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Tel.: 22586262 Extn. 2127 Fax : 0091-11-22590495
E-mail : manbhatia1@rediffmail.com
: dps_journal@yahoo.co.in

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Editorial

Psychodentistry – a new specialty

M.S. Bhatia,[1] Navneet Kaur Bhatia,[2] Navleen Kaur Bhatia[3]
[1]Department of Psychiatry, UCMS & GTB Hospital, Dilshad Garden, Delhi-110095;
[2]Department of Dental Surgery, Dr RML PGIMER & Hospital, New Delhi-110001;
[3]Department of Dentistry, AIIMS, Jodhpur- 342005, Rajasthan

Psychosomatic dentistry is defined as a field of academic study for "*Medically Unexplained Oral Symptoms* (MUOSs)". MUOSs are oral symptoms for which the treating dentists and other healthcare providers have found no dental or medical causes.[1] The term "*Psychosomatic Disorders of the Oral Cavity*" has been modified by some authors to "*Psychosomatic Disorders pertaining to Dental Practice*".[2] The term "*Oral Psychosomatic Disorders*" is also used. To gain attention towards psychiatric disorders seen in routine clinical practice, it is better to group them under the new term "*Psychodentistry*" as had been done for other newer specialties i.e. "Psychophysiotherapy"[3] and "Psycho-microbiology".[4]

The symptoms are accompanied by physiological and functional changes that originate partially from emotional and psychological factors. Psychosomatic disorders can affect the oral cavity since the oral environment is related directly or symbolically to the major human instincts and passions and is charged with a high psychological potential.[5]

The psychiatric disorders seen in dentistry have been classified differently by many authors.[6-9] A simple working type classification has already been proposed for the psychosomatic disorders of the oral cavity[10] i.e. *Pain related disorders* (Atypical facial pain; Myofascial pain dysfunction syndrome (MPDS); Atypical odontogenic pain; orofacial phantom pain); *Disorders related to altered oral sensation* (Burning mouth syndrome (BMS); Xerostomia; Idiopathic dysgeusia; Glossodynia; Glossopyrosis); *Disorders induced by neurotic habits* [Bruxism, Biting of oral mucosa (Self-mutilation)]; *Autoimmune disorders* (Recurrent aphthous stomatitis,Oral lichen planus, psoriasis; Mucous membrane pemphigoid, Erythema multiforme) and *Others* (Recurrent herpes labialis, Necrotizing ulcerative gingivostomatitis (NUG), Chronic periodontal disease, Cancerophobia, Body dysmorphic disorder (BDD),[11,12] Halitosis,[13] Delusional halitosis or halitophobia,[14,15] Olfactory reference syndrome,[16] Delusional parasitosis of oral cavity).[17]

The estimated prevalence of MUOS among dental patients ranges from 5% to 10 % or more.[18] About 20 to 30% patients with MUOS have actual psychiatric conditions such as depression, bipolar disorder and severe obsessive compulsive disorder.[19] Dentists tend to misdiagnose or overtreat these patients and excessive or unwanted dental procedures may worsen them.[19] Many of these patients tend to develop another symptom after their previous symptom is cured.In addition to above mentioned group of disorders, the dental surgeons should know how to handle psychiatric patients coming for oral treatment, which include asking psychiatrist's opinion about the fitness for treatment, maintain rapport, understanding patient's reactions, psycho-educating patients as well as their caregivers about the disease, the nature of treatment required, keeping priority appointments (because sitting in waiting area tends to increase apprehensions), avoid surprises, taking informed consent, maintain privacy and advising the patients to come for follow up in dental as well as psychiatry outpatient departments. There is need to train oral physicians about common psychiatric disorders seen in routine practice so that they can be correctly identified, timely referred and properly treated.

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Invited Editorial

Young People and Mental Health in a Changing World

Shruti Srivastava, Ankit Saxena, Aparna Goyal
Department of Psychiatry, U.C.M.S. & GTB Hospital, Delhi-110095

The focus of World Federation of Mental Health this year is on youth, thus declaring the theme of World Mental Health Day, 10th October, 2018 as *Young People and Mental Health in a Changing World*. In India, youth population comprises of roughly 40% as per the current census. Unemployment, illiteracy, lack of skills, changing societal norms are the few problems that the current youth face in a developing country like India. Discrimination related to gender, social class as well as race/religion also add to the misery of youth. Indian society currently faces the extremes. On one hand is extreme poverty, ignorance,lack of education and on the other hand, there is technological advancements including widespread internet access leading to cyber-bullying.[1]

Suicide is the second most common cause for mortality in the 15-29 years old age-group (WHO)[2].Global Burden of Disease study (1990-2016) published recently reported suicide death rates in India as two times higher in women than men in the age groups of 15-29 years and 75 years or older.[3] Specific suicide prevention strategies targeted for different age groups as well as gender specific needs must be addressed at a national level.

Recently, Honorable Supreme Court of India has passed the order on LGBTQ.[4] This is a new policy that gives equality of rights to this discriminated section of society. Identifying LGBTQ and being open without criticism, giving equal opportunity to these individuals for education, work, participation in social gatherings without any biases is the change that is expected from the society.

Government of India has recently tried to empower Muslim women with liberation of some policies which have been interfering with their fundamental rights.[5] For sexual harassment at workplace, the stricter laws are in the process with firm action being instituted against the perpetrators of the crime.

World Federation of Mental Health (WFMH) envisaged this year's theme to address mental health problems that youth faces. Many of the mental health problems especially in youth remain under-diagnosed, unidentified and undertreated. Mental illnesses in this age group (15-29yr) devastate the economy of the individual as well as the society since they affect the most productive years of the individual's life.

Dissemination of the theme involves creating awareness programs in the institutions,publishing materials in media about the early target symptoms, when to approach mental health professionals, how to prevent mental disorders. Community based participation can be increased through involvement of both Non-Governmental organizations as well as Government agencies.[6]

Youth violence is another problem on rise with an adolescent girl dying every ten minutes somewhere in the world. The causes could be self-directed, interpersonal violence or community violence. Prevention is the key to overcome such untoward incidences. The strategies highlighted to overcome these issues are close monitoring of parents regarding television viewing, to be more open with adolescents share their concerns/ thoughts / feelings/ emotions regarding such incidents of mass violence, routine scheduling of activities including outdoor sports and spending more time with the family.

Decriminalization of suicide has been carried out through a new Mental Health Care Act 2017. Previously one-year imprisonment was the provision in the law for suicide attempters. Early symptoms

like withdrawing from friends and families, feeling anxious / agitated/ angry or hostile behavior, sulkiness or feeling too low, expressing guilt, death wishes/ plans/ dangerous intents need to be observed by the family, friends and peers. Risk factors associated with suicide are social factors (illiteracy, unemployment, poverty, poor social support), psychiatric history (family history of psychiatric illness, substance abuse/ dependence, personality disorders), child abuse, poor coping skills. Early intervention should aim at identifying early symptoms so that counseling / lifestyle interventions/ medication can be advocated depending on case to case needs. Resilience and capacity building through mentoring programs like workshops/ exhibitions/ inculcating sports or recreational activities like yoga needs to be incorporated in the curriculum of educational institutions.

Stigma towards mental disorders has been largely overcome by integrating mental health services with general hospitals, changed perceptions as reflected through media (television programs, movies, published newspapers), brand ambassadors like famous personalities advocating mental health issues, online/ technology savvy methods of seeking consultation has made the tasks easier.

Cyber-bullying is defined as threatening or aggressive emails, texts or online posts, embarrassing or threatening pictures posted online, or using someone's identity to send out or post embarrassing or threatening information. With rising use of technology, incidents of cyber-bullying have risen dramatically. This leads to deterioration in the emotional health of youth who are subject to this behavior. Limit setting for adolescents as well as youth for internet access devices should be strictly enforced. Supervision of the parents, family members and authorities for non-work related use of these devices needs to be carried out. Engagement in alternate socializing through meeting friends, family as well as engaging in outdoor activities are some of the measures that help the victims come out of the menace.

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Review Article

Emergence of Community Based Rehabilitation for Persons with Disability in India

Pradeep Kumar,[1] Sushma,[2] Aishwarya Raj[3]
[1]Department of Psychiatric Social Work,State Institute of Mental Health, Pt. B.D. Sharma University of Health Sciences, Rohtak, Haryana;
[2]Department of Psychology, Marshi Dayanand University (MDU), Rohtak, Haryana and
[3] Navkiran-1 Half way/Long stay home, Sector-3, Rohini Department of Social Welfare, GNCT of Delhi
Contact: Pradeep Kumar, E-mail: pradeep.meghu@gmail.com

Introduction

Indian community is known for its diversity of cultures, race, cast, class, language, religion and has a unique geographical area. Community-based Rehabilitation (CBR) is designed to supplement and decrease the need for costlier residential or inpatients care delivered in institutions/ organisations/ hospitals etc. CBR is comprehensive procure within community development, for the equalisation of opportunities, rehabilitation, and social inclusion of all people with disabilities. CBR is implemented through the combined efforts of people with disabilities themselves, their families, organisations and communities, as well as the relevant governmental and non-governmental sector, education, vocational, social and other services.[1] It encourages joint effort among people with disabilities, their families, community leaders, and other concerned citizens as well as various stakeholders, to provide equal opportunities for all people with disabilities in the community. CBR is considered the most cost-effective approach for improving the wellbeing of persons with disabilities[2,3] and for fostering their participation in the community and society at large.[4,5] Disability is an umbrella term, covering impairments, activity limitations, and participation restrictions. Disability is not just a health problem. It is a condition reflecting the relation between features of a person's body and attribute of the society in which he or she lives. Crushing the difficulties faced by people with disabilities requires interventions to remove environmental and social barriers.[6]

Etienne Krug, Director of the WHO Violence and Injury Prevention and Disability Department stated that the Community-based rehabilitation guidelines provide an important additional tool to implement the Convention on the Rights of Persons with Disabilities and strengthen community based development involving people with disabilities. During the International Consultation held in Helsinki, Finland in 2003 CBR guidelines were made to review Community-based Rehabilitation. The WHO; the International Labour Organization; the United Nations Educational, Scientific and Cultural Organization; and the International Disability and Development Consortium have worked together closely to develop the Community-based rehabilitation guidelines. The Community-based rehabilitation: - (A) Promote CBR as a strategy for community-based development is involving Divyang person (B). Stating on how to develop and strengthen CBR programmes, (C), Supporting stakeholders to meet the basic needs of people with disability and enhancing their quality of life along with their families (D) Encouraging the empowerment of Divyang Jan and their families.[7]

Person with disability

The rights, type and category of person with disability has been modified presently and add some more disabilities.On the 13th day of December, 2006 The United Nations Convention on the Rights of Persons with Disabilities lays down the following principles for empowerment of persons with disabilities; (a) Non-discrimination; (b) Full and effective participation and inclusion in society (c)

Respect for natural worthiness, individual autonomy including the freedom to make one's own choices, and independence of persons; (d) Respect uniqueness and acceptance of Divyang Jan as part of Human diversity and humanity; (e) Equality of opportunity;(f) Accessibility;(g) Equality between men and women; (h) Respecting the evolving capacities of children with disabilities and respecting their right of preserving their identities.[8] India signed the said Convention on the 1st day of October, 2007 and considered necessary to implement it. The Act came into force during December 2016 and included 17 chapters. The salient feature of this act can be grouped under the following heading:

A. *Disabilities covered*: Apart from previous seven categories, this new Act covering twenty one types of disabilities. These are 1. Blindness; 2. Low-vision; 3. Leprosy Cured persons; 4. Hearing Impairment (deaf and hard of hearing); 5. Locomotors Disability; 6. Dwarfism; 7. Intellectual Disability; 8. Mental Illness; 9. Autism Spectrum Disorder; 10. Cerebral Palsy; 11. Muscular Dystrophy; 12. Chronic Neurological conditions; 13. Specific Learning Disabilities; 14. Multiple Sclerosis; 15. Speech and Language disability; 16. Thalassemia; 17. Hemophilia; 18. Sickle Cell disease; 19. Multiple Disabilities including deaf blindness; 20. Acid Attack victim; 21. Parkinson's disease. Persons with "benchmark disabilities" are defined as those certified to have at least 40 per cent of the disabilities specified above.

B. *Rights and entitlements*: Trustworthiness has been launching upon the governments to take fruitful measures to ensure that the Divyang Jan enjoy their rights equally with others. Extra reward such as reservation in higher education (not less than 5%), government jobs (not less than 4%), reservation in allocation of land, poverty alleviation schemes (5% allotment) etc. have been provided for persons with severe disabilities and high support needs. Every child with benchmark disability between the age group of six and eighteen years shall have the right to free education. The educational institutions funded by Government as well as the government recognized institutions will have to provide inclusive education to the children with disabilities.

C. *Guardianship*: The Act provides for guardianship by District Court under which there will be joint decision – making between the persons with disabilities and the guardian.

D. *Establishment of Authority*: The State & Central Advisory Boards for Disability have been set up as apex regularity bodies at two levels: the Central and State level. The office of Chief Commissioner of Persons with Disabilities according to the frameworkwill now be assisted by 2 Commissioners and also be supplemented by an Advisory Committee comprising of 11 members drawn from experts in various disabilities. The office of State Commissioners of Disabilities will also be assisted by an Advisory Committee comprising of 5 members drawn from experts in various disabilities. The Chief Commissioner for Persons with Disabilities along with the State Commissioners will monitor the implementation of the Act and also work as apex bodies and grievance redressal units. The District level committees will be formed by the State Governments to address local concerns of PWDs. Details of their responsibilities and the functions of such committees would be prescribed by the State Governments in the rules. National and State Fund will be created to provide financial assistance to the persons with disabilities. The existing Trust Fund for Persons with Disabilities and the National Fund for Empowerment of Persons with Disabilities will be included with the National Fund.

E. *Penalties for offences*: The Act states penalties for offences committed against persons with disabilities and also violation of the provisions of the new law. An individual who violates provisions of the Act, or any rule or regulation made under it, shall be punishable with imprisonment up to six months and/or a fine of Rs 10,000, or both. For any other violation, imprisonment of up to two years and/or a fine of Rs 50,000 to Rs five lakh can be awarded. A person who intentionally insults or intimidates a person with disability, or sexually exploits a woman or child with disability, shall be punishable with imprisonment between six months to five years and fine. Special Courts shall be designated in each district to handle cases concerning violation of rights of PWDs.

These guidelines provide effective mechanism for ensuring empowerment and true inclusion of PWDs into the Society in a satisfactory manner and also enhance the Rights and Entitlements of Divyangjan. RPWD Act is an important work to define Right to Equality in clear terms.This Act also helps in their integration into the mainstream of

psycho-social and economic perspective.

Community based Indian studies having person with disability

The prevalence of disability varies in different age groups and areas.There is more burden of disability amongst the geriatric (> 60 years) age group with 6401 and 5511 per lakh population in rural and urban areas respectively. Overall, 1846 and 1499 per lakh population had some type of disability during the survey in rural and urban areas respectively[9].A study in Chandigarh reported that 87.5% of elderly people had minimal to severe disabilities.[10]

Another study in Dehradun showed that visual disability was the most common (74.1%) among the geriatric age group.[11] A community-based study conducted in Rajasthan among children below 14 years found that 7% of them had at least one or other form of disability.[12] Another study in Gorakhpur found that in children below the age of 6 years the disability rate was 7638 per lakh population.[13] As per the Census 2011, 2.68 Cr persons are 'disabled' which is 2.21% of the total population. Among the disabled population 56% (1.5 Cr) are males and 44% (1.18 Cr) are females. Majority (69%) of the disabled population resided in rural areas (1.86 Cr disabled persons in rural areas and 0.81 Cr in urban areas.[14] The total number of person with disability has been increased because the category of disability has expanded from 7 to 21.

People with disability have no or limited access to health care services and rehabilitation, education, skill training and various employment opportunities. This contributes to a vicious cycle of poverty and disability. There is a felt need to mobilize community resources; create an awareness regarding promotion of equal opportunity as well as RPWD; improve competence of professionals specially rehabilitation professional for delivering services; augment the organization for programme formulation and coordination; and promote voluntary effort.CBR programmes can use community mobilization to bring together stakeholders in the community, e.g. people with disabilities, family members, self-help groups, disabled people's organizations, community members, local authorities, local leaders, decision- and policy-makers, to address barriers within the community and ensure the successful inclusion of people with disabilities in their communities with equal rights and opportunities.

The CBR is responsible for identification of people with disabilities and helps in providing them and their families with the necessary support. They work towards promoting self-esteem, family inclusion, and increasing access to services in the health, education, labour and employment sectors. They initiate individuals in the community to jointly support the programme, include persons with disabilities, their parents, caregivers, community members and community leaders.

The main aim of the CBR is to empower local communities so as to remove barriers for people with disabilities and their families, and play an active role in facilitating the inclusion of people with disabilities and their families in community activities.

CBR Management

CBR management plan is designed for people with disabilities, the family members and caregivers, voluntary members of the community and representatives of government authorities. The aim is: (a) following the mission and vision of the CBR programme (b) identifying of needs and available local resources (c) defining the roles and responsibilities of CBR personnel and stakeholders (d) designing a plan of action (e) delineating resources for programme implementation (f) providing support and guidance for CBR programme managers.

Training for CBR

For initiation of CBR programme a formal training is needed in order to ensure effective management, effortful participation of DPOs, and effective delivery of services from CBR team, workers and professionals who provide referral or support services. A. *Management Training:* CBR framework has a focal point at the intermediate or district level. The ministry responsible for CBR may train the personnel who manage the CBR programme so that they are able to carry out tasks such as identifying the people who need services, co-ordinating with the community and sectors that provide services, and keeping records. B. *Training for Organizations of Persons with Disabilities (DPOs)*: DPOs may also need training to function as liaisons between the community and the national and intermediate/district levels. They will need skills, for example, in advocacy, co-ordination, planning and

evaluating programmes, and fund raising. C. *Training for Service Delivery*: Mainly two groups of people are involved in service delivery: (A) the community CBR workers and (B) the professionals who provide specialised services. CBR workers need to learn the skills used in training people with disabilities, and they need to learn how to impart this training in a competent manner. They also require training for their role in facilitating contact between people with disabilities and their caregivers on the one hand, and the specialised service providers and community leaders on the other. The capital involved in training of the CBR workers is an important aspect of CBR programmes, and is a factor that should motivate the managers to do what they can to minimise the turnover of workers. Professionals who provide specialised services in the health, education, social and vocational sectors also need training to sensitize them to the rights of people with disabilities and their families. Some service providers may not be skilled in providing the information that people need to make decisions about which services they wish or do not wish to have. They may also need training in how to communicate with people who have different types of impairments such as hearing, seeing, mobility, understanding or behaving.

Community Based Inclusive Development (CBID) and CBR

CBID addresses challenges for persons with disabilities, their families, caregivers and their organizations, working in situations of deprivation, and offers opportunities and benefits for them working with community based self-help groups and livelihoods activities. CBID particularly initiates the participation and voice of people with disabilities in decision-making processes at the local level. It is usually implemented at three levels – individual, society and community - to ensure services such as livelihood, health, education and social are accessible to all persons with disabilities living in poverty, whether boys, girls, women or men. Its work aims towards greater inclusion of people with disabilities in having a livelihood, health, social welfare, education and other areas by supporting the work of those responsible (duty bearers) in both communities and service delivery, thereby ensuring all people with disabilities can participate in their community life and fully exercise their rights.

This design encourages CBM's vision of having an inclusive sphere by being equitable, inclusive and creating resilient communities where people with disabilities are empowered to exercise their rights. It uses *'person-centered'* and *'bottom-up'* approach at community level aiming towards participation and inclusion of everyone. The framework includes health, education, livelihood, social activities and empowerment, working in association with local partners, local government and representative groups to bring about a change. In severely risky areas this programme also includes activities for community preparedness and resilience which prove effective in times of disasters and/or conflict strike.[15]

Outcomes of the CBR

Main outcomes of CBR are (A) Communities are aware about the needs, and working towards improving the quality of life of people with disabilities, their family members and caregivers (B) Barriers and stigma in the community is reduced or removed for people with disabilities and their family members (C) Communities are aware about CBR and usage of resources effectively to develop and sustain CBR programmes,(D) Participation of communities in planning, implementing and managing CBR programmes.

Challenges of CBR

The major challenge includes (A) understanding the concept of disability and acceptance of CBR as a valid intervention (B) Hospital-based rehabilitation services leads to mystification of knowledge with social isolation and low efficiency of services which will benefit fewer disabled,(C) Prioritization of resources like finance, manpower, and materials are another important issue, (D) Poor planning and management of CBR with lack of inter-sectoral coordination leads to poor functioning of the services to disabled, (E) lack of co-ordination between the Government and NGOs, (F) The absence of a coherent community level strategy, (G) Limited competence and capacity of decentralizing services, (H) Lack of education among disabled is also an important barrier for effective delivery of services and 54.7% of disabled belonged to illiterate category according to NSSO 2002 survey findings,[16] (I) Lack

of awareness, inadequate infrastructure, inadequate man power, lack of community participation, social stigma etc.

Recent study having outcomes and impact of community-based rehabilitation programmes in Chinese communities indicated that, across all programmes, 78.21% of stories focused on changes in people with disabilities, 9.9% described aspects of programme development, 8.91% reported on outcomes related to CBR workers, and only 2.97% were focused on advocacy. When mapped against the elements of the CBR framework the most significant change technique among these programmes were (1) psychosocial changes, (2) increased family participation and (3) improved physical functioning.[17]

The WHO, ILO and UNESCO have emphasised the importance of inclusion of people with disabilities in the planning and implementing of CBR programmes, the necessity of increased collaboration between sectors that provide the services used by people with disabilities, and the requirement for government support and national policies on CBR. CBR has been seen as an effective strategy for increasing community level participation for equalization of opportunities for people with disabilities by including them in programmes focused on human rights, poverty reduction and inclusion. The CBR is not only a cost effective programme but it also reduces several kinds of family burden and improve the quality of life of the person with disability and the caregiver burden. Lastly, it can be said that CBR plays an important role towards the productivity of nation.

Conclusion

There is unique geographical area, limited recourses, utilization of available infrastructure, available negative attitude and social stigma pull the CBR for the mainstreaming and welfare of person with disability as well as reduce the burden of their family members/care givers in India. CBR aims to encourage the community to create awareness about negative attitudes and behaviours towards people with disabilities and their families, that the community is supportive of them, and that disability is mainstreamed across all development sectors. There is right time to work together and also needed strong liaisons between various stock holders those are working in the area of disability. Collaborative approaches are also essential between various central / state government policy (like National rural heath mission, national mental health policy, district mental health programme, primary health centre, district disabled rehabilitation centre, etc.), school teacher, faith healers, NGOs, police personal, judiciary, local leader, health professional, policy makers, researchers etc. for the betterment and rehabilitation of person with disability.

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Review Article

Gerontological Social Work: Pertinent for Social Work

Ushvinder Kaur Popli, Rishi Panday
Department of Social Work, Jamia Millia Islamia, New Delhi
Contact: Rishi Panday, E-mail: rishiraj.lu@gmail.com

Introduction

In present scenario, across the world every country is experiencing the challenges of aged population and the growth rate of the elderly population is more rapid in developing countries like India, Pakistan and China than developed countries like America, Russia and France. Away from each other demographic transitions, socio-demographic and political changes together with increased individualism have altered living conditions of elderly. India is one of the vast countries in terms of geographical areas and the second largest country which shares 15 percent of world's population.The population of elderly is increased day by day in global perspective and it generates challenges of caring of elderly. Nowadays social structure and values of Indian society are transforming from traditional values to modern value and this is a result of industrialization and urbanization. Day by day population of elderly increased in India and it creates caring challenges of elderly in country. It requires more professional experts in field of ageing like Geriatrics, Gerontologist, Physiotherapist, Psychologist and Gerontological social worker. Gerontological Social Worker has expertise to work with elderly and caregivers. Gerontological Social Work is a specialized branch of Social Work which deals the process of ageing, caregivers of elderly and problems of elderly.

Social Work

Social work is professional course which involved scientific knowledge along with ability in understanding of human relationship. Social work profession promotes social changes in society, to develop problems solving skills in human relationship and encourage the empowerment along with liberation of venerable individuals in community. Social worker plays important role to improve the well being of people in society with the help of different kind of theories which are based on human behaviour and social systems. Principle of human right and social justice are fundamental values of social work. Social work profession addresses the multiple complex transactions between people and their environment. Social work mission is to enable all people to develop their full potential, enrich their lives and prevent dysfunction. Professional social work is important focused on problems solving ability and change in behaviour of persons in society. Social worker is a change agent in society and they serve the individuals, families and communities. Social work is an interrelated system of values, theory and practice. Konopka (1958) opinions about "Social work is an entity representing three clearly distinguished but inter related parts: a network of social services, carefully developed methods and process and social policy expressed thought social institutions and individuals. All three are based on a view of human being, their interrelationships, and the ethical demands made on them."[1] Boehm (1959) suggest "Social work seeks to enhance the social functioning of the individuals, singly and in groups, by activities focused upon their social relationships which constitute interaction between men and his environment. These activities can be grouped into three functions: restoration of impaired capacity, provision of individual and social resources and prevention of social dysfunctions."[2]

Social Work and Ageing

Ageing is a big challenge for the entire world in

the present scenario. The population of elderly is increasing day by day globally and it generates new challenges for the care giver of elderly so it creates requirement of professional experts in the field Gerontology. Nowadays social structure is changed in society and values of Indian society are transforming from traditional values to modern value. This transformation is a result of industrialization and urbanization which affected our society. Migration is important factor which affected social structure and traditional values of society because people leave their place and move on to new places for different kind of oppor-tunities so they adopt new values and tradition of different society. In Indian culture, people believed that the caring of elderly should be a duty of all members of the joint family. Day by day concept of joint family is broken due to industrialization and urbanization and it transformed into nuclear family. In nuclear family caring for elderly is very difficult for family members because husband and wife both are working members of a family while children are going to school, so elderly become lonely in a home. Sometime people can't understand the problems of elderly, process of ageing and method of care giving. Ageing is explained by many experts like Psycho-logist, Sociologist and Medical expert. Hurlock (1986) defined aging as "Old age is a closing period of life span".[3] Hooyman (2008) suggested "Aging is a complex and fascinating process, one that we will all experience. It is complex because of its many facts- physiological, emotional, cognitive, economic and interpersonal that influences our social functioning and well-being".[4] Pappthi (2007) "Ageing is a multidimensional phenomenon and is affected by a combination of physical, psychological and socioeconomic factors".[5] Bhattacharya and Mukherjee (2008) defined "Aging is a progressive and cumulative process of psychophysical change occurring over time and affected by a psycho-physical change occurring over time and affected by the variety of factors."[6] Social work is profession which emerged out of the need to provide poor relief in a systematic manner gradually evolved into a semi-profession and eventually into a profession having expert knowledge and technical skills intended at helping the needy person. During the initial stage, it was concerned with assisting people to resolve their psycho-social problems obstruction their effective social functioning. Agencies can't properly have understood the role of social work in the field of ageing and social worker face some difficulties to work with elderly and understand what is his actual role with elderly.[7] Social work looks at the person in environment and assesses bio-psycho-social issues. This means that the client and family are generally seen as the unit of care that finding concrete resources is as important as providing good mental health counselling. Social workers are skilled in many areas and issues relevant to ageing such as age discrimination and client rights, domestic violence, loss and end of life concerns, substance use disorders, depression and living with physical challenges. However, in order to be as well prepared as possible to meet the increasing needs of the ageing population, social workers should look for additional specialized education and advanced training opportunities related to older persons. Social work effectiveness with older people should focus on intensive care management with those who have complex, fluctuating and rapidly changing needs and pressure to manage budgets and establish eligibility must not reduce social workers' capacity to engage with the older person and use the full repertoire of their skills in a holistic way. Interesting finding about role of social worker in field of ageing which is related to individual counselling, family and inter-generational case work and group work occurs primarily in family support services, community health, mental health, rehabilitation services and non-government aged and disability services and in private practice.[8] Social workers bring a unique mix of skills and expertise to situations of complexity, uncertainty and conflict. These include a 'whole system' view, engaging with the older person's biography, supporting individuals and families through crises associated with loss or transition, helping to ameliorate the practical impact of change and challenging poor practice. Social work with elderly people cannot be considered effective unless older people themselves are satisfied with it. On the other hand service users want to be listened to and respected as individuals. Social care with older people is more effective when its intended outcomes are identified at an early stage during assessment and built into health care planning. Elderly people must be closely involved in the process, with outcomes based on their wishes and priorities as

far as possible. Elderly people like services which support them in various aspects of their lives, not just personal care and relationship needs. Stressing on the role of social workers in care of the elderly, Prakash (2000) observes, "There are a large segment of older people who are usually neglected by health professional because impairment, dependent and frail elderly are often left to families with very little professional help. The well being of such people can be significantly improved if social workers can incorporate principles of behavioural gerontology in their work".[9] The consequences of successive neo-liberal policies in welfare services over the past twenty years have played a significant role in undermining an already fragile basis for social work with adult generally and older people specifically.[10]

Gerontological Social Work

Gerontological Social Work a specialized branch along with multi-disciplinary sub-field of social work which social worker is studying or working with older adults, responsible for educating, researching and advancing the broader causes of older people. Gerontology term is emerging in society as a result of larger population of elderly in world. In this people study about process of ageing and psycho-social factors which associated with elderly along with problems of caregivers of elderly. Theoretic intervention with elderly and care givers to solved their problems. The role and purpose of Gerontological social work have always been contested and undervalued when compared with social work with children and families.[11] Gerontological professionals perceived that ageing is multidimensional processes which are associated with Biological, Psychological and Social domains. Enabling health ageing along with productive ageing to the myriad challenges which may arise in late life, Gerontological social workers are an integral part of the health and ageing services spectrums. Social workers have unique skill, values and roles which are well-suited for providing supportive and educational services to elderly and their caregivers.[12] Gerontological social work is particularly concerned with these issues which are related with elderly as physical, psychological, familial, organational and societal factors. These factors create problems as barriers to physical and emotional well-being in later life of individual. The intervention of Gerontological social work are directed at enhancing dignity, self-determination, personal fulfilment, a decent standard of living, optimum functioning and the least restrictive living environment possible. In addition, the distinctive value social work places on the uniqueness of individuals within system's perspective prepares social workers to play a key role in designing and implementing equitable and effective programmes to meet the needs of increasingly diverse older population.[13] Gerontolgical social work highlights the invaluable contributions of these providers within elder care systems and reminds us of the importance of including social work research in our efforts to understand and respond to the needs of older adults. Social work has been described as having 'both a critical and strategic role in ensuring that system of care is responsive to the needs of a diverse ageing and older population'.[14]

Pertinent of Gerontology for Social Work

Social work profession adopted new things according to need of clients. Health of people affected from many changes in society as health care environment, technological advancement and these changes promote shifting from inpatient to outpatient along with community care settings. Good health services improve the life longevity of human and age expectancy of people increased year by year. Increasing diversity in population of elderly and creates challenges in the area of care giving so family participation in decision making of caring of elderly require help of professional who expert in field of gerontology along with social work. Social work to emphasize new content areas in area of gerontology and the development of new skills in clinical, case management, care coordination, and team work. Social worker faces many obstacles to provide the services which are require for elderly and their caregivers.[15] This dramatic increase has made it essential to develop more specialised social services and programmes for older people who are defined as one of the risk groups in terms of social services. However, prejudices and biases about older people make it difficult to implement such programmes efficiently. In addition to negative public opinions about older people, ageist bias possessed by the social workers and healthcare professionals such as nurses and doctors constitutes a big

challenge for implementation of these programmes.[16] Low motivation and desire to work with older groups is creating a lack of qualified staff and services for this disadvantaged group.[17]

Aim of Gerontological Social Work

Increasing the capacity of the social work schools and departments to train social work students in the field of ageing. Social work students are exposing to the range of programs and services within the country in field of gerontology. Social work students are exposing to the current and emerging policy issues of elderly which affects the service systems. Social work students are providing opportunities to develop the skill and knowledge for working older persons.To work with the elderly, one must have compassion and practice.There are various social work skills which are based on academically and professionally knowledge for working with the elderly that must be obtained new facts which is helpful for social work profession. Social workers play important role in the field of gerontology. Social worker must be knowledgeable about unique legislation, policies making and organizing social programs which affect the life of older adults and promotes healthy life of elderly. In addition, they must be knowledgeable about the aging process and the issues which are related to older adult. Caregivers of older adult are face adept at accessing resources for clients and strong advocates who champion their rights.

Functions of Gerontological Social Work

Gerontological Social Work aspires to develop the skills and knowledge in social work students which are essential for working with elderly. The interventions in Gerontological social work are directed at enhancing dignity, self-determination, personal fulfilment, a decent standard of living, optimum functioning and the least restrictive living environment possible for the elderly.

Implication

Gerontological Social work is promoted to educate family members about the behaviour of elderly and problems which is faced by elderly along with Psychosocial management for elderly. To aware family members about the symptoms of illness which is related to old age. Gerontological Social Work professional acts as catalyst agent to make health care accessible for ageing population. The ageing of our society demands an increased focus on ageing within the social work professional and the preparation of more social workers skilled in working with older people and their families, hence we should identify the gap in our current knowledge and should work on. In social work as in other fields, there is a lack of adequate expertise and qualified personal to teach in the area of mental health and ageing disciplines.[18] Social work practice with older adults encompasses abroad range of functions. Whether working in micro or macro setting, the primary goal of the social worker is to address the specific challenges of the ageing process. Promoting independence, autonomy and dignity in later life is a key function. Social worker interacts with older adults in a variety of settings, including hospitals, adult day care centres, independent and assisted living communities, public agencies and increasingly in homes. We must be knowledgeable about the ageing process and the issues faced by older adults and their caregivers adept at accessing resources for our clients and strong advocates who champion the rights of older adults. Specific areas of knowledge and skill include assessment of older adults' needs and functional capacity, expertise regarding physical and mental health issues, case and care management, long term care, elder abuse, quality of life issues and advance care planning.

Conclusion

In near future India will become one of the largest countries of the world which have more number of elderly. Earlier with joint family system people could give proper time to the elderly but in present times every person is busy in his own life so anyone is unable to give proper time to elderly. The term 'Elderly Care' in India seeks adequate attention to provide positive interventions for strengthening social support systems for the elderly. Being a multifaceted profession, social work has a greater role to play in the area of gerontology. Gerontological Social Work aims at developing the ability of the students in the schools and departments of social work to train students in the field of aging, exposing them to a range of programs and services for elderly within the country, making them aware of the current and emerging policy issues which affect the social

service system in the context of elderly. Gerontological social work is particularly concerned with those issues which are related with elderly vis-a-vis physical, psychological, familial, institutional and societal. These issues create barriers to their physical and emotional well-being in later life.

