosis in Parkinson disease. Excess dopaminergic activity in the limbic system and cerebral cortex is thought to be involved in the development of psychosis, which can be caused by the dopaminergic agents used to treat the motor symptoms of Parkinson disease.[5]

Regardless of its severity, PD-associated psychosis leads to significantly increased disability, caregiver burden, nursing home placement, morbidity, and mortality, and can negatively affect a patient's quality of life.[6]

The first-line strategy in the management of psychosis in PD is the gradual removal of the multiple medications used to manage motor symptoms in the following order: anticholinergics, selegiline, amantadine, dopamine agonists, catechol-O-methyltransferase inhibitors, and lastly, levodopa/carbidopa.[7-8]

Second-generation antipsychotics have often been used off-label for treating the psychosis associated with PD, but they have led to the worsening of motor symptoms.[9]

Pimavanserin

Pimavanserin (Nuplazid™) is an atypical antipsychotic, approved by the FDA in 2016, for the treatment of hallucinations and delusions associated with Parkinson disease psychosis.[10]

Chemical Structure

Pimavanserin is an atypical anti-psychotic, is present in Nuplazid as pimavanserin tartrate salt with the chemical name urea, *N*-[(4-fluorophenyl) methyl]-*N*-(1-methyl-4-piperidinyl)-*N*'-[[4-(2-methylpropoxy)phenyl]methyl]-,(2*R*,3*R*)-2,3-dihydroxybutanedioate (2:1).

The molecular formula of pimavanserin free base is $C_{25}H_{34}FN_3O_2$, and its molecular weight is 427.55.

Pimavanserin is a round, white to off-white, immediate-release, film-coated, once-daily oral tablet containing 20 mg of pimavanserin tartrate, which is equivalent to 17 mg of pimavanserin free base, and inactive ingredients.

Mechanism of Action

Although the exact mechanism of action of pimavanserin is unknown, a combination of inverse agonist and antagonist activity at the serotonin 2A receptors (5-HT_{2A}) and, to a lesser extent, at the 5-HT_{2C} receptors, has been theorized. During clinical

trials, pimavanserin showed no appreciable binding affinity for dopamine (including D_2), histamine, muscarinic, or adrenergic receptors

It is reported to be a selective inverse agonist at serotonin 5-HT_{2a} receptors and an antagonist at 5-HT_{2c} receptors, with a 40-fold higher affinity for 5-HT_{2a} receptors. It has no affinity for dopaminergic, histaminergic, adrenergic, or muscarinic receptors.[10-11]

Pharmacokinetics

Pimavanserin and its major active *N*-desmethylated metabolite AC-279 have demonstrated a time to maximum plasma concentration of six hours (range, four to 24 hours) with mean plasma half-lives of approximately 57 hours for pimavanserin and 200 hours for AC-279. It is approximately 95% plasma protein–bound, which is dose-dependent and demonstrates no significant change over dosing time from days 1 through 14. Pimavanserin has dose-proportional pharmacokinetics after single oral doses from 17 to 255 mg (0.5–7.5 times the dosage recommendation) and yields similar results in both patients with PD and healthy individuals. The bioavailability of pimavanserin oral tablets and oral solution is identical.[10]

The drug is metabolized predominantly by cytochrome P450 (CYP) 3A4 and CYP3A5, It does not cause clinically significant CYP3A4 inhibition or induction.[10]

Dosage and Administration

The recommended dose of pimavanserin is 34 mg taken orally, with or without food and without titration. It is currently only commercially available as a 17-mg tablet.

The maximum recommended daily dose is 17 mg when it is administered concomitantly with a strong CYP3A4 inhibitor.[10]

Drug Interactions

Coadministration of pimavanserin and strong CYP3A4 inhibitors (e.g., itraconazole, ketoconazole, clarithromycin, indinavir) increases the plasma concentration of pimavanserin; therefore, a dose reduction of pimavanserin is recommended. Patients should be monitored for efficacy, and a dose increase may be needed if pimavanserin is administered with strong CYP3A4 inducers (e.g., rifampin, phenytoin, carbamazepine, St. John's wort)

No dosage adjustment is required when carbidopa/levodopa is administered concomitantly with pimavanserin based on pharmacokinetic studies.[10]

Pimavanserin in clinical trials

A 6-week randomized, placebo-controlled, parallel-group study was conducted on 199 patients. These patients were above 40 years of age, in the outpatient setting with a diagnosis of PD established at least one year prior to the study who had severe and frequent psychotic symptoms (hallucinations and/or delusions) that started after diagnosis and warranted antipsychotic treatment.

Inclusion criteria included Folstein Mini–Mental State Examination score of 21 or greater, ability to self-report symptoms, and stability on PD medications prior to and throughout the study period.

Primary efficacy was evaluated based on change from baseline to week 6 total score using the PD-Adapted Scale for the Assessment of Positive Symptoms (SAPS–PD), a 9-item assessment for which each item is scored on a scale of 0 to 5 (0 = no symptoms; 5 = severe/frequent symptoms), with a total score ranging from 0 to 45. Higher SAPS–PD total scores indicate greater severity of illness.

Pimavanserin 34 mg (n = 95) demonstrated significant efficacy over placebo (n = 90) in decreasing the frequency and/or severity of hallucinations and delusions. An effect was seen on both the hallucination and delusion components of the SAPS–PD. Using the Unified Parkinson's Disease Rating Scale Parts II and III during the six-week double-blind treatment period, pimavanserin 34 mg did not show an effect on motor function when compared with placebo.[10]

In 2021, a phase 3, double-blind, randomized, placebo-controlled discontinuation trial involving 392 patients with psychosis related to dementia was done, where patients received open-label pimavanserin for 12 weeks. Those who had a reduction from baseline of at least 30% in the score on the Scale for the Assessment of Positive Symptoms–Hallucinations and Delusions (SAPS–H+D, with higher scores indicating greater psychosis) and a Clinical Global Impression–Improvement (CGI-I) score of 1 (very much improved) or 2 (much improved) at weeks 8 and 12 were randomly assigned in a 1:1 ratio to continue

receiving pimavanserin or to receive placebo for up to 26 weeks. The primary end point, assessed in a time-to-event analysis, was a relapse of psychosis as defined by any of the following: an increase of at least 30% in the SAPS–H+D score and a CGI-I score of 6 (much worse) or 7 (very much worse), hospitalization for dementia-related psychosis, stopping of the trial regimen or withdrawal from the trial for lack of efficacy, or use of antipsychotic agents for dementia-related psychosis. It was observed that, out of 392 , 41 were withdrawn, 217 (61.8%) had a sustained response, of whom 105 were assigned to receive pimavanserin and 112 to receive placebo. A relapse occurred in 12 of 95 patients (13%) in the pimavanserin group and in 28 of 99 (28%) in the placebo group.