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Original Article

Prevalence of sexual dysfunction in male patients with alcohol dependence: A cross sectional study

Anju Agarwal, Prashant Kumar, Shantanu Bharti, Abdul Qadir Jilani, Ajay Kohli
Department of Psychiatry, Era's Lucknow Medical College and Hospital, Era University, Lucknow, Uttar Pradesh
Contact: Prashant Kumar, Email: pkhawk0004@gmail.com

Abstract

Aim: *To assess the prevalence and severity of sexual dysfunction in a clinical sample of subjects with alcohol dependence.* ***Material and Methods:*** *50 male patients diagnosed with alcohol dependence according to ICD -10 criteria were included in our study. SADQ for severity of alcohol dependence and ASEX for severity and subtype of sexual dysfunction scales were applied on them after informed consent and acquiring sociodemographic details.* ***Results:*** *Out of total 50 subjects of alcohol dependence 46% patients reported of sexual dysfunction and most common sub type was found to be Erectile dysfunction(56%) followed by anorgasmia (26.08%) and dissatisfaction with orgasm (21.73%). Sexual dysfunction was significantly associated with the mean age of onset, duration and severity of alcohol dependence along with amount of alcohol consumed per day.* ***Conclusion:*** *Sexual dysfunction appears to be a common entity among patients of alcohol dependence. This dysfunction not only leads to further increment in alcohol intake but also deteriorates the overall wellbeing of the individual. Clinicians need to routinely assess sexual dysfunction in alcoholic patients and address the same.*

Keywords: *Sexual dysfunction, Alcohol dependence, Male patients.*

Introduction

Sexual activity is an important aspect in human behaviour as it reflects on the physical emotional and psychological functioning of an individual. Alcohol intake and sexual behaviour are intertwined phenomena since ancient times. Contrary to the popular belief concerning the aphrodisiac effects of alcohol, there exists scientific evidence, which conclude on sexual dysfunction caused by chronic alcohol use.[1] Although alcohol when taken in small quantities improves mood and aids sexual activity, when consumed in heavy quantities and for a longer duration of time it may lead to sexual dysfunction leading to marked distress and interpersonal problems among couples. Sexual dysfunction may be due to direct depressant action of alcohol, alcohol related diseases, or psychological dysfunction arising due to alcohol dependence.[2]There are a various exploratory theoretical concepts regarding the relationship between alcohol abuse and sexual dysfunction. Biological theories stress neurological damages or endocrinological abnormalities, whereas psychological concepts detail the importance of partnership conûicts and other psychological mechanisms which generally maintain sexual dysfunction.[1,2]

Dissatisfaction in sexual life is often associated with anger, increased rates of marital violence, less warmth, and unity in relationships, breakups – all of which may in turn worsen the alcohol consumption.[3]Hence patients of chronic abuse enter a vicious cycle of sexual dysfunction and alcohol addiction.

Various studies in the past have given major

importance to sexual activity in patients with alcohol abuse as these patients report of some kind of dysfunction.[4-8]A review by Grover et al. suggests that prevalence of sexual dysfunction has ranged from 40- 95.2% across the studies and long term use of alcohol is associated with sexual dysfunction in all domains of sexual functioning. The common dysfunctions reported were erectile dysfunction followed by premature ejaculation, retarded ejaculation and decreased sexual desire among men.[9] In another study, Arackal and Benegal found that of 100 male inpatients admitted for the treatment of alcoholism, 72 suffered from sexual dysfunction and 36 out of 96 (37.5%) subjects had premature ejaculation.[10] Virtually all aspects of the human sexual response are affected by alcohol especially sexual desire and erection.[1,11] Despite high prevalence, sexual dysfunction among alcohol dependent patients is often neglected, unexplored and unattended in routine clinical care of patients.

There are various studies that have glanced into sexual dysfunction due to alcohol, but those reported from India are scanty. With this background, the present study aims to study the prevalence, type of sexual dysfunction in male alcohol dependent subjects and their association with the various parameters of alcohol intake.

Materials and Methods

This cross-sectional study was conducted in the Department of Psychiatry, Era's Lucknow Medical College, Lucknow, over 6 months (from March 2018 to August 2018) after obtaining approval from the Institute's ethical committee. 50 consecutive male patients with a diagnosis of alcohol dependence syndrome according to the International Classification of Diseases 10th revision diagnostic criteria for research (ICD-10 DCR) admitted in the ward were recruited in the study. All consecutive patients who fulfilled the inclusion and exclusion criteria and giving informed consent were assigned to the study group. All subjects were taken from the inpatient ward of the hospital, after the period of detoxification was complete. They were subjected to a detailed psychiatric interview, clinical and biochemical examinations including blood glucose and liver enzymes and assessed on different scales.

Sociodemographic and clinical data regarding alcohol consumption and tobacco dependence were recorded in a semi-structured proforma designed for this study. ICD-10-DCR criteria was used to diagnose Alcohol Dependence, Tobacco Dependence and sexual dysfunction. Subtypes and severity of sexual dysfunction were quantified using ASEX. The severity of alcohol dependence was assessed using SADQ questionnaire. The data so obtained was statistically analysed by SPSS 10 software.

Inclusion criteria

1. Patients giving informed consent
2. Males between the age group 18-50 years
3. Sexually active males
4. Patients fulfilling ICD - 10 criteria for alcohol dependence

Exclusion criteria

1. Patients with history of primary sexual dysfunction prior to initiation of alcohol intake.
2. Patients with chronic co-morbid medical illness which can cause sexual dysfunction (hypertension, diabetes mellitus, thyroid dysfunction, alcoholic liver disease, renal dysfunctions, cardiovascular and neurological disorders like stroke, spinal cord lesions, peripheral neuropathy). These were ruled out by the needed history, physical examination and investigation.
3. Patients with comorbid psychiatric disorders – dementia, delirium and other organic disorders, mental retardation, psychotic disorders such as schizophrenia, delusional disorder and others, mood disorders, and anxiety disorders (those with transient or subthreshold symptoms were included).
4. Patients with concurrent substance use other than alcohol and tobacco
5. Patients on drugs known to cause sexual dysfunction

Tools for assessment

1. Semi structured proforma containing sociodemographic and clinical variables associated with alcohol consumption and tobacco intake.
2. ICD-10-DC[12,13] for diagnosing Alcohol Dependence Syndrome (F10.2), Tobacco Dependence (F17.2) and Sexual

Dysfunction, not caused by organic disorder or disease (F52).

3. SADQ[14] to assess theseverity of alcohol dependence: A score of ≥ 31 indicates severe alcohol dependence, 16 to 30 – moderate dependence, and <16 indicates mild physical dependence.
4. ASEX[15] to assess sexual dysfunction: A user-friendly rating scale that quantifies sex drive, arousal, vaginal lubrication/penile erection, ability to reach orgasm, and satisfaction from orgasm. The score ranges from 5 to 30. Sexual dysfunction is defined as: Total score ≥ 19, or a score of ≥ 5 on any item, or ≥ 4 on three items.

Results

Table-1. Socio-Demographic and clinical Distribution of Subjects

Socio-Demographic distribution	
Variable	**n(%)**
Religion	
Hindu	46(92.0)
Muslim	3(6.0)
Sikh	1(2.0)
Residence	
Urban	20(40.0)
Rural	30(60.0)
Education	
Illiterate	3(6.0)
High school	27(54.0)
Graduate	14(28.0)
Post Graduate	1(2.0)
Total family Income(Rs.)	
< 10000	18(36.0)
10000 – 30000	27(54.0)
> 30000	5(10.0)
Age (Mean ± SD) = 35.26 ± 7.87 years	
Clinical distribution	
Mean Age of onset of dependence(yrs)	29.54 ± 6.328
Mean Duration of alcohol dependence(yrs)	5.78 ± 3.106
SADQ scores:	
Mild alcohol dependence	11(22.0)
Moderate alcohol dependence	18(36.0)
Severe alcohol dependence	21(42.0)
Family history of alcohol dependence	23(46.0)
Alcohol consumption	
<500 ml/day	27(54)
>500ml/day	23(46)
Tobacco dependence	43(86)

Table 1 illustrates the sociodemographic and clinical profile of the study subjects. The mean age of the patients was 35 years. Out of the 50 patients in our study sample, majority were Hindus (92.0%), educated up to 10th standard (60%). All of them were employed, and almost 54% had income between Rs 10000 – 30000 and belonged to the rural background (60%). The mean age of onset of alcohol dependence in study subjects was 30years and the mean duration of alcohol dependence was 6 years. Family history of alcohol dependence was present in 46% of the subjects. Majority (42%) of the subjects had severe alcohol dependence on SADQ and 46% had alcohol consumption of more than 500 ml/day. About 86% of the patients in the study group had tobacco dependence along with alcohol dependence.

Table-2. Sexual dysfunction as per ASEX scale

	Number	**Percentage**
Total number of patients with sexual dysfunction	23	46.00%
Single complaint	16	69.56%
Multiple complaints	7	30.43%
No dysfunction	27	54.00%
Variables		
Desire/drive	3	13.04%
Arousal	4	17.39%
Erection	13	56.52%
Ability to reach orgasm	6	26.08%
Satisfaction with orgasm	5	21.73%
ASEX score >19	18	78.26%
ASEX score 4 on 3 domains but global score <19	1	4.34%
ASEX score 5 on 1 domain but global score <19	3	13.04%

Prevalence of sexual dysfunction in our study subjects was 46% (n=23). As per ASEX Scores, highest prevalence was seen for erection (56.52%), followed by anorgasmia (26.08%) and dissatisfaction with orgasm (21.73%). Dysfunction in arousal and desire were seen in 17.39% and 13.04% subjects respectively. While majority (69.56%) had single complaint of sexual dysfunction, 30.43% subjects reported more than one sexual dysfunction. (Table-2)

Table 3 shows the association of Alcohol dependence with various sociodemographic and clinical correlates. Among sociodemographic

Table-3. Association of Socio-demographic and clinical variables with Sexual Dysfunction

Variable	Sexual dysfunction Absent (N=27)	Sexual dysfunction Present (N=23)	p-value
Age			
≤ 30 years	12(44.4%)	4(17.4%)	
> 30 years	15(55.6%)	19(82.6%)	0.041
Religion			
Hindu	23(85.2%)	23(100.0%)	
Muslim	3(11.1%)	0(0.0%)	0.157
Sikh	1(3.7%)	0(0.0%)	
Education			
10th or below	17(63.0%)	13(56.5%)	
Above 10th	10(37.0%)	10(43.5%)	0.643
Total Income			
< 10000	10(37.0%)	8(34.8%)	
10000 – 30000	15(55.6%)	12(52.2%)	0.803
> 30000	2(7.4%)	3(13.0%)	
SADQ scores			
Mild	10(90.9%)	1(9.1%)	
Moderate	12(66.7%)	6(33.3%)	0.001
Severe	5(23.8%)	16(76.2%)	
Alcohol consumption per day (500-1000 ml)			
<500ml	20(74.1%)	7(25.9%)	
>500ml	7(30.4%)	16(69.6%)	0.002
Family history of alcohol dependence			
No	18(66.7%)	9(33.3%)	0.052
Yes	9(39.1%)	14(60.9%)	
Total	27(54.0%)	23(46.0%)	
Age of onset of alcohol dependence(yrs)	27.89 ± 5.957	31.48 ± 6.324	0.044
Duration of alcohol dependence(yrs)	4.85 ± 2.349	6.87 ± 3.559	0.020
Tobacco Use			
No	5(18.5%)	2(8.7%)	0.318
Yes	22(81.5%)	21(91.3%)	
Total	27(100%)	23(100%)	

variables, a significant association of alcohol dependence was found with only one socio-demographic variable, that is, age. Sexual dysfunction was significantly higher (P = 0.041) in subjects of more than 30 years of age (82.6%) than less than 30 years of age (17.4%).

A strong association was observed between alcohol related variables and sexual dysfunction. Earlier age of onset, longer duration of alcohol dependence, higher amount of alcohol consumed per day, and severity of alcohol dependence appeared to be significantly associated with sexual dysfunction. Sexual dysfunction was significantly higher ($p < 0.01$) in the subjects with severe SADQ score (76.2%)and higher alcohol consumption per day (69.6%).The mean age of onset of alcohol dependence among the subjects having sexual dysfunction was 31.48 ± 6.32 years which was significantly lower ($p = 0.044$) than the mean age of onset among the subjects without sexual dysfunction (27.89 ± 5.96 years). Similarly the mean duration of alcohol dependence among the subjects having sexual dysfunction was 6.87 ± 3.56 years which was significantly more ($p = 0.020$) than the mean duration of alcohol dependence among the subjects without sexual dysfunction (4.85 ± 2.35 years).

Family history of alcohol dependence and comorbid tobacco dependence was not significantly associated with sexual dysfunction.

Discussion

Sexual dysfunction is commonly prevalent in alcohol dependent subjects. In our study 46% of the patients with alcohol dependence reported one or more sexual dysfunction, which is comparable with previous studies where the prevalence has ranged from 40-95.2%.[9]

The most common sexual dysfunction reported by our study group was erectile dysfunction, which was present in 56.2% of the patients, followed by anorgasmia in 26.08% of patients.In a study on sexual dysfunction in patients with alcohol dependence by Prabhakaran et al., the prevalence of sexual dysfunction was 37% and most common type was erectile dysfunction (25%), followed by dysfunction in satisfying orgasm (20%) and premature ejaculation (15.5%).[3] Similarly, Van Theil and Lester found that 61% alcohol dependant patients reported sexual dysfunction with erectile dysfunction being the most common followed by decreased sexual desire.[16] According to the study done by Arackal and Benegal on Indian population, sexual dysfunction was present in 72% of the study population and most common problems were premature ejaculation, low sexual desire and erectile dysfunction.[10] Their results were obtained from sexual dysfunction check list instead of ASEX used in our study. Lewis et al in their review of literature on the prevalence of erectile dysfunction in the general population found that below the age of 40 years, prevalence for erectile dysfunction was 1-10%. It was also observed in the decade from 40-49, the prevalence ranges from 2% to 9% to as high as 15%.[17] Our findings are higher compared to his review which further substantiates that the prevalence of erectile dysfunction in patients of Alcohol Dependence Syndrome is much more than that in the general population.

Among the various sociodemographic variables in our study, single variable of mean age at presentation was significantly higher in subjects with sexual dysfunction compared to those without sexual dysfunction. Advanced age is one of the consistent correlate of sexual dysfunction in patients of alcohol dependence in various studies.[18,19]

In terms of alcohol related variables the present study supported the existing findings that Sexual dysfunction has significant association with the age of onset, duration of alcohol dependence, amount of alcohol consumed per day and severity of alcohol dependence.[3,8,20-23]

Increased consumption of alcohol for longer duration appeared to increase sexual dysfunctions due to neurological damages or endocrinological abnormalities. Neurotoxic effects of alcohol include central and peripheral vagal neuropathy which is reversible on abstinence,[24] while endocrinal effects are due to progressive damage to testes and reduction of sex hormones leading to loss of secondary sexual characteristics and impotence and infertility.[25-27] In contrast to our study, Arackal and Benegal found no significant association between sexual dysfunction and factors such as duration of alcohol consumption, age at first drink, pattern of drinking, type of alcohol consumed, or with family history of alcohol use.[10]

Tobacco use was not found as a significant determinant of sexual dysfunction in the present study, similar to Arackal and Benegal study.[10] Prabhakaran et al also reported no significant association of sexual dysfunction with any of the tobacco-related variables, namely, history of and duration of tobacco dependence.[3] However few studies suggest that comorbid use of tobacco increases the prevalence of sexual dysfunction in patients with alcohol dependence.[28-30]

There were certain limitations of this study. The study was carried out on a small number of alcohol dependent patients attending drug de- addiction and medical services in a tertiary care centre, hence results cannot be generalized to patients with mild alcohol dependence or use in the community. Chronic alcoholism is known to cause deleterious effect on marital functioning and various partnership conflicts thereby, adding to the already existing sexual dysfunction. This area was not assessed in the present study. Hence, future studies should focus on larger sample size and community based sample along with assessment of marital functioning.

Conclusion

This study highlights the wide spread prevalence of sexual problems in almost all the domains of sexual functioning in the alcohol dependent patients. Earlier age of onset, longer duration of alcohol dependence, higher amount of alcohol consumed per day, and severity of alcohol dependence appeared to be significantly associated with sexual dysfunc-

tion. There is need for increasing awareness in both the clinicians and the users of alcohol about the effects of heavy alcohol use on sexual functioning. As there is ample evidence that alcohol-induced sexual dysfunction is reversible with cessation of alcohol use, efforts must be made to achieve abstinence by using this information in motivational counselling of heavy drinkers to bring necessary change.

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Original Article

Role of Lipid in Dissociative Patients: A cross sectional study

Mahboobul Hasan Ansari, Kishan Chand Gurnani, Vishal Sinha, Faisal Shaan, Suhail Ahmed Azmi

Department of Psychiatry, J.N. Medical College, Aligarh, India

Contact: Mahboobul Hasan Ansari, E-mail: mha.snmc@gmail.com

Abstract

Background: *Low serum lipid concentrations have been found to correlate negatively in many psychiatric patients with self injurious behavior and borderline features.* ***Objectives:*** *The present study aimed at exploring the relationship between serum lipid fractions and dissociative disorders, having a high risk of self mutilative and violent behavior, attended at tertiary level psychiatry care facility.* ***Method:*** *This was a cross sectional study which included 93 consenting adult patients with a diagnosis of Dissociative disorders as per ICD 10 DCR, and 30 age sex matched healthy controls (General Health Questionnaire, GHQ<3). All data were collected using self administered semi-structured proforma after obtaining written informed consent from the participants. Dissociative Experiences Scale-II (DES-II) was applied on the patients. All statistical analyses were done using SPSS (Statistical Package for Social Sciences) version 20 software.* ***Results:*** *Patients with dissociative disorder were found to have lower values of Cholesterol, Low density lipoprotein, very low density lipoprotein and high density lipoprotein compared to the control group. Lipid fraction was found to be inversely related to DES-II score.* ***Conclusion:*** *The neurobiology of dissociative disorder might be similar to depression as Serotonin plays key role in patho-physiology. Therefore, clinicians should use hypolipidemic agents judiciously in both the disorders.*

Keywords*: Dissociative disorders, Serum cholesterol, Serum lipid profile, Serotonin.*

Introduction

The earliest description of dissociative disorder was provided by an exorcist named Jeanne Fery, whose description exactly matches with dissociative identity disorder. It was described in detail by Pierre Janet a French psychologist in 1889. The term "dissociation" was coined by a US born philosopher and psychologist William James in 1890 by translating French term "desegregation". According to Pierre Janet dissociation is defined as "the deterioration in the unification of experiences at the mental level". These experiences consisted of perception, memory, cognition,and emotions. Normally, these experiences all together constitute wholeness in the stream of mind.[1,2] Patients perceive dissociation as a dispersion in the wholeness of sense of self. This dispersion emerges as the deterioration in the unity of biographical, chronological, and perceptive identity.[2,3]

The prevalence of dissociation ranges from 5.6% to 10% in the general population.[1] Though Dissociative disorder is a separate diagnosis in both DSM-5 and ICD-10, however, the clinical streams of other psychiatric disorders are also influenced by dissociative disorder.[4] Dissociative symptoms are frequently encountered in individuals with avoidant and borderline personality disorder,[5,6] conversion disorder,[7] obsessive-compulsive disorder,[8] depressive disorder, somatic symptom disorder, eating disorder, substance-related disorder and sleep disorder respectively.

Dissociative disorder may be sudden or gradual in onset and follows a chronic course. Dissociative identity disorder is the most chronic and complex type that encompasses features of all other dissociative phenomena.

Traumatic experiences, like childhood abuse, chronic physical, sexual or emotional abuse or, less frequently, a home environment that is otherwise frightening or highly unpredictable play an important role in the causation of Dissociative disorders.[9,10] In childhood its manifestation is often missed but on continued trauma, it manifests in later years. Dissociative disorders usually develop as a means to cope with trauma.

Recently, research has been conducted to find out the biological cause of psychiatric disorders. Among many factors, an association of serum cholesterol level with psychiatric disorders, including major depression and anxiety disorder, has been suggested in the literature.[11] In the present study, we examined the levels of serum lipid in patients with dissociative disorders, in which self injurious behaviors and borderline features are relatively common.

Despite abundant literature available about links between major depression with suicidal ideations and lower lipids levels,[12] there are few data suggesting lower lipids levels in patients with Dissociative Disorder.[13] However, a better understanding of the possible links between lipids levels and Dissociative disorder might suggest an underlying neurobiological mechanism of the suicidal attempts and depressive symptoms in patients with Dissociative Disorder. Moreover, the question of possible side effects of hypolipidemic agents could be raised.

Materials and Methods

The present study was a cross-sectional study done at the Department of Psychiatry, Sarojini Naidu Medical College, Agra.

Selection of cases

All the consecutive patients attending the psychiatric Out Patient Department (O.P.D.) from April 2015 to September 2016 fulfilling the inclusion criteria for dissociative disorder as per ICD-10 DCR were enrolled in the study after taking written informed consent; confidentiality and anonymity were ensured in this regard. We have selected 30 age sex matched healthy subjects, majority of control data was chosen from accompanying person of patients attending psychiatric O.P.D.

Inclusion Criteria

- All patients with a diagnosis of dissociative disorder (according to ICD-10 DCR) in the age group 18-65 years.
- Those who gave informed consent.
- Psychotropic free at least for 2 weeks.

Exclusion Criteria

- Individuals with substance dependence except nicotine and caffeine.
- Individuals with other psychiatric comorbidities except mild to moderate depression.
- Known case of diabetes mellitus/thyroid dysfunction.
- On medications like Oral Contraceptive Pills/ Lipid modifiers/Beta blockers.

Procedure

All patients with a diagnosis of dissociative disorder as per ICD-10 DCR, fulfilling inclusion and exclusion criterion for the study were recruited. Socio-demographic data was collected. Dissociative experience scale was also applied on them.

Five ml of 12 hours fasting venous blood sample was collected from each patient before starting psychotropic medication and the blood sample was analyzed for low density lipoprotein (LDL), very low density lipoprotein (VLDL), high density lipoprotein (HDL), total cholesterol (TC) and total triglyceride (TG) on fully automated biochemistry analyzer namely "Selectra Pro M 137452"

Results

Table-1. Mean value of lipid fractions in patients and controls

Variables	Patient (mean ± S. D)	Control (mean ± S. D)	p-value
S. Cholesterol	137.2840 ± 13.63857	158.500 ± 15.346	.002
S. TG	88.5783 ± 39.64838	111.400 ± 21.077	.002
S. HDL	42.0293 ± 5.37823	45.6333 ± 4.5522	.038
S. LDL	56.2935 ± 13.38240	85.70 ± 9.036	.000
S. VLDL	20.8370 ± 5.86342	28.50 ± 7.50	.001

Variables	S. Cholesterol	S. TG	S. HDL	S. LDL	S. VLDL
DES Score	-.522**	-.346**	-.300**	-.683**	-.555**

Discussion

Besides other behaviors; suicidality has been widely seen in dissociative patients with a history of sexual abuse in childhood and adolescence. Other problems encountered in patients with dissociative disorder are risk taking behaviors like self mutilation, both physical and sexual aggression.[7]

In our study, we found out that mean values of lipid fraction is lower in the group of dissociative patients compared to the control group. The difference between the two groups was found to be statistically significant. Though mean parameter of the dissociative group was within the normal reference range.[14] This finding is consistent with the finding of a previous study conducted by Agargun[15] et al. They carried out their study in Turkey comprising of only 16 patients with dissociative disorder and 16 controls. Though, the sample of the study was very small but very helpful in understanding the etiology of the dissociative disorder. In their study total cholesterol, triglyceride, high-density lipoprotein, low-density lipoprotein, and very low-density lipoprotein levels were compared. Results reflected that patients with dissociative disorder had lower serum triglyceride, total cholesterol, low-density lipoprotein, and very low-density lipoprotein levels than the healthy comparison group. Their study suggested that low serum lipid concentrations may be related to a high incidence of self-injurious behaviors and borderline features in patients with dissociative disorders.

We observed a strong negative correlation between the degree of dissociation and lipid fraction. Our finding is supported by Damsa et al[16]. Their study was longitudinal aimed to find the effect of psychodynamic psychotherapy (PP) on lipid profile in dissociative patient. In their study, only 32 patients were selected who fulfilled the diagnostic criteria of dissociative disorder according to DSM-IV. They measured score of dissociative experience scale and lipid fraction at 3 weeks and 8 weeks respectively in patients who were taking psychodynamic psychotherapy (PP). There was significant inverse ($p<.05$) relation between lipid fractions and DES scores at the beginning and at the end of the study. They also found that after PP there was reduction of dissociation and elevation of the triglyceride level after 8 weeks of treatment which was statistically significant ($p<.018$).

There are lots of hypotheses to link the level of lipid fraction and brain functioning. Majority of them suggest that serotonin has a key role in this regard. Engelberg[17] proposed the concept that concentration of brain lipid and fluidity of cell membrane of neurons depend on serum cholesterol level. Thus, low serum cholesterol affects serotonin neurotransmission by lowering lipid microviscosity which could affect serotonin receptor exposure resulting in decreased serotonin binding and uptake.

While working on animal models, Kaplan et al,[18] observed that the group of monkeys who received cholesterol deficient diet had lower levels of the serotonin metabolite, 5-hydroxyindoleacetic acid (5-HIAA) in their CSF. Similar findings were also replicated in human studies. Results of both the studies further strengthen the concept that serum cholesterol concentration does have an effect on the serotonergic system.

Serum total cholesterol and LDL decreases brain cell membrane fluidity and may lead to increased reuptake of serotonin by presynaptic membrane and decreased availability of it for action on postsynaptic membrane.This study further supports the concept that disturbance in lipid fraction leads to an alteration in serotonergic transmission.[19]

Buydens-Branchey et al[20] conducted their study on cocaine dependent male admitted in the hospital. They observed that low serotonin level is associated with low HDL but not TC and LDL. Their findings were contrasting to our findings.This can be due to the differential effect of cocaine on lipid fractions. Research conducted by Papakostas et al[21] also found the influence of cholesterol on the function of membrane bound serotonergic structures by altering membrane fluidity. They also observed cholesterol reduces serotonin transporter activity because they get destabilized after depletion of cholesterol. Various other studies[22, 23] also observed that depletion in cholesterol may cause impairment in the functioning of serotonergic (5-HT1A and 5-HT7) receptors.

According to Gil et al,[24] Cholesterol is the important component of lipid. Microdomains on cell membrane comprising of cholesterol play an important role in synaptic functioning through organization of signaling components which lead to functioning of serotonergic and other neurotransmitter systems like excitatory amino acid transport, gamma-aminobutyric acid uptake and transmission, opioid signaling, and N-methyl-D-aspartate receptor signaling.

According to Fischer et al,[25] LDL levels is influenced by a short allele of the serotonin transporter polymorphism (5-HTTLPR). In the same study, they also observed that mean fasting LDL levels being higher in individuals with the long allele. This infers that same genetic factor (i.e., the serotonin transporter polymorphism) may influence different ways to cardiovascular and psychiatric vulnerability with significantly greater risk for myocardial infarction in individuals with the long/long 5-HTTLPR genotype.

A study was conducted to measure cholesterol content in the brain region. In that study 41 male cases who have committed suicide and 21 male controls died of sudden causes were included. Both the group had no direct history of trauma affecting the brain. Suicide completers further divided into violent or non violent means of committing suicide. Lalovic et al,[26] observed that violent suicide completers had lower gray mater cholesterol content compared to non violent suicide completers and control group. Cholesterol level was more markedly reduced in the frontal cortex.

We can hypothesize lipid profile can be a good predictor of dissociative disorder. This assumption is supporting the observation that a low level of docosahexaenoic acid and omega-3 fatty acid may predict the risk of suicide among patients who were suffering from depression.[27]

This finding not only opens a new hypothesis about the neurobiology of dissociation, but also in patients with suicidal ideas. We have to be cautious while using hypolipidemics, particularly in dissociative and depressive patients. We can also assume that an increase in lipid levels through dietary route can increase hedonia levels in individuals. However, our study did not measure changes in lipid levels through diet.

Limitation

Our findings did not measure the association of low lipid fraction concentrations with serotonin concentrations or serotonin binding as measured in the previous study. We were not able to exclude the patients who consume tobacco and caffeine which can alter serum lipid profile. Dietary habit of patients and controls were not considered, as in north Indian population, some people are strict vegetarian which has a definite effect on their serum lipid fractions.

Conclusion

Despite several data suggesting a link between lower lipids levels and the risk of suicide and major depression, there are few data concerning lower lipids levels in patients with dissociative disorder. This study may be beneficial as in previous studies; the sample size was very small. The finding of this study is similar to depression which suggested the neurobiology of both disorders might be the same. The severity of dissociation is found inversely related to lipids fraction. This could open new hypothesis concerning the pathophysiology of dissociative disorder and raised the question of patients receiving hypoidemic agents, especially if they are dissociative disorder patients.

Future directions

More longitudinal studies need to be conducted which should consider patient's baseline lipid fraction, seasonal variability and direct or indirect measure of serotonin. Patients should also be free from all kinds of substance as it may alter actual values of lipid fractions.

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Original Article

The Effectiveness of Psychological Intervention on Executive Functions in Cannabis Users

Sushma Rathee, Radhey Shyam
Department of Psychology, M.D. University, Rohtak, Haryana, India
Contact: Sushma Rathee, E-mail: sushmaratheecp@gmail.com

Abstract

Background: *Psychological interventions have many different applications and the most common use is for the treatment of psychiatric illness. The ultimate goal behind these interventions is not only to alleviate symptoms but also to target the root cause of psychiatric illness. Cannabis also has long-term effect on the executive functions of the brain. It consists of several mental skills that help the brain organize and act on information in which include basic cognitive processes such as attentional control, cognitive flexibility, problem-solving and decision making.* ***Objective:*** *The present study was planned to examine the effectiveness of psychological intervention on Executive Functions in Cannabis Users.* ***Material and Methods:*** *A group of 20 persistent cannabis users were recruited on the basis of convenience based sampling from Drug Dependence Treatment Centre, Punjab, and the sample was equally divided for the session of Cognitive Behaviour Therapy and Motivational Enhancement Therapy. The Rey Osterrieth Complex Figure Test, Letter number sequencing, Arithmetic, and Digit Span, Wisconsin Card Sorting Test, Stroop Test and Memory Scale were used to assess the executive functions.* ***Results & Discussion:*** *Data were analysed using Mean and SD, and Paired t-test. It was found that therapeutic intervention is effective in the treatment of cannabis users and it helps in maintaining the abstinence period, which is significantly associated with improvement in executive functions of the brain.* ***Conclusion:*** *On the basis of results psychological intervention in form of cognitive behaviour therapy and motivational enhancement therapy were effective in improving the cognitive functions in cannabis users.*

Keywords: *Cannabis, Executive Function, Cognitive Deficits, Neuropsychological Tests*

Introduction

Cannabis is a psychoactive drug which is subtracted from the cannabis sativa plant. Cannabis has many adverse effects on the brain, including-insomnia, euphoria, agitated action. Cannabis can affect a wide variety of cognitive function i.e. verbal learning, memory, response inhibition, working memory, decision making, verbal fluency and simple cognitive task. Cannabis use impairs the control of emotions and behaviour.Literature indicates the substance in general hashad an adverse effect on our cognition,butthe worst effect on executive functions. The deficits caused by cannabis use differ in severity depending on the various factors such as quantity, the age of onset and duration of use etc. In recent years, prevalence rates of cannabis use have been increased and such chronic heavy cannabis use is a growing health concern. *Executive functions* are known as the set of some cognitive processes that are essential for the cognitive control of behavior, such as-selecting and successfully monitoring behaviors that facilitate the attainment of chosen goals. In a recent study, it was reported that executive functions, impulse control, attention and psychomotor function were found to be significantly poorer after use of cannabis. Further, it was also found that frequent cannabis consump-tion, and intoxication period interfere with neuro-cognitive

performance in daily life.[1] *Psychological interventions* used to promote the mental health. Not only this, it is also for the treatment of psychological ailment and help fostering healthy emotions, positive attitudes and habits. Psychological intervention has many forms such as Cognitive Behaviour Therapy, Motivational Enhancement Therapy, Rational Emotive Behaviour Therapy, Behaviour Therapy etc. There are a lot of reviews which is related to the positive effects of various psychotherapies.[2] On the basis of review it has been found that - (1) use of cannabis in heavy and chronic state, results the deficits in various executive functions such as memory, decision making, attention and concentration, etc. (2) Effect of cannabis should be recovered after an abstinence period but it also differs in different functions of cognition. (3) After psychotherapeutic intervention also these functions improve. In few studies it was also found that after a long time of abstinent period there were cognitive deficits present in cannabis users.[3] In a recent study results also found that cannabis had no effect on cognitive abilities even it enhances the highest level of executive functions.[4] After reviewing the literature, this study has been planned to explore the effectiveness of psychological interventionon cognitive deficits in cannabis users.

Objectives

The present study was aimed to study the effectiveness of psychological intervention on Executive Functions in Cannabis Users.

Material and Methods

Design: The specific design was pre-post study. Initial testing of executive functions pre treatment test, followed by a six week psychological intervention (treatment) than post treatment testing again.

Design of the study

Phase I	Phase II	Phase III
Pre Test Persistent Cannabis Users (N=20)	Intervention (6 weeks)	Post Test Persistent Cannabis Users (N=20)

Sample: A group of 20 patients diagnosedby a psychiatrist as cannabis dependence,according to ICD-10 was selected using convenient based sampling from the drug de-addiction centre, Tarn Taran, Punjab. The age range of the participants was between 18 to 40 years.

Inclusion Criteria

(a) Patients who are meeting the primary diagnosis of cannabis dependence according to ICD-10 criteria. b) Patients having at least a primary education. (c) One year of persistent use with more than 4 biddi/cigarette of cannabis per day. (d) Who had given informed consent for the study. (e) Only male participants were selected.

Exclusion Criteria

(a) Patients having primary diagnoses of psychiatric illness. (b) Presence of any major medical or neurological illness. (c) Patients had multiple substance dependence.

Tools

Semi structured Socio Demographic Data Sheet was design to collect the information related with demographic including, as, age, OPD number, residence, sex, education, occupation, marital status, family type, and clinical information as, age of onset of substance use, dependence of other substance, duration of illness, amount and frequency of substance use, history of psychiatric illness due to substance, history of other psychiatric and physical illness, history of substance dependence in family.

To assess the cognitive functions as Memory = Visual and Verbal, Working Memory, Cognitive Interference, and executive functions. For assessment of visual and verbal memory the tests were used as: The ReyOsterrieth Complex Figure Test[5]: This is the probably one of the more popular measurement of visuo-constructional abilities, visual memory.Memory Scale from AIIMS Neuropsychological Battery.[6] The sub-test of the AIIMS battery is used in this study to assess memory functions among the participants. This is a verbal test of memory. In this scale total 12 items were included. The battery has indicated high coefficient values

(0.79 to 0.98) with an average of 0.89. T-scores were computed based upon the M and SD of the normal person as well as patient. For measurement of Working Memory, 3 sub-tests were used sub-test included in working memory index i.e. (1) Letter Number Sequencing Test (2) Digit Span Test these are sub tests of Wechsler Adult Intelligence Scale-III,[7] and (3) Arithmetic Test: This is subtest of Indian adaptation of Wechsler Adult Intelligence Scale-III which is part of the Verbal Adult Intelligence Scale. Cognitive Interference was measured by using Colour-Word Stroop Test[8]: This test is applied for age range between 15 years to 90 years. This is the most reliable and frequently used test in neuro-psychological assessment. It is composed of total two cards, and each one containing total 112 colourful items which were arranged in 4 columns, and each column consists of 28 names. This test is translated in Hindi for the present study.Wisconsin Card Sorting Test[9]: The test is applied to the age range of between 6.5 years to 89 years. In this test, total 136 numbers of cards are presented out of which two pair of stimulus card 4 in one pair, and 124 cards in response were present to the participants. The figures on the cards were differed in three categories i.e. color, quantity, and shape. This test takes approximately 12–20 minutes for administration.

All the tests are standard tools with established psychometric properties and widely used.

Procedure: After establishing a therapeutic relationship and taking the written consent of all patients' neuropsychological tests were administered. On the basis of clinical interviews and findings of the test, those who had a severe level of cognitive deficits they were involved in psychological intervention. After this scoring and analysis was done with the help of the test's manual and then the psychotherapy is started with patients. All patients were receiving total 12 sessions of psychotherapy including, Cognitive Behaviour Therapy and Motivational enhancement therapy along with pharmacotherapy regularly basis. In the present study individual therapy program has been applied on all patients. They had received two sessions per week and the complete psychotherapy programmed was completed in 6 weeks.

Statistical Analysis: Data were analysed using descriptive (mean and SD), frequency (percent) and paired t-test. All *p*-values those are less than 0.05 considered as statistically significant. Statistical analyses were done with the help of SPPS20.

As per the results of an inferential analysis sample of the study approximate equally distributed on the basis of residence (Rural = 45%, Urban = 55%). On the basis of marital status, 55% participants are married, 40% are unmarried and only 5% are either divorced. In type of family 40% belongs to joint family, whereas 60% from nuclear family and most of the sample belongs to Sikh religion (75%) and only 25% of Hindu religion. In the area of occupation only 5% are unemployed, 5% farmer, 10% self-business, 25% were driver, 25% Laborer, and 30% are holding the private job. In the sample, 5% have psychiatric illness in their past life due to cannabis and 10% of their family had a history of substance dependence.

Results and Discussion

The present study is aim to assess the effectiveness of psychological intervention among cannabis users. For the fulfilment of purpose a group of neuropsychological tests were administered on the selected group of participants and this study is a pre and post analysis.

As per the results of an inferential analysis sample of the study approximate equally distributed on the basis of residence (Rural = 45%, Urban = 55%). On the basis of marital status, 55% participants are married, 40% are unmarried and only 5% are either divorced. In type of family 40% belongs to joint family, whereas 60% from nuclear family and most of the sample belongs to Sikh religion (75%) and only 25% of Hindu religion. In the area of occupation only 5% are unemployed, 5% farmer, 10% self-business, 25% were driver, 25% Laborer, and 30% are holding the private job. In the sample, 5% have psychiatric illness in their past life due to cannabis and 10% of their family had a history of substance dependence (Table 1).

In the paired t-test analysis, it has been found that Post-intervention group significantly differ from the Pre-intervention group in term of interference in the brain, including, the functioning of working memory, visual memory, verbal memory, long-term memory, response inhibition, cognitive flexibility, perseveration, and level of conceptual development. On the basis of the results of the present study, it has been found that after initiation of short-term

Table-1: showing the results of inferential analysis socio-demographic variables

Variables		Frequency (Percent)
Age in years	22-26	6 (30%)
	27-31	5 (25%)
	32-36	4 (20%)
	37-40	5 (25%)
Education	Primary	8 (40%)
	Secondary	7 (35%)
	Matriculation	5 (25%)
Residence	Rural	9 (45%)
	Urban	11 (55%)
Marital Status	Married	11 (55%)
	Unmarried	8 (40%)
	Separated	1 (5%)
Family Type	Joint	8 (40%)
	Nuclear	12 (60%)
Religion	Hindu	5 (25%)
	Sikh	15 (75%)
Occupation	Unemployed	1 (5%)
	Farmer	1 (5%)
	Pvt. Job	6 (30%)
	Self- Business	2 (10%)
	Labourer	5 (25%)
	Driver	5 (25%)
Age of onset of substance abuse in years	18-22	12 (60%)
	23-27	4 (20%)
	28-32	2 (10%)
	33-37	2 (10%)
Amount of substance abuse in dose of cigarette/biddi	0-4	1 (5%)
	5-9	15 (75%)
	10-14	4 (20%)
Duration of illness in years	0-5	9 (45%)
	6-10	8 (40%)
	11-15	3 (15%)
History of psychiatric illness due to cannabis	Yes	1 (5%)
	No	19 (95%)
History of substance in family	Yes	2 (10%)
	No	18 (90%)

Table-2. Showing the results of paired t test df (19)

Variables		t value	p value
Cognitive Interference		5.34	0.000
Working Memory		-10.95	0.000
Visual Memory		-2.82	0.001
Immediate Visual Memory		-14.16	0.000
Long Term Memory Visual		-17.84	0.001
Verbal Memory		9.71	0.010
	Correct Response	-5.51	0.000
	% Error Response	-6.30	0.000
Executive Functions	% Preservative Response	-5.80	0.010
	% Preservative Error	-5.00	0.000
	% Non Preservative Error	0.94	0.963
	Conceptual Level	-7.15	0.000

intervention program Patients showed significant improvement in higher executive functions (Table 2). In support of the results of our study another study in Indian scenario conduct on cannabis users in which it has been found that after session of MET, Patients showed an increase in score of recognition

and taking steps, out of the three domains i.e. recognition, ambivalence and taking steps.[10,11] There was a decrease in score of ambivalence among experimental group but no change was seen in the control group during the study. It is concluded as MET significantly increases the desire to quit substance use. Another research was showed the effect of motivational interviewing in cannabis users. In the findings of the study it has been revealed that participants significantly reduced their use of cannabis at 3, 6 and 12 months of intervention and after motivational interviewing session patient able to recover from the illness and maintain the abstinence period for longer time.[12] Moreover, if Cognitive Behaviour Therapy initiated alone, it had positive outcomes, but when combined with contingency management for the enhancement of the abstinent period, results become worse. It indicates that cognitive behaviour therapy has positive results in cannabis users in all groups.[13] they had researched in the field of cannabis effect and changes in the brain. In the results it has been found that CU's had smaller hippocampus volumes than controls, but not a significant difference in cognition was found between users and healthy control. However, such harms are minimized and these can be recovered with abstinence.

Conclusion

Cannabis dependence is an increasingly important public health issue, and clinical research has been investing in potential treatments for cannabis dependence. Cannabis has an adverse effect on high executive functions such as; planning, decision making, memory, problem-solving, etc. These functions are necessary for us to deal with the daily problem in life. In our study, we found that psychological therapy has been found to be more effective in enhancing the executive functions.

Limitations

The Study sample was too much small. There is a need of one control group who received only pharmacotherapy and also had severe level of cognitive deficits for comparison of results.

Future direction

This study inculcated the idea about the research in this area. This group is at high risk of dependence and neuropsychological deficits. Psychological intervention was found to be very effective in the treatment of this category. As per the result of this study, there is more need of focused on the psychotherapeutic treatment in substance dependent.

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Original Article

A study of rehabilitation of the long stay psychiatric patients at their own community : Importance of psychosocial intervention

Sampa Sinha
Department of Psychiatric Social Work, Institute of Human Behaviour & Allied Sciences (IHBAS), Delhi-110095
E-mail: sampasinha25@rediffmail.com

Abstract

Community based psychosocial rehabilitation of the psychiatrically ill patients is basically an individualized programme focused to maximize the patient's functioning, restoring capabilities to mainstream in the social life with collaboration of the patient's family, community and other social agencies. The professional expertise of psychiatric social work field plays vital role in carrying out the challenging tasks of the community based rehabilitation of such patients. The present study reflects the importance ofdetail psychosocial assessment plan, execution strategies in implementation of a successful community based rehabilitation work with two long stay psychiatrically ill patients. The research work relating to psychosocial rehabilitation intervention may consider as an evidence-based rehabilitation model,may provide a future guideline to rehabilitate difficult chronic psychiatrically ill patient at their own community.

***Key words**: Rehabilitation, Long stay patient, Assessment.*

Introduction

Any chronic mental illness (CMI) hugely affect the person's internal integrity, brain functions including memory, perception, cognition, volition and affect.The overall negative associations with this label chronic turned out to be not only inaccurate, but also very harmful as they have to deal with negative attitude of the society in the form of stereotypes, stigma, prejudices.[1] Persons with psychiatric illness sometimes left their home or locality and through any mode of travel reached unknown distant places/state in symptomatic condition, lost their way, were mostly found roaming here and there aimlessly.They often get engaged in tiffs, falls in various troubles till being picked up by NGO or police personnel to rescue/help them. Whereas, some other persons with mental illness got admitted by the family (under section 19 MHA, 1987) to the hospital for treatment, were sometimes abandoned by the relatives for various psychosocial reasons. Thus these both category of persons got admitted to psychiatric hospital for treatment through metropolitan magistrate order and eventually in absence of any responsive family/community resource become an inmate in the long stay ward.In addition, and majorly due to lack of availability of community based infrastructure of rehabilitation i.e. sheltered home, half-way /long stay home, vocational training centre etc. often a considerable number of persons with mental illness continued to stay at psychiatric hospital set up for long time, sometimes even after recovery.

The rehabilitation work for such patients with chronic mental illness is very difficult and challenging aspect of entire mental health field. The common people and various social agencies inadvertently

reinforce stigma through their attitude and interaction by holding faulty ideas that nature of illness, disability etc. may limit the social, vocational placement opportunities while expecting patient to conform dictated treatment and dependency roles. According to David and Mark[2] stigmatization of people with mental illness has been a pervasive problem. In resource constrained programmes, staff often prefer to work with those having lesser degree of illness and those who seem to offer greater promise of substantial improvement. There is a long legacy of neglect of those most in need, in part because they were devalued.

In a recent study Senthil[1] defined that psychosocial rehabilitation can be a process initiated by a health or mental health professional in collaboration with patient, family, community and supported by policy planners, focused on developing and implementing an individualized programme that seeks to maximize the patients assets and minimize disabilities in the area of socio-occupational functioning, centring around the philosophy of mobilizing and utilizing resources available to the community with the final objective of mainstreaming the client.

The term psychosocial rehabilitation also defined as the process of facilitating the individual's restoration to an optimal level of functioning in the community.[3]

It is now widely accepted that pharmacotherapy alone is insufficient to treat persons with chronic mental illness. There has been a paradigm shift towards the integration of evidence based rehabilitation models and recovery models which focus on collaborative approaches to care.[4]

The intervention strategies of psychiatric social work field take a leading role in discharging these long stay patients through implementation of a varied range of its expert intervention. However, there are dearth of research work in this area to provide a guideline of standard operational process for carrying out challenging rehabilitation work of the long stay CMI patient in their own community. A review on published literature in the Indian Journal of Psychiatry since inception identified only thirteen articles on psychiatric rehabilitation[5]. Of these only two were related to rehabilitation intervention and their outcome[6,7] and these were assuming needs for rehabilitation.[8,9]

The present study is a timely effort to reflect the importance of in-depth study i.e. assessment of long stay chronic mentally ill (CMI) cases, (who are stable and are on regular treatment) implementation of strategic psychosocial intervention methods in bringing successful community based rehabilitation programme.

Aims

The aim of this study was to reflect the importance of psychosocial work/ intervention, successful implementation of execution processes i.e. skills, strategies to rehabilitate long stay mentally ill patients at their own community.

Methodology

The pathways of rehabilitation/reintegration process especially for a chronic psychiatrically ill patient (long stay patient) at their own community set up is an utmost challenging aspect of the psychiatric social work field. During the psychosocial assessment, intervention process all the social work principles, methods of case work, group social work and community organization were used. The work strategies i.e. liaison work, collaboration works, referral services, facilitating works etc. are some of the essential fine professional skills used in the intervention process.

Two long stay inpatients of rehabilitation ward of the tertiary hospital care set up namely Institute of Human Behaviour & Allied Sciences (IHBAS), Delhi-95 were studied in detail, intervention continued for almost 2 years long. In the intervention process other stake holders i.e. government, non-government organizations were also involved in various stages of intervention while implementing of the community based rehabilitation in their respective native place. Well-informed consent was taken from patients and other related persons to share the information in the scientific educational, research forum.

Rehabilitation work with individual patients:

In both the cases well-planned psychosocial intervention strategies were executed. The intervention strategies were -

a. Detail psychosocial assessment
   - Review of the case file to chalk out further psychosocial management plan.
   - Rapport establishment,

- Regular interview and history taking session.
- Documentation

b. Resource utilization, resource mobilization and liaison works
   - Contact the family or local people and ensure support.
   - Contact local governmental/ non-governmental bodies.

c. Referral services

A plan also executed for the patient's further follow up treatment and referred to local center i.e. NGO/ private psychiatric clinic, or district / government hospital set up etc.These collaborative work with local agencies are essential social network developed for the patients to ensure their further treatment and follow up care.

Case 1

A 30-year-old male, Malayalam speaking guy was found in dishevelled condition near Delhi Railway station, (in the year 2006) was moving around aimlessly, talking to self, and also got an injury in a road accident. Thereafter, one day he was rescued as local NGO personnel picked him up from roadside and admitted him to IHBAS hospital through metropolitan magistrate order for treatment. He was suffering with gross psychotic symptoms, diagnosed with having schizophrenia disorder and after appropriate treatment he become stable and manageable in the ward set up. After reduction of psychopathology the patient was taken up in systematic interview to find out his psycho-social history. Along with other comprehensive management services, details of psychosocial intervention initiated with a plan to carry out community based rehabilitation for patient at his own native place at Thrissur district of Kerala. It was found that patient came to Delhi for searching out a better job along with a friend whom he lost on the way while coming to Delhi. The parents were not alive and only one or two distant relatives are staying at his native place of Kerala. With difficulty, contact was established with those alive relatives of his native place/village. However, even after repeated persuasions through local police, local NGOs, and community people those relatives denied to take any responsibility of patient. Without any other reasonable community based rehabilitation options, patient continued to stay in the ward set up for five more years till the successful plan was implemented. Since patient was remaining symptom free, various efforts of psychosocial intervention were being carried out for community based rehabilitation. Thus through one of such effort become successful as patient's employer vs. workplace / factory owner of native place was contacted telephonically, who agreed to keep him in work since he happened to be a good worker. Later on with help of police personnel, patient was successfully rehabilitated at his own community and re-joined his job, also got a shelter to stay within factory premise. A distant relative as well as employer/factory owner ensured to look after the patient's further treatment, follow up aspect through a district psychiatric centre which referred them to visit. After two months' patient on his own telephonically contacted the professional in which he expressed his happiness, good health and satisfaction with his work life and in mainstreaming of social life.

Case 2

Mr. M. was a patient, with chronic schizophrenia a long stay patient of IHBAS hospital, after execution of long term psychosocial intervention, the rehabilitation plan succeeded to integrate at his own community and family. He was a Tamil speaking person, found on the streets in Delhi, staying road side pavement and begging foods, money from passer-by. A local person called up police for help, and thereafter he got admitted to IHBAS through metropolitan magistrate order. After receiving appropriate treatment patient had shown improvement in his symptomatic condition. In absence of any family members he became an impatient of long term rehabilitation ward in the hospital. The case was taken up for this study and in-depth psychosocial intervention was initiated. During the sessions he was able to recall some of his family details but was not capable to give further details of residential place. Several efforts were carried out to rehabilitate him at community based sheltered home in Delhi but these efforts remained unsuccessful. The psychiatric social work intervention, cross sectional interview sessions continued with the patient, documented all information in details for chalking out plan of rehabilitation. Thus a long term and

constant but strategic psychosocial intervention process ultimately succeeded to identify an interior village of Salem district of Tamil Nadu and to locate the lost family/parents of the patient. The patient's native place and the family were located, identified with the help of police personnel of Delhi government and local authorities of the same village.

With the concurrence of metropolitan magistrate order and with help of police personnel (Delhi police), the patient was taken to an interior village of Tamil Nadu for rehabilitation within his community and family. Thus the patient reunited with parents/ family, own neighbourhood as well as with the community after long time. In the process of his community based rehabilitation local legal authorities (i.e. district magistrate) were contacted, pursued for cooperation since the patient remained lost for 12 years from the home/village, so in this case socio–legal advocacy was necessary before handing over the patient to the family. The local district magistrate also instructed one NGO to provide support, follow up regarding patients' further treatment, care related issues.

Discussion

Long stay patients are those who at the time of anticipated or planned discharge reside in a long term rehabilitation ward of the hospital or have a length of stay of 30 days or longer.[1] The meaning of the term "rehabilitation'' as well as the concept of 'long stay patient' often brings the negative association of chronic succumbed illness condition, sense of burden, sense of stigma, persons with lack of productive life output, poor health, hygiene condition, long time housed in a psychiatric set up or sheltered home as well as difficult in rehabilitating to community. These factors put together to make them "one of the most needy and disadvantaged groups of society''.[10]

The long term psychiatrically ill patients mostly didn't lose their hope, desire to go back own community, home within the family at their own place of reliance. Their in-depth wish to go back to own place, also ensures psychological well-being, hopefulness which further helps to combat harmful effect of chronic illness. During psychosocial assessment it is the fine art and skill of a professional to bring out all fragmented details of his life history and to make a relevant life history.

The careful review of all the collected information, can give an idea, shaded but complete picture of psychosocial and familial perspective of the patient. After completing psychosocialassessment, a professional could chalk out an imagery view of the patient's socio-demographic status i.e. residential village/town, familial perspective, community, socio-cultural strengths and assets including limitation and possibilities of effective rehabilitation. Assessment is defined as process of "gathering, analysing and synthesizing salient data" into a formulation that encompasses the vital psychosocial dimensions of the client.[11]

Nowadays with the advancement of information technology sector (i.e. world is becoming smaller and closer) it is easier to locate, identify distant places, people etc. The various mode of social media, electronic communication (i.e. Google map, e-mail, whatsApp etc.) are important communication strategies used to establish contact with local/interstate government, non-government bodies for organizing, utilizing the community resources from a distant place through their support.

In every given community there are some resources/assets.There is a requirement to identify and utilize carefully these resources for implementation of rehabilitation plan. It is very much pertinent that, sense of stigma, prejudices, non-acceptance are all negative forces create adverse situation, barriers in any community while carrying out rehabilitation work. The methods and skills of social work are basically considered as developmental discourse to bring change. It equipped a professional to initiate positive communication along with various authorities and common people for awareness generation, scientific knowledge dissemination to combat the prevailing negative attitude, stigma about mental illness and to provide support for rehabilitation of patient.

Conclusion

It takes huge patience, courage and most importantly the interest or passion to continue the challenging interactive sessions, psychosocial care with the chronic psychiatrically ill patients. The knowledge and skills of psychiatric social work field helped for implementation of successful rehabilitation programme. This study may provide an useful

guideline and future directions for carrying out challenging rehabilitation works of the long stay chronically ill psychiatric patients to their community. Though in every effort the successful implementation of community based rehabilitation may not be possible, it may be possible for exemplary few ones, failure and disappointment in this area also happen quiet often.

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Original Article

Assessment of social stigma related to mental illness and its effects on social functioning among caregivers of psychiatric patients

Renu Sharma, Sandhya Ghai, Shubhmohan Singh, Nisha George
Department of Psychiatry, PGIMER, Chandigrah-160012
Contact: Renu Sharma, E- mail: rain_nsg @yahoo.com

Abstract

Background: *Social stigma is disapproval of person based on socially characteristics that particular person is suffering with mental illness. Social functioning defines an individual interaction with their environmental and fulfils their role within such environment which include work social activity and relationship with partner and family. Care giving is the act of providing unpaid assistance and support to family member or acquaintances that have physical, psychological or developmental needs.* ***Aim:*** *The main aim of study is toassess the social stigma and its effects on social functioning among caregivers of patient with mental illness.* ***Material and method:*** *The research approach adopted was quantitative, non-experimental and descriptivesurvey. Homogenous purposive sampling technique was found to be appropriate for this study. Total 200 caregivers were selected who are registered in Psychiatry OPD and who have age above 18 years. Caregivers who are having mental illness were under exclusive sampling criteria. Tools for data collection were used as Socio Demographic Profile (SDP), Affiliated Stigma Scale(ASS)and Social Functioning Scale (SFS).Data was collected with interview schedule. According to inclusion criteria, caregivers who were willing to participate in this study were enrolled. Data was collected and analysed by using descriptive and inferential statistics.* ***Results:*** *The result of the study revealed that most of the subjects were experiencing social stigma and it will affect the social functioning of the caregivers. Level of social stigma in caregivers of patients with mental illness was classified into mild, moderate and severe. According to the levels of stigma among subject 76% having severe stigma, 26.5% were having moderate stigma, 0.5% falls in mild stigma. Affiliate Stigma Scale (ASS) and Social Functioning Scale (SFS) showed thatcorrelation is significant at the level of 0.05 and this significance depicted that social functioning depends on social stigma and it effects the social functioning of the caregivers.*

Key words: *Social stigma, Social functioning, Mental illness, Caregivers*

Introduction

Mental illness is considered as a great problem in our society. It is characterised as maladaptive responses due to external environment stressors, evidenced by thought, feelings, attitude and behaviour that are incompatible with cultural norms and interfere with the individuals social, occupational or physical functioning. The world health report 2015 had started that nearly 45 crores of people were suffering from mental and behavioural disorders globally.[1]

Mental ailment has been known as time immortal.

Earlier man beliefs of some supernatural causes are responsible for mental illness. Commendable progress in understanding the cause of mental

illness led to the development of a concept of origin of mental illness. It accounts for 11% disease burden worldwide.[2]

Mental illness is associated with distress and problem functioning in social work or family activities. Mental illness is treatable.

The vast majority and individuals with mental illness continue their lives.[3]

Most importantly, more than half of the disorders occur in the 17% of the population who have history of three and more co-existing disorders the seriousness and persistence of some disorders because great strain an affected individual their families and communities and the larger health care system.[4]

Many people who have mental illness do not want to talk about it. But mental illness is nothing to be ashamed of it is a medical condition and it is curable and treatable like other medical disorders. Stigma may also be described as a label that associates a person to a set of unwanted characteristics that form a stereotype. It is also affixed.[5]

Social stigma is disapproval of person based on social characteristics ground that is perceived and serve to distinguish them from other members of the society for the mentally ill, stigma is a barrier that separate them from the society and keep them apart from the others. They are the result in part of the social stigma against mental illness that is prevalent in contemporary society. The impact of the stigma is enormous nearly two- third of people with diagnosable mental disorders do not seek treatment and stigma related to mental illness is one of the major barriers that discourage people from seeking needed care and treatment.[6]

Problems related to stigma do not only affect persons suffering from mental illness but also families. In 1960's Goffman already reflected upon the stigma that spills over to families, coining the term "Courtesy Stigma". The negative impact of this form of stigma may be particularly marked in settings where family cohesion is high.[7]

Caregivers are someone who is actively engaged in providing care and needs to the person or patient who is suffering from illness.[8]

Care and support from caregivers during periods of illness are critical for people with mental illness. Care from family members or friends are especially important in resource poor settings like Ethiopia, where family and friends are considered to be "Frontline Caregivers".[9] Stigma is one of the most challenging psychological burdens faced by family members or caregivers of people with mental illness.[10]

Social functioning defines an individual's interaction with their environmental and fulfils their role with in such environment as work social activity and relationship with partner and family. Impairment of social functioning is the significant aspect of mental illness.[11]

The need of the study was to assess social stigma in mental illness and how it effects the social functioning of care givers in the society.

Methodology

The study population included all subjects (caregivers of psychiatric patients) visiting Psychiatric OPD who were falling in the age of 19-73 years. Sample size was 200 caregivers via homogeneous purposive sampling. An inclusive sampling criterion of the study was patient visiting Psychiatric OPD and the age group of caregivers above 18 years. Caregivers who were having mental illness kept under exclusive sampling criteria. Standardised tools were used for data collection. These tools were socio demographic data of caregivers, Affiliated Stigma Scale (ASS), Social Functioning Scale (SFS). Interview schedule was used for method of data collection. All subjects in the study were informed about their participation in research. Written informed consent was taken from each subject. Confidentiality and privacy of each subject was maintained.

Interview method was used, 15-20 minutes were used for each subject and scoring was done according to selected criteria. The analysis of data was done by using the SPSS.

Table 2 depicts the clinical data of the subjects. The mean duration of stay with patient of subjects 9.88 ± 9.79 and range (1-58) years. Nearly more than half 137 (68.5%) were in the <10 years i.e. maximum, 37 (18.5%) were in 11-20 years, 18 (9%) were in 21-30 years and 8 (4%) were in >30 years.

Related to the relationship with patient of subjects nearly one fourth 41 (20.5%) were the wives i.e. maximum, 38(19%) were others (cousins, son, daughter), 36 (18%) were siblings, 32 (16%) were fathers, 29 (14.5%) were mothers and 24

Results

Table-1: Socio demographic profile of the caregivers (N=200)

S.No.	Variables	n (%)
1	**Age in years**:	
	• 18-33	**85(42.5)**
	• 34-49	77(38.5)
	• 50-65	35(17.5)
	• 66-81	3(1.5)
2	**Sex:**	
	• Male	**119(59.5)**
	• Female	81(40.5)
3	**Marital Status:**	
	• Married	**155(77.5)**
	• Unmarried	45(22.5)
4	**Education:**	
	• Illiterate	8(4)
	• Primary	23(11.5)
	• Metric	57(28.5)
	• Senior secondary	34(17)
	• Graduation	**78(39)**
5	**Occupation:**	
	• Professional	40(20)
	• Farmer	26(13)
	• Self employed	17(8.5)
	• Students	17(8.5)
	• Unemployed	24(12)
	• Others	**76(38)**
6	**Per capita income**	
	• <5000	**113(56.5)**
	• 5001-10000	53(26.5)
	• 10001-20000	21(10.5)
	• 20001-30000	3(1.5)
	• >30000	10(5)
7	**Habitat:**	
	• Rural	**126(63)**
	• Urban	74(37)

 # Age Mean ± SD (Range)-37.9 ± 12.6 (18-73)
 # Per capita Income Mean ± SD (Range) - 8009.67 ± 10010.383 (500-75000)

(12%) were husbands.

Regarding any significant psychiatric history in family members almost 181 (90.5%) reported that there was no history of psychiatric illness i.e. maximum and 19 (9.5%) reported that there was psychiatric illness.

Table 4 depicts the level of social stigma among the subjects as per their score in which 76% were having severe social stigma, 26.5%were having moderate social stigma and 0.5% fall in mild social stigma.

Table 5(a) depicts the social functioning of the subjects the mean time when get up is 1.01 ± .071

Table-2: Clinical information related to patients explored from caregivers (N=200)

S.No.	Variables	f (%)
1	**Duration of stay with patient (in years)**	
	➢ < 10	137(68.5)
	➢ 11-20	37(18.5)
	➢ 21-30	18(9)
	➢ >30	8(4)
2	**Relationship with patient**	
	➢ Father	32(16)
	➢ Mother	29(14.5)
	➢ Siblings	36(18)
	➢ Wife	41(20.5)
	➢ Husband	24(12)
	➢ Others	38(19)
3	**Any Significant psychiatric history of family members**	
	➢ Yes	19(9.5)
	➢ No	181(90.5)

hours and range (1-2). 199 (99.5%) subjects reported that they get up at <9am i.e. maximum and only 1 subject get up (0.5%) at (9-11) am.

The mean hours of the day spend alone 1.47 ± .749 hours and range (1-5) of subjects nearly more than half 131 (68.5%) reported in 0-3 hours i.e. maximum, 51 (25.5%) were in 3-6 hours, 13 (16.5%) reported in 6-9 hours and 5 (2.5%) were in 9-12 hours.

The subjects often start conversation at home 74 (37%) reported in almost never i.e. maximum, 65 (32.5%) reported in sometimes, 38 (19%) reported in often and 23 (11.5%) were rarely start the conversation.

How you react in presence of stranger? The statement depicted that 90 (45%) of subjects accept them, 40 (20%) subjects only like them, 37 (18.5%) subjects were avoid the presence of stranger and 33 (16.5%) of subjects feel nervous.

The maximum subjects had 179 (89.5%) reported that they have friends 1-10, 11 (5.5%) reported that they have friends 11-20, 7 (3.5%) reported 21-30 friends, 1 (.5%) have 31-40 friends and 2 (1%) have 41-50 friends.

Do you feel uneasy with group of people statement showed that 64 (32%) subjects reported that they never feel uneasy with group of people, 63 (31.5%) often felt uneasiness, whereas 50 (25%) reported in sometime and 23 (11.5%) found in rarely.

Any argument with friends, relatives and

Table: 3(a) Assessment of social stigma among caregivers of patients with illness(N=200)

S. No.	Items	Strongly Disagree (4)	Disagree (3)	Agree (2)	Strongly Agree (1)
1	Others will discriminate against me if I am with my family members with mental illness	10(5)	63(31.5)	83(41.5)	44(22)
2	My reputation is damaged because I have a family member with mental illness at home	4(2)	54(27)	94(47)	48(24)
3	People's attitude towards me turns sour when I am with my family member with mental illness	6(3)	58(29)	92(46)	44(22)
4	Having a family member with mental illness Negatively affects me	6(3)	48(24)	94(47)	52(26)
5	Having a family member with mental illness makes think that I am In competent compared with others.	7(3.5)	56(28)	92(46)	45(22.5)
6	Having a family member with mental illness make me think that I am lesser than others	8(4)	55(27.5)	94(47)	43(21.5)
7	Having a family member with mental illness make me lose face	7(3.5)	67(33.5)	108(54)	18(9)
8	I feel inferior because one of my family members has mental illness.	10(5)	45(22.5)	67(33.5)	78(39)
9	I feel emotionally disturbed because of my family members with mental illness.	17(8.5)	44(22)	62(31)	77(28.5)
10	The behaviour of my family member with mental illness embarrasses me	13(6.5)	48(24)	83(41.5)	56(28)
11	I feel helpless because I have a family member with mental illness.	9(4.5)	50(25)	89(44.5)	52(26)
12	I feel sad because I have a family member with mental illness.	15(7.5)	45(22.5)	62(31)	78(39)
13	I worry that other people will find out I have a family member with mental illness.	8(4)	53(26.5)	83(41.5)	56(28)
14	I feel that I am under great pressure because I have a family member with mental illness.	10(5)	47(23.5)	89(44.5)	54(27)
15	I avoid communicating with my family member who has mental illness.	11(5.5)	54(27)	97(48.5)	38(19)
16	I do not dare to tell others that family member with mental illness.	7(3.5)	54(27)	95(47.5)	44(22)
17	I avoid going out with my family member who has mental illness.	7(3.5)	66(33)	100(50)	27(13.5)
18	I reduce contact with my friends and relatives because I have a family member with mental illness.	7(3.5)	58(29)	100(50)	35(17.5)
19	When I am with my family member who has mental illness I keep relatively low profile.	8(4)	54(27)	102(51)	36(18)
20	I reduce interacting with my family member who has mental illness.	7(3.5)	69(34.5)	97(48.5)	27(13.5)
21	I do not dare to participate with in activities related to mental illness. Lest other people suspect I have a family member with mental illness.	9(4.5)	58(29)	102(51)	31(15.5)
22	I reduce contact with my neighbours because I have a family member with mental illness.	4(2)	62(31)	98(49)	36(18)

Table-4: Assessment of level of social stigma in caregiversof patients with mental illness

S. No.	Level of social stigma	N (%)
1	Mild (>85)	1(0.5)
2	Moderate (84-58)	47(23.5)
3	Severe (<57)	152(76)

neighbour. This statement described that subjects 105 (52.5%) had no argument, 64 (32%) reported that have 1or 2 altercations, 21 (10.5%) found in continued and 10 (5%) were in many major arguments.

Regarding the Easy or difficult talking in environment 131 (65.5%) subjects had almost never have difficulty in talking, 33 (16.5%) reported in

sometimes, 24 (12%) were in rarely and 12 (6%) often have difficulty in talking.

Table 5(b) depicts the involvement in pro social activities of the subjects in cinema in which 85 (42.5%) subjects reported that they never go to cinema, whereas 66 (33%) subjects sometimes go to cinema, 25 (12.5%) often interested in cinema and 24 (12%) reported in rarely.

Regarding the concert 98 (49%) subjects never attend the concert i.e. maximum, 49 (24.5%) reported in sometimes, 34 (17%) were rarely attending concert and 19 (9.5%) often attend the concert.

In the art gallery 116 (58%) subjects never visited in art gallery i.e. maximum, 36 (18%) were in sometimes they visited art gallery, 30 (15%) were in rarely and 18(9%) reported in often.

Related to the visiting place of interest 81 (40.5%) reported in sometimes i.e. maximum, 69 (34.5%) reported in often, 25 (12.5%) responded in never and 25 (12.5%) reported in rarely.

As in visiting relatives and friends 98 (49%) reported in sometimes i.e. maximum, 77 (38.5%) in often, 17 (8.5%) reported in rarely and 8 (4%) subjects never visited.

As in query of outside dinner 87 (43.5%) subjects reported in sometimes i.e. maximum, 49 (24.5%) reported in often, 36 (18%) rarely go for outside dinner and 28 (14%) never go for outside dinner.

In indoor sports activities 63 (31.5%) subjects participated sometimes i.e. maximum, 62 (31%) never use to participate, whereas 41 (20.5%) reported in often, and 34 (17%) were rarely participating in indoor sport activities.

Regarding the church activity 74 (37%) subjects sometimes go to church i.e. maximum, 74 (37%) reported in often, 32(16%) never go to church and 20 (10%) reported in rarely.

Related to the party attending by the subjects 91 (45.5%) reported in sometimes i.e. maximum, 50 (25%) were in often, 30 (15%) never attended the party and 29 (14.5%) were rarely attending the party.

Related to routine walking 97 (48.5%) subjects often go for a walk daily i.e. maximum, 78 (39%) reported in sometimes, 14 (7%) rarely go for a walk and 11 (5.5%) were never going outside for walk.

Table 5(c) depicts the involvement in the recreation activities of subjects in which 121 (60.5%) subjects never played musical instrument i.e. maximum, 36 (18%) reported in sometimes, 25 (12.5%) oftenplaying musical instrument and 18

Table-5(a) Assessment of social functioning among caregivers of psychiatric patients

S. No.	Items	N(%) N=200
1	Which time do you get up?	
	< 9 am	199(99.5)
	9-11 am	1(0.5)
2	How many hours of the day spend alone?	
	0-3	131(68.5)
	3-6	51(25.5)
	6-9	13(6.5)
	9-12	5(2.5)
3	How often you start conversation at home?	
	Almost never	74(37)
	Rarely	23(11.5)
	Some time	65(32.5)
	Often	38(19)
4	How you react in presence of stranger?	
	Avoid them	37(18.5)
	Feel nervous	33(16.5)
	Accept them	90(45)
	Like them	40(20)
5	Number of friends?	
	1-10	179(89.5)
	11-20	11(5.5)
	21-30	7(3.5)
	31-40	1(0.5)
	41-50	2(1)
6	Do you feel uneasy with group of people?	
	Almost never	64(32)
	Rarely	23(11.5)
	Sometime	50(25)
	Often	63(31.5)
7	Any argument with friends, relatives and neighbour?	
	None	105(52.5)
	1 or 2	64(32)
	Continued	21(10.5)
	Many major	10(5)
8	Easy or difficult talking in environment?	
	Almost never	131(65.5)
	Rarely	24(12)
	Some times	33(16.5)
	Often	12(6)

#Time when get up Mean ± SD (Range) – 1.01 ±. 071 (1-2)
#spend hours alone Mean ± SD (Range)-1.47 ± .749 (1-5)
#No. of friends Mean ± SD (Range)-6.88 ± 6.710 (1-50)

Table-5(b) Assessment of prosocial activities in social functioning among caregivers of patients with mental illness N=200

Items	Never(0)	Rarely(1)	Sometimes(2)	Often(3)
Cinema theatre	85(42.5)	24(12)	66(33)	25(12.5)
Concert	98(49)	34(17)	49(24.5)	19(9.5)
Art gallery	116(58)	30(15)	36(18)	18(9)
Visiting place of interest	25(12.5)	25(12.5)	81(40.5)	69(34.5)
Visiting relatives and friends	8(4)	17(8.5)	98(49)	77(38.5)
Outside dinner	28(14)	36(18)	87(43.5)	49(24.5)
Indoor sports	62(31)	34(17)	63(31.5)	41(20.5)
Religious activity(temple, gurdwara,chruch)	32(16)	20(10)	74(37)	74(37)
Party	30(15)	29(14.5)	91(45.5)	50(25)
Walking	11(5.5)	14(7)	78(39)	97(48.5)

(9%) reported in rarely.