It was concluded that in a trial that was stopped early for efficacy, patients with dementia-related psychosis who had a response to pimavanserin had a lower risk of relapse with continuation of the drug than with discontinuation.[12]

Use in specific population

In patients with mild-to-moderate renal impairment (creatinine clearance [CrCl] of 30 mL/min or greater) no dose adjustment is required. It is not recommended in patients with an estimated creatinine clearance <30 mL/min or patients with hepatic impairment.[10]

Safety profile

It contains a boxed warning for increased mortality in elderly patients (65 years of age or older) with dementia-related psychosis. It is not indicated for the treatment of patients with dementia-related psychosis unrelated to PD-associated hallucinations and delusions.

Pimavanserin prolongs the QT interval, and its use should be avoided in patients with known QT prolongation or in combination with other drugs known to prolong the QT interval. This includes some antiarrhythmics (e.g., quinidine, procainamide, amiodarone), certain anti-psychotic medications (e.g., ziprasidone, chlorpromazine, thioridazine), and certain antibiotics (e.g., gatifloxacin, moxifloxacin).[10]

Pimavanserin should also be avoided in patients with a history of cardiac arrhythmias, as well as other circumstances that may increase the risk of the occurrence of torsades de pointes and/or sudden death, including symptomatic bradycardia, hypokalemia or hypomagnesemia, and the presence of congenital prolongation of the QT interval.[10]

Conclusion

Psychotic symptoms are common in Parkinson's disease as a result of patho-physiological changes involving many factors, including the motor symptoms of the disease; the drug-related adverse effects of treatment; multiple neuro-chemicals (i.e., dopamine, serotonin, acetylcholine); changes in sleep and perception; and the patient's genetics. PD-associated psychosis, is associated with significantly increased morbidity and mortality. Although Longer and larger trials are required to determine the effects of pimavanserin in dementia-related psychosis.

References

1. Cruz MP. Pimavanserin (Nuplazid): A Treatment for Hallucinations and Delusions Associated with Parkinson's Disease. P T 2017; 42(6) : 368-371.
2. Forsaa EB, Larsen JP, Wentzel-Larsen T, et al. A 12-year population-based study of psychosis in Parkinson disease. Arch Neurol 2010; 67(8) : 996–1001.
3. Cummings J, Isaacson S, Mills R, et al. Pimavanserin for patients with Parkinson's disease psychosis: a randomised, placebo-controlled phase 3 trial. Lancet 2014; 383(9916) : 533–540.
4. Zahodne LB, Fernandez HH. Pathophysiology and treatment of psychosis in Parkinson's disease: a review. Drugs Aging 2008; 25(8) : 665- 82.
5. Thanvi BR, Lo TC, Harsh DP. Psychosis in Parkinson's disease. Postgrad Med J 2005; 81 960 : 644- 6. DOI: 10.1136/pgmj.2004.032029.
6. Mack J, Rabins P, Anderson K, et al. Prevalence of psychotic symptoms in a community-based Parkinson disease sample. Am J Geriatr Psychiatry 2012; 20(2) : 123–132.
7. Fernandez HH, Friedman JF. The role of atypical antipsychotics in the treatment of movement disorders. CNS Drugs. 1999; 11(6) : 467–483.
8. Friedman JH, Fernandez HH. The non-motor problems of Parkinson's disease. Neurology 2000; 6 : 18–27.

8. Friedman JH, Fernandez HH. The non-motor problems of Parkinson's disease. Neurology 2000; 6 : 18–27.
9. Shotbolt P, Samuel M, David A. Quetiapine in the treatment of psychosis in Parkinson's disease. Ther Adv Neurol Disord 2010; 3(6) : 339–350.
10. Nuplazid (pimavanserin) [prescribing information]. San Diego (CA): Acadia Pharmaceuticals Inc; April 2016.
11. Hacksell U, Burstein ES, McFarland K, Mills RG, Williams H. On the discovery and development of pimavanserin: a novel drug candidate for Parkinson's psychosis. Neurochem Res 2014; 39 10 : 2008-17. DOI: 10.1007/s11064-014-1293-3.
12. Joseph I. Friedman, M.D. Pimavanserin in Dementia- Related Psychosis. N Engl J Med 2021; 385 : 372-373.

Forensic Psychiatry

COVID 19 and Forensic Psychiatry

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Introduction

Since COVID 19 humanity had been on a roller coaster. The way of life in human terms have changed drastically due to this virus. Social distancing, physical touch and wearing masks became the norms to an otherwise usual gregarious lifestyle. The fear of contagion was compounded with other psychosocial difficulties like economic issues, residence issues, travel problems due to the imposed lockdown along with many other similar such issues brought on by COVID 19. One of the major problems in this scenario was to utilize the limited available resources efficiently and appropriately. Where general population was targeted, it was equally important to look into the vulnerable groups like children, elderly, those in shelter homes or assisted facility and those in prisons. Mental health of any individual suffered due to the repercussions of COVID 19 and it is a long way ahead before we can get back to perceived normalcy specially with the ongoing waves which keep coming.

One of the major tasks when COVID had entered was utilization of given resources efficiently and effectively. A country like India which tops among population but lacks in resources suffered due to these deficits. Hospitals were crowded, beds were in demand and oxygen in shortage. Black-marketing of medicines and bargaining of beds was the ongoing trend. This was the plight of Indian health care. To ease these issues a dashboard was created by all governments where beds occupancy, availability, infected rates, recovered rates were highlighted. Now with all this situation to those belonging to vulnerable becomes even more dire. Those suffering from mental health disorder not only had the risk of being infected but also becoming a source of infection. Along with their incapacity at times to avail themselves of the basic facilities make it even more difficult. The situation worsens when we talk about those mental health patients restricted to closed spaces like prisons. The role of forensic psychiatrist is very crucial in enactment of this scenario. This article deals with the role of forensic psychiatrist, changes with pandemic situation and the existing situation country and worldwide.

Forensic Psychiatry and Forensic Psychiatrist

Forensic psychiatry occupies the interface between psychiatry and the law. It is a subspecialty within psychiatry, which provides specialist treatment to the most severely mentally ill and havelegal issues.[1] The role of a forensic psychiatrists is to provide care and treatment to vulnerable, high-risk patients, mentally disordered offenders or associated with any violent connection and in those with mental health problems in conjunction to medicolegal concerns as part of consultation liason services.[2] In developed countries forensic psychiatrists provide in-reach clinics in prisons nationally; are responsible for providing opinions on fitness to stand trial, criminal responsibility and other issues to courts. But this difference in India is not so evident and these roles are usually taken up by a general psychiatrist due to absence of such specialization in our country.