Regarding the sewing and knitting 122 (61%) subjects never did sewing and knitting i.e. maximum, 29 (14.5%) reported in sometimes, 25 (12.5%) subjects often like to do sewing and knitting and 24 (12%) reported in rarely.

In the case of gardening 79 (39.5%) subjects never did gardening i.e. maximum, whereas 47 (23.5%) reported in sometimes, 46 (23%) reported in often and 28 (14%) were in rarely.

Regarding the reading things 70 (35%) subjects sometimes interested in reading things i.e. maximum, 67 (33.5%) often interested in reading things, 41 (20.5%) reported in never and 22(11%) were in rarely.

Related to watching TV 104 (52%) subjects reported that they often interested in watching TV i.e. maximum, 58 (29%) sometimes showed interest, 27 (13.5%) reported in rarely and 11 (5.5%) were in never interested.

80 (40%) subjects were often interested in listening radio i.e. maximum, 57 (28.5%) subjects were sometimes use to listen radio, 33 (16.5%) reported in rarely and 30 (15%) were never interested.

Regarding cooking 82 (41%) subjects had often cooked food i.e. maximum, 57 (28.5%) were sometimes cooked food, 40 (20%) subjects never cooked food and 21 (10.5%) subjects reported in rarely.

Related DIY activities 70 (35%) subjects were often participated in DIY activities i.e. maximum, 59 (29.5%) reported in never, 44 (22%) reported in sometimes and 27 (13.5%) were in rarely.

Regarding the swimming 102 (51%) subjects never interested in swimming i.e. maximum, 40 (20%) reported in often, 37 (18.5%) subjects sometimes go for swimming and 21 (10.5%) were in rarely.

In case of shopping 109 (54.5%) subjects often go for shopping i.e. maximum, 77 (38.5%) were in sometimes, 12(6%) reported in rarely and 2 (1%) subjects never interested in shopping.

Table 5(d) depicts the involvement in independence of the subjects in which 168 (84%) adequately used public transportation i.e. maximum, 26 (13%) subjects need help in transportation, 4 (2%) subjects reported that they did not known how to use transportation and 2 (1%) unable to use transportation.

Handling money of the subjects 183 (91.5%) adequately handle their the money i.e. maximum, 9 (4.5%) subjects reported that they need help in handling the money, whereas 6 (3%) subjects were unable to handle the money and 2 (1%) reported in not known.

Related to the weekly shopping 178 (89%) subjects adequately did the weekly shopping i.e. maximum, 15 (7.5%)subjects need help in shopping, 5 (2.5%) subjects reported in unable to do shopping and 2 (1%) reported in not known.

Regarding the personal hygiene 192 (96%) maintains personal hygiene adequately i.e. maximum, 6 (3%) subjects need help in personal hygiene and 1 (.5%) both unable and not known having same report.

As in take care of the self 190 (95%) subjects adequately take care of self i.e. maximum, 9 (4.5%) reported in need help, 1 (0.5%) subjects unable to do self care and nil were in not known.

164 (82%) subjects adequately cook for self i.e. maximum, 27 (13.5%) reported they need help,

Table: 5(c) Assessments of recreation activities in social functioning among caregivers of patients with mental illness N=200

S. No.	Items	Never (0)	Rarely (1)	Sometimes (2)	Often (3)
1.	Playing musical instrument	121(60.5)	18(9)	36(18)	25(12.5)
2.	Sewing and knitting	122(61)	24(12)	29(14.5)	25(12.5)
3.	Gardening	79(39.5)	28(14)	47(23.5)	46(23)
4.	Reading things	41(20.5)	22(11)	70(35)	67(33.5)
5.	Watching TV	11(5.5)	27(13.5)	58(29)	104(52)
6.	Listening radio	30(15)	33(16.5)	57(28.5)	80(40)
7.	Cooking	40(20)	21(10.5)	57(28.5)	82(41)
8.	DIY activities	59(29.5)	27(13.5)	44(22)	70(35)
9.	Swimming	102(51)	21(10.5)	37(18.5)	40(20)
10.	Shopping	2(1)	12(6)	77(38.5)	109(54.5)

Table: 5(d) Assessments of independence in social functioning among caregivers of patients with mental illness N=200

S.No.	Items	Adequately	Needs Help	Unable	Not Known
1.	Public transportation	168(84)	26(13)	2(1)	4(2)
2.	Handling money	183(91.5)	9(4.5)	6(3)	2(1)
3.	Weekly shopping	178(89)	15(7.5)	5(2.5)	2(1)
4.	Personal hygiene	192(96)	6(3)	1(0.5)	1(0.5)
5.	Take care of self	190(95)	9(4.5)	1(0.5)	—
6.	Cook for self	164(82)	27(13.5)	6(3)	3(1.5)

Table-6: Correlations between affiliated stigma and functioning N=200

Variables	ASS (AffiliatedStigma Scale)	SFS (Social Functioning Scale)	
ASS (Affiliated Stigma Scale)			
Pearson correlation	1	-.002	
Sig. (2-tailed)	—	.978	-
SFS (Social Functioning Scale)			
Pearson correlation	-.002	1	
Sig. (2-tailed)	.978	—	

Level of significance at the level <0.05

6 (3%) subjects are unable to cook for self and 3 (1.5%) are not aware how to cook.

Table 6 depicts the correlation between the social stigma and social functioning of care givers that shows the correlation is significant at the level of < 0.05 and this significance proved that social functioning and social stigma are inversely proportional to each other. So results showed that social stigma definitely effects social functioning and vice versa.

Discussion

Mental ailment has been known from time immortal. Earlier man's belief of supernatural causes of mental illness was responsible for mystical and sometimes brutal, treatments. Commendable progress in understanding the cause of mental illness led to the development of a concept of bio-psycho-social origin of mental illness.[1]

Mental illness is considered as a great problem in our society. It is characterised as great problem as maladaptive responses due to external environmental stressors, evidenced by thoughts, feelings attitude and behaviour that are incompatible with cultural norms and interfere with the individuals social, occupational or physical functioning.[2] Social stigma is disapproval of person based and serve to distinguish them from other members of the society

for the mentally ill.[3] Stigma affect not only the people with mental illness but also their families and caregivers.

"Mental illness is common", it affects thousands of people in UK and their friends, families, work colleagues and society in general. Most people who experience mental health problems recover fully but even though so many caregivers are affected with strong social stigma attached to mental illness. Many caregivers' problems are made worse by the stigma and discrimination they experience from the society but also from families, friends, and employers it may cause negative effect on their lives. Social functioning defines an individual's interaction with their environmental and fulfill their roles with in such environment as work social activities and relationship with their partner and family.[7]Social stigma among the care givers is recognised as a phenomenon .This cannot be due to frequent hospitalization. Due to this stigma may lead to problem in relationship and employment etc. Sometimes caregivers are not able to cope up with situation and they are stigmatized and this may also affect the social functioning then it may lead to poor quality of life. Thus this prompted us to conduct study to assess the social stigma in the caregivers and to see the effect of social functioning and about the negative impact on them when they are going for to visit any place and relatives.

A cross sectional study was conducted in the Jimma University specialized hospital psychiatry clinic in Ethiopia on a sample of 422 caregivers. The result revealed that majority (70.38) of the caregivers were male. On a scale of 0-15, with a being low and is being high, the average self-stigmatizing attitude score was 4.63 (±4.11). Statistically difference in mean self -stigma score was found between urban and rural respondent ($t=3.95$, $p< 0.001$). Self-stigma of caregivers showed significant positive correlation with perceived signs of mentalillness ($r= 0.18$, $p<0.001$), the only independent predictor of caregiver's self-stigma was perceived supernatural explanation of mental illness (standardised $\alpha = 0.22$, $p<0.001$).

A hospital based cross –sectional study among caregivers in West Bengal to assess stigma towards mental illness. Stigma among caregivers of people with mental illness has a serious impact on the disease outcomes and lives people with mental illness as well as other family members. The result revealed that average stigma score (53.3 ± 13.2) was higher than 50% of maximum attainable score. Caregivers of higher age, female gender, low income, higher education, manual job, rural residence, and those who are singled or widowed scored higher in stigma scale. Caregivers with female gender $p=0.007$ and rural residence $p=0.01$ were more likely to have stigma while the perception score negatively associated ($p < 0.001$) with stigma[9].

The study was conducted to investigate the relationship between affiliate stigma and quality of life among primary caregivers of patient with mental illness undergoing treatment at the institute of mental health Singapore. 350 caregivers were recruited for the study. Result revealed that stigma scores are significantly associated with poorer quality of life among caregivers in three cut of 4 domains Psychological ($p <0 .001$), social relationship ($\hat{a}= -0.17$, $p < 0.001$) and environmental ($\hat{a}=0.12$, $p < 0.001$)[20].

Conclusion

The present study was carried out to assess the social stigma and its effect on social functioning among caregivers of patient with mental illness. The maximum numbers of subject were 200 and the age subject ranged between 18-73 years (37.93 ± 12.60).

59.5% of subject were male and about 40.5% female and about 77.5% married and 22.5% unmarried. Maximun subject were graduate and per capita income Rs 5000-10001. The caregivers were assessed on socio demographic profile in interview schedule. Affiliated stigma scale (ASS), Social functioning scale (SFS).

10 days was given to collect the data from the caregivers of mentally ill patient. Total 10-15 minutes taken for one subject. Data was analysed by using ASS Pearson correlation sig. (2 tailed) and SFS Pearson correlation sig. (2 tailed). The correlation between the Affiliated Stigma and Social Functioning depend upon social stigma and its affect the social functioning of the subject also.

Implication

- This study will help the nurse to identify social stigma and effect of social functioning among caregivers of patient with mental illness.

- This study will help the mental health professionals to conduct in service education programme for up gradation of knowledge regarding social functioning among caregivers of patient with mental illness.
- This study could be helpful in further research studies.

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Original Article

Character Strengths and Psychological Wellbeing of Institutionalized and Non-Institutionalized Orphans in Kashmir

Mir Shahid Ali, Meena Osmany
Department of Psychology, Jamia Millia Islamia, New Delhi-110025
Contact: Mir Shahid Ali, E-mail: shahidgowher@yahoo.com

Abstract

Background: *Orphaned children are one of the most disadvantaged groups, living in the community with various problems. With the increase in number of orphans in Kashmir, which had a direct impact on the meager resources allocated to them hence, resulted in manifold challenges like accommodation problem, educational loss, mass psychological problems, social disorganization, feeling of insecurity, health determination, total dependence and deviances.* ***Aim:****The main aim of the present research was to study the character strengths and psychological wellbeing institutionalized and non-institutionalized orphans in Kashmir.* ***Methodology:*** *A sample of 300 orphans, 141 institutionalized and 159 non-institutionalized orphans from different orphanage homes, households and schools were purposively selected. Data was collected using The VIA Inventory of Strengths for Youth, and The Ryff Scale of Psychological Well-Being. Data obtained was thus analyzed by using t-test, product moment method of correlation and multiple regression analysis.* ***Results****: showed significant differences between institutionalized non-institutionalized orphans on the virtues of character strengths except for the dimension courage. Significant difference for the overall psychological wellbeing was also found between the two groups. Virtues of character strengths showed significantly positive correlation with dimensions of psychological wellbeing except autonomy. Psychological wellbeing was also significantly predicted by virtues of character strengths.****Conclusion:****Thus, highlighting the role of character strengths and psychological well-being among institutionalized and non-institutionalized orphans, the present study carries enormous implications for rehabilitation and wellbeing of young Kashmiri orphans living in conflict areas.*

Key words: *Character Strengths, Psychological Wellbeing, Orphan.*

Introduction

Kashmir has been in conflict with government of India since its partition in 1947. Living in communities where violence is common can negatively affect the developmental process, even if they are not directly exposed to violent activity.[1] The effects of high levels of violence within a community are similar to those associated with direct exposure and can include nervousness, sleep problems, intrusive thoughts, anxiety, stress, loneliness, depression, grief, and antisocial behavior.[2] Violence exposed children may also show a decline in cognitive performance and school achievement. Repeated trauma can lead to anger, despair, and severe psychic numbing, resulting in major changes in personality and behavior.[3]

The impact of Kashmir conflict is in terms of repression, loss of security, income and service access, disrupted schooling, displacement, military harassment and other forms that have an immense

impact on the lives of adolescents and their families. The problems that emerge are internalizing violence which tends a child to perceive abnormal situations as normal ones. A lot has to be researched on the response of children in an armed conflict but the children cooping process in the political violence has remained for and under estimated.[4] The most crucial problems the children faced after the death of their father is economic hardship.[5] However, studies suggest that children are not passive victims of violence only, they are active interpreters of their experience and appraise their situation to use appropriate coping strategies.[6] Study conducted by U.K based child right organization, 'Save Children' has revealed that estimated population of orphans in Jammu & Kashmir is 2,14,000 and 37% of them were orphaned due to armed conflict[7]. With the increase in number of orphans in Kashmir, which had a direct impact on the meager resources allocated to them hence, resulted in manifold challenges like accommodation problem, educational loss, mass psychological problems, social disorganization, feeling of insecurity, health determination, total dependence and deviances. Since, Kashmir society allows widow remarriage which has a direct ramification on the orphan, making them debased from maternal support.[8] Hence, orphans were left with one option that was orphanages. The second factor that makes the orphan to approach orphanages was little support from relatives, friends and community members. The third factor is the economic dependency of orphans making them vulnerable to get shelter at orphanage.

In past years' psychology has shifted its focus from treating and preventing mental disorders to helping individuals attain well-being and live a fulfilling and satisfied life. Sivanathan et al[9] proposed that well-being goes beyond the absence of illness to include aspiration, enthusiasm, and confidence for life. Positive psychology, an approach focusing on strengths and virtues, arises to change the focus of the mental health field from mainly treating illness (e.g. medical model) to using strengths to buffer individuals from mental disorders and obtain well-being.[10]

Positive Psychology, for well over a decade now, has made concerted empirical efforts to advance the science that integrates both strengths and weaknesses. In order to do so, positive psychology researchers realized that unlike the Diagnostic and Statistical Manual of Mental Disorders, which numerates a sophisticated classification of disorder, there lacked a common language to describe strengths.[11] Spearheading the first effort to describe a systematic classification of core human strengths were Peterson and Seligman, who published the VIA (formerly called the "Values in Action") Classification of strengths. Peterson and Seligman define character strengths as capacities of cognition, affect, volition, and behavior, which constitute the basic psychological ingredients that enable us to act in ways that contribute to our well-being and the well-being of others.[11] They acknowledge that character strengths are morally desired traits of human existence, which are valued in every culture.

However, the VIA Classification is descriptive rather than prescriptive, thus character strengths are open to empirical examination. The character of human beings is plural in nature, meaning that character strengths are expressed in combinations (rather than singularly), and are expressed in degrees relative to context. The 24 character strengths in the VIA Classification are subsumed under six broader categories called virtues. ***Wisdom and knowledge:*** creativity, curiosity, open-mindedness, love of learning, perspective. ***Courage:*** authenticity, bravery, persistence, zest. ***Humanity:*** kindness, love, social intelligence. ***Justice:*** fairness, leadership, teamwork. ***Temperance:*** forgiveness, modesty, prudence, self-regulation. ***Transcendence:*** appre-ciation of beauty and excellence, gratitude, hope, humor, religiousness.

Evidence concerning the correlates and positive outcomes of the character strengths is accumulating. Although all strengths of character contribute to fulfillment, happiness broadly construed certain positive traits are more robustly associated with well-being and fulfillment than others.[12] Despite wide-spread negative perceptions, the majority of youth have developed character strengths. Among them, gratitude, humor, and love are most common, whereas prudence, forgiveness, spirituality, and self-regulation are least common, much as is found among adults.

Adolescents with low psychological well-being may encounter lower levels of happiness, satisfaction, and self-esteem, while experiencing high levels of distress.[13] Similarly, adolescents who possess low

psychological well-being or psychological distress may also exhibit characteristics of low levels of happiness and self-efficacy, along with high levels of depression.[14] Furthermore, these adolescents may view social problems as being more serious than other youth.[15] Adolescents with low psychological well- being tend to form less than desirable self-evaluations, which significantly affect their happiness and satisfaction about the life. Frattaroli[16] investigated emotional trauma on health and psychological wellbeing of adolescent in orphanages, the result indicates that expressing emotions through writing about stressful or traumatic events has positive effects on both psychological and physical health and well-being. Evidence shows that people assigned to an expressive writing program show fewer psychological and physical symptoms than do control participants. Psychological wellbeing scores are significantly lower among orphans than non-orphans[17]. Majority of orphans have low psychological wellbeing and majority of non-orphans have high psychological wellbeing.[18] On contrary several studies reveal that there is little difference in psychosocial wellbeing between orphans.[19] Resilience is considered as one of the indicators of psychological well-being of the individuals.[20]

Rationale of the Study

Scientific studies of the orphan hood began in the XVIII century and continue till date. It was found that children who have undergone family deprivation, have a variety of negative features.The need of an hour has resulted in an institutional care for orphans in the form of orphanage but, these orphan--ages are not desirable for orphans, as they are the result of armed conflict with strong psychological trauma.The impact of these past experiences hamper their confidence, mental health, resilience and wellbeing.

This research attempts to explore the character strengths and psychological wellbeing among institutionalized and non-institutionalized orphans of Kashmir. The available literature has revealed that there is hardly any study conducted so for to relate these variables especially on institutionalized Kashmiri orphan population. Since these variables will play a significant role in shaping the character and using strengths in positive directions. This study will also enhance the understanding of these orphan adolescents in terms of psychological wellbeing. The findings will also enable the service providers to adopt a more focused perspective while addressing their problems and unique information of their needs which will further help policy makers, health care organizations and especially the orphanage trustees to frame strategies for the future care of the orphans.

Aim

The aim of present research was to study character strengths and psychological wellbeing of institutionalized and non-institutionalized orphan Kashmiri adolescents.

Objectives

1. To study character strengths and psychological wellbeing of institutionalized and non-institutionalized orphan Kashmiri adolescents.
2. To study relation between character strengths and psychological wellbeing among institutionalized and non-institutionalized orphan Kashmiri adolescents.
3. To study character strengths as predictors of psychological wellbeing among institutionalized and non-institutionalized orphans Kashmiri adolescents.

Hypotheses

1. There would be significant difference between character strengths and psychological wellbeing among institutionalized and non-institutionalized orphan Kashmiri adolescents.
2. There would be significant relationship relation between character strengths and psychological wellbeing among institutionalized and non-institutionalized orphan Kashmiri adolescents.
3. Psychological wellbeing would be significantly predicted bycharacter strengths among institutionalized and non-institutionalized orphan Kashmiri adolescents.

Sample

A sample of 300 orphan Kashmiri adolescents, 141 institutionalized and 159 non-institutionalized was selected purposively from different orphanage homes, schools and households of Kashmir for the present study.

Tools Used

1. *Socio-demographic Data Sheet:* A self-made semi structured socio-demographic sheet especially designed for the study was used to collect information regarding participant's age, gender, religion affiliation, education, family type, and monthly family income. Also information was collected regarding orphan's parents' death, duration of death and cause of death.

2. *The VIA Inventory of Strengths for Youth (VIA-Y):* Adolescent's character strengths was measured using self-report VIA Inventory of Strengths for Youth[11,12] containing 96 items measuring 24 different strengths of character pertaining to six scales of wisdom, carriage, humanity, justice, temperance, and transcendence on a +ve-point Likert scale ranging from 1 (Not like me at all) to 5 (Very much like me) with reliability alpha coefficient of .87.

3. *Ryff's Psychological Wellbeing Scale (PWB):* The Ryff Scale of Psychological Well-Being[21] 54-item, is a theoretically-grounded instrument that focuses on measuring six dimensions of psychological well-being: self-acceptance, Personal growth, purpose in life, positive relations with others, environmental mastery, and autonomy[21]. Each dimensional scale contains 9 items equally split between positive and negative items. Items are scored on a 6-point scale ranging from strongly agree to strongly disagree. The internal consistency for six sub-scales ranges from 0.82 to 0.90.

Procedure

The research data was collected through individual sessions after taking prior permission from the authorities of orphanage homes, schools and households. After developing a good rapport, purpose of the research was discussed with the participants before collecting socio-demographic information followed by administration of The VIA Inventory of Strengths for Youth, and The Ryff's psychological wellbeing Scale to assess character strengths and psychological wellbeing of the participants.

Data thus obtained was analyzed using SPSS (21 version). t-test, Product moment method of correlation (r) analysis and multiple regression analysisalong with other descriptive statistics.

Results and Discussion

This study was conducted to study character strengths and psychological wellbeing of institutionalized and non-institutionalized orphan Kashmiri adolescents. The target population aged between 13 to 17 years from different orphanages, schools and households from different districts of Kashmir. Structured and standardized tools The VIA Inventory of Strengths for Youth[11] and The Ryff's psychological wellbeing Scale were used for data collection and socio-demographic sheet was also used for additional information. Data were cleaned and analyzed by SPSS version 21.00 windows.

Table-1: Demographic data of participants N = 300

Characteristics	Frequency	Percentage
Gender		
Male	165	55%
Female	135	45%
Residence		
Institutionalized	141	47.0%
Non-Institutionalized	159	53.0%
Education		
Primary	159	53.0%
Secondary	104	34.7%
Higher-Secondary	37	12.3%
School Type		
Government school	87	29.0%
Orphanage school	136	45.3%
Private School	77	25.7%
Family Type		
Nuclear	238	79.3%
Joint	62	20.7%
Monthly Income		
Below Rs.5,000	202	67.3%
Rs. 5,000 to Rs.10,000	71	23.7%
Above Rs. 10,000	27	9.0%

Average age of the participants (N=300) was 15.37 years. The mean duration of death was 4.72 years and the average duration for stay at orphanage was 3.34.

Total sample of 300 orphans (141 institutionalized and 159 non-institutionalized) were purposively selected for this study. 55 % of orphans

Table-2: Demographic data of participants N = 300

Characteristics	Mean	SD
Age	15.370	2.157
Duration of Death	9.760	4.724
Duration of Residence in orphanage	1.986	3.434

were males and 45 % female, most of them were educated till primary (53.0%) and secondary education (34.7%), whereas 12.3 % were having a degree of higher-secondary. 53% of the orphans were studying in private schools, 34.7% in orphanage schools and 12.3% in government schools. Most of them (79.3%) were from nuclear family, 67.3% having monthly family income below Rs. 5000 whereas only 23.7% between Rs. 5,000 to Rs. 10,000 and only 9 %t having income of above Rs. 10,000.

Table 3 reflects character strengths of institutionalized and non-institutionalized orphans. It is quite obvious from the table that institutionalized orphans have significantly higher mean than non-institutionalized on the dimensions of wisdom and knowledge (t=2.62, p=0.00), humanity (t=2.08, p=0.03), justice (t=2.03, p=0.04), temperance (t=2.92, p=0.00), transcendence (t=3.62, p=0.00)and overall character strengths (t=2.87, p=0.00). Only dimension courage was not found to be significant between both the groups but the mean difference for the institutionalized orphans was found to be higher.

Orphanages are places where these orphans are provided with all basic amenities, education and social support from the other inmates along with the support from their relatives and rest of the family members. They are on the rise in Kashmir because of the ongoing conflict in that area. The basic requirement and the resources for them are getting shrink day by day and they have to share their spaces with those limited resources. Large number of these orphans are facing lot of problems due to lack of proper support whether it is emotional, financial or basic amenities. At larger these orphans are provided with a structured environment where they feel belonged which the orphans living with relatives lack. The same result was reported in our study were we found that the institutionalized orphans exhibited better character strengths as compared to the non-institutionalized orphans. At institutions they can easily connect with each other emotions, developmental hurdles and feel equally participant in societal issues too where as non-institutionalized orphans always feel out of space, not able to express their feelings, suppression of their daily needs as well as they lack the confidence for making any decision about their future. Since they live in homely environment they are not able to relate with normal children and adolescents in family and surroundings. Orphanages in Kashmir are supported financially, emotionally and by other means by public on humanitarian basis, as of collective consciousness to help orphans, which is not possible for each and every orphan living in households.

Table 4 shows psychological wellbeing of institutionalized and non-institutionalized orphans. It is reflective from table that institutionalized orphansdiffer significantly on the dimensions of environmental mastery (t=2.18, p=0.02), positive relations with others (t=2.26. p=0.02), self-acceptance (t=2.28, p=0.02) and overall psychological wellbeing (t=2.543, p=0.01) than non-

Table-3: Mean, SD and t value of Institutionalized and Non-Institutionalized orphans on the dimensions of Character Strengths (N=300)

Dimensions	Group	N	Mean	SD	SEM	t-value	p-value
Wisdom and Knowledge	Institutionalized	141	74.85	11.27	0.949	2.620	**0.009**
	Non-Institutionalized	159	71.21	12.61	1.000		
Courage	Institutionalized	141	57.01	8.65	0.729	1.242	0.215
	Non-Institutionalized	159	55.72	9.18	0.728		
Humanity	Institutionalized	141	42.99	6.53	0.550	2.083	**0.038**
	Non-Institutionalized	159	41.35	7.04	0.558		
Justice	Institutionalized	141	43.24	6.33	0.533	2.039	**0.042**
	Non-Institutionalized	159	41.66	7.01	0.556		
Temperance	Institutionalized	141	56.40	8.23	0.693	2.920	**0.004**
	Non-Institutionalized	159	53.55	8.61	0.683		
Transcendence	Institutionalized	141	61.98	9.61	0.809	3.629	**0.000**
	Non-Institutionalized	159	57.92	9.72	0.771		
Character Strengths overall	Institutionalized	141	336.49	43.02	3.62	2.87	**0.004**
	Non-Institutionalized	159	321.44	47.25	3.75		

Degree of freedom=298

Table-4: Mean, SD and t value of Institutionalized and Non-Institutionalized orphans on the dimensions of Psychological Wellbeing (N=300)

Dimensions	Group	N	Mean	SD	SEM	t-value	p-value
Autonomy	Institutionalized	141	32.73	05.10	0.429	1.610	0.108
	Non-Institutionalized	159	31.81	04.71	0.373		
Environmental Mastery	Institutionalized	141	34.19	05.98	0.503	2.189	**0.029**
	Non-Institutionalized	159	32.78	05.19	0.411		
Personal Growth	Institutionalized	141	32.95	05.63	0.474	0.419	0.675
	Non-Institutionalized	159	32.70	04.50	0.357		
Positive Relation With Others	Institutionalized	141	34.18	05.69	0.479	2.265	**0.024**
	Non-Institutionalized	159	32.66	05.87	0.465		
Purpose of Life	Institutionalized	141	33.56	05.61	0.472	0.109	0.913
	Non-Institutionalized	159	33.49	05.60	0.444		
Self-Acceptance	Institutionalized	141	34.58	05.93	0.499	2.283	**0.023**
	Non-Institutionalized	159	33.12	05.16	0.409		
Psychological Wellbeing overall	Institutionalized	141	02.26	44.25	3.726	2.543	**0.011**
	Non-Institutionalized	159	02.41	49.13	3.896		

Degree of freedom=298

institutionalized orphans. Though the significant difference was not observed for the dimension of autonomy,personal growth and purpose in life dimensions but the mean score was found to be higher for the institutionalized orphans.

There are lot of research studies indicating mental health problems in institutionalized orphans but there is no study showing comparison among institutionalized and non-institutionalized orphans. Adolescents who are brought up in institutions are more confident than those living with families. These latter tend to reflect more about their abilities, are guided by the opinion of the reference group in forming attitudes to themselves and are ready to adequately assess the level of their capabilities. Psychological wellbeing among adolescents of institutionalized orphans may be a defense mechanism to deal with the adversities of life.

Table 5 showing correlation between the dimensions of character strengths and psychological wellbeing among orphans. Results indicating that dimensions of wisdom and knowledge was significantly positively correlated with dimensions of environmental mastery, purpose in life, self-acceptance and overall psychological wellbeing but the correlation with autonomy, personal growth, positive relation with others was not significant. Dimensions courage, humanity, temperance, transcendence, and overall character strengths showed significant positive correlation with environmental mastery, personal growth, positive relation with others, purpose in life, self-acceptance and overall psychological wellbeing but the correlation with autonomy was not significant with any of these dimensions. However dimension justice was significantly and positively correlated with

Table-5: Correlation between dimensions of character strengths and psychological wellbeing among orphans N = 300

Dimensions	Auto-nomy	Environ mental Mastery	Personal Growth	Positive Relation with Others	Purpose in Life	Self Acceptance	Psychological Wellbeing Overall
Wisdom and Knowledge	.096	.212**	.068	.098	.154**	.168**	.226**
Courage	.078	.264**	.170**	.157**	.153**	.193**	.289**
Humanity	.089	.224**	.137*	.167**	.137*	.169**	.263**
Justice	.042	.191**	.030	.077	.098	.090	.152**
Temperance	.011	.189**	.120*	.134*	.174**	.208**	.240**
Transcendence	.111	.313**	.169**	.214**	.159**	.268**	.352**
Character Strengths overall	.086	.272**	.135*	.163**	.172**	.217**	.298**

**p<0.01, *p<0.05

dimensions of environmental mastery and overall psychological wellbeing.

The regression summary table showed a significant impact of character strengths on

Table-6. Multiple regression analysis for the virtues of character strengths in relation to psychological wellbeing among institutionalized orphans N=141

R	R square	Adjusted R square	Std error of the estimate	F	Significance
.46	.22	.17	19.92	5.22	.000
Variables	**Standardized beta value**			**t-value**	**Significance**
(Constant)				.17	.86
Wisdom and Knowledge	.00			.01	.99
Courage	.09			.37	.71
Humanity	.18			.87	.38
Justice	-.17			-.86	.39
Temperance	.29			1.31	.19
Transcendence	.41			1.58	.11
Overall Character Strengths	.31			.29	.77

Dependent variable: psychological wellbeing

Table-7. Multiple regression analysis for the virtues of character strengths in relation to psychological wellbeing among non-institutionalized orphans N=159.

R	R square	Adjusted R square	Std error of the estimate	F	Significance
.38	.15	.11	15.31	3.73	.001
Variables	**Standardized beta value**		**t-value**		**Significance**
(Constant)			.52		.60
Wisdom and Knowledge	-.09		-.26		.79
Courage	.44		1.65		.10
Humanity	.06		.28		.78
Justice	-.26		-1.09		.28
Temperance	-.07		-.32		.74
Transcendence	.47		1.8		.06
Overall Character Strengths	.31		.26		.79

Dependent variable: psychological wellbeing

Table-8. Multiple regression analysis for the virtues of character strengths in relation to psychological wellbeing among overall orphans N=300

R	R square	Adjusted R square	Std error of the estimate	F	Significance
.408	.17	.15	17.81	8.33	.000
Variables	**Standardized beta value**		**t-value**		**Significance**
(Constant)			.30		.76
Wisdom and Knowledge	-.03		-.14		.88
Courage	.28		1.54		.12
Humanity	.15		.95		.34
Justice	-.19		-1.27		.20
Temperance	.14		.91		.36
Transcendence	.50		2.76		.00
Overall Character Strengths	.44		.56		.57

Dependent variable: psychological wellbeing

psychological wellbeing ($F = 5.22$, $p < .000$) for the sample of institutionalized orphans. The value of R^2 (.22) shows that character strengths can appropriately account for 22% of variation in psychological wellbeing. The standard beta value shows that all the six virtues didn't show any significant prediction for psychological wellbeing individually.

A significant impact of character strengths on psychological wellbeing was shown in regression summary table as obtained F-value is significant ($F=3.73$, $p<0.01$) for the sample of non-institutionalized orphans. Findings showed 15% of variance ($R^2 = .15$) in psychological wellbeing due to character strengths. The six virtues didn't show any significant prediction for psychological wellbeing individuallyas indicated by standard beta value.

In the above table multiple regression analysis findings showed that character strengths is the significant predictor of psychological well-being for the sample of male orphans, as obtained F-value is significant ($F = 8.33$, $p < .000$). The value of R^2 (.17) shows that character strengths can appropriately account for 17% of variation in psychological wellbeing. Among the six virtues transcendence ($b = .50$, $t = 2.76$, $p < .01$) was a stronger predictor for psychological wellbeing.

Previous research supported the current findings, Jane and colleagues[22] reported character strengths as a strong predictor of life satisfaction.Theoretical formulations suggest a possible positive correlation between character strengths and psychological wellbeing. Seligman[23] has argued that happiness is derived from three major paths. The first route involves experiencing as many of life's pleasures as possible and results in immediate happiness. The other two routes produce prolonged and deeper forms of satisfaction. The second path, also termed the good life, involves becoming deeply involved in those activities that realize strengths and promote good feeling. The third, the meaningful life, involves pursuing a path in which a cause supplies a sense of commitment to something greater than oneself. In this way, embracing a concern for the world beyond the self is fundamental to achieving the most lasting form of wellbeing. Transcendence strengths such as purposefulness, hope and appreciation of excellence, involve aspects of both the meaningful life and the good life and, in this way, extrapolate to subjective well-being.

Conclusion

Character strengths and psychological well-being are important in preventing the onset of mental health problems as well as potentially lessening the severity of existing mental health problems. They bothare vital in developing efficient problem solving skills, building and maintaining interpersonal relationships and setting realistic goal, all of which greatly enhance an individual's ability to perform and contribute meaningfully in daily life. The present study was carried out to examine Character strengths and psychological wellbeing of institutionalized and non-institutionalized orphan Kashmiri adolescents. Institutionalized orphans showed more character strengths and psychological wellbeing than non-institutionalized orphans. Character strengths were positively correlated with psychological wellbeing among orphans. Character strengths also predicted psychological wellbeing. Although the present study has some limitations, however, it carries enormous implications for orphan's wellbeing and betterment in conflict areas.It will be important for future research to explore the relationship among different strengths and to identify combinations of strengths that strongly predict psychological well-being. Some strengths may amplify or attenuate the effects of other strengths.

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Original Article

Self-Esteem Among Adolescent Girls with Congenital Visual Impairment

Rishi Panday[1], Pradeep Kumar[2], Aishwarya Raj[3]
[1]Department of Social Work, Jamia Milia Islamia University, Jamia Nagar, Delhi;
[2]Psychiatric Social Work Unit, State Institute of Mental Health, PGIMS, University of Health Sciences, Rohtak;
[3]Student Wellness Centre, AIIMS, New Delhi
Contact: Aishwarya Raj, E-mail: aish24raj@gmail.com

Abstract

Background*:Adolescents girls with visual impairment face many challenges in their life which is related to participation in community, study in school, and learning social skills, relationships with people, activities of daily living, leisure time and mobility.An adolescent girl with visual impairment has to deal with the difficulties of her physical impairment as well as the specific difficulties of adolescence. Adolescents with visual impairment experience severe psychological and behavioral problems specifically during adolescence.* ***Aim:*** *To examine self-esteem among adolescent girls with congenital visual impairment.* ***Methods and Materials****: A cross sectional survey design was adopted for the study and conducted at Blind school Brij KishorNetrahin Balika Vidyalay, Ranchi, Jharkhand. A total of 30 girls were interviewed using socio-demographic data sheet, Rosenberg self-esteem scale.* ***Results and Conclusion:*** *The result of the study indicated low level of self-esteem in adolescent girls with congenital visual impairment. This research can help in improving self-esteem of adolescent girls along with quality of life. It can also help in rehabilitation of adolescent girls with visual impairment.*

Key Words: *Visual Impairment, Self-Esteem, Adolescence, Parents.*

Introduction

Adolescence is the most important stage as well as challenging period of growth in human life. It includes both experimentation with outer world and adjustment with biological and psychological change. These changes in adolescents are related to biological process as well as psychological and social processes. The rural adolescents suffer more problems than urban adolescents and this highlights the need of community based mental health care.[1] In the early adolescent years some physical and biological development begins. In this stage where adolescents undergo dramatic changes in their bodies, boost in gonadal hormones apart from changes in brain architecture. The major biological changes that occur are in the frontal lobes of the brain and are responsible for the strength of mind, decision, touching directive, organization and planning.[2]

Eye is one of the most important sensory organs in human body which accounts for a very large segment of the total information available to persons through their senses. Blindness is defined as "absence or loss of visual ability or perception of visual stimulus".[3,4] People who can't see in the world by birth face more challenges in growth and development of their life. Individuals with visual impairment are an integral part of society but lack of sight bars these individuals participate with full proficiency as they can't perceive the real world. Individuals with visual impairment face difficulties regarding social and physical isolation and these issues create behavioural and adjustment related problems in the society. Depression, anxiety and

stress were found to be higher among adolescent girls with visual impairment in comparison to sighted.[5] Adolescents with visual impairment have faced more challenges due to functional restrictions in the area of mobility and orientation so they perceive more stress in their personal and social development in comparison to sighted children. They are less social and more egocentric so their self-esteem is low in comparison to sighted children.[6] It was also reported that children with visual impairment have limited facial expressions and lower response levels to stimuli in comparison to their peers[7] (Dorn 1993). Self-esteem may be defined as "feeling an individual has about him/herself that affect the way he/she views him/herself, including self observations, perceived feelings of him/her, and self-knowledge"[8] (Schwalbe & Staples, 1991). Self-esteem plays a very important role in development of visually impaired adolescent girl and relationship with family members, relatives, neighbours, friends and teachers.

An adolescent girl with visual impairment has to deal with the difficulties of her physical impairment as well as the specific difficulties of adolescence. Social supports are highly associated with self esteem, Good Social support especially from friends improve the self esteem of children with visual impairment[9] (Lopez et al. 2001). Children with visual impairment who get opportunities in leisure activities and social activities with friends and family members improve their self-esteem.[10] Environment of living condition, protection from danger and freedom to explore have known to be improving self-esteem of children and adolescent with visual impairment[11]. Self-confidence is most important ability to improve the self-esteem of children with visual impairment for this taking help of friend, family member and involving them in leisure time activities.[12] Girls with visual impairment have low self-esteem in comparison with boys with visual impairment.[13]

As a child goes through adolescence, he or she is subjected to face many different challenges, stressors, and opportunities as well as high self-esteem and handling these challenges properly. Through adolescence, schools should emphasise on preparing students to become a comfortable part of the general population, easily adjusting to their surroundings. Person with visual impairment also experience significant levels of discrimination within the community and there is a sense that family members are often ashamed of their disability, sometimes hiding them away.

Aim

To examine self-esteem among adolescent girls with congenital visual impairment.

Methods and Materials

This study is based on cross sectional survey design method.The study was conducted at Blind school Brij Kishor Netrahin Balika Vidyalay, Ranchi, Jharkhand from the period of to November 2013 to January 2014. Aim and objective of the research study was explained to the participants and the verbal consent was taken by the participants. 30 respondents were recruited purposively. Socio-demographic data sheet and Rosenberg Self-Esteem Scale were applied.

Socio Demographic Data sheet: Self prepared socio-demographic data sheet were used to obtain background information like age, religion, category, residence, type of family and occupation etc.

Rosenberg Self-Esteem Scale[14]: The scale is a ten item Likert scale with items answered on a four-point scale - from strongly agrees to strongly disagree. The higher the score show the higher the self esteem.

Results

Table-1. Sociodemographic Profile

	Variables	Frequency	Percent
Religion	Hindu	10	33.33
	Muslim	7	23.33
	Christian	10	33.33
	Other	3	10
Category	General	19	63.33
	OBC	05	16.66
	SC	01	3.33
	ST	05	16.66
Residence	Rural	17	56.66
	Urban	11	36.66
	Semi-Urban	2	6.66
Occupation	Government Job	5	16.77
	Private Job	6	20
	Business	5	16.77
	Any other	14	46.77
Family	Nuclear	19	63.33
	Joint	11	36.66

The above table showed that majority of population belong to theHindu and Christian religion. More of the responded belong to the general category. Majority of the population live in rural area. Majority of people live in nuclear family. Majority of people belong in government job.

Table-2. Mean age of sample

Variable	Mean ± SD
Age	14.93 ±2.03

The mean age of respondents is14.93 ±2.03.

Table-3. Mean score on Self-esteem Scale

Variable	Mean ± SD
Self-esteem	13.18 ±2.13

The mean self-esteem of adolescent with visual impairment is 13.18 ± 2.13.

Discussion

Adolescence is a very challenging period in human life because they face much type of challenges such as physical, psychological and social. Biological change also affects adolescent's behavior and attitude. During the adolescence, girls reported low level self-esteem in comparisons to adolescent boys. Similar findings were reported by Quatman & Watson[15] that during adolescence females report lower self esteem in comparisons to male adolescents. A Turkish based similar finding was reported by Bolat et al[16] stating that adolescent with visual impairment had higher level of anxiety in comparison to sighted. Visually impaired children have delayed motor and social skills as a result of inadequate early experiences and this may contribute to inadequate independence and socialization[17]. Apart from physical impairment, visually impaired adolescents have more orientation problems due to their developmental characteristics and their probability of having accidents is higher than that of the general population. McAnarney[18] stated that adolescents with visual impairment generally have difficulty in being away from their families. The author suggests that this may result from physical inadequacy and the dependency of the visually impaired person on his/her family, together with the family's disapproval of the disabled individual's separation. The finding of study shows majority of population faces problem of low self-esteem. In this study majority of population belongs rural background, nuclear family and main occupation of the family is agriculture. People belonging to rural area due to illiteracy were not aware of their rights and were not aware of the government welfare scheme, they did not give proper training to their child and did not know how rear a visually impaired child. In nuclear family care burden was also present because parents did not have sufficient time for children. In rural area children experienced a significant level of discrimination within community and family members and sometimeseven family members are often ashamed of their disability. Majority of population belongsto agriculture occupation so these families always face economic problemsand these factors influence the development of these children. Later on impact of these factors on child's self-esteem becomes low because they do not get sufficient love and affection from their home. Family members always think that they are not productive and just a burden in family. Criticism, lack of love and affection and discrimination create the problem of low self-esteem in adolescent with visual impairment. Self-esteem can shape how we develop during childhood and affect who we become as adults. During childhood and adolescence, self-esteem begins to develop. As such, it is important for adolescents to develop high self-esteem in order to better their chances for a happy and satisfying adulthood on the other hand students with visual impairment encounter a more challenging adolescence than many others.

The findings of this study suggest that education of adolescent girls with visual impairment is more helpful in improving self-esteem. To achieve a good self-esteem, adolescent with visual impairment need more experiences of cooperation, independence in mobility and more opportunities to attend activities with their peers. Furthermore, there is a need for a better understanding of the emotional and social needs of adolescent with visual impairment in order to improve their self-esteem.

Limitation and future direction

The study sample was relatively small and it was taken from only one school.The psychosocial problems of girls with visual impairment need to be studied further in order to fill the gap in the literature

and to plan appropriate psychosocial interventions.

Conclusion

The finding of the present study indicate that low self-esteem is found in adolescent girls with visual impairment.This study ishelpful for the parents to know more about adolescents with visual impairment along with their self-image and how they perceive things around them.When parents know about the self-esteem of adolescent with visual impairment then parents can help them, encourage them and also can critically deal with the situations. The Study could be helpful for the policy makers, researchers,and professionals, specially for the special educators working with person with visual impairment forplanning, management, therapeutic intervention and rehabilitation. How the visually disabled adolescents feel about themselves is very important for much focused part of the treatment.

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Original Article

Psychotherapy in Indian Setting

Sandeep Choudhary,[1] M. Dahuja,[2] S. Agarwal,[3] M. Sahay,[4] S. Sudarsanan[5]

[1,3,5]Department of Psychiatry, Subharti Medical College, Meerut-250005 (UP)

[2]Department of Psychiatry, Shaikh-ul-Hind Maulana Mahmood Hasan Medical College, Saharanpur-247001 (UP)

[4]Retired Clinical Psychologist, Maulana Azad Medical College & associated G.B.Pant Hospital, New Delhi

Contact: Sandeep Choudhary, E-mail:drsandeepchoudhary30@gmail.com

Abstract

Background: *This article reflects the current use of CCT in an Indian setting keeping in mind the wide differences in Indian and Western culture from where the origins of CCT actually took place, for instance the traits of dependence in Indians v/s an individualistic Western society.**Aim:** To observe the impact of CCT on an Indian patient and reflect upon various modifications required in methodology in Indian setting thereby helping our Post -Graduate (PG) students in learning psychotherapy.* ***Methods:*** *Our client presented with great emotional instability due to her disturbed married life. She was already receiving a large number of psychotropics and facing their associated side effects. Further in lieu of a large number of associated Psychosocial stressors, she was offered CCT sessions with a hope of reducing the amount of psychotropics and providing relief from her problems using this psychotherapeutic technique.* ***Results:*** *At the end, she seemed to become more self-reliant. Her psychotropics got reduced from six different compounds to just four and also the dose got reduced. Her HAM-A scores came down to 13 from 36 andher HAM-D scores came down to 8 from 25.* ***Conclusion:*** *The role of family and Indian culture restricts complete "individualism" and the concept of "Guru-Chela relationship" between therapist and client can never be completely dissolved. Patients who are on multiple psychotropics and their problems are associated with significant ongoing Psychosocial stressors, show improvement when added with Psychotherapy sessions and also their requirement/ dependence on psychotropics get reduced thereby reducing the number and amount of psychotropics prescribed.*

Key words: *Psychotherapy, Client-Centered Therapy (CCT), Person Centered Approach (PCA)*

Introduction

Psychotherapy is not only one of the most neglected aspects in the domain of patient care and their well-being; but in the domain of MD-Psychiatry-training as well. The lacuna is broadening, and it's very difficult to be filled in the decades to come, unless we sensitize our young-psychiatrists towards it. Although, few of the novel psychotherapeutic techniques are being used by many young psychiatrists but they are not well known to the whole world through any common platform.There is a dearth of pure form of Psychotherapy practice in India due to several reasons in present time. So, let us begin with a healthy discussion on the same issue and explore the basics and roots of Psychotherapy, especially CCT in this article. CCT was founded by Carl-Rogers.[3] The hypothesis behind CCT is that it is a self-directed growth-process with three core therapeutic conditions. ***Genuineness, realness, or congruence –*** The more the therapist is himself or herself in the relationship, putting up no professional

front or personal facade, the greater is the likelihood that the client will change and grow in a constructive manner.[3]This means that the therapist is openly being the feelings and attitudes that are flowing within at the moment.[3] ***Unconditional Positive Regard –*** The second attitude of importance in creating a climate for change is an acceptance, or caring, or prizing-otherwise called the 'unconditional positive-regard.'[3]When the therapist is experiencing a positive, acceptant attitude toward whatever the client is at that moment, therapeutic movement or change is more likely to occur.[3] ***Empathy –*** The third facilitative aspect of the relationship is empathic understanding. This means that the therapist senses accurately the feelings and the personal meanings that the client is experiencing and communicates this understanding to the client.[3]

Case Description

Now, let us talk about our client facing real life situations in her day-to-day life. Mrs. ABC, a 35years old, Hindu woman, married for the last 9 years, got separated from her husband about 7 years ago. She and her family members filed a domestic-violence case against her husband and won the legal suite. The court had ordered her husband to pay a fixed monthly amount to meet her daily expenses, but he failed to do so. They were expecting that during the next hearing, her husband would be imprisoned. But, the family members of our client were strongly willing for divorce and a case regarding the same is also ongoing in the court of law. She had been fighting the legal battle of separation and for relief from this stress visiting multiple psychologists and psychiatrists, and one such psychologist referred her to us. She lived in Meerut city, and her parental family was a nuclear type of family consisting of her parents and one younger brother. She was unemployed. She was accompanied by her mother during her first and in most of the subsequent consultations.

During her first consultation comprehensive information was obtained from mother. Her mother had a normal antenatal and postnatal period. The delivery went uncomplicated and our client was born in a normal manner. She had poor adjustment to maternal separation along with stranger-anxiety and related problems since beginning. As informed by mother, she had been a stubborn, impulsive, aloof, jealous of her younger brother, and a short-tempered child since early years.

As informed by mother, our client's play school teacher was over strict. She was quite scared of going to school since starting and was average in studies. She studied upto 12th class and made very few friends during her school days. She was involved in limited extra curricular activities and hobbies. She got married in 2006 and separated in 2008. Since then, the court hearings between the couple has unnecessarily stretched their disturbed married life. She would consider her state to be an illness; which she attributed to her husband and in-laws' behavior towards her.

We consider her problems to lie under the categories of Anxio-Depressive Disorder [F-41.2] with Cyclothymia [F-34] [as per ICD-10 (International Classification of Diseases-10th Edition) criteria].[4]

Indications for psychotherapy in our client

She was excessively anxious and hostile on multiple psychotropics at the time of referral. She was offered psychotherapy sessions and advised that another medication to her cocktail might affect her adversely.

She readily accepted this treatment option, and hence CCT was started with the client as a person who was fighting with her real life conflicts.

Realizing the importance of both the biological phenomena involved in psychiatry and the psycho-social contribution to our client's problems, this attempt was made with the belief that it could be possible in an Indian setting as well. A single therapist was the Drug-Prescriber and a Psychotherapist, and was accompanied by a beginner as an observer/co-therapist.

Psychotherapy Notes

Patient's mother always used to talk to the client like: "I want to be your best friend." Or "Let me do that for you because you aren't capable of doing it yourself." Mother and daughter often used to say that their lives are linked to each other. The patient also stated that her parents used to stay separately because of her mother's profession.

According to our client, her in-laws not only had conflicts with her; but were very eager to ruin their own son's life as well, which was a very strange

attitude from parents towards their son. She also mentioned that he had been exploited for money by his family. Our client was very sure that after such a long period of their separation, her husband might have never been inclined towards any other woman as well.

Difficulties faced during the combined approach

1. In one instance, a senior gynecologist was asked to give opinion upon her physical health, where as she tried to "cross the therapeutic boundaries" in between the therapy. The gynecologist violated the therapeutic boundaries and this step could have prematurely ended her CCT sessions with us. But, it was noticed that client's adherence increased in a non-judgmental psychic environment with an unconditional positive regard and other characteristics of CCT.

These were few things we shared with the client during this stage in our sessions-

Gynecologist: You should patch up with your husband.

Client: Let me ask my therapist once Ma'am.

After few days at the session,

Client: What do I do Sir? Ma'am has asked me to patch up with my husband.

Psychotherapist: It's your own decision dear. Neither your gynecologist nor we can decide it. We are with you in whatever decision you make.

Client: Yes sir. I will think upon it wisely. It is a life-changing decision. I need time. Thank you!

2. Once the client displayed the tendencies to harm herself when we had to directly intervene and break the psychotherapy rules by giving her direct advice keeping in mind that she might attempt suicide in such a situation. This alarming situation resolved soon and the momentum of CCT was not disrupted.

Here are few of our narrations from the sessions during this phase of the crisis situation-

Client: Sir, I will end my life. I am very frustrated.

Psychotherapist: No, you can't do this to yourself. You have to be strong enough to handle this situation.

After the session,

Co-therapist: Pardon Sir, in this situation we couldn't let her die; but, at the same time we gave her direct advice. Isn't it against CCT rules?

Psychotherapist: Yes, dear. We did violate our rules. But, saving her life was our priority. We have to prevent such alarming situations in future.

3. Mother initially used to seek direct advice, which was preventing us from following the psychotherapy ethics. Slowly and gradually, she realized the importance of independent psychotherapy sessions as well.

These were few of the things she initially used to request us quite frequently-

Mother: Sir and Ma'am, I have a request. Please ask her to tell you about the last court hearing, about her behavior yesterday and about things which she might be hiding from us. I think she believes you and has more trust in both of you than me.

Psychotherapist: Ma'am, we request you to let her be what she is with us. We don't want to break the confidentiality of our sessions. Sorry! I beg you not to intervene in between our sessions. It will be against our ethics.

Mother: Extremely sorry Sir! I'll keep this in mind in future.

On seeing the client growing more independent in between the sessions at home as reflected by her day-to-day activities and decision-making, mother also realized that the therapy is actually worth-spending time and money upon. At the end of sessions, she realized that now her daughter is more stable, inspite of the irreversible tragic circumstances and situations in her life.

Benefits gained from the combined approach

She became more compliant to the therapy. She appeared to be gaining stability and self-confidence with this approach.

With increasing number of psychotherapy sessions, it was observed that her medication requirement had decreased.

Results

Objective Changes Observed in the Patient before and after Therapy

Table-1: Hamilton Anxiety Rating Scale[1]

S.No.	Subset	Initial Scores	Final Scores
1.	Anxious mood	3 (severe)	1 (mild)
2	Tension	3 (severe)	1 (mild)
3.	Fears	3 (severe)	1 (mild)
4.	Insomnia	0 (reports increased sleep)	0 (reports increased sleep)
5.	Intellectual	3 (severe)	0 (absent)
6.	Depressed mood	3 (severe)	1 (mild)
7.	Somatic (muscular)	3 (severe)	2 (moderate)
8.	Somatic (sensory)	2 (moderate)	1 (mild)
9.	Cardiovascular symptoms	3 (severe)	1 (mild)
10.	Respiratory symptoms	2 (moderate)	1 (mild)
11.	Gastrointestinal symptoms	2 (moderate)	1 (mild)
12.	Genitourinary symptoms	3 (severe)	1 (mild)
13.	Autonomic symptoms	3 (severe)	1 (mild)
14.	Behavior at interview	3 (severe)	1 (mild)
***Total Score**		**36 (Extreme)**	**13 (Mild)**

Table-2. Hamilton Depression Rating Scale (HAM-D)[2]

S. No.	Subset	Initial Scores	Final Scores
1.	Depression	4 (Extreme symptoms)	1 (Mild Sadness)
2.	Feelings of guilt	2 (Ideas of guilt)	1 (Self-reproach, feels she has Let people down)
3.	Suicide	3 (Suicidal ideas or gestures)	0 (Absent)
4.	Insomnia (initial)	0 (Absent, rather there was increased Sleep)	0 (Absent)
5.	Insomnia (middle)	—Do—	—Do—
6.	Insomnia (Delayed)	—Do—	—Do—
7.	Work and interests	4 (Unable to work.	0 (No difficulty).
8.	Retardation	0 (Absent)	0 (Absent)
9.	Agitation	2 (Frequent)	1 (Occasional)
10.	Anxiety-Psychic	3 (Apprehensive Attitude)	1 (Tension and irritability)
11.	Anxiety-Somatic	2 (Moderate)	1 (Mild)
12.	Gastric symptoms.	1 (Mild)	0 (Absent)
13.	Somatic symptoms	1 (Mild)	1 (Mild)
General			
14.	Genital symptoms	2 (Severe)	1 (Mild)
15.	Hypochondriasis	1 (Self-absorption Bodily)	1 (Self-absorption-Bodily)
16.	Weight Loss	0 (Absent). Rather gain	0 (Absent)
17.	Insight	0 (No loss)	0 (No loss)
***Total Score**		**25 (Very severe)**	**8 (Mild)**

Discussion

For the students of Psychology and Psychiatry especially in India, the Bhagavad-Gita is a divine literature, which has also been labelled as one of the best psychotherapeutic apparatuses of all times in the world, by JS Neki.[5] It offers a valuable case-study for lessons in psychotherapy, resolution of conflicts and successful resumption of action from a state of acute anxiety and depression that precipitated inaction.[6]

The Depiction of Arjuna and Krishna is a dialect of psychotherapy in an Indian setting. Arjuna and his 4 brothers "also called as Pandavas" were fighting a war against their 100 cousin brothers "also called as Kauravas" in the battle of Kurukshetra. Arjuna had lost his wish to win the battle of "the Truth" against "the Evil" when he saw his own cousins and other relatives standing in front of him ready to fight back. Here Krishna, not only a Charioteer, but a simulated Psychotherapist

counselled Arjuna in a poetic-style and this conversation evolved into one of the longest poem of Indian mythology "The Mahabharata" of which "Bhagavad-Gita" is an important part.Arjuna was a vulnerable patient and Lord Krishna, a competent therapist at that moment. Lord Krishna had a single session therapy with him with no specified time limit.[6]

The therapist was a relative of the patient. Therapist stayed with the patient throughout the times of crisis. Even if, Krishna was away from Arjuna for many moments; their bond with each other never separated them psychologically from each other. Patient had an immense belief in the therapist and considered him as a loyal friend, a true philosopher and a moral guide (Guru -Shishya Relationship).[7]

Many including Neki have suggested that the relationship of a therapist and his patient is that of Guru and Chela (disciple) in the Indian context and is without the Western transference.[8] Guru is a self-disciplined person who helps directly in the decision-making process. Vidya Sagar, another well-known clinician of North-India also reported a great success using this therapeutic model and is well known for Bengali renaissance in that era.[9]Anxiety symptoms in Arjuna at the time of presentation during the war were weakness of limbs, dryness of mouth, shivering of the body and goose skin.[6]Whereas, depressive symptoms were negative thoughts where he did not desire any victory, kingdom, pleasures etc.[6] He felt Guilty, as he was preparing for the sinful act of killing his own kins. He also had Death wishes and wanted to be killed in the war. The Therapeutic-process in this epic used by Krishna was the balance between the facts and eternity (i.e., life and death cycle) and the duty to perform (i.e., Dharma).[6] It decreased Arjuna's guilt and finally resulted in action (i.e., Karma) in an intelligent way (i.e., Gnanakarma) without any greed of its fruits (Nishkama Karma); as an ultimate option at that particular time.[6]

Chapter–4 Verse-34-Krishna instructed Arjuna to become humble so that the knowledge is received by him.[10]In his questioning, he had been fighting with his teacher instead of fighting the battle. Krishna was teaching Arjuna not to resist but to become humble. Then clarity of mind was easily attained. Resistance was also one of the greatest barriers found in Psychotherapy which needs to be dealt with to achieve progress in Psychotherapy.[10] The therapist was often in a peculiar position; if he gave advice and client ignored it. Hence, the therapist should keep his suggestions to himself, thereby helping the client to sort out his confusions and his conflicts and to come to his own conclusions. Progress occurs only to the extent that one goes beyond his resistance, for resistance is holding on to that which one already is. Surya[11] and Jayaram[11-12]were amongst the first few clinicians who opposed the utility of Western Psychotherapy in the Indian Context. They emphasized on the importance of the local language and a direct support rather than the intrapsychic explanations. The movement of Psychotherapies in India started during the British-Period. Psychotherapy of Western-origin has been criticized quite often in India.

The various Cultural-impacts[13-19]on psycho-therapy in an Indian setting have always been keenly observed and firmly established by many mental-health workers across the nation. Hence, here we raise a question of how to be client-centered when the patient himself or herself doesn't want to become independent.

Lim and Iwama[18] explain that Asian clients' lack of initiative and passive behavior may be due to a culture where stillness is more valued than actively Doing. The way the participants described patients taking the sick-role and being passive recipients in his study, this can also be seen as a result of cultural factors. In addition to this the participants described that some patients don't have the drive to be independent. The participants explained that this is because of a culture where the family helps out when the person falls ill. In western parts of the world independence is considered a central concept in rehabilitation.[19]

Growth of a young-psychiatrist in psychotherapy-an attempt!

Co-Therapist's final notes

The co-therapist here experienced that different cultural factors in India influenced the final outcome in the client in CCT quite significantly. In this process, the co-therapist learnt many new things from the main therapist in her first exposure to the psycho-therapeutic world.

The co-therapist observed that on undergoing several upheavals and ventilation and catharsis during the sessions, the client crossed the heavy tides

with a great deal of efforts.

On the whole, our client is ambivalent[20] at present. One part of her seeks help and another part is self-reliant, which is sensed out off her missed calls to the therapists at the 7th month of sessions and also by her asking for an advice on some issues and then withdrawing her wish, saying, "she knows what is to be done".

The concept of Otto-Rank; "will" v/s"counter-will"[21] perfectly fits in here, as the will to be with her husband and the counter-will to leave him did resolve finally.

The temptation to reveal the co-therapist's "will" to the patient was prevented by the main psycho-therapist. At the end, the co-therapist being a beginner realized the importance of this aspect of psychotherapy, as the client herself made a self-realization to the conflicts in her life and their solution to the "will" and her own "counter-will". May be, if the co-therapist would have imposed her will upon the client, the resistances would have increased in each session and would prematurely end up the therapy and would lead to poor outcome.

And, then came a turning-point in the therapeutic process. The co-therapist received an unexpected call from the client after 5 months of no contact with her where she requested for a session. She presented to us again along with her mother, where she had a mixed feeling of adequacy, increased self-esteem, able to face her in-laws and husband and people for her job and friend-circle initially. Later on, when the court hearings started occurring more frequently, client's anger and frustration towards husband had increased many folds. This time, mother also tried to intervene in the session and therapist also failed to resist giving direct advice to the client, as therapist definitely plays a role of higher-figure for the client in her life. This time, the session also could not be terminated on time. Client had even failed to comply to the prescribed medications properly since 1-2 months. Learning all this; at the end of the separation from the therapists made the client initially feel as if the child removed from her mother's womb, but later it led to a new birth of the client. Also, both therapist and co-therapist realized that family systems and the dependent Indian-culture and Guru-Chela relationship is inevitably always faced in psycho-therapy in Indian-setting. Hence, moulding and re-shaping of therapeutic process always brings in evolution of a new-style of indigenous psycho-therapy.

Finally, at the time of sending this article (4 months after the last contact), the co-therapist made a phone call and talked to the client and her mother. As informed by them, our client was coping quite well with her ongoing circumstances. She no more feels the need of formal sessions to deal with her day to day issues, talks to her mother whenever she faces any crisis, and finally reported that she takes her own decisions independently.

Therapist's final-words to co-therapist

All in all, "The only person who is educated is the one who has learned how to learn and change"-Carl Rogers.[1]

Here, at this stage; the therapist has not only made the client more self-reliant, but the co-therapist has also become more self-confident for her future life-journey.

Hence, it was Psychotherapy for both the client as well as the co-therapist.

Therapist's final comments

He feels as if there is a new-beginning, with all new hopes and aspirations to this end of a turbulent life-journey; and yet, a lot more needs to be explored.....!

The article is open for healthy criticism; in hope of growing the Indian-Psychotherapy, with the blessings of its great pioneers in our country.

Acknowledgements

We would like to thank our client and her family who cooperated fully and gave all necessary details regarding her; and for their applauding level of trust and patience that encouraged us to help the client in the best possible way.

Conflicts of interest

Our client was charged 500 INR for each Client Centered Therapy (CCT) session which she paid in few of the sessions only. Then, the mother of the client got exhausted with ongoing session charges; hence, we became a bit flexible regarding charges, for us completion of her therapy sessions was more important than the money. At times, mother paid less. At times, the client did not pay at all. Hence, there was a lot of variability in terms of charges.

Ethical Approval - Was not sought as it was based on a single client for an Individual Psychotherapy. Although consent was obtained from the client for publishing her case without revealing her identity.

Authors' Contributions to the Work

1. Sandeep Choudhary. A trained Psychotherapist in CCT who received his CCT training from the renowned Centre of Carl Rogers in California.(Center for Studies of the Person, La Jolla, California, USA). He was the primary Psychotherapist of this case.
2. Malvika Dahuja. A Post Graduate student of Psychiatry and Co Therapist of this client at the time of therapy sessions in Subharti Medical College, Meerut (UP), India.
3. Supriya Agarwal. Associate Professor, Department of Psychiatry Subharti Medical College, Meerut.Reviewed this article in detail and suggested appropriate changes.
4. Manoranjan Sahay. A retired senior and a renowned Clinical Psychologist of India reviewed the whole article and suggested appropriate changes in the article.
5. Sukumaran Sudarsanan. Ex Professor and Head and a senior and renowned Consultant Psychiatrist of Subharti Medical College, Meerut (U.P.), India reviewed this article in great detail.

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Original Article

Phenomenology of sexual dysfunction in drug-naive females with depression

Pritha Roy, Bandna Gupta, P.K. Dalal, Anil Nischal, Adarsh Tripathi
Department of Psychiatry, King George's Medical University, Lucknow, U.P., India
Contact: Bandna Gupta, E-mail: drbandna@yahoo.co.in

Abstract

Introduction: *Sexual dysfunction is frequently reported by females suffering from depression. Antidepressants used for treating depression have known sexual side effects. Research studies are available describing the prevalence, pattern and types of sexual side effects reported by depressed females taking antidepressant treatment. Not much work is done to study the types of sexual dysfunction and its phenomenology in drug naive females of depression.* ***Objective:*** *To assess sexual functioning of sexually active drug naive females of depression.* ***Method:*** *Fifty married drug female patients of depression, with self-reported premorbid normal sexual functioning were assessed on female sexual function index (FSFI) questionnaire.* ***Results:*** *Thirty patients of depression (60%) were found to have sexual dysfunction, majority of them having dysfunction in domains of arousal, desire and lubrication and most having decreased orgasm and satisfaction. As per FSFI domain cut-off scores, 86% had decreased desire, 88% had decreased arousal, 70% had decreased lubrication, 68% had decreased orgasm, 76% had decreased satisfaction and 44% had pain during sexual activity. Total and domain scores were not influenced by socio-demographic and clinical variables.* ***Conclusions:*** *Sexual dysfunction is quite prevalent in those suffering from depression. All domains of sexual functioning are impaired.*

Keywords: *Sexual functioning, Females, Depression*

Introduction

Prevalence of sexual dysfunction (FSD) in females in general population varies from 43 to 69%.[1] Psychiatric disorders and psychological problems adversely effects sexual functioning mainly in the domain of orgasm and sexual satisfaction.[2,3] Prevalence of sexual dysfunction in female population suffering from depression ranges from 35-50%, while those on antidepressant treatment report slightly higher prevalence in the range of 60–80%.[4,5] Sexual response and activity are modulated by numerous neurotransmitters including dopamine, serotonin, norepinephrine, acetylcholine, nitric oxide and hormones like, prolactin, testosterone and estrogen.[6] Factors leading to imbalance in these intricate systems are associated with FSD. In depression, there is neurotransmitter imbalance followed by failure of these functional systems, which attributes to symptoms of sexual dysfunction. Since depression and sexual dysfunction are syndromes interrelated through underlying similar mechanisms, they form positive feedback pathological cycles.

Bonierbale et al conducted the ELIXIR Study for evaluation of sexual dysfunction in 4557 depressed patients in France from October 2000 to April 2001.[7] The overall prevalence of sexual dysfunction observed was quite high- 35% for spontaneously reported problems, while it was 69% for problems identified by physician questioning. It was noted that, spontaneous reporting was more frequent in patients treated by psychiatrists, in

recurrent depression and in treated patients. Decreased libido was the most frequently encountered problem, reported in 55% of the subjects. The prevalence of sexual dysfunction increased with the severity and duration of the depressive episode ($p < 0.01$). Incidence of SD was higher in patients on antidepressants than in untreated patients ($p < 0.001$) However, the frequency of problems of libido was similar in both treated and untreated patients

There was a clear relationship between, on the one hand, prevalence of sexual dysfunction and on the other hand, severity and duration of the depressive episode. This appeared to be unrelated to the extent of antidepressant treatment, since the relationship was observed in untreated patients. The most frequently encountered sexual dysfunction was a problem of libido, reported in three-quarters of the subjects. However, impairment in all aspects of sexual function was described. Delayed orgasm was reported in a quarter of the patients and difficulties vaginal lubrication in one-third of them.

Fabre et al[8] studied the effect of depression on the prevalence of DSM-IV (Diagnostic and Statistical Manual, 4th Edition) sexual dysfunction diagnoses in depressed and non-depressed females. In the depressed population, prevalence of hypoactive sexual desire disorder (HSDD) was 17.7%, sexual aversion disorder (SAD) was prevalent in 3.4%, female arousal disorder (FAD) in 5.8%, and female orgasmic disorder (FOD) was found to be present in 7.7%. Among the stages of female sexual response cycle, orgasm was found to be most impaired, while sexual desire, sexual arousal were preserved. Higher Hamilton Depression Rating Scale (HDRS) scores result in lower DISF and CSFQ (total and domain) scores (i.e. greater sexual dysfunction). Statistically significant difference was observed only between mild and severe level of depression in respect to total scores on DISF and CSFQ and domain scores of desire and orgasm on the DISF.

Healthy sexual life is a determinant of positive self-esteem, marital relationship and quality of life.[9,10] Studies conducted in both treated and untreated depressed patients have observed under reporting[7] and underestimation of sexual problems by patients and physicians,[11] respectively. In developing countries like ours, discussing sexual matters is still considered taboo.[12] Although substantial number of studies have been published on this subject, only some have used a validated sexual function rating scale; most studies also lack female gender-specific data.[13] So far, little systematic research exists in the Indian scenario regarding sexual dysfunction in females with depression.

Materials and Methods

This was a one time cross-sectional study conducted at a tertiary care centre in North India.The study was approved bythe Institutional Ethics Committee and informed consent was taken. Sample was drawn from sexually active female patients attending Adult Psychiatry Outpatients Department, aged 18-45 years, diagnosed with depression as per ICD 10-DCR with duration of current episode $\geq$ 4 weeks, with current Hamilton Depression Rating Scale (HAM-D) score 8-18, with reported normal sexual functioning prior to the onset of depression. The subjects should have been drug naive for a period of at least 3 months in current episode, at the time of inclusion. Subjects screened for other psychiatric comorbidity on MINI version 6.0.0.0, except tobacco use disorder, were not included. Exclusion criteria were women in the phase of lactation, pregnancy or menopause, taking any drug treatment that can adversely affect sexual functioning and marital discord affecting sexual relationship. Subjects with partners suffering from sexual disorder or any physical or mental illness affecting sexual relationship were excluded. Patients having dementia or subnormal intelligence on clinical assessment were also excluded.

For the purpose of the study, *sexually active females* were operationally defined as "sexually active female subjects cohabiting with same partner in a stable relationship for at least one year."

Procedure

As there was time constraint, research protocol limited to take an arbitrary representative sample of 50 patients. M.I.N.I was augmented with clinical interview to rule out other psychiatric illnesses. Relationship satisfaction was assessed on Relationship Assessment Scale (RAS) and patients scoring less than 4 were excluded. Semi-structured proforma was used to collect socio-demographic and clinical details. Brief Sexual Symptom Checklist for

Women (BSSC-W) was used as a self-report for patients to document their current sexual functioning .Female Sexual Function Index (FSFI) was the main tool to assess sexual functioning and is freely available. Translation and back translation exercise was done by the investigator to develop Hindi translated version of the Female Sexual Function Index (FSFI) which was then used in the study. All the tools used in the study were either administered by the investigator or clinician assisted.

Domain	Desire	Arousal	Lubrication	Orgasm	Satisfaction	Pain
Cut-off	<4.28	<5.08	<5.45	<5.05	<5.04	<5.51

Assessment tools:

1. Relationship Assessment Scale (RAS)[14,15] is a 7-item likert scale based; respondents answer on a 5-point scale ranging from 1 (low satisfaction) to 5 (high satisfaction) for each item. Items 4 and 7 are reverse-scored. The average score was used in our interpretation. The higher the score, the more satisfied the respondent is with his/her relationship. This brief scale is useful as a screening device in couple therapy as well as in research and assesses the quality of satisfaction in an intimate relationship. An average score of >4.0 likely indicate non-distressed partners, whereas score of 3-3.5 indicate greater relationship distress and dissatisfaction.