Issues and Challenges

COVID 19 made the jobs of forensic psychiatrist even more difficult. They needed to manage the crisis by preventing clustering , minimal contact and adequate security and effective medical assessment

and treatment wherever necessary, whilst continuing to manage the mental health and violence risk posed by the vulnerable and stigmatized patients.Bhugra et al and Liebrenz et al had vocalized concerns over the impact of the COVID-19 pandemic on incarcerated people particularly because of the high prevalence of medical conditions in correctional facilities.[3,4] In many countries, forensic psychiatric service is usually done on an inpatient basis where they are restricted to common rooms due to limited spaces and had to participate in compulsory therapeutic services. These settings can increase their risk infection as implementation of social distancing may not be possible and may increase their susceptibility due to their physical conditions and comorbidities, for example relating to substance misuse, such as malnutrition and impaired functioning of the immune system.[5] With COVID 19 acting as a stressor can also result in trauma and intensification of mental disorders in the future, including, among others, increased anxiety and even paranoia.[6]Studies have reported an increase in domestic violence, especially gender-based violence and child abuse and neglect. It has been postulated that domestic violence is increased during epidemics,[7] it may be due to heightened emotions, increase substance along with other psychological and environmental factors. With COVID 19 movement restrictions, financial loss, isolation, overcrowding, and stress had definitely put women and children at a disproportionally increased risk of harm during the COVID-19 outbreak. Violence is best targeted with a public health approach, linking education, expertise and scientific evidence. Though all violence does not equate to mental illness, population rates of homicide, other violence, suicide and forensic service usage is seen to be higher than general population.[8] Horn et al remarked on that higher number of people with severe psychiatric disorders committed severe violent acts, particularly homicides followed by suicide attempts was also noticed during the lockdown period thus emphasizing the need of forensic psychiatrist in these situations.[9]

Changes Needed

With COVID 19 entry so rapid government and medical agency responded but those in incarceration seemed to be last on priority list. Medical officers and psychiatrist looking after this subset of population first had to prepare themselves make self aware and follow the practices needed for the safety from infection. Simultaneously they needed to make their patients in prison aware of these basic protective mechanism and keep them updated to changing scenarios and need of the hour. It is not only making them aware but the implementation part which is equally important and requires rigorous following. PPE kit and self sanitation which is usually overlooked provided further barriers in adapting to the new schedule. Isolation and quarantine of infected was again a major hurdle. Not only isolation and care was not an easy task in these prison set ups but maintaining quarantine by those with mental illness was an itself a cause of stress to them. The acute shortage in beds were solved by taking over all of the available beds into public system this creating an indirect shortage for those in prison who needed again emphasizing the well-known limitations of the mental health system to manage people diagnosed with mental health disorders who committed crime.

Changes Enacted

Quick and rapid training of staff regarding the COVID protocols and its dispersion with regular updating on management strategies were undertaken. Changes in working practices with more emphasis towards sanitization hand hygiene, disinfection, physical distancing, ending visitor access and leave for patients, cohorting, an isolation ward, telemedicine, quarantining of admissions and shorter focused work rounds.[1,10,11] Almost everywhere telemedicine was initiated so as to avail consultation without being at risk of infection.[12] Those awaiting trial were now connected through video conferencing thus reducing the exposure to many risks and stresses, where they are taken through hand-cuffed in secure vehicles, are crowded into holding cells and offered illicit substances. It also reduced the risk of escape or abscond, further minimizing the use of restrictive practices such as handcuffs. A system of telemedicine was developed so as to assist prison primary health care teams. Those who needed in person review, it was done in a closed, screened visitor area of the prison to prevent transmission of Covid-19 from either the hospital team to the prison or vice versa. This had its own benefits and issues. On one side it helped in continuum of care without

risk of infection to self and others, it was argued that it restricted ability to evaluate mental state when a range of non-verbal channels of information are compromised by videoconferencing.[13]

Indian Setting

Indian scenario is largely different from other countries. During COVID 19 most of the hospitals catered only to covid and emergency services. There only very limited prisons in the country who have their own psychiatry set up though a few have visiting psychiatrist or regular visits from nearby allotted mental health institute. A similar kind of set up has been described by Ogunwale A et al in Nigeria.[14] But with lockdown imposition all the visiting was stopped and only with emergency needs were catered. This led to again gaps in the regular treatment, adverse impact on the mental illness and their management lack of multidisciplinary approach. Indian courts granted releases and bails wherever possible to a lot more prisoners than their usual record similarly to Italy[15] so as to avoid overcrowding in jails in turn reducing the transmission risk. Also homeless mentally ill were either tried to put up in shelters or were taken to mental health institutes for treatment through reception order. This had its own advantages and disadvantages as sometimes they were only homeless destitute and not homeless mentally ill. India needs more specialized staff to look after these concerns.

Conclusion

Old Normalcy seems to be a faraway concept at the moment with further waves it is impossible to predict on the susceptibility. This pandemic has taught a lot many good and bad things. While it took from us the social touch it gave us a way to move forward with technology and telemedicine. Still prison settings for those with mental illness needs reevaluation and improvement so as to be ready for next crisis whatever that may be. It is time that world realizes the need for an effective medical plan and policy specially in the face of this pandemic. Till now mental illness are ignored or missed by policy makers, it is time that the universal recognition to evaluate and research organizational and service responses to this crisis and to continue to develop research in this field to improve 'hard' outcomes, mortality and functional recovery.

References

1. Kennedy HG, Mohan D, Davoren M. Forensic psychiatry and Covid-19: accelerating transformation in forensic psychiatry. Irish J Psychol Med 2021; 38(2) : 145-53.
2. Amato L, Fusco D, Acampora A, et al. Volume and health outcomes: evidence from systematic reviews and from evaluation of Italian hospital data. Epidemiologia e prevenzione. 2017; 41(5-6 (Suppl 2)) : 1-28.
3. Bhugra D. Imprisoned bodies, imprisoned minds. Forensic Sci Int: Mind Law 2020; 1 : 100002.
4. Liebrenz M, Bhugra D, Buadze A, Schleifer R. Caring for persons in detention suffering with mental illness during the Covid-19 outbreak. Forensic Sci Int: Mind Law 2020; 1 : 100013.
5. Volkow ND. Collision of the COVID-19 and addiction epidemics. Ann Intern Med 2020; 173(1) : 61-2.
6. Heitzman J. Impact of COVID-19 pandemic on mental health. Psychiatr Pol 2020; 54(2) : 187-98.
7. Chandan JS, Taylor J, Bradbury-Jones C, Nirantharakumar K, Kane E, Bandyopadhyay S. COVID-19: a public health approach to manage domestic violence is needed. Lancet Public Health 2020; 5(6) : e309.
8. Wallace C, Mullen PE, Burgess P. Criminal offending in schizophrenia over a 25-year period marked by deinstitutionalization and increasing prevalence of comorbid substance use disorders. Am J Psychiatry 2004; 161(4) : 716-27.
9. Horn M, Granon B, Vaiva G, Fovet T, Amad A. Role and importance of consultation-liaison psychiatry during the Covid-19 epidemic. J Psychosom Res 2020; 137 : 110214.
10. Wasser T, Hauser L, Kapoor R. The management of COVID-19 in forensic psychiatric institutions. Psychiatr Serv 2020; 71(10) : 1088-90.
11. Simpson AI, Chatterjee S, Darby P, et al. Management of COVID-19 response in a secure forensic mental health setting: réponse à la gestion de la COVID-19 dans un établissement sécurisé de santémentale et de psychiatrielégale. Can J Psychiatry 2020; 65(10) : 695-700.
12. Heilbrun K, Burke SC, Ne Moyer A, Durham

K, Desai A. A principles-based analysis of change in forensic mental health assessment during a global pandemic. J Am Acad Psychiatr Law 2020; 48(3) : 293-301.
13. Fovet T, Thibaut F, Thomas P, Lancelevée C. French forensic mental health system during the COVID-19 pandemic. Forensic Sci Int: Mind Law 2020; 1 : 100034.
14. Ogunwale A, Majekodunmi OE, Ajayi SO, Abdulmalik J. Forensic mental health service implications of COVID-19 infection in Nigeria. Forensic Sci Int: Mind Law 2020; 1 : 100026.
15. Zuffranieri M, Zanalda E. The forensic psychiatry in the time of coronavirus: The Italian security residences put to the test in a public health emergency. Psychiatr Clin Neurosci 2020.