2. Hamilton rating scale for Depression (HAM-D)-17 items[16] was used for assessment of depression severity. It is rated as: 0-7= Normal; 8-13 = Mild Depression; 14-18 = Moderate Depression; 19-22 = Severe Depression; ≥23 = Very Severe Depression.

3. Brief Sexual Symptom Checklist for Women (BSSC-W)[17,18] is a brief screening checklist developed by the International Consultation in Sexual Medicine-5 (ICSM-5) committee and helpful in early identification of sexual problem. It consists of four simple questions and is suitable for screening and addresses the patient's level of satisfaction with sexual function.

4. Female Sexual Function Index (FSFI)[19] is a 19-item questionnaire and assess sexual functioning in women in previous one month. The FSFI has been found to be unbiased with respect to age, sexuality, ethnicity, education, or economic status. It measures six domains, viz. sexual desire, arousal, lubrication, orgasm, satisfaction, pain. The individual items are scored on either 0-5 point or 1-5 point likert scale, where a zero score indicates no sexual activity or intercourse in last four weeks. Individual adjusted domain scores are obtained by adding scores of individual questions and multiplying the sum by a domain factor. Total FSFI score of less than 26.55 is taken as an indicator of female sexual dysfunction. For purpose of our study, the questionnaire was translated to Hindi and applied on group of 20 female outpatients prior to the study to assess its applicability in our target sample.

The data collected was statistically analysed using Statistical Package for the Social Sciences (SPSS) software version 20. Descriptive statistics were used to calculate means, standard deviation and frequencies. Pearson's correlational analysis was used to assess the linear correlation between continuous variables, where applicable.

Results

Socio-demographic and clinical characteristics of the sample

A total of 188 female patients of drug naive depression were screened to enrol 50 subjects in the study. All the included female subjects were married and heterosexual falling in the reproductive age group of 18-45 years. Most of patients (70%) were aged between 31-45 years (mean 34.36 ± 6.18 years). Majority of the subjects belonged to Hindu religion (82%), were housewives (86%) and they had mean duration of marriage of 11.76 ± 6.19 years. Most of the subjects belonged to nuclear family (66%) and were educated up to primary school (60%). Most of the subjects had monthly family income within 10000 INR (44%). Mean years of schooling was 7.18 ± 6.42 years.

The mean duration of current episode was 5.27 ± 5.14 months and majority of the subjects (78%) were having their first episode of depression. HAM-D score of included subjects was 14.68 ± 2.04. The mean age at first episode was 32.96 ± 5.79 years and family history of depression was positive in eight patients (16%).

Sexual dysfunction as assessed on FSFI and on BSSC-W (Table 1)

As per total cut-off score of FSFI, 30 out of 50 patients (60%) were found to have sexual dysfunction (score less than 26.55). On direct enquiry on BSSC-W, only 15 patients (30%) had reported dissatisfaction with their overall sexual function and 4 patients (8%) were willing to seek medical help for their problems.

Table-1: Distribution of sample according to sexual dysfunction as per FSFI score, sexual dysfunction as per self-report and need for treatment

	(n=50)
FSFI score < 26.55	30 (60%)
On Self-Report	15 (30%)
Reporting need for treatment	4 (8%)

was present in 86% of patients.Seventy percent subjects had dysfunction in the domain of lubrication. There was dysfunction in domain of orgasm in 68% patients. Dysfunction in domain of satisfaction was present in 76% of patients and pain during sexual activity in 44%.

The mean total and domain FSFI scores (Table 3)

Patients total mean FSFI score was 24.55 ± 6.36. The mean domain score of desire was 2.76 ± 1.15, mean domain score of arousal was 3.32 ± 1.26.The mean domain score of lubrication was 4.66 ± 1.47. The mean domain score of orgasm was 4.16 ± 1.55. The mean domain score of pain was 4.98 ± 1.48. The mean domain score of satisfaction was 4.40 ± 1.14

Correlation of socio-demographic & clinical variables with sexual dysfunction (Table 4)

No significant correlation was found between total FSFI scores and age of patients, years of schooling or family income. No significant

Table-2: Distribution of sample according to dysfunction of sub-domain scoresof FSFI

FSFI domain (cut-off score)	Desire (<4.28)	Arousal (<5.08)	Lubrication (<5.45)	Orgasm (<5.05)	Satisfaction (<5.04)	Pain (<5.51)
(n=50)	43(86%)	44(88%)	35 (70%)	34 (68%)	38 (76%)	22(44%)

Table-3: Mean total & domain scores of FSFI of patients (n=50)

Domains	Mean Total FSFI Score (<26.55)	Desire (<4.28)	Arousal (<5.08)	Lubrication (<5.45)	Orgasm (<5.05)	Satisfaction (<5.04)	Pain (<5.51)
Scores	24.55 ± 6.36	2.76 ± 1.15	3.32 ± 1.26	4.66 ± 1.47	4.16 ± 1.55	4.40 ± 1.14	4.98 ± 1.48

Table-4: Correlation of socio-demographic and clinical variables with sexual dysfunction (n=50)

	Desire (r, p)	Arousal (r, p)	Lubrication (r, p)	Orgasm (r, p)	Satisfaction (r, p)	Pain (r, p)	Total FSFI Score (r, p)
Age at present	-0.39, 0.837	-.173, .361	.072, .704	-.157, .407	-.224, .234	.111, .559	.152, .422
Years of Schooling	-.001, .995	.181, .338	.168, .374	.119, .532	.130, .495	.056, .769	-.193, .306
Family income	.040, .833	.127, .523	.105, .581	.018, .926	.030, .876	.147, .438	.044, .817
Duration of current episode	-.028, .883	-.000, .998	-.020, .915	.030, .876	-.116, .382	-.262, .162	.133, .485
No. of episode(s)	.226, .231	.022, .907	.200, .290	.109, .567	.203, .282	.144, .449	.290, .120
HAM-D	.059, .756	.475, .008*	.210, .266	.022, .408	.160, .398	.033, .863	-.177, .349

Sexual dysfunction as per FSFI cut-off scores (Table 2)

According to individual domains cut-off scores of the FSFI, patients most commonly had dysfunction in domain of arousal (88%). Desire dysfunction

correlation was found between total FSFI scores and clinical variables (duration of current episode, number of episodes except the HAM D score with higher severity of depression, more is the dysfunction in domain of arousal).

Discussion

This was one-time assessment cross-sectional study done with the aim to assess sexual dysfunction and its phenomenology in sexually active, drug-naive females of depression attending outpatient department of a tertiary care centre of North India.

The socio-demographic characteristics of our study sample are representative of the population characteristics of this geographical area.[20,21] Similar selection consideration had been defined in earlier studies.[11,21] The stringent exclusion criteria like age above 40 years, menopause, medical and surgical comorbidities took care of the factors that are known to be significantly associated with sexual problems. Sexual functioning is effected by various psychological factors including interpersonal and marital relationship. Lack of assessment of subjects' marital relationship was mentioned as a shortcoming in a study assessing sexual functioning of depression-remitted females.[20] In our study, scale was used to assess relationship satisfaction and only those having satisfactory relationship were included.

As per total cut-off score of FSFI, 30 out of 50 patients (60%) were found to have sexual dysfunction (score less than 26.55). Only 30% and had reported dissatisfaction with their overall sexual function on BSSC-W screener and only 8% were willing to seek help from doctor for their sexual problems.Various other studies have shown estimates of sexual dysfunction in similar range[22,23] Under reporting of sexual problems by women having problems with sexual functioning and poor help seeking has been reported.[24] This is a consistent finding in various studies conducted on treated and untreated depressed female population.[3,7.25-27] Women lack awareness about their sexual problem and its underlying medical causes thereby explaining poor help seeking and not consulting a doctor. With our socio-cultural and conservative background, females are hesitant talking about their sexual concerns or problems. Affordability and poor access to medical care facility is also contributory.[1,3,26]

Considering individual domains of the FSFI, dysfunction in domain of arousal (88%) was most common. Reduced desire was present in 86% of patients. The almost comparable prevalence of reduced desire and reduced arousal in our study can be explained as the similar neurobiological mechanism underlie sexual desire and arousal. There was dysfunction in domain of lubrication in 70% patients and in 44% of patient in domain of pain. Dysfunction in all the phases of sexual activity like desire, arousal and lubrication can explain the finding of pain during sexual activity as these factors determine physical discomfort during sexual activity.Thirty-eight subjects out of fifty (76%) had dysfunction in domain of satisfaction. Sexual satisfaction is determined by physical as well as psychological factors, intimacy and understanding and feeling of wellbeing among the partners.[28] Sexual dissatisfaction can be explained by the fact that dysfunction was present in all the stages of sexual response cycle in our sample. In another study done in 2013 by Abhivant & Sawant,[29] the reported prevalence of FSD among depressed females in India was less as compared to our study. In this study, the prevalence of clinical FSD was 67% and all the domains were significantly involved. Involvement of multiple domains in same patient was observed 53% of females had lubrication problems, 51% had orgasmic dysfunction, 49% experienced painful intercourse and 45% patients were found to have decreased desire, arousal and sexual satisfaction. They also found significant association between SD and depression. In a study done by Kennedy et al[30] on assessment of female sexual dysfunction before antidepressant therapy in major depression 79 depressed females were assessed on Sexual Function Questionnaire. Decreased sexual interest was reported by 50% of women, reduced level of arousal by 40-50% of women and difficulty in achieving orgasm by 15-20% of women.

On comparison of FSFI scores (total & domain) with sociodemographic and clinical variables, no significant correlation was found between total FSFI scores and duration of current episode, duration of remission or number of episodes. However, in another study[30] correlation was found between sexual dysfunction measures and clinical variable (age at onset of depression and number of prior episodes) while no correlation found with severity of depression. This could be explained by the

difference in methodology and measurement tools used in the above discussed study.

Socio-economic and clinical variables had no bearing on FSFI total and domain scores thus the findings can be attributed to depressive psychopathology. This can mitigate to some extent one of our study limitation of not having a healthy control group for comparison.

Use of structured standardised tools and stringent inclusion and exclusion criteria is the strength of the present study. However, the assessment of premorbid sexual history of the patient may have recall bias, study is cross-sectional in design and small sample size could limit the generalisability of the results. We did not take healthy control group for comparison and this is one of our major limitations. Also different cultural factors and personality traits influence the sexuality and sexual experiences of an individual. So, figures in our study might not match with those of the West. Future studies with large sample size and using standardized tools should overcome some of these limitations.

Conclusion

More than half of the female patients of depression not receiving any treatment with history of normal sexual functioning prior to onset of illness were found to have sexual dysfunction when a validated structured tool was applied. All phases of sexual response cycle were effected including desire, arousal, orgasm, lubrication and satisfaction. Sexual dysfunction forms a major part of depression and its psychopathology but usually goes un-noticed because of lack of awareness and hesitation both on the part of patient and treating consultant. Attention to this aspect during clinical assessment and treatment can help choosing appropriate pharmacological treatment which might not further deteriorate sexual functioning. This will improve patients' outcome, quality of life, adherence to treatment and reduce rates of relapse.

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Original Article

Knowledge and Attitude of Medical Professionals regarding Electroconvulsive therapy

Nitin Sharma,[1] Shantanu Bharti,[2] Ruchita Sharma,[3] Ajay Kohli,[4] Anju Agarwal,[5] Abdul Qadir Jilani,[6] Ritu Shukla,[7] Prashant Kumar,[8] Shiraz Ul Hasan[9]

Departments of Psychiatry[1,2,4,5,6,8,9] and [3]Medicine, Era's Lucknow Medical College and Hospital, Lucknow-226002;

[7]Department of Anaesthesiology, Maulana Azad Medical College, New Delhi-110002

Contact: Shantanu Bharti, Email-shantanubharti@gmail.com

Abstract

Background: *Electroconvulsive therapy (ECT) is a technique used to treat mental illnesses, however, since introduction, ECT has been one of the most controversial treatment modalities of psychiatry. Its acceptance is far from adequate, even among medical professionals. Evidence from several countries indicates that medical specialists generally have negative attitudes towards ECT which, however, can be improved through knowledge.* ***Aim:*** *The aim of the study is to assess knowledge and attitude about ECT among the medical professionals.* ***Method:*** *This cross-sectional study includes 150 medical professionals (consultants and postgraduate students) at Era's Lucknow Medical College, Lucknow. The knowledge and attitude regarding ECT are observed using a questionnaire composed from previous studies.* ***Result:*** *Internet (56.6%) and movies (31.2%) were the principal sources of knowledge of ECT while 'psychiatrist colleagues' was the least common (10%). Overall the perception towards ECT was mostly negative, with most considering it as outdated, used specifically for violent patient's. Also, 28% reported that ECT had been misused by psychiatrist, while 10% reported it as a final resort of treatment. Only 20% had chosen ECT as treatment modality if they have depression. Notably, mixed level of knowledge and attitude was found along with numerous misconceptions regarding ECT.* ***Conclusion:*** *Medical professionals are generally knowledgeable about ECT however they still harbour some misconceptions and negative attitudes about the treatment modality. It is possible that by providing proper evidence-based education and hands on experience during medical curriculum we can alter these common misbelief regarding ECT, rather than leaving it on mass media who falsify the information regarding ECT.*

Keywords*: Electroconvulsive Therapy, Knowledge, Attitudes, Medical Professionals*

Introduction

Electroconvulsive therapy (ECT), formerly known as electroshock therapy, is a technique wherein psychiatric patients are being treated with electric current through the brain to induce generalised seizures. Its application has been approved for many psychiatric illnesses, particularly including major depressive disorder,[1] schizophrenia, catatonia, acute mania[2] and treatment-resistant psychiatric disorders. Also, ECT is used as first line therapy when there is history of previous response, pregnancy and patient's choice of opting ECT over medications.[2-3]

However, since ECT introduction, there has been controversies regarding being using it as treatment modality.[4-7] Its acceptance, partly as the result of ignorance, is far from adequate, even among medical professionals.[8-10] In addition to this, mass media is spreading misleading information

about ECT which affects the perception of public and medical professionals too.[11] Furthermore, advent of more effective psychopharmacological treatment has left both public and medical professionals with negative perception regarding ECT.[12] Moreover, out of all possible limitations, one of the major restrictions for considering ECT use as effective treatment modality is stigma attached to its use among general public.[13,14]

Therefore, it is crucial to assess the present perspective of medical professionals regarding ECT as they play a pivotal role in society and their opinion may play a crucial role in correcting public misconstrued perspective about ECT.

Aim

To assess the knowledge and attitude of medical professionals regarding electroconvulsive therapy.

Methodology

This cross-sectional study was conducted between January and March 2018. The ethical clearance was taken from the ethical committee at Eras Lucknow Medical College. A total of 183 medical professionals including consultants and postgraduate students in various medical and surgical departments of Eras Lucknow Medical College were included in the study. A duly filled informed consent form and questionnaire were sent to them through email or hard copy.They were asked to reply with duly filled forms immediately. Out of these professional and post graduate residents' doctors, only 150 (81.96%) replied with the filled consent form and questionnaire.

The semi-structured socio-demographical variables of the participants was recorded. The questionnaire was adapted by the authors of the present study from previously published literature.[15-18] The questionnaire has included 31 items to assess knowledge about ECT and attitudes towards ECT. Each question had three possible answers as "yes", "no", and "I do not know". All participants were asked to complete this questionnaire by themselves.

The study included participants who had completed their postgraduation in medical or surgical sciences and currently pursuing postgraduation students and giving consent to fill out the questionnaire designed for the study. Participant's unwillingness to fill up the questionnaire and having completed their postgraduate studies in psychiatry were excluded from the study.

Results

Table-1: Demographic Variables

Variables	Type	n (%)	Chi square	p-value
Age	**Mean age - 33.29 ± 8.62 years**			
Gender	Male	74 (49.3)	0.027	0.988
	Female	76 (50.7)		
Designation	Professor	21 (14.0)	89.13	<0.001*
	Associate Professor	20 (13.3)		
	Assistant Professor	19 (12.7)		
	Senior Resident	14 (9.3)		
	Post-graduate Student	76 (50.7)		
Conferences attended annually	More than 6	2 (1.4)	115.13	<0.001*
	5-6	7 (4.7)		
	4-5	19 (12.7)		
	2-3	68 (45.3)		
	0-1	54 (36.0)		
ECT device present at work place	Yes	110 (73.3)	32.67	<0.001*
	No	40 (26.7)		
Previous experience with ECT	Yes	45 (30.0)	24.00	<0.001*
	No	105 (70.0)		
Efficient knowledge about ECT	Yes	50 (33.3)	16.67	<0.001*
	No	100 (66.7)		
Psychiatric Knowledge	Yes	133 (88.7)	89.71	<0.001*
	No	17 (11.3)		

p value - <0.05 considered Significant

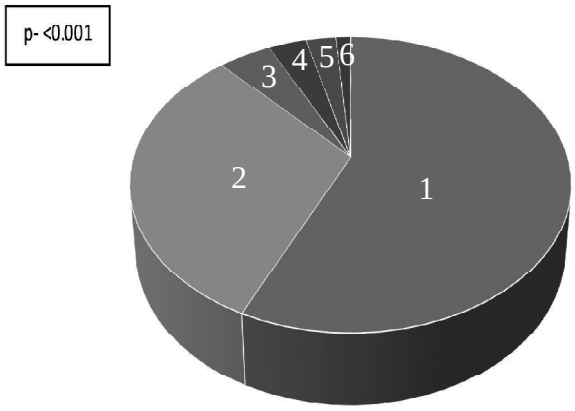

Fig. 1: Principle Source of Knowledge regarding ECT

Statistics

The results were analysed using descriptive statistics and making comparisons between treatment groups with respect to growth parameters. Discrete (categorial) data were summarized as in proportions and percentages (%) while quantitative data were summarized as mean and SD. Proportions were compared using chi-square (χ^2) test. A two-sided ($\alpha = 2$) $p < 0.05$ was considered statistically significant. Software's MS-Excel and SPSS version 18 were used for analysis.

Table 1 show that mean age the participants in our study was 33.29 ± 8.62 years with almost equal respondents in both gender group. Almost half of the study participants were post-graduate students and 45% were the consultants with varying number of participations. 45.3% of the respondents does attend 2-3 conferences annually. About the ECT knowledge, almost a quarter doesn't know that ECT treatment facility is available in our institution. Although significant number of respondents (88.7) did had knowledge regarding psychiatry as a subject, however most of them lack previous experience with ECT (70%) and knowledge regarding ECT (66.7%).

Significantly (p-<0.001) more participants reported that Internet (56.6%) and TV/Movies (31.2%) were the principal sources of knowledge of ECT while 'psychiatrist colleagues' was the least common (1.3%). Other sources of knowledge of ECT that were identified included articles/ publications (4.6%), newspaper/magazines (3.3%), explanation by medical professional (2.6%). (Figure 1)

Table 2 shows level of awareness among medical professionals regarding ECT. Majority didn't know the year in which ECT was first used. Significant number of participants considered knowledge for ECT is essential to practice psychiatry (82%) and agreed on its implementation in all large general hospitals (76%). Significant number of respondents believes that admission is must for ECT (74%), but they differ in their opinion on the method of ECT application as 50 % had the

Table-2. Knowledge regarding ECT

Questions	Yes n (%)	No n (%)	I don't know n (%)	Chi sq.	p-value
ECT has been used for the first time in the 1930s	36 (24)	23 (15.3)	91 (60.7)	52.1	<0.001*
Having knowledge about ECT is essential to practice psychiatry	123 (82)	16 (10.7)	11 (7.3)	160.1	<0.001*
ECT should be implemented in all large general hospitals	114 (76)	17 (11.3)	19 (12.7)	122.9	<0.001*
ECT therapy requires hospital admission	111 (74)	32 (21.3)	7 (4.7)	117.9	<0.001*
ECT can be administered only under general anesthesia	75 (50)	49 (32.7)	26 (17.3)	24.0	<0.001*
ECT can be done without muscle relaxant	64 (42.7)	35 (23.3)	51 (34)	8.4	0.015
ECT is an FDA approved method to treat Schizophrenia	96 (64)	15 (10)	39 (26)	69.2	<0.001*
ECT has showed significant results in drug-resistant depression	116 (77.3)	6 (4)	28 (18.7)	135.5	<0.001*
ECT is an absolute contraindication in pregnancy	84 (56)	25 (16.7)	41 (27.3)	37.2	<0.001*
Recommended number of ECT sessions are two or three per week	49 (32.7)	26 (17.3)	75 (50)	24.0	<0.001*

p value - <0.05 considered Significant

Table-3: Attitude towards ECT

Questions	Yes n (%)	No n (%)	I don't know n (%)	Chi sq.	p-value
ECT is an outdated therapy	95 (63.3)	31 (20.7)	24 (16)	61.2	<0.001*
ECT should be banned	18 (12)	123 (82)	9 (6)	160.7	<0.001*
ECT is used to control violent patients	92 (61.3)	47 (31.3)	11 (7.3)	65.9	<0.001*
ECT is dangerous, and may be fatal	57 (38)	79 (52.7)	14 (9.3)	43.7	<0.001*
ECT can be used over the age of 65	39 (26)	42 (28)	69 (46)	10.9	0.004*
ECT causes moderate to severe pain	63 (42)	41 (27.3)	46 (30.7)	5.3	0.070
ECT causes memory loss	50 (33.3)	66 (44)	34 (22.7)	10.2	0.006*
ECT can cause permanent brain damage	37 (24.7)	92 (61.3)	21 (14)	55.5	<0.001*
ECT is cruel or barbaric	22 (14.7)	109 (72.7)	19 (12.7)	104.5	<0.001*
ECT is misused by psychiatrists	42 (28)	48 (32)	60 (40)	3.36	0.186
ECT should only be used as a final resort	80 (53.3)	55 (36.7)	15 (10)	43.00	<0.001*
ECT is used more often for treating low socioeconomic patients	33 (22)	85 (56.7)	32 (21.3)	36.8	<0.001*
I would refer my patients for ECT therapy	100 (66.7)	35 (23.3)	15 (10)	79.0	<0.001*
I would consent to receive ECT in case I was in a psychotic depressive condition	30 (20)	105 (70)	15 (10)	93.00	<0.001*
Having knowledge about ECT will improve the quality of care	135 (90)	6 (4)	9 (6)	216.8	<0.001*
There should be legal restrictions particularly governing the use of ECT	91 (60.7)	38 (25.3)	21 (14)	53.3	<0.001*

P value - <0.05 considered Significant

notion that it can be given without general anaesthesia and without muscle relaxant. Most participants also knew about the indications of ECT in treatment resistant depression (77.3%) and schizophrenia (64%). However, significant (p-<0.001) higher number of them considered it as contraindicated modality of treatment to treat pregnant females (56%). In addition to this, there was lack of awareness among participants (50%) regarding the number of safe ECT sessions per week.

Table 3 shows the attitude of medical professionals regarding ECT. It was observed that, despite varying level of knowledge about ECT, there has been a generalized reluctance to practice it. Significant participants belief that ECT being an outdated therapy (63.6%), use to control violent patients (61.3%) and may cause memory problems (50%). However, they refused to ban this treatment modality (82%), didn't considered it dangerous (52.7%) and were sure that it didn't cause permanent brain damage (61.3%). 46% were not certain for its use among older individuals. About one-fourth of the participants reported that ECT being misused by psychiatrist and believed (60.7%) that there should be legal restrictions over its use. Regardless of their sufficient knowledge about the indications ECT, majority (70%) refused to consider it as treatment option in case they have severe depression with psychosis. Although almost 66% accepted to refer their patients for this treatment modality. Also, 90% agreed that having knowledge regarding ECT will improve the quality of care of the patients.

Discussion

In our study, we have attempted to assess the knowledge and attitudes of medical professional's towards ECT. It has been observed that this topic had been previously been studied among medical school students,[17-18] psychiatrist[19] and even among resident doctors,[20] but none of the studies have included medical professionals other than psychiatrist. Studying this group is important because medical professionals are usually considered to play a crucial role in society and that their opinions are helpful in changing the opinion of society.

This study shows that every second respondent uses internet as their principle source of knowledge for ECT. Also, information on TV was the source of knowledge of ECT for around one third, with least source of knowledge was from psychiatric colleges. These findings were in harmony with the study conducted by Andrade et al[18] and Mathew et

al[17] and in contrast to Chakraborty et al[21]wherein textbooks were the primary source of knowledge. This is probably because of increasing usage of technology for knowledge attainment. However, this area is of immense concern as media majorly elaborate the negative perspective of ECT among patients and their family members.[13,22-23]

Overall, knowledge and attitude of medical professional's towards ECT was mixed. It was observed that majority didn't knew in which decade ECT was first used. Similar finding was reported by Andrade et al.[18] Most of them agreed that having knowledge about ECT is essential to practice psychiatry and its use should be implemented in all general hospitals. They were aware of the conventional guidelines for the use of ECT that is ECT requires hospital admission, can be performed without general anaesthesia and muscle relaxants. These findings can be linked to their knowledge source. However, the above findings were in contrast to the previously literature by Mathew et al[17] who found that about 32% and 43% of the future doctors did not know that a muscle relaxant and a general anaesthetic, respectively, are used during ECT.

Moreover, in the present study participants holds the common notion regarding the indications for ECT for severe psychotic depression and schizophrenia. These findings were similar to the study done by Alpak et al.[20] However, inspite of knowing the indications greater number of candidates agreed that ECT is contraindicated in pregnant women and elderly patients,however present literature suggest vice versa. These results were also in harmony with Alpak et al.[20] Also, this similar idea was shared by most of the patients and their families.[24] The finding was significant probably because of less education of medical graduates about psychiatry as a subject during their undergraduate training curriculum and less hands-on exposure to ECT. Also, significant number of participants people didn't know the recommended session of ECT per week.

Among the questions regarding the attitudes of medical professionals about ECT, it was observed that majority of them thought that ECT is an outdated therapy, use to control violent patients and causes moderate to severe pain and it is used as a last resort. The above findings can be directly linked to their primary source of knowledge portraying negative impact of ECT use. Similar perception was observed among medical students in earlier literature by Andrade et al[18] but were in contrast to literature provided by Chakraborty et al.[21] Even after this misperception regarding ECT, majority of them refuses to admit that ECT should be banned or is dangerous and is cruel or barbaric or is being used more often to treat patients that belong to low socioeconomic strata. Also, almost half of the respondents believe that ECT can cause memory loss. These findings were in harmony with study done by Chakraborty et al[21] and Andrade et al.[18] Furthermore, about one fourth believe that ECT is often being misused by psychiatrist and that its usage should be governed by legal authorities. These shocking finding had been reported previously by Andrade et al[18] among medical students and Chakraborty et al[21] among medical residents. Despite this mixed attitude towards ECT, most of them agreed to refer their patients for ECT therapy and that ECT knowledge will improve the quality of care among patients, but significant majority refused to accept this treatment modality if they have severe depression with psychosis. It might be because majority had notion regarding the old method to induce seizure during ECT that is without muscle relaxant and general anaesthesia and also their belief that ECT causes pain and memory loss had frightened them for accepting ECT as treatment modality for themselves.

It was observed that medical practitioner had efficient knowledge regarding ECT, however they still harbour misperceptions regarding this treatment modality. It may be possible that their attitudes can be improved through proper educational modules regarding psychiatry as a subject and programmes and hands on experience on ECT. These programmes should be aimed at dismissing myths and combating stigma towards ECT could be beneficial.

Conclusion

This study had observed an overall mixed attitude toward ECT, together with several unsupported theories which were found in a high proportion among medical professionals. These findings emphasize the vitality of incorporating a more detailed, evidence-based addition and hands-on experience about ECT into the psychiatric

curriculum, which may lead to a more realistic attitude toward ECT among medical professionals as they can help to modify the common misbeliefs that prevails in our society regarding ECT.

Limitations

Our study had several limitations. First of all, the study was conducted at one centre and therefore its result couldn't be generalized that attitude of medical practitioners is same throughout India. Secondly, number of participants were less.

Acknowledgement

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Original Article

Assessment of effect of demographic and illness factors on coping and social functioning in patients with depression and their spouses

Shruti Aggarwal, Dinesh Kataria, Shiv Prasad
Department of Psychiatry, Lady Hardinge Medical College, Delhi
Contact: Dr. Shruti Aggarwal, Email: shruti.aggarwal49@gmail.com

Abstract

Background*: Depression leads to deterioration of social functioning of patients. Also, type of coping adopted by patients and their spouses determines the course and prognosis of illness. Thus, the factors affecting coping and social functioning needs evaluation.* ***Purpose****: To evaluate the effects of various demographic and illness factors on patients with depression and their spouses with intra-spouse comparison.* ***Methods****: it was a hospital based cross sectional study involving 50 patients diagnosed with depression along with their spouses. Couples were assessed separately for coping and social functioning. Data related to various demographic and illness factors were collected and their effects on coping & social functioning assessed using appropriate statistical tools.* ***Results****: Both illness severity and duration of untreated illness have significant impact over coping and social functioning of both the groups. Amongst demographic factors, family history of psychiatric illness has significant impact over coping as well as social functioning with no effect of any other demographic factor.* ***Conclusion****: Intervention at stage of mild illness may be helpful in maintaining adaptive coping & subsequently social functioning of patients. Provision of better professional support for spouses seems to be the need of the hour. Further studies are needed to establish better norms for DUI in depression and to assess the causes behind effects of family history on an individual's life apart from genetic factors.*

Keywords: *Depression, coping, social functioning, depression severity, duration of untreated illness, family history of psychiatric illness*

Introduction

Social functioning has been referred to as "the individual's ability to initiate personal and social roles and relationships as well as to sustain them."[1] Depression has been found to be frequently associated with psychosocial and functional impairment leading to negative impact on socio-occupational outcomes.[2,3] As per WHO collaborative study and a couple of other studies, depressive illness leads to social & functional disability despite its treatment.[3-5]

Coping as defined by Folkman and Lazarus is "the cognitive and behavioral efforts made to master, tolerate, or reduce external and internal demands and conflicts among them".[6] Two major types of coping have been identifiedin literature i.e. problem focused and emotion focused. Problem-focused coping includes cognitive and behavioral attempts to modify or eliminate the stressful situation. In contrast, emotion-focused coping involves attempts to regulate emotional responses elicited by the situation.[6] Researchers have suggested that emotion-focused coping is less effective and more

likely to be associated with psychological distress than is problem-focused coping.[7-10] The type of coping strategy adopted by patient and their spouse are the determinants of the course and prognosis of the illness.[11]

Thus it seems prudent to assess the factors affecting social functioning & coping in depression. Gender of the patient has been shown to have an impact over both social functioning and coping. Though males have poor social functioning compared to females suffering from depression,[12,13] males tend to use more of problem focused coping whereas females use more of emotion focused and avoidance coping.[14] Also, the married patients tend to have better social functioning than unmarried, divorced & widowed patients.[15]

Longer duration of untreated illness has been shown to be associated with worsening of social functioning of the patients.[16] Coping styles have been shown to be related to severity of depression. Patients with moderate to severe depression have reported to use avoidance more often than the individuals with mild or no depression.[17]

In addition,stress becomes an inherent part of life of their spouses as well.[18,19] Non depressed spouse gets burdened with increased responsibility of finances and child care affecting their social functioning as well.[20] Also the onus for future quality of marriage depends on his/her coping styles.[21] Thus it seems significant to evaluate the social functioning and coping of spouses as well. Previous studies mention that the advice seeking, emotional support and avoidance arethemore commonly used coping strategies than problem focused coping in patients with depression compared to their spouses.[22,23]

Thus this study aims to evaluate the effects of various demographic and illness factors on patients with depression and their spouses with a comparison amongst patients and their spouses.

Materials and Methods

Participants and procedures

A cross sectional study was conducted in psychiatry OPD of a tertiary care hospital of Delhi, India. Fifty patients meeting the diagnostic criteria of depressive episode as per ICD 10 DCR, along with their spouses were enrolled to participate in the study via systematic random sampling. Couples were screened for inclusion and exclusion criteria and also briefed about the study. Couples meeting the selection criteria and willing to give the informed consent were included in the study. If a couple fails to meet the criteria or refuses to consent, next patient satisfying the criteria was included. Simultaneously, patients and their spouses (if needed) were offered appropriate treatment.

Inclusion criteria: For the purpose of study, patients meeting the criteria of depressive episode as per ICD 10 DCR were considered. Only couples with both partners more than 18 years of age and cohabitating for at least 1 year were included. Also the written informed consent from both the partners individually was considered mandatory for inclusion.

Exclusion criteria: Patients or spouse suffering from any chronic physical illness, substance use disorder or any psychiatric illness other than depression in the index patient were excluded.

Measures/instruments

Demographic factors assessed were patient's age, gender, family type i.e. nuclear or joint, socio economic status and family history of psychiatric illness.

Illness factors included in the study were: (a) severity of illness, measured by HAM-D 17; (b) duration of untreated illness (DUI), assessed as a cut off of 12 months[24,25] and also as continuous variable; and (c) Type of illness i.e. first episode, recurrent or chronic (>2years duration).

Semi structured performa: It was used to record socio demographic details and illness details like duration and type of illness & duration of untreated illness (DUI; taken from the onset of first episode to the initiation of treatment for the first time).

***Modified Kuppuswamy socio economic* scale**[26]*:* Kuppuswamy scale is a composite score of education and occupation of the head of the family along with monthly income of the family. This scale classifies the study populations into upper, middle, and lower SES. For the purpose of study modified criteria for June 2012 were used.

Hamilton rating scale for depression-17 (HAM-D 17)[27]*:* It is a 17 item examiner rated standard tool.

Ways of coping checklist Hindi adaptation (WCC-HA): It is a 13 item scale adapted from the

Ways of Coping Checklist of Folkman and Lazarus.[28] Individuals are asked about last 3 months for use of listed strategies. Scazufca and Kuipers modified it for their study[29] which was further translated into Hindi with minor modifications by Chadda et al which is used for the current study.[30] The items in this checklist refers to 3 type of coping strategies i.e. 'problem focused', 'seek social support', and 'avoidance' with maximum scores of respective groups being 15, 20 and 30. This modified Hindi adaptation is used for the purpose of current study.

SCARF Social Functioning Index (SSFI)[1]*:*It is an interview based scale intended for administration on people with psychiatric illness. It has 4 main domains i.e. self-care (4 items), occupational role (4 items), family role (4 items) and other social roles (5 items). Each is measured on a 5 point Likert scale varying between poor (lower score) to good functioning (higher score), based on last 1 month's functioning. Maximum score is 85. Further assessment of total score is done on 3-point scale i.e. mild impairment >60, moderate impairment 30-60, and severe impairment <30.

Statistical analysis

Data was entered and analyzed using computer based software SPSS version 22. Descriptive statistics was used for the socio-demographic variables. Since most of the variables were found to follow a normal distribution, mean scores of different variables were compared using t-test.

Correlation between illness severity and DUI with study variables was carried out using Pearson's test. Analysis of variance (ANOVA) was carried out to determine association of study variables with different demographic parameters and post hoc analysis by Least Significant.

Difference (LSD) test was done wherever appropriate. A p value of less than 0.05 was considered statistically significant at 95% confidence level.

Results

Demographics and clinical profile

Study recruited 50 patients with depressive disorder along with their spouse. The demographic details of study population along with clinical/illness variables are as summarized in Table 1.

Assessment of effects of demographic factors on coping and social functioning

T- Test was used to assess effects based on age, gender, family type and family history, where, age, gender and family type were not found to have any impact on coping strategy or social functioning of either patients or their non-depressed spouses (Table 2). Patients with positive family history of psychiatric illness were found to be seeking more of social support as coping strategy compared to patients with negative family history (p=0.027). Spouses reported better social functioning with positive family history compared to spouses of patients with negative family history (p=0.005). (Table 2)

Assessments based on socio economic status were done using one-way ANOVA with post-hoc LSD and no significant impact over coping and social functioning of either patients or their spouses was found.