Case Report

A case report of Pseudo-Rabies syndrome after the 1st dose of Covid Vaccination

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Introduction

As the COVID-19 pandemic has affected nearly every aspect of daily life across the globe, mental health professionals and communities at large raised alarm over the potential psychological impact of the pandemic. There is hope after the availability of the vaccine. In our community there is myth, misconceptions and apprehensions about the vaccination. Many people are fearful and avoiding the vaccination.[1]

We present a case of 45 years old female who developed obsessive-compulsive symptoms related to rabies after the 1st dose of covid-19 vaccination.

Obsessions are intrusive and unwanted repetitive thoughts, urges, or impulses that often lead to a marked increase in anxiety or distress. Compulsions are repetitive behaviors or mental acts that are done in response to obsessions, or in a rigid, rule-bound way. These recurrent obsessions or compulsions cause severe distress to the person.[2]

Rabies is a vaccine-preventable, zoonotic, viral disease. Once clinical symptoms appear, rabies is virtually 100% fatal. In up to 99% of cases, dogs are responsible for rabies virus transmission to humans. The incubation period for rabies is typically 2–3 months but may vary from 1 week to 1 year, dependent upon factors such as the location of virus entry and viral load. Initial symptoms of rabies include a fever with pain and unusual or unexplained tingling, pricking, or burning sensation (paraesthesia) at the wound site. As the virus spreads to the central nervous system, progressive and fatal inflammation of the brain and spinal cord develops. Rabies may result in psychological symptoms of hyperactivity, excitable behavior, anxiety, hydrophobia and sometimes aerophobia. Death may occur after a few days due to cardio-respiratory arrest.[2]

Already before the pandemic, vaccine hesitancy was named as one of the top ten threats to global health in 2019 by the World Health Organization.[3]

Case Report

A 45 years old female without any significant past and family history of psychiatry and neurological illness reported to psychiatry outpatient department with complains of pre-occupation and fear of being infected with rabies, irritability,fear of bark like a dog and to bite family members for last three months. Three months back she was vaccinated with 1st dose of covid-19 vaccine. She had pain and redness at post-vaccination site for 2-3 days. After vaccination within few days, she correlated her past history of dog bite with present vaccination and assumed of being infected with rabies. There was a history of dog bite 30 years ago and she was vaccinated with anti-rabies vaccine as per schedule. This thought when she discussed with her family members, they assured her that this is not possible, but she could not resist it, which was repetitive, unwanted and intrusive in nature. When-ever she heard street dog barking, an apprehension of being infected with rabies comes into her mind. Meanwhile there was reduction in her daily house-holds chores with increase her time in deity chanting. After discussion of her fear with her neighbors who told her that rabies disease can reappear after the injection or vaccination. These thoughts increased in duration and she started being irritable. Her habit of deity chanting did not help her any more and she felt to bark like a dog, which she did and was relieved from her thoughts. She also felt to bite family members

whenever she had these thoughts but she could resist them. There was no consultation and treatment history from last 03 months.

Detailed medical, neurological, hematological and biochemical evaluation were within normal limits. On mental status examination, patient was conscious, cooperative, dysphoric mood, obsessive and compulsive thoughts. There was no significant past family psychiatric illness was present. Patient had no history of any substance abuse. There was no history of head injury, epilepsy, fever or medical illness. Patient was admitted in psychiatry inpatient department with provisional diagnosis of obsessive-compulsive disorder. She was started on Cap. Fluoxetine 20mg od, Tab. Olanza-pine 2.5mg bid. The sessions of cognitive-behavioral therapy were done. She was counseled for rabies disease, covid-19 disease and its vaccine and OCD during her stay in hospital. After the negative laboratory reports and counseling, she was convinced to take 2nd dose of vaccine. She was showing gradual and significant improvement. She was discharged with follow-up after 07 days. In her follow-up visit she reported significant reduction of her symptoms of fear of being infected with rabies, irritability, fear of bark like a dog and to bite family members. She was advised to continue same treatment for next 10 days.

Discussion

We had a 45 years old female patient, who had no any psychiatric history in the past. She developed obsessive-compulsive symptoms after covid-19 vaccination. This may be because of social myths and fear of vaccination. There was significant reduction in her symptoms after treatment. There are still myths, misconceptions and fear in society about covid-19 vaccine. This needs to be addressed.

References

1. Storch EA, Schneider SC, Guzick A, McKay D, Goodman WK. Impact of COVID-19 on exposure and response prevention for obsessive-compulsive disorder: present and post-pandemic considerations. Psychiatr Res 2020; 292 : 113310.
2. Kaplan & Sadock's comprehensive textbook of psychiatry, 10th edition, Chapter 15; 2017; 4575-4576.
3. Geoghegan S, O'Callaghan KP, Offit PA. Vaccine safety: myths and misinformation. Front Microbiol 2020; 11 : 372.

Case Report

Catatonia in a Child with Autism Spectrum Disorder: A Case Report

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Introduction

Catatonia is a complex clinical phenomenon characterized by a unique cluster of motor, speech and behavioural abnormalities associated with a number of neuropsychiatric and metabolic conditions.[1] Prevalence of catatonia ranges from 0.6 % in adolescents to about 10 % in adult psychiatric inpatients.[2] There are emerging reports of catatonia occurring in the context of autism spectrum disorder (ASD), but overlapping clinical presentations of these conditions raise many diagnostic dilemmas. Here we report catatonia in a 9-year-old girl with ASD highlighting the diagnostic and therapeutic challenges in these comorbidities.

Case Report

Miss M is a 9-year-old girl with ASD (level 1) presented with complain of persistent mutism and immobility. M was apparently doing well till two days before, when she had abruptly stopped interacting and responding to verbal and tactile stimulus. She kept sitting in the same posture for hours and stared at the same direction without blinking. She stopped eating and would hold saliva in mouth. At times she was found to smile and grimace without any apparent reason. The symptoms had started after her painting classes were cancelled abruptly which she used to attend daily. Also, at the same time, her father could not take her to the park due to heavy rain. Thus, her regular routine was suddenly disrupted. She had no history of fever, loss of consciousness, abnormal body movements, and head injury that could suggest an organic etiology. There was no history of overdose or abrupt discontinuation of any drug.

She was born at term following an uneventful pregnancy. She has one elder sister who has no history of any neurodevelopmental disorder. Apart from delayed language and social milestones, others domains of development were appropriate for her age. Prior toonset of current symptoms; she used to communicate using simple sentences, enjoyed the company of other children, personal autonomy in activities of daily living was sufficient, and she was doing academics of 2nd grade. She had occasional echolalia and stereotypical finger movements prior to onset of current symptoms.

On examination she was extremely hypoactive and unresponsive to the questions, kept sitting in same posture, had staring gaze, echolalia, catalepsy, waxy flexibility, and grimacing. Blood investigations and electroencephalogram (EEG) were normal. On Bush-Francis Catatonia Rating Scale (BFCRS)[3] her score was 14.

Parents refused hospitalization; therefore, frequent OPD follow up at short interval was advised. Lorazepam 1mg/ day was started and within the next two weeks, it was gradually increased to 2.5 mg/ day along with resuming her painting classes. She improved gradually and reached previous level of functioning within a span of three weeks. The score on BFCRS reduced to 3. The improvements were maintained for around one month when an attempt was made to decrease the dose of Lorazepam to 2 mg/day; upon which some catatonic features resurfaced. Her psychomotor activity slowed down and oral intake reduced. Hence, Lorazepam was again increased to daily dose of 2.5 mg/day. She showed rapid improvement and is currently maintaining well.

Discussion

The concept of catatonia was given by Kahlbaum who postulated it as an independent disorder.[4] It was subsequently incorporated by Kraepelin as a clinical form of schizophrenia leading to decades of misconception that presence of catatonic symptoms always implied schizophrenia.[1] Research suggests prevalence of catatonia in 11%–17% of cases of ASD.[5]

Till date, pathophysiology of catatonia remains unknown. It is thought to be caused by a massive dopamine blockade, glutamate exitotoxicity, or deficiency of gamma-aminobutyric acid (GABA).[6] Catatonia and ASD may share a common genetic link agerelated to chromosome 15.[7] Some authors suggest that catatonia may result from an intense evolutionary fear response,[8] argument favouring this hypothesis is that in many children with ASD, catatonic symptoms were immediately preceded by stressful life events such as significant loss, family conflict, unexpected changes in routine etc.[5] In our case M's catatonic symptoms were preceded by abrupt cancellation of painting class and park tour.

In clinical practice it is common to misinterpret catatonic features, such as stupor, mutism, echolalia, repetitive behaviors, agitationetc. as symptoms of ASD.[9] However, not every child with ASD showing these symptoms should be regarded as catatonic. Catatonia in children with ASD should be considered only when there is an obvious change in symptoms such as a marked change in speech and motor behaviors compared with the baseline level. In our case, despite having some limitations pertaining to ASD, M was functioning fairly well before catatonic deterioration.

We have used the BFCRS for evaluation of catatonia which is probably not an appropriate scale for this population as it rates some symptoms like echolalia and stereotypies which are inherent features of ASD. Till date, there are no scales specifically designed to assess catatonic symptoms in children with ASD.

Till date, there are no controlled studies exploring treatment of catatonia in children with ASD. At present benzodiazepines are the most widely used medications for this group of children.[2] At first, a benzodiazepine challenge test of 1-2 mg of lorazepam (oral, intramuscular, or intravenous) is administered. If catatonia improves, treatment with increasing doses of lorazepam up to 24 mg/day can be used.[2] Treatment is usually continued for of 6–12 months. ECT is indicated in patients unresponsive to benzodiazepines. In cases of catatonia resistant to benzodiazepines and ECT; antipsychotics, mood stabilizers (Carbamazapine), NMDA antagonists (Amantadine and Memantine) have been tried with limited success.[2] Finally, psychotherapeutic interventions should be undertaken to address the stressful life events.

Future Directions

Although recent studies have highlighted that catatonia can be comorbid with ASD, further studies are needed on the prevalence rate of catatonia in this population. There is need of specific diagnostic criteria and rating scales particularly designed for

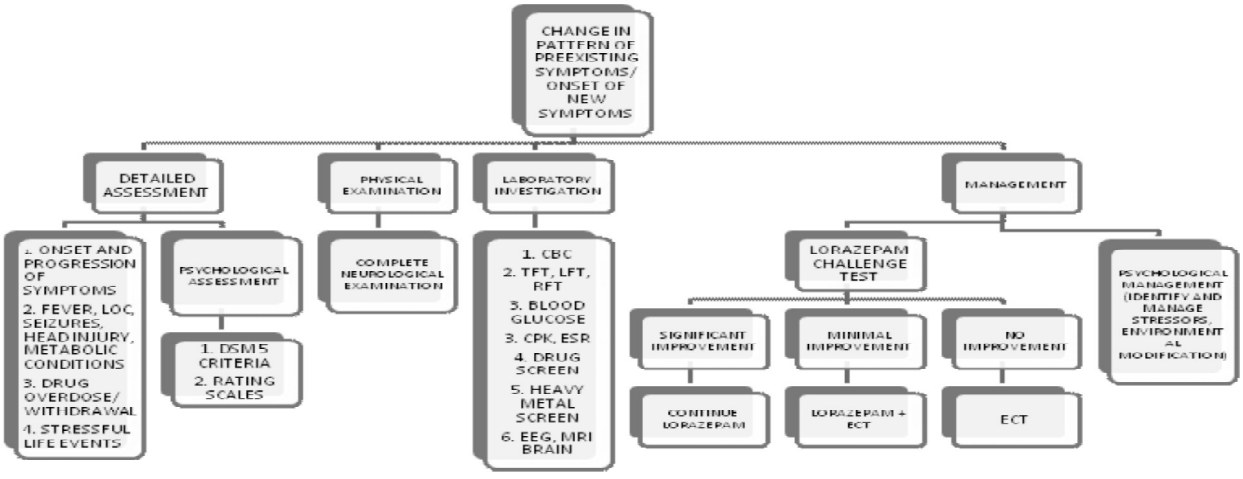

Fig. 1: Treatment Algorithm of Catatoniain ASD[2]

this group of children to guide the clinicians to delineate these two overlapping conditions. The lack of controlled studies on different modalities of treatment of catatonia in ASD raises concerns on the appropriate treatment strategies for these children, and more focused research in this area is essential to address this issue.

References

1. Fink M. Rediscovering catatonia: the biography of a treatable syndrome. Acta Psychiatr Scand 2012; 127 : 1-47.
2. Mazzone L, Postorino V, Valeri G, Vicari S. Catatonia in Patients with Autism: Prevalence and Management. CNS Drugs 2014; 28(3) : 205-215.
3. [Internet]. Thompsoncenter.missouri.edu. 2021 [cited 11 December 2021]. Available from: https://thompsoncenter.missouri.edu/wp-content/uploads/2019/04/Bush-Francis-Scale-with-a-few-references-4-18-19.pdf
4. Kahlbaum KL, Levij Y, Pridon T, translators. Catatonia. Baltimore, MD: Johns Hopkins University Press 1973. [Google Scholar].
5. Wing L, Shah A. Catatonia in autistic spectrum disorders. Br J Psychiatry 2000; 176(4) : 357-362.
6. Northoff G. What catatonia can tell us about "top-down modulation": A neuropsychiatric hypothesis. Behav Brain Sci 2002; 25(5) : 555-577.
7. Stöber G, Seelow D, Rüschendorf F, Ekici A, Beckmann H, Reis A. Periodic catatonia: confirmation of linkage to chromosome 15 and further evidence for genetic heterogeneity. Human Genet 2002; 111(4-5) : 323-330.
8. Moskowitz A. "Scared Stiff": Catatonia as an Evolutionary-Based Fear Response. Psychol Rev 2004; 111(4) : 984-1002.
9. Realmuto G, August G. Catatonia in autistic disorder: A sign of comorbidity or variable expression?. J Autism Dev Disord 1991; 21(4) : 517-528.