Assessment of effects of illness factors on coping and social functioning:

Effects of severity of depression (Table 3): This assessment was done using one-way ANOVA with post hoc LSD. Amongst patients, use of problem focused coping was found to be more with mild depression compared to moderate depression (p=0.032) but as the severity of illness increased i.e. patients with severe (p=0.005) and very severe illness (p=0.042) were found to be using significantly more of avoidance. Also patients with mild depression reported better social functioning compared to patients with very severe depression (p=0.047).

Spouses of patients with very severe illness were found to seek more of social support compared with those of mild illness (p=0.011). Also spouses of patients with mild illness use more of avoidance compared to spouses of normal (recovered patients in our study) patients (p=0.023). There was no significant difference in social functioning of spouses with regard to patient's illness severity.

Effects of duration of untreated illness (DUI): As described above, effects of DUI were evaluated as continuous variable initially using Pearson's correlation. DUI was found to be

Table-1: Sociodemographic and clinical variables

Variables		N= 50
Sociodemographic Variables		
Age of patient, Mean		38.7 years
Age of Spouse, Mean		39.5 years
Duration of marriage, Mean		17.84 years
Duration of cohabitation, Mean		17.52 years
Gender, N (%)	Female	36 (72)
	Male	14 (28)
Religion, N (%)	Hindu	35 (70)
	Muslim	14 (28)
	Others	1 (2)
Family type, N (%)	Nuclear	44 (88)
	Joint	6 (12)
Socio Economic Status, N (%)	Lower	21 (42)
	Middle	15 (30)
	Upper	14 (28)
Family history of psychiatric illness	Yes, N (%)	9 (18)
	No, N (%)	41 (82)
Clinical Variables		
Type of illness, N (%)	Recurrent	18 (36)
	Chronic	8 (16)
	First episode	24 (48)
Total illness duration, Mean		43.25 months
Current episode duration, Mean (includes total duration for chronic cases)		16.11 months
Treatment duration, Mean		3.04 months
Duration of untreated illness (DUI)	Mean	13.08 months
	≤12 months, N (%)	39 (78)
	>12 months, N (%)	11 (22)
Severity of Depression, N (%)	0-7= normal	2 (4)
	8-13= mild	10 (20)
	14-18= moderate	9 (18)
	19-22= severe	11 (22)
	≤23= very severe	18 (36)

positively correlated with severity of depression i.e. scores of HAM D-17 (r=0.28, p=0.044). Seeking social support coping strategy was found to be having a significantly positive correlation with DUI amongst patients (r=0.33, p= 0.018) and significantly negative correlation amongst spouses (r = -0.29, p = 0.040). (Table 4A)

To assess DUI with cut off of 12months, t-test was used. Patients with DUI>12 months were found to have significantly better social functioning than patients with DUI d"12 months (p=0.019). No other parameter in either patients or spouses showed significant differences. (Table 4B)

Effects of type of illness (Table 5): Assessment based on illness type i.e. first episode, recurrent and chronic was done using ANOVA with post hoc LSD. No significant differences were found in either patients or spouses for either coping strategy or social functioning.

Comparison amongst patients and their non-depressed spouses (Table 6):

T test was used to assess the differences amongst spouses. Non depressed spouses were found to be having significantly better social functioning compared to their depressed counterparts (p= 0.020). Also non depressed spouses were found to be using more of problem focused coping strategy (p= 0.000) whereas depressed partners were using more of avoidance coping strategy (p= 0.001).

Correlation amongst social functioning and coping strategies (Tables 7 & 8):

The assessment was done using Pearson's correlation to assess whether the social functioning and coping strategies have any relation with each

Table-2: Assessment of effects of demographic factors on coping and social functioning

Demographic & Clinical Variables			Patient's gender		Patient's age		Family type		Family history of Psychiatric illness	
			Female	Male	≥39 years	<39 years	Nuclear	Joint	Yes	No
Severity of depression		t- value	-1.726		-0.328		-0.305		0.464	
		Sig.	0.091		0.744		0.761		0.644	
Problem focused coping	Patient	t- value	0.761		-0.081		-0.840		0.333	
		Sig.	0.451		0.936		0.405		0.741	
	Spouse	t- value	0.733		-0.788		-1.472		0.810	
		Sig.	0.467		0.435		0.148		0.422	
Seeking social support coping	Patient	t- value	-0.109		-0.576		-0.705		2.274	
		Sig.	0.913		0.567		0.484		0.027*	
	Spouse	t- value	0.187		-0.231		-1.943		0.741	
		Sig.	0.853		0.818		0.058		0.462	
Avoidance coping	Patient	t- value	-1.081		0.879		0.847		0.331	
		Sig.	0.285		0.384		0.401		0.742	
	Spouse	t- value	-0.661		-0.198		1.445		-0.774	
		Sig.	0.512		0.844		0.155		0.443	
Social functioning	Patient	t- value	-0.289		1.616		-1.477		1.208	
		Sig.	0.774		0.113		0.146		0.233	
	Spouse	t- value	0.191		0.007		-0.676		2.889	
		Sig.	0.849		0.995		0.502		**0.005***	

* $p < 0.05$

Table-3: Effects of severity of depression on coping and social functioning Assessment of severity of depression with other variables

Dependent variable	HAM D (I)	HAM D (J)	Patient (I-J) Mean difference	Sig.	Spouse (I-J) Mean difference	Sig.
Problem focused coping	Normal	Mild	-0.300	0.904	-0.200	0.941
		Moderate	2.944	0.243	0.778	0.776
		Severe	2.045	0.408	-0.182	0.946
		Very severe	2.222	0.354	-0.944	0.717
	Mild	Moderate	3.244*	0.032*	0.978	0.543
		Severe	2.345	0.099	0.018	0.991
		Very severe	2.522	0.051	-0.744	0.590
	Moderate	Severe	-0.899	0.533	-0.960	0.542
		Very severe	-0.722	0.581	-1.722	0.231
	Severe	Very severe	0.177	0.885	-0.763	0.569
Seeking social support coping	Normal	Mild	-2.500	0.486	4.900	0.107
		Moderate	-1.389	0.701	3.167	0.298
		Severe	-1.045	0.769	2.409	0.420
		Very severe	-1.333	0.699	0.889	0.758
	Mild	Moderate	1.111	0.601	-1.733	0.332
		Severe	1.455	0.473	-2.491	0.145
		Very severe	1.167	0.523	-4.011	0.011
	Moderate	Severe	0.343	0.869	-0.758	0.663
		Very severe	0.056	0.977	-2.278	0.154
	Severe	Very severe	-0.288	0.871	-1.520	0.307
Avoidance coping	Normal	Mild	-2.000	0.400	**-7.600***	**0.023***
		Moderate	-4.778	0.053	-5.722	0.085
		Severe	-0.727	0.757	-5.318	0.103
		Very severe	-3.167	0.169	-4.944	0.118

Table-3: Contd...

Dependent variable	HAM D (I)	HAM D (J)	Patient (I-J) Mean difference	Sig.	Spouse (I-J) Mean difference	Sig.
	Mild	Moderate	-2.778	0.053	1.878	0.331
		Severe	1.273	0.343	2.282	0.216
		Very severe	-1.167	0.336	2.656	0.113
	Moderate	Severe	**-4.051***	**0.005***	0.404	0.830
		Very severe	1.611	0.201	0.778	0.649
	Severe	Very severe	**-2.439***	**0.042***	0.374	0.816
Social functioning	Normal	Mild	-12.100	0.063	4.900	0.356
		Moderate	-10.667	0.103	0.000	1.000
		Severe	-5.727	0.368	2.545	0.628
		Very severe	-5.500	0.373	1.056	0.836
	Mild	Moderate	1.433	0.705	-4.900	0.123
		Severe	6.373	0.082	-2.355	0.432
		Very severe	**6.600***	**0.047***	-3.844	0.158
	Moderate	Severe	4.939	0.187	2.545	0.409
		Very severe	5.167	0.130	1.056	0.705
	Severe	Very severe	0.227	0.943	-1.490	0.569

*. The mean difference is significant at the $p < 0.05$

Table-4A. Effects of duration of untreated illness on coping and social functioning (DUI as continuous variable)

		Correlation with duration of untreated illness			
		Patient		Spouse	
		Pearson Correlation	Sig. (2-tailed)	Pearson Correlation	Sig. (2-tailed)
Duration of untreated illness (DUI as continuous variable)	Severity of depression	0.28	0.044*		
	Social functioning (SSFI)	-0.03	0.819	-0.18	0.191
	Problem focused coping	0.23	0.103	-0.06	0.640
	Seeking social support coping	0.33	**0.018***	-0.29	**0.040***
	Avoidance coping	0.11	0.449	0.24	0.092

*$p < 0.05$

Table-4B. Effects of duration of untreated illness on coping and social functioning (DUI as categorical variable)

Assessment of duration of untreated illness (DUI as categorical variable) with other variables					
Variable	**Duration of untreated illness**	**t- Value**	**Sig (Patient)**	**t- Value**	**Sig (Spouse)**
Severity of depression	< 12 Months > 12 Months	0.025	0.981		
Problem focused coping	< 12 Months > 12 Months	-0.251	0.803	-0.392	0.697
Seeking social support coping	< 12 Months > 12 Months	-1.033	0.307	0.431	0.668
Avoidance coping	< 12 Months > 12 Months	0.224	0.824	0.238	0.813
Social functioning	< 12 Months > 12 Months	-2.425	**0.019***	1.809	0.077

*$p < 0.05$

Table-5: Effect of type of illness on coping and social functioning

Dependent Variable	Type of Illness (I)	Type of Illness (J)	Patient		Spouse	
			Mean Difference (I-J)	Sig.	Mean Difference (I-J)	Sig.
Problem focussed coping	Recurrent	Chronic	-0.181	0.896	0.417	0.772
		1st Episode	-1.681	0.102	1.708	0.109
	Chronic	1st Episode	-1.5	0.261	1.292	0.351
Seeking social support coping	Recurrent	Chronic	-0.611	0.751	1.056	0.539
		1st Episode	-0.986	0.487	1.639	0.197
	Chronic	1st Episode	-0.375	0.840	0.583	0.724
Avoidance coping	Recurrent	Chronic	-1.139	0.417	0.889	0.631
		1st Episode	0.486	0.636	-0.528	0.697
	Chronic	1st Episode	1.625	0.230	-1.417	0.426
Social functioning	Recurrent	Chronic	-4.958	0.173	0.375	0.898
		1st Episode	0.792	0.765	-1.333	0.534
	Chronic	1st Episode	5.75	0.101	-1.708	0.543

Table-6: Comparison amongst patients and their non depressed spouses

Distribution of scores of study variables		Patients	Spouses	Comparison amongst spouses (Patient-Spouse) t- Value	Significance
HAM D Scores, Mean		19.32			
Problem focused coping, Mean		7.78	10.28	-3.844	0.000*
Seeking social support coping, Mean		7.96	9.10	-1.262	0.213
Avoidance coping, Mean		15.56	13.00	3.398	0.001*
SCARF social functioning index (SSFI)	Mean	52.58	56.08	-2.401	0.020*
	>60 (mild impairment), N (%)	7 (14)	12 (24)		
	30-60 (moderate impairment), N (%)	43 (86)	38 (76)		
	<30 (severe impairment), N (%)	0	0		

*$p < 0.05$

Table-7: Correlation amongst social functioning and coping strategies

Social Functioning Versus	Patients		Spouses	
	Pearson Correlation	Sig. (2-tailed)	Pearson Correlation	Sig. (2-tailed)
Problem Focussed Coping	0.32*	0.023	0.29*	0.035
Seeking Social Support Coping	0.45*	0.001	0.45*	0.001
Avoidance Coping	-0.05	0.706	-0.51*	0

*$p < 0.05$

Table 8: Correlation amongst different coping strategies

	Patients		Spouses	
	Pearson Correlation	Sig. (2-tailed)	Pearson Correlation	Sig. (2-tailed)
Problem Focussed Vs. Seeking Social Support	0.68*	0.000	0.60*	0.000
Avoidance Vs. Problem Focussed	-0.30*	0.029	-0.31*	0.024
Avoidance Vs. Seeking Social Support	-0.34*	0.014	-0.54*	0.000

*$p < 0.05$

other. Both seeking social support (patients, r=0.45, p=0.001; spouses, r=0.45, p=0.001) and problem focused type (patients, r= 0.32, p=0.023; spouses, r=0.29, p=0.035) of coping strategies were found to have positive correlation with social functioning in both patients as well as spouses. Also a negative correlation was found for social functioning with the avoidance type of coping in both patients and spouses, the results being significant for the spouses (r= -0.51, p=0.000).

On the similar lines, in both patients and spouses, avoidance was found to have negative correlation with problem focused (Patients, r=-0.30, p=0.029; Spouses, r= -0.31, p=0.024) as well as seeking social support (Patients, r=-0.34, p=0.014; Spouses, r=-0.54, p=0.000) types of coping. Also, a strong positive correlation was amongst problem focused and seeking social support types of coping in both patients (r=0.68, p=0.000) as well as spouses (r=0.60, p=0.000).

Discussion

This study was undertaken with the aim to assess the effects of demographic and illness factors on coping strategies and social functioning of patients with depression and their spouses and also to assess intra spouse differences.

In accordance with the previous studies,[22,23] spouses reported to be using more of problem focused coping compared to patients whereas patients were using more of avoidance. Also, though there was a decline in social functioning of both patients and their spouses, patients were reported to have significantly lower level of social functioning compared to their non-depressed spouses. These findings seem to go in accordance with the common knowledge of poor functioning in patients. Also, previously studies have reported deteriorated functioning in spouses of depressed patients as well compared to community controls but the current study had no such control group.[31]

Effect of demographic factors: No demographic factors, except family history of psychiatric illness, were found to have significant effect over social functioning and coping in either patients or spouses. The interesting findings were that the patients with the positive family history of psychiatric illness had more tendencies to seek social support compared to patients having no family history. Also spouses of patients with positive family history have a better social functioning than spouses of patients with negative family history. This could be possibly because positive family history leads to greater exposure to psychiatric illness in the couple, and thus harbors a better knowledge about illness and attempts to seek even more knowledge and help to overcome their problems. No study to date reporting similar findings could be found.

Effects of illness factors

Effect of Severity of depression: Patient's severity of illness seems to have a definite impact on the social functioning of the patients. Current study reported worsening of social functioning in patients with increasing severity of illness. In contrast, the social functioning of spouses didn't seem to be affected by the symptom severity of the patients. This might be due to independence of spouses' social functioning from patient's severity of symptoms.

Coping strategies are also significantly affected by the illness severity. Amongst patients, coping changes from problem focused to avoidance as severity increases, whereas amongst spouses, change occurs from avoidance to seeking social support. This goes with the findings of Satija et al. which reported the patients suffering from mild depression tend to use more of approach coping responses and those with severe depression use avoidance coping.[17] Few other studies also report of significant positive association amongst maladaptive coping styles and illness severity.[32,33] This might be because increasing severity of illness distorts patient's cognition and thus affects the way to cope with stressful situation. Regarding spouses, it may be because during the phase of mild illness, they perceive symptoms to be under patient's control and thus tends to avoids them but as the severity increases, they try to seek help from other sources to cope with the increasing stressors. But whether it is a continuous process i.e. a transition occurs from avoidance to seek social support in spouses and from problem focused to avoidance in patients in the same couple, will need a longitudinal study to be assessed.

Effects of duration of untreated illness: With regard to DUI, the study found no difference in social functioning of spouses. Interestingly, patients reported better social functioning with DUI > 12

months compared to patients with DUI d" 12 months. The probable explanation might be that with time, individual eventually learns to adapt to their situation and makes attempt to improve their social interaction. Secondly, maybe there is a need to revise the cut-off of 12 months asno variation in social functioning was found when assessment was made with DUI as a continuous variable.

Assessment of coping strategies with DUI revealed no significant differences in either patients or spouses when compared with 12 month cut off for DUI. But as the DUI was taken as a continuous variable, significant correlation was found for seeking social support coping style. The correlation was negative for the spouses and positive for the patients, i.e. with increasing DUI, spouses use less of seeking social support and patients use more of it. These findings may be hypothesized amongst spouses as development of tolerance for the symptoms and thus decreased use of social support. In patients, it may be explained as an attempt to break their vicious cycle of symptoms, distress, avoidance and more symptoms by seeking more social support.

Limitations

The sample size of 50 couples is relatively small for generalization of results to larger community. Moreover, the cross sectional study design limits the delineation of cause-effect relationships, if any and changes over time as severity of illness or duration of illness increases.

Thus, a longitudinal study design with larger sample size may provide with better results.

Conclusions

Patients with depression tend to use avoidance coping more often than their spouses who use more of problem focused coping. Both groups suffer from deteriorated social functioning though it is significantly more for the patients and worsens further with increasing illness severity for patient group. With regard to severity of illness, shift occurs in patients from problem focused coping to avoidance & in spouses from avoidance to seeking social support, with increasing illness severity. With increase of DUI, seeking of social support by the spouse decreases and patients have better social functioning. Family history of psychiatric illness also has significant impact over coping as well as social functioning with no effect of any other demographic factor. Social functioning has a positive correlation with problem focused and seeking social support types of coping strategies.

Ways of coping have significant impacts over any person's life and also seems to affect the social functioning. Thus, adaptive ways of coping shall be encouraged compared to maladaptive coping styles. Since, we observed that patients begin to use avoidance in contrast to problem focused coping with increasing illness severity, thus, intervention at stage of mild illness may be helpful in maintaining adaptive coping & subsequently social functioning of patients.

Also since social functioning of spouses also deteriorates, thus, provision for better professional support and participation in self-help groups may be warranted to help the spouses of mentally ill people.

Future directions

It would be beneficial to further assess the preliminary findings of our study on effects of family history on an individual's life. Concept of DUI also warrants evaluation for depression as it seems to have an impact on individual's illness and life and the norms till now are not well established.

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Original Article

Effectiveness of Mindfulness (VIPASANA) Meditation for Graceful Greying: A Follow-up Study

Deoshree Akhouri, Maria Madiha
Department of Psychiatry, Jawaharlal Nehru Medical College & Hospital, Aligarh Muslim University, Aligarh, Uttar Pradesh, India
Contact: Deoshree Akhouri, E-mail: drdeoshreeakhouri@gmail.com

Abstract

Introduction: *Population Census of India (2011) indicates that there are approximately 104 million old people in India (aging 60 and above) of which 53 million are females and 51 are males. Due to the changes in later stage of life (old age), various problems are encountered by old people such as retirement, loss of spouse, deteriorating health, cognition, etc. This paper aims to provide a better day-to-day management strategy for healthy aging, i.e.through mindfulness.****Objectives:*** *To assess stress, anxiety, depression, hopelessness, life satisfaction and quality of life of old people at baseline level. To see the effect of mindfulness meditation on various psychological domains and compare them (from pre-to-post-to-follow-up). To assess and compare the effectiveness level of mindfulness from-pre-to-post-to-follow-up.* ***Methods:*** *Total of 30 participants were approached from various localities of Aligarh, of which 20 were retained for the study. Participants were given training once a week in Psychological Research Lab of Psychiatry Department, up to 16 sessions for 2 months. Follow-up was done after 3 months of termination of therapy, where they practiced mindfulness daily. Assessment was done using Perceived Stress Scale, Hamilton Anxiety Scale, Beck Depression Inventory, Beck Hopelessness Scale, The Satisfaction with Life Scale and WHO Quality of Life along with General Health Questionnaire-12, Five Facets Mindfulness Questionnaire.* ***Results and Conclusions:*** *Result shows significant effect of mindfulness (Vipasana) on elders on their various psychosocial domains. The result also indicates daily practice of mindfulness meditation improves level of mindfulness. It could be concluded that there is a significant effect of mindfulness (Vipasana) meditation on different psychosocial factors for healthy aging. Mindfulness meditationis one such technique, when involved in day-to-day practice will help in improving various psychosocial factors, requiring no financial assistance or constant supervision of the therapist.*

Keywords:*Mindfulness meditation, Vipasana, Stress, Life satisfaction, Quality of life.*

Introduction

World Health Organisation(WHO)[1] defines healthy aging as a process of developing and maintaining the functional ability, enabling the well-being in old age. The functional abilities include-ability to meet basic needs, to grow and make decisions, maintain-ing relationships and contributing to the society. Healthy aging has become WHO's focus on aging from 2015-2030, replacing Active Aging Policy Framework of 2002.

According to WHO's report, as of 2010, there are about 524 million people of age 65 and above, contributing to 8% of world's population which is to increase to 16% by 2050.[2] It is estimated that

between 2010 and 2050, the number of people in less developed countries will increase about 250% in comparison to number of people in developed countries, i.e. 71%. Population Census of India (2011) indicates that there are approximately 104 million old people in India (aging 60 and above) of which 53 million are females and 51 are males.[3] The increment in population could be attributed to economic well-being, better medical facilities and reduced fertility rates. Day-by-day increase in old age population, there is a need to manage it and provide the best possible way for healthy aging.

Due to the changes in later stage of life (old age), various problems are encountered by old people such as retirement, loss of spouse, deteriorating health, cognition, etc.[4,5] These problems produce stress among them and continuous stress leads to anxiety, depression and even hopelessness which affect their livelihood. Such conditions also reduce their quality of living and their life satisfaction particularly after the age of 75 (Department of Health).[6] The health concerns related to old age includes susceptibility to illness like cancer, Alzheimer's, etc.[7,8]

Although, there has not been found great prevalence of mental conditions in old people,[9] depression has been associated with old age, which could be attributed to loss of mobility[10] or social isolation.[11] The idea of taking everything related to health into consideration can be easily inferred from WHO definition of health, i.e. "a state of complete physical, mental and social well-being and not merely the absence of disease or infirmity".[12]

Mindfulness is a psychological process of bring--ing one's attention to experiences occurring in the present moment, which can be developed through the practice of meditation and other training.[13,14] It is the maintaining of one's awareness towards their thoughts, feelings, body, etc. Further on, it involves accepting and paying attention to those thoughts and feelings without being judgemental or thinking whether they are right or wrong.[15]

Mindfulness is a technique that helps in managing mental health by focusing attention to present-what's happening in one's body, mind, surrounding, etc. at present.[16] In different cultures it is known by different names, such as yoga, tai chi, qigong, etc. In Buddhist tradition, mindfulness is considered to develop through self-knowledge and wisdom which further leads to enlightenment.[17] There are different types of mindfulness-based techniques that are in use but the most commonly used is mindfulness-based stress reduction technique (MBSR).[13] Mindfulness is a therapeutic technique where individual observes his/her own behaviour, thoughts, feelings, etc.[18] Various studies have been conducted to see the effect of mindfulness meditation on different factors related to old age, especially cognitive impairments in people with Alzheimer's and dementia.[19,20]

On the basis of these studies, it could be inferred that if mindfulness meditation could have positive effect on maintaining cognitive abilities in old age, why it can't be considered to be effective enough before the commencement of such conditions. The aim of present study is to improve overall psychological conditions of the older people and make them less dependent on others which we can call graceful greying.

Objectives

1. To assess stress, anxiety, depression, hopelessness, life satisfaction and quality of life of old people at baseline level.
2. To see the effect of mindfulness meditation on various psychological domains and compare them (from pre-to-post-to-follow-up).
3. To assess and compare the effectiveness level of mindfulness from-pre-to-post-to-follow-up.

Methods

Sample: The total numbers of 30 old people were selected from Aligarh. Those meeting the inclusion and exclusion criteria were retained for the study while others were spared.

Inclusion criteria

- Age 60 years and above
- People with no psychiatric illness or severe medical condition
- People showing mild-to-moderate levels of stress, anxiety, depression, hopelessness, life satisfaction and quality of life

Exclusion criteria

- People not falling under age range
- Having psychiatric illness or severe medical

condition
- People who scored more than 3 on GHQ-12
- People who showed low or severe levels of stress, anxiety, depression and hopelessness and life satisfaction and good quality of life

Tools Used

1. ***Socio-Demographic and Clinical Data Sheet*** - Participant's details concerning their clinical and personal information was collected using semi-structured clinical and personal data sheet.
2. ***General Health Questionnaire-12***- is used to assess the general mental health of individuals[21].
3. ***Perceived Stress Scale*** - is a 5-point rating scale consisting of 10 items. 0-13 scores indicate low stress, 14-26 moderate stress and 27-40 high perceived stress.[22]
4. ***Hamilton Anxiety Scale (HAM-A)***- is a 14 items scale rated on 5-points. Each item is scored on a scale of 0 (not present) to 4 (severe), with a total score range of 0–56, where <17 indicates mild severity, 18–24 mild to moderate severity and 25–30 moderate to severe[23].
5. ***Beck Depression Inventory (BDI-2)***- consists of 21 items rated on 4-point rating. Scores 1-10 are considered normal, 11-16 mild mood disturbance 17-20, borderline clinical depression 21-30 moderate depression, 31-40 severe depression and over 40 extreme depression.[24]
6. ***Beck Hopelessness Scale***-was developed by Aaron Beck and is a 20 items scale. Scores 0-3 is none or minimal hopelessness, 4-8 is Mild, 9-14 is Moderate and 15+ is Severe.[25]
7. ***The Satisfaction with Life Scale***- is a 7 items scale rated on 5-points, designed to measure global cognitive judgments of one's life satisfaction (not a measure of either positive or negative affect). Participants indicate how much they agree or disagree with each of the 5 items using a 7-point scale that ranges from 7 strongly agree to 1 strongly disagree. Normative data are presented for the scale, which shows good convergent validity with other scales and with other types of assessments of subjective well-being.The higher the score, the higher is the life satisfaction.[26]
8. ***WHO Quality of Life- BREF***- consists of 26 items among them 24 items are based on a 4 domain structure that is Physical, health, Psychological, Social Relationships and Environment, in addition 2 items are from the Overall Quality of Life and General Health facet. The items are based on 5 point Likert Scale ranging from very poor, poor, neither poor nor good, good and very good. The higher the score, the higher is the quality of life.[27]
9. ***Five Facet Mindfulness Questionnaire (FFMQ)*** - is a 24 items scale, with 5-point rating. The higher the score, the higher is the mindfulness.[28]

Procedure - Total of 30 old people were approached and asked for their consent for the present study. Their level of stress, anxiety, depression, hopelessness, life-satisfaction and quality of life were assessed using Perceived Stress Scale, Hamilton Anxiety Scale, Beck Depression Inventory, Beck Hopelessness Scale, The Satisfaction with Life Scale and WHO Quality of Life respectively. The level of mindfulness was assessed every week after the session by using Five Facet Mindfulness Questionnaire. Along with the administration of these tests, their general psychological health was also assessed using General Health Questionnaire-12 (GHQ-12). Of 30 people, 4 people scored more than 3 on GHQ-12, 6 had no stress, anxiety, depression and no decreased life satisfaction, quality of life and level of mindfulness were excluded and remaining 20 who had stress, anxiety, depression, decreased life satisfaction, quality of life and level of mindfulness were selected for the study. These people were reported to have hypertension and diabetes only and no major psychiatric or severe medical condition.

Later on, selected participants were visited personally, to explain in detail the relevance of this study, importance and effectiveness of mindfulness meditation in improving various psychosocial factors and were motivated to adapt it into their daily living. They were given training twice a week in Sir Syed

Park of Aligarh Muslim University, up to 16 sessions for 2 months. The session took place from 6 am to 7 am, considering this schedule did not hamper their work-life.After the 2 months of therapy, the above mentioned scales were reassessed to see the effect of mindfulness (Vipasana) meditation on reduction of stress, anxiety and depression and increment in life satisfaction, quality of life and level of mindfulness of elderly. Before the termination of the therapy, they were instructed to continue the practice of mindfulness meditation daily for the healthy aging.

After 2 months of intervention, follow up assessment was done after 3 months, where same scales were re-administered. In these 3 months, we kept visiting them weekly, to see whether they were practicing mindfulness meditation regularly or not.

Statistical Analysis

Using SPSS version 21, chi-square (x^2) was used to see the effect of mindfulness meditation from pre-to-post-to-follow-up-intervention. Pie chart was used to show the socio-demographic details of the patients and to represent the effect of mindfulness meditation on different psychosocial factors. The column graph also depicts the increasing level of mindfulness among the elderly after every intervention.

Module of Mindfulness Meditation - The module had been prepared according to the purpose of the study.[29]

1. In session 1 and 2 rapport was build through personal visit; they were questioned about what is their lives purpose at this stage, how they will survive without their partners, what to do after retirement, etc. and they were also explained how mindfulness meditation works. The different psychological tools were administered.
2. Session 3, 4 & 5 focused on full Body Scan Mindfulness. Elderly were instructed to lie-down on their backs and extend their legs with feet-hip wide apart and arms by their sides with palms facing upside. It helps to focus awareness slowly, deliberately and systematically throughout the body, i.e. full body scan.
3. Mindfulness Acceptance was introduced in session 6, where acceptance of old age and its related aspects were explained.
4. Mindful Breathing is a 3 minutes breathe-in breathe-out technique when distracting thoughts occur old people are instructed to think that "I'm breathing". This technique was introduced in session 7.
5. Sitting Mindfulness was introduced in Session 8 & 9. In this, elderly were asked to sit comfortably and think of something that soothes them, making their intentions clear and gently letting it go as they focus their attention on sitting position.
6. Mindful Walking in Session 10 & 11. This type of meditation involves both standing and walking. They were provided with quite place (park), where they can walk back and forth.
7. Session 12 & 13 emphasised on Mindful Sleeping i.e. elders were instructed to relax and letting go of stress and tension first in order to be able to achieve mindful sleeping.
8. Mindful Eating was introduced in Session 14 & 15. In this particular technique, while eating, people are asked to pay attention to the food, what they are eating, how does it tastes, how it crumbles in their mouth, etc.
9. Post-intervention assessment was done using different psychological tools in Session 16. The level of mindfulness was assessed every week after the session.

Results

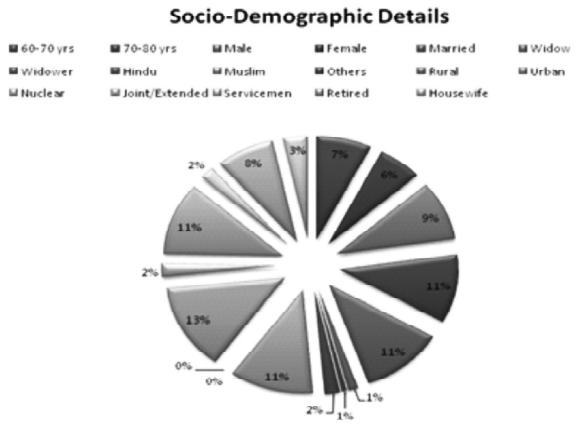
Table 1 and Graph 1 explains the socio demographic details of the sample, where most of the old people were married (85%), retired (60%) and belonging from urban area (100%).

Table 2 & 3 explains the effectiveness of mindfulness meditation intervention from-pre-to-post-to-follow-up, on different psychosocial domains, i.e. it reduces stress, anxiety, depression, hopelessness and increases life satisfaction and quality of life of old people. The x^2 was used for comparing the effect of mindfulness meditation (pre-post-follow-up). The table shows Mean, SD and x^2 values of different psychosocial domains.

The results indicated that there has been a significant reduction of stress from pre-intervention (M = 23.05, SD = 2.05) to post-intervention (M = 5.65, SD = 1.90), indicating the significant difference (x^2 = 10.6, sig. <0.05). Anxiety reduced from M =

Table-1. Showing socio-demographic details of Elderly

Characteristics	Caregivers (n=20), %
Age (in years)	
60-70	(11) 55
70-80	(9) 45
Gender	
Male	(14) 70
Female	(6) 30
Marital Status	
Married	(17) 85
Widow	(2) 10
Widower	(1) 5
Religion	
Hindu	(3) 15
Muslim	(17) 85
Others	0
Domicile	
Rural	0
Urban	(20) 100
Family Type	
Nuclear	(3) 15
Joint/Extended	(17) 85
Occupation	
Servicemen	(3) 15
Retired	(12) 60
Housewife	(5) 25



Graph-1. Shows the socio-demographic details of the participants

change in level of hopelessness from M = 10.75, SD = 1.65 (pre-intervention) to M = 2.80, SD = 0.89 (post-intervention), indicating the significant difference (x^2 = 12.9, <0.05).

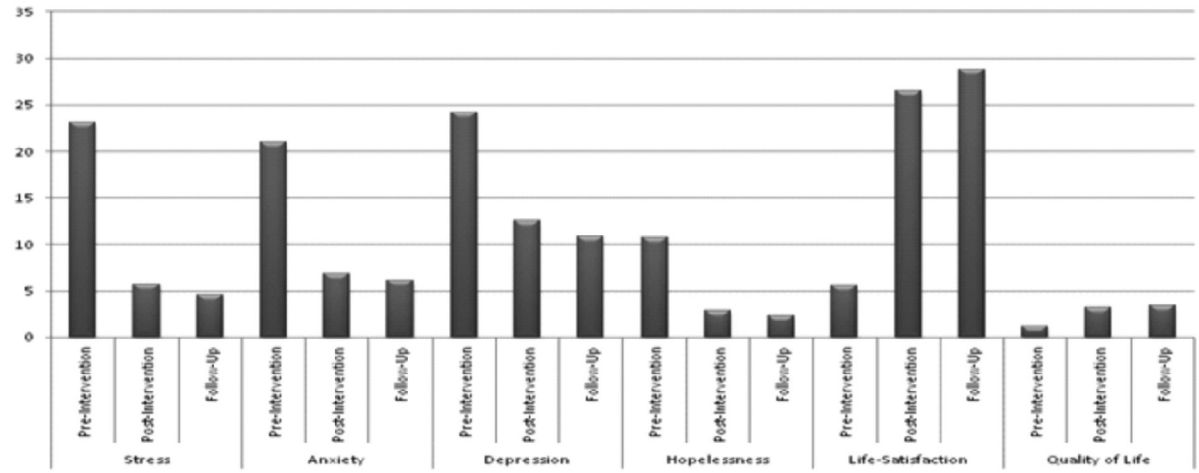
Increment of life satisfaction was found from pre-intervention (M = 5.60, SD = 1.35) to post-intervention (M = 26.50, SD = 1.60). This increment is indicated through x^2, i.e. 5.2, significant at <0.05 level. Quality of life has also improved from pre-

Table-2. Shows the effectiveness of mindfulness meditation on different psychosocialdomains (pre-intervention-to-post-intervention)

Variables		M	SD	x^2	Sig.
Pre Intervention	Stress	23.05	2.05	10.6	<0.05
Post Intervention	Stress	5.65	1.90		
Pre Intervention	Anxiety	21.00	1.41	10.6	<0.05
Post Intervention	Anxiety	6.85	1.30		
Pre Intervention	Depression	24.15	2.01	4.8	<0.05
Post Intervention	Depression	12.60	1.87		
Pre Intervention	Hopelessness	10.75	1.65	12.9	<0.05
Post Intervention	Hopelessness	2.80	0.89		
Pre Intervention	Life Satisfaction	5.60	1.35	5.2	<0.05
Post Intervention	Life Satisfaction	26.50	1.60		
Pre Intervention	Quality of Life	1.07	5.70	6.4	<0.05
Post Intervention	Quality of Life	3.22	16.51		

21, SD = 1.41 (pre-intervention) to M = 6.85, SD = 1.30 (post-intervention), explaining the significant difference, i.e. x^2 = 10.6, sig. <0.05. The respective table also explains the reduction in depression level, M = 24.15, SD = 2.01 (pre-intervention) to M = 12.60, SD = 1.87 (post-intervention). x^2 (4.8) found significant at <0.05 level. Table also shows the intervention (M = 1.07, SD = 5.70) to post-intervention (M = 3.22, SD = 16.51). It is found significant at <0.05 level with x^2 = 6.4.