Case Report

Ventricular-Peritoneal shunting and psychiatric symptoms in Obstructive Hydrocephalous - Case management approach

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Introduction

Hydrocephalus is a condition in which cerebrospinal fluid (CSF) accumulates in the brain's ventricular system. Obstructive hydrocephalus is caused by obstruction of the CSF flow at some point from production to resorption, which leads to dilation and elevated pressure in the ventricular system before the obstruction. This obstruction is typically caused by cysts or tumours closing narrow passages to the CSF as Foramen of Monro or the Aqueduct of Sylvius.[1]

There are case reports of symptoms of schizophrenia, hypomania, depression, anxiety and delusions secondary to obstructive hydrocephalous.[2,3] The condition is considered reversible if the surgical intervention carried out before the permanent damage to surrounding brain structures occurred.[4]

Here the authors present a case of congenital hydrocephalous presenting with psychotic symptoms which further worsen after Ventricular-peritoneal shunt (VP shunt) raising the question to reconsider time and type of VP shunt.

Case Report

An 18-year male student presented with 2 years history of irritability, verbal and physical aggression, academic decline, suspiciousness, grandiose talks, self-muttering and self-smiling precipitated after transfer of father. Medical history of obstructive hydrocephalus secondary to aqueductal stenosis present since birth. Ventricular-peritoneal (VP) shunting was performed 9 months ago (October, 2020) to relieve pressure, however, that led to further worsening of psychiatric symptoms. Early developmental history showing antenatal complications, delayed mile stones with educational history showing difficulty understanding science and mathematics. Mental Status Examination (MSE) revealed self-muttering, increased psychomotor activity, irritable affect, increased thought flow, delusion of persecution, delusion of grandiosity, Capgras delusion, thought broadcast and ill sustained concentration with poor insight. The diagnosis kept was Organic delusional (schizophrenia like) disorder (F 06.2) with obstructive hydrocephalus (G 91.1) with Presence of cerebrospinal fluid drainage device (Z 98.2).

Further, MRI showed dilated supra-tentorial ventricular system with asymmetrical dilatation of body, stria and temporal horn of lateral ventricle and subdural haematoma along bilateral fronto-parietal region.

Findings on NIMHANS Neuropsychological battery[5] were suggestive of deficit in majority of tests involving frontal and prefrontal lobe and executive functioning. On Vineland Social Maturity Scale (VSMS); findings suggestive of patient's current level of adaptive functioning is at 10 years 6 months which correspond to SQ/IQ of 70 which is indicative of borderline intellectual functioning.

Patient was started on Tab Olanazapine 5mg per day and which was gradually increased to 20mg per day. The baseline brief psychiatric rating scale (BPRS) score was 45. His irritability and aggression decreased over the course of stay in ward. However, his delusional beliefs were fluctuating and lack of insight persisted. Additionally, Tablet Risperidone 2mg per day was added and further improvement was observed. Neurosurgery opinions were sought in view of worsening of symptoms after the VP Shunt and neurosurgeon advised to change the old shunt with programmable shunt. Currently patient is having non programmable shunt which removes CSF

at a fixed rate. The programmable shunt has an adjustable valve to control amount of fluid to be drained. Patient responded well to combination of Tab Olanzapine 20mg and Tablet Risperidone 2mg per day and discharged in satisfactory conditions (BPRS Score of 27). He was further advised to attend cognitive enhancement therapy (CET) and follow up with neurosurgeon.

Discussion

In a case report of 40-year-old African American man who presented with papilledema, diplopia, and headache. MRI revealed aqueductal stenosis without abnormal enhancement or obstructive lesion. Though these symptoms resolved after shunting but he soon developed progressive psychotic symptoms.[6] In another case report of young woman with psychotic symptoms of schizophrenia and neuroimaging revealed ventriculomegaly. She underwent VP shunting for obstructive hydrocephalus and reported complete remission of psychotic symptoms.[7]

Another patient of treatment refractory psychosis with communicating hydrocephalus underwent endoscopic third ventriculostomy. It led to resolution of neurological symptoms shortly after surgery and psychotic symptoms attenuated gradually.[8] It demonstrates the need to pay attention to cerebral lesions when confronted with neuropsychiatric symptomatology, especially if psychotic symptoms persist despite adequate antipsychotic treatment.

Contrary to above cases, a woman hospitalized for a ventricular-peritoneal shunting replacement and she developed manic episode with psychotic symptoms after hydrocephalus resolution.[9]

The existing literature shows that VP Shunting can lead to reversal of psychiatric symptoms but sometime can also lead to worsening of psychiatric symptoms or lead to causation of psychiatric symptoms.[6-9] In index case there is evidence of association between worsening of pre-existing psychiatric symptoms after the introduction of VP Shunt.

Worsening of psychiatric symptomatology after ventricular-peritoneal shunting might be due to increased dopaminergic tone and excessive draining of CSF.[10]

Whatever the mechanism of worsening of psychiatric symptoms in obstructive hydrocephalous but is clear that VP shunting is a surgical procedure and which needs to be carried out meticulously before the permanent damage to brain structure occurred with preferably programmable shunt to minimize the risk of worsening of psychiatric symptoms due to hydrocephalous as well as VP Shunting.

References

1. Oliveira MF, Oliveira JR, Rotta JM, Pinto FC. Psychiatric symptoms are present in most of the patients with idiopathic normal pressure hydrocephalus. Arq Neuropsiquiatr 2014; 72(6) : 435-8.
2. Hakim S and Adams RD. The special clinical problem of symptomatic hydrocephalus with normal cerebrospinal fluid pressure. Observations on cerebrospinal fluid hydrodynamics; J Neurol Sci 1965; (2) : 307–327.
3. Lying-Tunell. Psychotic symptoms in normal-pressure hydrocephalus. Acta Psychiatr Scand 1979; (59) : 415–419.
4. David AS, Lishman WA. Lishman's organic psychiatry: a textbook of neuropsychiatry. 4th edn: NJWiley-Blackwell, 2009.
5. Rao SL, Subbakrishnan DK, Gopulkumar K. National Institute of Mental Health and Neurosciences Neuropsychology Battery. Bangalore 2004.
6. Westhout FD, Linskey ME. Obstructive hydrocephalus and progressive psychosis: rare presentations of neurosarcoidosis. Surg Neurol 2008; 69(3) : 288-92.
7. Højlund M, Hansen P, Krone W, Høgh L. Obstructive hydrocephalus caused by colloid cyst presenting as a schizophrenia-like psychosis. BMJ Case Rep 2018; bcr2017223037.
8. Noll S, Heinz B, Roth-Greminger G, Hoff P, Schupbach D . Hydrocephalus, psychosis and art: a case report. Schweizer Archiv für Neurologie und Psychiatrie 2015; 166(1) : 23-25.
9. Callari A, Mantua V, Miniati M, Benvenuti A, Mauri M, Dell osso L. Manic episode after ventricular-peritoneal shunt replacement in a patient with radiation-induced hydrocephalus: the role of lifetime subthreshold bipolar features. Case Rep Psychiatry 2014; 953728.
10. Nakayama T, Ouchi Y, Yoshikawa E, Sugihara G, Torizuka T, Tanaka K. Striatal D2 receptor availability after shunting in idiopathic normal pressure hydrocephalus. J Nucl Med 2007; 48(12) : 1981-6.

Case Report

Depression Following COVID Vaccination

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Introduction

The novel Severe Acute Respiratory Syndrome Coronavirus 2 (SARS-CoV-2) virus was first detected in December 2019, and the World Health Organization has subsequently designated it a worldwide pandemic on 11th March 2020. The pernicious effects of the disease are evident from the fact that it leads to physiological and psychological distress among people across the globe.[1-3] The widespread impact of Covid-19 disease resulted in the rapid development of the vaccination. In line with the same, Covishield jab (Oxford-Astra Zeneca) and Covaxin started developing in India. The Covishield jab (Oxford-Astra Zeneca) vaccine is a viral vector vaccine that delivers spike proteins and mounts a tolerable immune response in response to a live virus using an adenovirus identified in Chimpanzees, ChAD0x1 and comparable dormant viral strain is used in Covaxin, which was created and produced in India.[4,5] Fatigue, myalgia, headache, and local response are all typical adverse effects of the Covid-19 vaccination[6] and about 1 in 100,000 individuals have more significant side effects, such as a strong allergic response.[7] Multiple works of literature have documented post-vaccination inflammatory heart illness, including pericarditis and myocarditis, although it has remained an uncommon adverse effect of immunization.[8,9] However, since these vaccinations are so new, not much information is available about long-term adverse effects. Apart from physiological disorders, some evidence-based studies were also conducted in past to investigate the psychological disorders post-vaccination from the context of influenza vaccination,[10] Measles Vaccination,[11] BCG vaccination.[12] From the perspective of Covid-19 Vaccination, Reinfeld et al[13] reported a case of psychosis post-covid-19 vaccination. SAR-CoV-2 is known to elicit a strong immunological response, including the production of significant quantities of proinflammatory cytokines. It is assumed that it can trigger the cytokine storm which may increase the risk of psychiatric disorders.

Case Report

Index patient N/A 58-year-old female, teacher by profession, of middle socio-economic background. No history of any mood disorder or any other psychiatric disorder. Patient had second dose of vaccine (dormant viral strain) in June 2021, patient came to psychiatric OPD 2 weeks after the second dose with complaints of sadness, decreased sleep, fatigue (not explained by any other medical illness). (BDI-23).

Patient complained that she was not able to take online classes, her interest in other activities like cooking, taking care of kids, and other day to day activity decreased, this persisted for more than 3 weeks; diagnosis of I depressive episode-post vaccination was by us.

We have seen in our OPD, cases of post covid anxiety and depression, but this was the first case of post covid vaccination, association with vaccination can be made.

Patient was started on controlled-release paroxetine (paroxetine CR) 12.5 mg OD for 2 days and then paroxetine CR was increased to 25 mg OD and clonazepam 0.5 mg HS. Patient had complete resolution of symptoms after one month of medication. Patient was advised to continue medication for 6 months but, she did not come for follow up after 4

months and was lost to follow up.

Discussion

Armed with experience and findings from previous epidemics of severe acute respiratory syndrome (SARS) and middle east respiratory syndrome (MERS) medical community was quick in assessing adverse mental health effects in current pandemic; among the earliest report was from China where 36.4 percent patients were having neuropsychiatric symptoms.[14] A systematic review looking for psychiatric and neuropsychiatric sequelae of COVID-19 found five major areas of deficits, namely depression/anxiety, PTSD, cognition, fatigue, and sleep disturbances;[15] same review also reported that symptoms tended to improve over a time and the severity of acute infection also appeared to be important for subsequent neuropsychiatric sequelae of COVID-19. A meta-analysis of studies assessing psychiatric symptoms in Chinese patients with and survivors of COVID-19 and SARS also reported wide variety of severe psychiatric symptoms in acute COVID-19 patients, those symptoms may persist for a long time after discharge; it was also suggested that of psychiatric symptoms should be periodically monitored, and adequate psychosocial support, and psychiatric treatment should be provided.[16]

Our patient had no prior psychiatric history and she developed depressive symptoms developed approximately 20 days of second dose of dormant virus strain vaccine. COVID-19 was rule out by RT-PCR test, test was negative. There was appreciable improvement in symptoms after starting paroxetine in usual antidepressant dosage.

Multiple pathophysiological mechanisms have been proposed for neuropsychiatric sequelae of COVID-19 namely, neurotropism, immune response to SARS-Cov-2, hyperactivity of hypothalamo-pituitary adrenal axis, disrupted in multiple neuronal circuits, increased stress levels, neuroinflammation and neuronal death. It is possible that one of these factors may be responsible for development of depression in view of her increased age[17] and female gender,[18] both biological factors have been suggested as risk factors for development of psychiatric symptoms in COVID-19 patients. Both above biological factors might have predisposed our patient for development of depression. In view of above, it might be good practice that one looks out for psychiatric symptoms, especially in those with risk factors.

References

1. Chaix B, Delamon G, Guillemassé A, Brouard B, Bibaul JE. Psychological distress during the COVID-19 pandemic in France: a national assessment of at-risk population. Gen Psychiatry 2020; 33 : e100349.
2. Pandita S, Mishra HG, Chib S. Psychological impact of covid-19 crises on students through the lens of Stimulus-Organism-Response (SOR) model. Child Youth Serv Rev 2021; 120 : 105783.
3. Zhang J, Lu H, Zeng H, Zhang S, Du Q, Jiang T, Du B. The differential psychological distress of populations affected by the COVID-19 pandemic. Brain Behav Immun 2020; 87 : 49–50.
4. Sah R, Shrestha S, Mehta R, et al. AZD1222 (Covishield) vaccination for COVID-19: Experiences, challenges, and solutions in Nepal. Travel Med Infect Dis 2021; 40 : 101989.
5. Sapkal GN, Yadav PD, Ella R, et al. Inactivated COVID-19 vaccine BBV152/COVAXIN effectively neutralizes recently emerged B.1.1.7 variant of SARS-CoV-2. J Travel Med 2021; 28(4). available at: https://doi.org/10.1093/jtm/taab051.
6. Menni C, Klaser K, May A, et al. Vaccine side-effects and SARS-CoV-2 infection after vaccination in users of the COVID Symptom Study app in the UK: a prospective observational study. Lancet Infect Dis 2021 : 21 : 939–949.
7. Avorn J, Kesselheim A. Regulatory Decision-making on COVID-19 Vaccines During a Public Health Emergency. JAMA 2020; 324 : 1284.
8. Cizgici AY, ZencirkiranAgus H, Yildiz M. COVID-19 myopericarditis: It should be kept in mind in today's conditions. Am J Emerg Med 2020; 38 : 1547.e5-1547.e6.
9. Diaz GA, Parsons GT, Gering SK, Meier AR, Hutchinson I V, Robicsek A. Myocarditis and Pericarditis After Vaccination for COVID-19. JAMA 2021; 326 : 1210.
10. Kramer P, McClain CJ. "Depression of Aminopyrine Metabolism by Influenza Vaccination. New Engl J Med 1981; 305 : 1262–1264.
11. Brody JA, McAlister R. Depression of Tuber-

culin Sensitivity Following Measles Vaccination. Am Rev Resp Dis 1964; 90 : 607–611.
12. Gray JD, Renton KW, Hung OR. Depression of theophylline elimination following BCG vaccination Br J Clin Pharmacol 1983; 16 : 735–737.
13. Reinfeld S, Cáceda R, Gil R, Strom H, Chacko M. Can new onset psychosis occur after mRNA based COVID-19 vaccine administration? A case report. Psychiatr Res 2021; 304 : 114165.
14. Mao L, Jin H, Wang M, et al. Neurologic manifestations of hospitalized patients with coronavirus disease 2019 in Wuhan, China. JAMA Neurol 2020; 77 : 683–690.
15. Schou TM, Joca S, Wegener G, Bay-Richter C. Psychiatric and neuropsychiatric sequelae of COVID-19 – A systematic review. Brain Behav Immun 2021; 97 : 328-348.
16. Putri C, Arisa J, Hananto JE, Hariyanto TI, Kurniawan A. Psychiatric sequelae in COVID-19 survivors: A narrative review. World J Psychiatr 2021; 11 : 821-829.
17. Maffetone PB, Laursen PB. The Perfect Storm: Coronavirus (Covid-19) Pandemic Meets Overfat Pandemic. Front Public Health 2020; 23 : 135.
18. Huang C, Huang L, Wang Y, et al. 6-month consequences of COVID-19 in patients discharged from hospital: a cohort study. Lancet 2021; 397 : 220-232.

Letter to Editor

Burnout – an overlooked snowball during COVID-19 pandemic among health-care workers

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Dear Editor,

Since late December 2019, which marks the beginning of the battle of life with the novel corona virus; health-care workers have been the frontline warriors.A year of continuous fight faced by HCW against the variants and waves of COVID-19, which has not only exhausted HCW with resources but also has caused physical, mental and emotional fatigue; hence has caused emergence of burnout!

Burnout was first described by an American psychologist Herbert Freudenberger in 1974.[1] The new version of ICD-11 has titled "QD85 Burn-out"; which defines the condition as follows: "Burn-out is a syndrome conceptualized as resulting from chronic workplace stress that has not been successfully managed. It is characterized by three dimensions: (1) feelings of energy depletion or exhaustion; (2) increased mental distance from one's job, or feelings of negativism or cynicism related to one's job; and (3) reduced professional efficacy."[2]

With the emergence of novel corona virus there had been a surge of burnout among the health workers. A study done by Dyrbye et al. 2019, revealed job burnout and its impact leading to less willingness to undertake leadership, reduced quality of medical care, lower satisfaction level of hospitalized patients, increased healthcare-related infections, and higher mortality rates among the patients.[3] The burnout among the HCW also causes dissatisfied job services and leaving the work opportunities.[3]

Elhadi M et al 2020, highlighted upon the burnout syndrome in the professional specialty which was significantly associated with fear of COVID-19, high emotional exhaustion and depersonalization[4].

Despite being hit by the burnout crisis among the HCW, no provisions have been laid out for the mental health of the HCWs. The rising prevalence of burnout and inadequate availability of health services facilities during the COVID-19 pandemic demonstrated the need for healthcare policies to address concerns and ensure the well-being of healthcare workers to decrease the risk of mental ill-health and burnout.

References

1. Bianchi R, Schonfeld IS, Laurent E. Burnout or depression: both individual and social issue. The Lancet. 2017; 390(10091) : 230.
2. WHO. International Classification of Diseases (ICD 11). Geneva: WHO, 2022.
3. Dyrbye LN, Shanafelt TD, Johnson PO, Johnson LA, Satele D, West CP. A cross-sectional study exploring the relationship between burnout, absenteeism, and job performance among American nurses. BMC Nurs 2019; 18 : 57.
4. Elhadi M, Msherghi A, Elgzairi M, et al. Burnout Syndrome Among Hospital Healthcare Workers During the COVID-19 Pandemic and Civil War: A Cross-Sectional Study. Front psychiatry 2020; 11 : 1426.

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- Mental health before and during the COVID-19 pandemic in two longitudinal UK population cohorts. Swong AFS, et al. Br J Psychiatry 2021; 218 : 334 – 343. DOI: https://doi.org/10.1192/bjp.2020.242
- Examining and Modulating Neural Circuits in Psychiatric Disorders With Transcranial Magnetic Stimulation and Electroencephalography: Present Practices and Future Developments. Ferrarelli F, Phillips ML. Am J Psychiatry 2021; 178 : 400–413. https://doi.org/10.1176/appi.ajp.2020.20071050
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- Repetitive transcranial magnetic stimulation and its role in suicidality – A systematic review. Godi SM, et al. Asian J Psychiatry 2021; 63 : 102755. https://doi.org/10.1016/j.ajp.2021.102755
- Ketamine Treatment for Depression in Patients With a History of Psychosis or Current Psychotic Symptoms: A Systematic Review. Veraart JKE et al. J Clin Psychiatry 2021; 82(4) : 20R13459
- History and mystery of Dhat syndrome: A critical look at the current understanding and future directions. Rao TSS. Indian J Psychiatry 2021; 63 : 317-325. doi: 10.4103/psychiatry. Indian J Psychiatry_791_20
- Mental health outcomes among health-care workers dealing with COVID-19/severe acute respiratory syndrome coronavirus 2 pandemic: A systematic review and meta-analysis. Dutta A, et al. Indian J Psychiatry 2021; 63 : 335-347. doi: 10.4103/psychiatry. Indian J Psychiatry_1029_20.

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For clarification see following reference styles.

Sample citations

According to our previous work,[1,3-8,19]
The Patient's were studied as follows.[3,4]

Sample References

- **Articles**
  1. Roest AM, Zuidersma M, de Jonge P. Myocardial infarction and generalised anxiety disorder : 10-year follow up. Br J Psychiatry 2012; 200 : 324–329.
  2. Bremner JD, Shearer KD, McCaffery PJ. Retinoic acid and affective disorders: The evidence for an association. J Clin Psychiatry 2012; 73 : 37–50.
- **Book**
  1. Stahl SM. The Prescriber's Guide (Stahl's Essential Psychopharmacology, 4th ed. Cambridge, U.K.: Cambridge University Press, 2011.
- **Chapter of a book**
  1. Blacker D. Psychiatric Rating Scales In: Sadock BJ, Sadock VA, editors. Kaplan and Sadock's Comprehensive Text Book of Psychiatry. Vol. I. Philadelphia: Lippincott Williams and Williams; 2000. pp 755-782.

Personal communication and unpublished data should not be used for the reference.

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