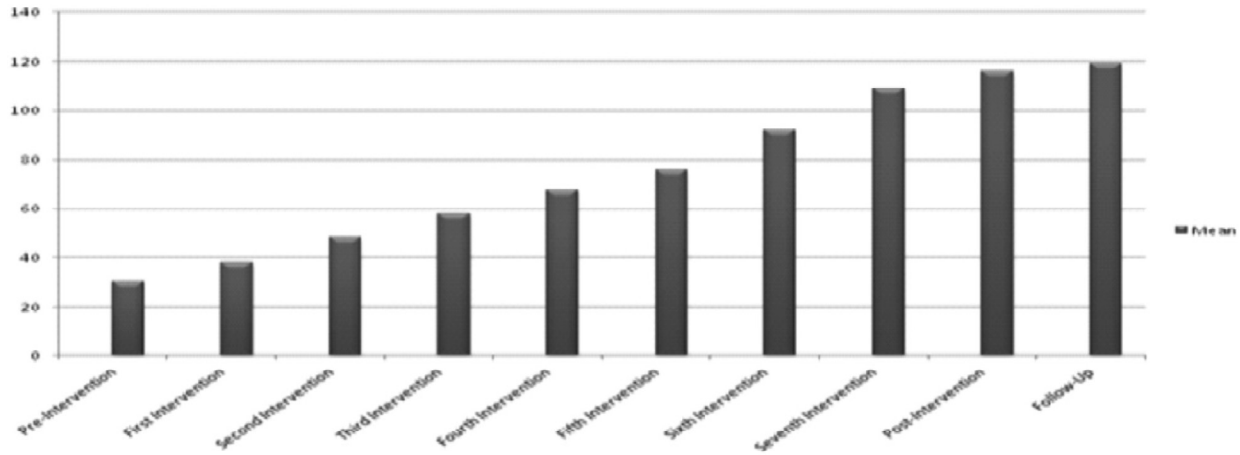
After the follow-up, the effect of mindfulness (Vipasana) meditation was present on stress (M = 4.06, SD = 0.94); anxiety (M = 6.10, SD = 0.64); depression (M = 10.90, SD = 1.37) and hopelessness



Graph-2. Shows the Mean scores on psychosocial domains from pre-to-post-to-follow-up of the study.

Table 3 shows the effectiveness of mindfulness meditation on various psychosocial domains (post-intervention-to-follow-up)

Variables		M	SD	x^2	Sig.
Post Intervention	Stress	5.65	1.90	2	<0.05
Follow-Up		4.60	0.94		
Post Intervention	Anxiety	6.85	1.30	2	<0.05
Follow-Up		6.10	0.64		
Post Intervention	Depression	12.60	1.87	4.5	<0.05
Follow-Up		10.90	1.37		
Post Intervention	Hopelessness	2.80	0.89	4.8	<0.05
Follow-Up		2.35	0.58		
Post Intervention	Life Satisfaction	26.50	1.60	8	<0.05
Follow-Up		28.85	1.08		
Post Intervention	Quality of Life	3.22	16.51	13	<0.05
Follow-Up		3.40	19.06		



Graph-3. Shows Mean scores, explaining the effectiveness level of mindfulness from pre-to-post-to-follow-up

(M = 2.34, SD = 0.58). The effect of mindfulness meditation has lead to the increase of life satisfaction (M = 28.85, SD = 1.08) and quality of life also (M = 3.40, SD = 19.06), significant at <0.05 level.

Graph 2 shows how mean has changed from pre-intervention of mindfulness meditation to post-intervention. After 2 months of intervention, mean score of different psychosocial variables such as stress, anxiety, depression and hopelessness has decreased whereas mean score of life satisfaction and quality of life has increased after intervention.

Table 4 indicates effect of mindfulness meditation on level of mindfulness on elderly from pre-intervention (M = 1.16, SD = 1.10) to post-intervention (M = 1.27, SD = 1.75) to follow-up (M = 1.28, SD = 0.87), significant at <0.05 level.

Table-4. shows level of mindfulness of Elderly

	M	SD	x^2	Sig.
Pre Intervention	1.16	1.10		
Post Intervention	1.27	1.75	1.664	<0.05
Follow-Up	1.28	0.59		

Graph 3 shows the mean score which helps in understanding how level of mindfulness is increasing with every intervention from baseline to follow-up.

Discussion

As a person's life progresses from adulthood to old age, various problems and concern arises, such as deteriorating health, retirement, death of spouse, etc. Accepting and adjusting to these changes in a healthy manner is very important for elders. If these changes are not met properly, it may lead to various psychological problems, such as stress anxiety, depression, hopelessness, etc. Mindfulness (Vipasana) meditation is being seen as an emerging technique to help people overcome their psychological difficulties[30] and it is proving quite effective for old people in their aging process.[31] If old people practice mindfulness every day, realising its importance, their aging process will be graceful and healthy. Mindfulness not only reduces stress, anxiety or hopelessness but it also improves quality of living and enhances life satisfaction.

The main aim of the present study was to see the effectiveness of mindfulness meditation for healthy aging. Various studies have been conducted to explain the importance of mindfulness for old people. Ricky T Munoz (2016) conducted a study to explain the effect of mindfulness meditation on hope and stress. The study indicated that mindfulness significantly increases hope and reduces stress.[32] A study done by A Smith et al in 2007, indicated that mindfulness based cognitive therapy (MBCT) is quite effective in reducing depression among old people.[33] Our study supports these studies, indicating how mindfulness meditation reduces level of stress and depression (Table 2 & 3).

Similar study done by Lotte Berk in 2017 showed significant influence of mindfulness on stress reduction.[34] The present study supports the previous findings indicating that mindfulness (Vipasana) meditation has significant effect on reducing stress, anxiety, aggression, etc. and improving life satisfaction and quality of life of old people (Table 2 & 3). In the present study, it is also found that mindfulness intervention increases life satisfaction in elderly. Edelweiss Bester (2016) earlier conducted a study assessing the relationship between mindfulness and life satisfaction and found that mindfulness indeed effects life satisfaction of old people,[35] hence supported by our study.

Overall, the present study indicates how mindfulness (Vipasana) meditation has significantly increased the quality of life of elderly while reducing their level of stress, anxiety, etc. During the study, elderly themselves expressed how level of hypertension and diabetes is under normal range, which used to be on the higher side even with medication, showing their enthusiasm towards mindfulness meditation. By teaching them to pay attention to their life experiences, without any judgement, they could live a happy and healthy life.[36] Mindfulness eating, for example, is something that could be practiced by them while they are eating. Instead of just consuming the food, all they have to do is to eat it mindfully. The goal of mindful living for healthy aging could be achieved by explaining

the effectiveness of mindfulness techniques as a new step towards happy and graceful aging, requiring little or no financial assistance. The present study explains the importance mindfulness meditation from-pre-to-post-intervention and it also explains how this intervention is static and there's only a slight change, from-post-to-follow-up-intervention.

Conclusion

The present study indicates that there is a significant effect of mindfulness (Vipasana) meditation on different psychosocial factors and level of mindfulness of old people. With the follow-up assessment, study also explains that continued practice of mindfulness, even at home, helped in maintaining their psychological wellbeing.

Limitations

1. Sample size used in the study is small which is why the result cannot be generalized to a larger population.
2. There is no control group to compare the results.

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Original Article

Perceived Stress, Emotion Dysregulation and Quality of Life: A Correlational Study

[1]Harshmeet Kaur, [2]Shruti Shourie
Department of Psychology, Panjab University[1], Chandigarh and Dayanand Anglovedic College[2], Chandigarh
Contact: Harshmeet Kaur, Email: harshmeetkaur8@gmail.com

Abstract

Background:*Adolescence is immensely crucial phase in terms transitions and being gateway to adulthood. Developmental changes present number of challenges which are closely linked with increase in negative emotional states like anxiety, stress, anger etc.* ***Objective:*** *The present study investigated the relationship between perceived stress, emotion dysregulation and quality of life among adolescents.* ***Method:*** *An incidental sample of 250 adolescents (boys and girls) aged 16-18 years were taken from Government Model Senior Secondary Schools of Chandigarh and were administered three measures i.e. Perceived Stress Scale by Cohen, Kamarck, and Mermelstein (1983), Difficulties in Emotion Regulation by Gratz and Roemer (2004) and World Health Organization Quality of Life-BREF by WHOQOL Group (1998). The WHOQOL Group conceptualized well-being in terms of quality of life. The present investigation has taken quality of life as a measure well-being. The results were analyzed using Pearson Product Moment Correlation Method.* ***Results:****Revealed significant and inverse relationship between perceived stress and quality of life. Significant and inverse relationship was found between difficulties in emotion regulation and quality of life.* ***Conclusion:*** *Findings from the present study bring out determining role of critical negative emotional states which can be focused in devising comprehensive intervention plans to help adolescents march towards a higher quality of life.*

Keywords: *Stress, Emotion Dysregulation, Adolescents, Quality of Life*

Introduction

World Health Organization has defined adolescence as an age between 10-19 years. This period is full of excitement and emotional upheaval. Rapid developmental changes pose number of dilemmas among adolescents. Disruption to acquire these changes can have adverse long-term effects on individuals, families, and communities.In the course of normal development, adolescents are capable of developing self-regulation strategies and becoming emotionally competent.[1] They understand the importance of communicating emotions constructively to maintain friendships and become aware of mutual and reciprocal emotional self-disclosure among peer groups.[2]

G. Stanley Hall conceptualized adolescence period as "a period of storm and stress". The speed and magnitude of transitional changes may build pressure on coping abilities of adolescents leading to stress.[3] Stressful life events including major events as well as daily hassles are regarded as potential threats to well-being of adolescents, although minor stressful events are considered to be normal part of development[4]. Followers of holistic medicine have defined "Stress as the inability to cope with a perceived (real or imagined) threat to one's mental, physical, emotional, and spiritual well-being, which results in a series of physiological responses and adaptations" (as discussed in Steward[5]).Stress-exposure models emphasized that stressful events

lead to maladaptive emotions and behavior. The models highlighted that stress in environmental contexts can have adverse effect in adolescents' lives'. Stress-generation models emphasized that stressful events are the outcome of maladaptive emotions and behavior. The reciprocal stress model holds the combined view of the above given models i.e. stressful life events predict and result from maladaptive emotions and behavior.[6]

Emotion dysregulation regulation is associated with development and maintenance of psychopathology, thus affecting well-being. Gratz et al[7]. (2004) conceptualized difficulties with emotion regulation as "involving the (a) non-acceptance of emotional responses (b) difficulties engaging in a goal directed behaviour (c) difficulties to control impulsive behaviors (d) difficulties in emotional awareness (e) difficulties in using appropriate emotion regulation strategies and (d) difficulties related to emotional clarity". Based on this model, authors developed Difficulties in Emotion Regulation Scale (DERS).Accumulating evidence has indicated emotion dysregulation has been linked with internalizing and externalizing problems in adolescents.[8]

The WHOQOL Group[9] conceptualized well-being in terms of quality of life. Quality of life has been defined as "an individual's perception of their position in life with respect to culture and value systems in which they live, and in relation to their goals, expectations, standards, and concerns." (c.f. Singh, Junnarkar, & Kaur[10]). Based on definition, The WHOQOL group[9] devised an assessment tool to measure physical quality of life, psychological quality of life, environmental quality of life and social quality of life.

The present study investigated the relationship between perceived stress, emotion dysregulation and quality of life among adolescents. Indian psychologists and researchers are working to improve adolescent well-being. Still, the research related to these constructs in India is scanty.

Methodology

Objectives

1. To study the relationship between perceived stress and quality of life among adolescents.
2. To study the relationship between emotion dysregulation and quality of life among adolescents.

Hypotheses

1. There would be a positive relationship between perceived stress and quality of life among adolescents.
2. There would be a positive relationship between emotion dysregulation and quality of life among adolescents.

Participants

The present study was conducted among 250 adolescents with age range 16-18 years from Government Model Senior Secondary Schools of Chandigarh. Sample included equal number of adolescent boys and girls (Boys = 125, Girls = 125).

Measures

Perceived Stress Scale by Cohen et al[11] measures degree of perceived stress. It is a 10 item scale. The responses are given using a 5 point Likert type scale. It is a psychometrically sound global measure. The scale can be administered to high school students as well as adults. In India, the scale has been used by various researchers (For example, Watode, Kishore, & Kohli[12]).

Difficulties in Emotional Regulation Scale by Gratz et al[7] measures emotional dysregulation. The scale measures six facets viz. Non-acceptance of emotional responses, Goal difficulties, Impulse control difficulties, Awareness difficulties, strategies difficulties, and clarity difficulties. It is a 36 item scale. The scale has been translated and validated across a number of countries like France, Portugal, Mexico, Netherlands, Argentina, United States, Spain, Australia, Hungary, Turkey, Italy, in both clinical and non-clinical samples.[7]

World Health Organization Quality of Life-BREF Scale by WHOQOL GROUP[9]measures quality of life in four domains which are Physical, Psychological, Social and Environment. It is a 26 item scale. The responses are given on a 5 point Likert-type scale. The 24 items produce a score across 4 domains. The scale has been used with adolescents in Western[13] and Indian settings[14].

All of the above scales are psychometrically sound global measures.

Results

Means and standard deviations are given

in Table-1.

Table-1 Means and Standard Deviations (N=250)

Variables	Mean	SD
PS	20.99	8.27
NAER	16.19	5.34
GD	15.60	4.78
ID	15.87	4.52
AD	16.80	5.56
SD	18.68	6.45
CD	13.31	4.12
DER	96.50	25.92
PHY-QOL	25.64	4.13
PSY-QOL	21.64	4.44
SOC-QOL	9.82	2.75
ENV-QOL	27.77	5.65

Note: PS = perceived stress, NAER = non-acceptance of emotional responses, GD = goal difficulties, ID = impulse difficulties, AD = awareness difficulties, SD = strategies difficulties, CD = clarity difficulties, DER = difficulties in emotion regulation, PHY-QOL = physical quality of life, PSY-QOL = psychological quality of life, SOC-QOL = social quality of life, ENV-QOL = environmental quality of life.

The results in Table-2 indicate the following: Significant negative correlations were found between perceived stress and physical quality of life (r = - 0.71, $p \leq 0.01$), psychological quality of life(r = - 0.53, $p \leq 0.01$), social quality of life (r = - 0.63, $p \leq 0.01$), and environmental quality of life (r = - 0.44, $p \leq 0.01$).

The results for Table-3 indicate the following:

Significant negative correlations were found between non-acceptance of emotional responses and physical quality of life (r = - 0.69, $p \leq 0.01$), psychological quality of life (r = - 0.62, $p \leq 0.01$), social quality of life (r = - 0.67, $p \leq 0.01$), and environmental quality of life (r = - 0.48, $p \leq 0.01$). Significant negative correlations were found between goal difficulties and physical quality of life (r = - 0.67, $p \leq 0.01$), psychological quality of life (r = - 0.56, $p \leq 0.01$), social quality of life (r = - 0.57, $p \leq 0.01$), and environmental quality of life (r = - 0.34, $p \leq 0.01$). Significant negative correlations were found between impulse difficulties and physical quality of life (r = - 0.68, $p \leq 0.01$), psychological quality of life (r = - 0.57, $p \leq 0.01$), social quality of life (r = - 0.60, $p \leq 0.01$), and environmental quality of life (r = - 0.44, $p \leq 0.01$).Significant negative correlations were found between awareness difficulties and

Table-2. Correlation Matrix (N=250)

Variables	PHY-QOL	PSY-QOL	SOC-QOL	ENV-QOL	PS
PHY-QOL	1	.52**	.57**	.45**	-.71**
PSY-QOL		1	.52**	.37**	-.53**
SOC-QOL			1	.49**	-.63**
ENV-QOL				1	-.44**
PS					1

*Significant at .05, ** Significant at .01

Table-3 Correlation Matrix (N=250)

Variables	PHY-QOL	PSY-QOL	SOC-QOL	ENV-QOL	NAER	GD	ID	AD	SD	CD	DER
PHY-QOL	1	.52**	.57**	.45**	-.69**	-.67**	-.68**	-.63**	-.69**	-.67**	-.80**
PSY-QOL		1	.52**	.37**	-.62**	-.56**	-.57**	-.47**	-.42**	-.63**	-.64**
SOC-QOL			1	.49**	-.67**	-.57**	-.60**	-.61**	-.60**	-.62**	-.72**
ENV-QOL				1	-.48**	-.34**	-.44**	-.43**	-.38**	-.45**	-.50**
NAER					1	.68**	.69**	.67**	.65**	.70**	.87**
GD						1	.68**	.59**	.65**	.63**	.83**
ID							1	.63**	.69**	.66**	.85**
AD								1	.63**	.64**	.83**
SD									1	.64**	.86**
CD										1	.83**
DER											1

*Significant at .05, ** Significant at .01

physical quality of life (r = - 0.63, $p \leq 0.01$), psychological quality of life (r = - 0.47, $p \leq 0.01$), social quality of life (r = - 0.61, $p \leq 0.01$), and environmental quality of life (r = - 0.43, $p \leq 0.01$). Significant correlations were found between strategies difficulties and physical quality of life (r = - 0.69, $p \leq 0.01$), psychological quality of life (r = - 0.42, $p \leq 0.01$), social quality of life (r = - 0.60, $p \leq 0.01$), and environmental quality of life (r = - 0.38, $p \leq 0.01$). Significant correlations were found between clarity difficulties and physical quality of life (r = - 0.67, $p \leq 0.01$), psychological quality of life (r = - 0.63, $p \leq 0.01$), social quality of life (r = - 0.62, $p \leq 0.01$), and environmental quality of life (r = - 0.45, $p \leq 0.01$). Significant correlations were found between overall difficulties with emotion regulation and physical quality of life (r= - 0.80, $p \leq 0.01$), psychological quality of life (r= - 0.64, $p \leq 0.01$), social quality of life(r= - 0.72, $p \leq 0.01$), and environmental quality of life(r= - 0.50, $p \leq 0.01$).

Discussion

The results of the present study have indicated significant negative relationship between perceived stress and quality of life i.e. high perceived stress is linked with low quality of life. The finding is in line with existing studies that have found negative relationship between stress and well-being. Studies have indicated that stress is related to psychosomatic complaints,[15] subjective well-being[16] and psychological well-being.[17] The most common stressors encountered during adolescence can range from school related issues to interpersonal issues.[18,19] Common stressors during adolescence have been linked with externalizing and internalizing disorders.[20] Utilization of poor coping strategies can lead to poor adjustment and functioning.[20] The possible explanation for this relationship could be that individual's appraisals regarding stressful situation hold relevance to well-being. Adolescents' deliberate use of maladaptive coping mechanisms to deal with stress like aggressive coping, anger coping etc. negatively affects overall well-being.[15,21]

Significant negative relationship has been found between emotion dysregulation and quality of life. The finding is in line with existing studies that have found negative relationship between emotion dysregulation and well-being. Emotion dysregulation, if not managed can lead to externalizing and internalizing disorders[8] as well as psychopathology.[22] Mitrofan and Ciuluvicã[23] examined the relationship between difficulties with emotion regulation, aggression, and life satisfaction among high school students and undergraduates. The results indicated significant and positive correlation was found between anger, hostility, clarity difficulties, goal difficulties, impulse difficulties and non-acceptance of emotional responses. The level of aggression increased with difficulties with emotion regulation. Significant negative correlations were found between life satisfaction and difficulties with emotion regulation, anger, and hostility. High negative correlation was found between hostility and life satisfaction. Low reappraisal capacity maintained a high level of anger and hostility. The results of stepwise multiple regression indicated clarity difficulties and goal difficulties as the strongest predictors for life satisfaction. Pisani et al[24] studied the relationship between self-reported suicide attempts, emotion regulation difficulties, and positive youth-adult relationships among high-school students. Results indicated that difficulties with emotion regulation and lack of positive adult relationships were linked with increased risk for suicide attempt. The relationship between difficulties with emotion regulation and suicide attempts was moderately lower among students having positive adult relationships.

Conclusion

Eisenberg, Spinrad and Eggum[25] rightly pointed out that ability to manage one's emotions during stressful situations is considered to be a foundation for well-being in all domains of life and throughout the life span. Emotion regulation skills help in balancing affective and cognitive experiences and protect against the occurrence of emotional and behavioural difficulties.[26,27] School-going children should be imparted psychological skills training alongwith their conventional education which will help them build positive resources to deal with daily hassles and major stressors in life. Therapeutic interventions in clinical should focus on building emotion regulation capacity among clients so that they can deal with life's exigencies.

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Original Article

Outcome of Alcohol Dependence Syndrome: Role of pharmacological and non-pharmacological intervention

Ajeet Sidana, B.S. Chavan, Subhash Das, Tanupreet Kaur
Department of Psychiatry, Government Medical College & Hospital, Chandigarh
Contact: Ajeet Sidana, E-mail: ajeetsidana@hotmail.com

Abstract

Back ground: *Craving is considered to be one of the important factors leading to relapse. The major challenge in the treatment of patients with substance use disorders is to deal with craving and thus to prevent relapse.* ***Materials and Methods:*** *Case record files of patients with Alcohol Dependence Syndrome (ADS) were retrieved and analyzed for socio-demographic profile, clinical profile, substance use pattern, and treatment details after applying the coding plan. Patients were further assessed for abstinence status, substance use pattern and craving.* ***Results:*** *A total of 166 patients of ADS were registered from January 2016- June 2016. The study sample was predominantly male, mean age of 43.9 ± 8.2 years. At 6 months follow up 59.64%(n=99/166) of the subjects remained completely abstinent form alcohol .About 29% (n=48/166) of the patients used alcohol intermittently, which did not cause socio-occupational dysfunction. Thus, we can say that about 88% of the total sample remained well on treatment at 6 months follow up period. 72 out of 99 who remained abstinent were on Baclofen (i.e.72.7%), 17% were on Topiramte, 7.1 % were on SSRIs and remaining was on Naltrexone, Acamprosoate and others.* ***Conclusion:*** *Pharmacological treatment is effective to reduce craving and maintaining abstinence in patients with ADS. Combination of pharmacological and non-pharmacological intervention gives better results by enhancing the motivation, thus preventing relapse.*

Keywords: *Alcohol dependence, pharmacological treatment, Outcome.*

Introduction

Alcohol dependence represents a global health problem with high morbidity and mortality.[1] Alcohol not only impacts the health of the individual abusing alcohol, but it also has a great adverse impact on the economy and the social stability of the nation as a whole.[2] In India, alcohol consumption is one among the top ten risk factors and attribute to nearly 3% of DALYs lost.[3] The National Household Survey on Drug Use in the country reported alcohol use in about 21% of adult males.[4]

In 1964, a World Health Organization Expert Committee introduced the term "dependence" to replace the terms "addiction" and "habituation." The term can be used generally with reference to the whole range of psychoactive drugs (drug dependence, chemical dependence, substance use dependence) or with specific reference to a particular drug or class of drugs (e.g., alcohol dependence, opioid dependence).[5] Relapse is a complex and dynamic phenomenon and is being determined by interplay of various factors such as biological, psychological and social factors. The model of relapse as described by Marlatt and George suggests that both immediate determinants (e.g., high-risk situations, coping skills, outcome expectancies, and the abstinence violation effect) and covert antecedents (e.g., lifestyle factors

and urges and cravings) can contribute to relapse.[6] Continuation of alcohol use in a harmful manner may be due to various reasons. One of the prominent factors for continuation of alcohol use is the urge or craving for alcohol.[7] WHO defines craving as irresistible urge to either consume a substance or intense thought for its use. The underlying phenomenon associated with craving is still a subject of research. Currently, pharmacological interventions are not only effective for the treatment of alcohol related emergencies, such as alcohol intoxication and alcohol withdrawal syndrome, but also for reduction of craving and thus management of relapse prevention.[8] Several drugs combined with psychosocial treatments reduce alcohol consumption in controlled clinical trials and are currently used clinically for the treatment of alcohol dependence.

In the last decade, GABAergic agents such as Baclofen, a ã aminobutyric acid (GABA) B-receptor agonist and Topiramate, GABAergic anticonvulsants have been recommended for the treatment of alcohol dependence and the prevention of relapse.[9,10] Baclofen has been shown to reduce alcohol craving and enhanced abstinence in alcohol-dependent patients.[10] Evidence regarding use of selective serotonin reuptake inhibitors (SSRIs) to treat patients with ADS has been going since past decade; however, most of this work has used small samples and inconsistent outcome measures.

Literature from western countries is available on the use and effectiveness of newer molecules such as Baclofen in alcohol use disorder patients but limited data is available from developing countries like India.[10] In a study from the same centre reported that Baclofen reduces craving and alcohol consumption[7] and an another study also reported that baclofen fared better than topiramate at 3 months follow up period. [11]But comparison with other anti craving molecules such as Naltrexone, SSRIs, Acamprpsoate etc was not taken into account. Hence, the current study was planned to see the effects of Baclofen, SSRI, Topiramate and combination of pharmacological agents along with non pharmacological intervention to reduce craving in patients with alcohol dependence syndrome over a period of 6 months post-detoxification.

Materials and Methods

Case record files of patients with Alcohol Dependence Syndrome (ADS, ICD-10),[12] who were registered in the De-addiction clinic of Department of Psychiatry, Government Medical College & Hospital (GMCH),Chandigarh, India during the period of January 2016 to June 2016 and completed the detoxification process were retrieved and analyzed after applying the coding system. The data was analysed in the month of December, 2016.

Information were gathered from the Case Record Files of the patients and analyzed by consultant psychiatrist and resident doctor by using the coding plan for socio-demographic, clinical and follow up outcome variables. Diagnosis of alcohol dependence was established on the basis of ICD-10 criteria. Patient's previous treatment history and reasons for relapse in past were assessed in detail and accordingly planned for his current treatment.Patients having dependence on other substances except nicotine and caffeine were excluded from the study.

Patient's personal, psychosocial and personality factors responsible for intake and continuation of alcohol were addressed and managed for the same by non-pharmacological methods. The decision to start anti-craving medication depends upon clinical status of patient including liver status and affordability of patient and family. Patients were called for follow up after every 1-2 weeks initially for few weeks and then gradually increased to once in 3-4 weeks. Patients were assessed for abstinence status, number of follow up visits and craving as recorded by the consultant incharge in case record files of the patients. Socio-demographic profile, substance use pattern, and treatment details were also extracted from the records. Patients who did not come for regular follow up visits, the information related to compliance to treatment, craving, and abstinence were assessed over telephone and used for the final analysis.

As a standard follow up notes in the case record files, craving is recorded as reported by the patient as (a) no craving or minimal craving that can be managed easily is noted "0" or "+" in records, (b) significant craving that is often difficult to manage, noted ++" in records (henceforth called moderate craving), and(c) severe pervasive craving is noted +++" in records.

The drug use pattern during the follow-up was recorded as (a) abstinence, (b) intermittent or

occasional drinking, and (c) problem drinking or dependent use (i.e. continued use).Thus, for the purpose of this study, we defined abstinent user as those who did not consume any amount of alcohol until their next OPD visit ; intermittent drinking as those who consumed alcohol 1-2 times in last two weeks but did not have any socio-occupational dysfunction due to alcohol use; problem drinking as use beyond controlled use including any amount of alcohol use in patients with alcohol-related medical and psychiatric problem and socio-occupational dysfunction. Abstinence and craving was assessed by patient's own self report and report by the family member(s) and overall Clinician's Rating in the case record file of the patient.

Results

A total of 166 patients of alcohol dependence syndrome were registered and were analyzed after applying the coding plan. The socio-demographic features are as shown in Table 1.

Table-1: Socio-demographic and clinical profile

Age (Mean + SD) in Years		**43.9 ± 8.2**
Gender (%)	Male	98.8
	Female	1.20
Background (%)	Rural	45.8
	Urban	54.2
Occupation (%)	Employed	80.05
	Unemployed	10.11
	Retired	3.9
	Student	5.94
Education (%)	Illiterate	4.0
	< Matric	12.0
	≥ Matric	84.0
Total duration of alcohol intake		17.39 ± 7 years
The mean duration of dependence at the presentation for treatment		6.8 ± 2.9 years
Family history of alcohol dependence		18.37%

The mean age of participants was 43.9 ± 8.2 years, 98.8% were males and 1.20 was females. Total duration of alcohol intake was 17.39 ± 7 years and the mean duration of dependence at the presentation for treatment was 6.8 years (SD = 2.9). Family history of substance dependence was reported by patients 18.37% patients.

One hundred eighteen patients received baclofen, which accounts for approximately 72%. At 6 month of follow up 59.4% (n=99/166) of the subjects remained completely abstinent form alcohol. 72 out of 99 who remained abstinent were on Baclofen (i.e.72.7%), 17% were on Topiramte, 7.1 % were on SSRIs and remaining was on Naltrexone, Acamprosoate and others.

Discussion

In the current study, authors tried to look for the reduction in craving and abstinence rate in alcohol dependence patients over a period of 6 months. The study sample was predominantly male, married, and employed. The mean age at presentation was 43 years with majority having their onset of alcohol intake between 21-30 years. Earlier studies have also reported heavy drinking during the third and fourth decade of life.[13,14] Total duration of alcohol intake was 17.39 ± 7 years and the mean duration of dependence at the presentation for treatment was 6.8 years (SD=2.9). This implies that people had continued alcohol for nearly 10 years before becoming dependent on it. Earlier studies have also reported duration of 8-10 years of regular use of alcohol before development of dependence.[14,153]

Pharmacologic interventions are often a key component of treatment for alcohol dependence,

Table-2: Abstinence status and craving at 6 Month follow up period

Craving	No craving (0/+)	127 (76.5)		
	Moderate (++)	26 15.6)		
	Severe (+++)	13 (7.8)		
Abstinence	No. of Patients (n=166)			
		Completely Abstinent (n=99)	Intermittent Relapse (n=48)	Syndromal Relapse (n=19)
Baclofen N (%)	118 (71.08)	72 (61.01)	37 (31.36)	9 (7.62)
Topiramate N (%)	28 (16.87)	17 (60.71)	6 (21.43)	5 (17.86)
SSRIs N (%)	14 (8.43)	7 (50)	4 (28.57)	3 (21.43)
Others (Naltrexone/Acamprosoate) N (%)	6 (3.61)	3 (50)	1 (16.67)	2 (33.33)

because medications can help to ease withdrawal symptoms, decrease craving for alcohol, and block the reinforcing effects of alcohol if it is consumed consequently and thus making it easier for pre-contemplators to reduce or stop alcohol use.

Medications can also help improve co-morbid psychiatric conditions, such as affective or anxiety disorders, which may contribute to a patient's alcohol use or serve as a risk factor for relapse. Non pharmacological modality of treatment was also provided to all patients. It includes MET, RPT sessions along with group discussion moderated by clinical psychologist. In our study, at 6 month follow up 59.6% (n=99/166) of the subjects remained completely abstinent from alcohol. About 29% (n=48/166) of the patients used alcohol intermittently, which did not cause any socio-occupational dysfunction and did not relapse to syndromal level. Thus, we can say that about 88% of the total sample remained well on treatment at 6 month of follow up. The higher rate of abstinent at 6 months could be because of highly motivated patients in our study and newer molecules used in our study. Majority of our patients were on baclofen, which has good anticraving properties and better abstinent rate in patients with alcohol dependence and which is similar to previous study published from the same centre [7] and from other parts of world as well.[16]

In current study, more than 70% of patients received baclofen as anti-craving medication for ADS which shows that clinicians are more comfortable with this molecule and patients and family also perceived the utility of this molecule as reflected in the abstinence rate. Baclofen as more frequently prescribed molecule in ADS has reported in earlier study also from same centre.[11]

In another study by Sidana et al, 2007 found abstinence rate at 6 months and 12 months in patients with alcohol dependence syndrome who were treated with disulfiram, naltrexone, accamprosate and SSRI and reported that abstinence rate goes down with duration of follow-up.[14]

However, in the current study, authors compared abstinence rate with newer molecules also i.e. topiramate and baclofen which were not there in the earlier study.[14]

In India, it is a common clinical scenario for a person with ADS to report to treatment services against his/her will, i.e., on insistence of family members. Such patients tend to minimize the impact of alcohol use in their social, vocational, or interpersonal functioning. Motivation enhancement therapy is very useful in such situations. In recent years, the use of pharmacotherapy together with psychosocial interventions has enhanced the percentage of success in maintaining alcohol dependent patients in remission and assisting the development of a lifestyle compatible with long-term alcohol abstinence.[17,18]

Although this study was conducted in real clinical scenario with diligent clinical notes but we did not administer standardized tools to assess severity of ADS and motivation. Abstinent and craving was assessed by patient's own reporting. Nevertheless, the index study threw light on the utility of recently introduced molecules used in ADS and which will further opens the path for further research in this area.

Conclusion

Alcohol dependence is a chronic debilitating condition where in adherence to both medication and non-pharmacological methods leads to a better outcome. Pharmacological treatment is needed during alcohol withdrawal state and to reduce craving after cessation of alcohol use. Non pharmacological therapy along with pharmacological intervention helps in enhancing the motivation and to prevent the relapse. In alcohol-dependent patients, baclofen showed greater improvements in drinking and maintaining abstinence as compared to other molecules such as Topiramate, SSRI's, Naltrexone etc.

However, more comprehensive, larger, and long-term studies are necessary to examine the adherence pattern to other anti-craving agents to evaluate the potential for their safety and efficacy. In addition, it is important to address the comparison between two anti-craving agents as monotherapy and/or their combinations, a careful assessment of factors that influence adherence/reasons for non adherence, and a study among patients with physical and other mental co morbidities including the impact of non pharmacological interventions. Such approaches may help in choosing safer and effective treatment options in the future.

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Original Article

Anemia in patients suffering from mental health problems — A Cross Sectional study

Malvika Dahuja,[1] Supriya Agarwal,[2] Sandeep Choudhary[3]
Department of Psychiatry, [1]Shaikh-ul-Hind Maulana Mahmood Hasan Medical College, Saharanpur (U.P.) and
[2,3]Subharti Medical College, Meerut (U.P.)
Contact: Malvika Dahuja, E-mail: malvikadahuja89@gmail.com

Abstract

Background: *Psychiatric patients are prone to develop anemia and other hematological changes because of neglect and poor nutrition. Routine blood investigations including Complete Blood Count (CBC) can throw light on the underlying hematological status of the psychiatric patients.* ***Objectives:*** *To study prevalence of anemia and other hematological parameters in patients suffering from various psychiatric disorders.* ***Materials and Method:*** *All In-Patients and Out Patients in Psychiatric Department who fulfilled the inclusion and exclusion criteria were included in this cross-sectional study by consecutive sampling technique. After obtaining consent and providing them with the complete information regarding the study; socio-demographic details of 100 patients were included in the study.* ***Results:*** *In our study, 72% suffered from psychiatric illness from past 0-5 years and 28% suffered from psychiatric illness from 6-15 years. 78% of the patients were on continuous treatment. Out of which, 9% were taking treatment from past 6 months, 55% were seeking treatment from past 1-5 years and 14 % were taking treatment from past 6-10 years. 18% of them were substance abusers, 18% of them had a diagnosis of Schizophrenia, 34% of them had depressive illness, 6% suffered from Bipolar Affective Disorder (BPAD) and 24% of them suffered from Anxiety-Spectrum Disorders. Patients suffering from schizophrenia had more rates of anemia than substance abusers, and this finding was statistically just significant. Also in our study, patients of longer duration of illness had more anemic rates and these findings were statistically significant as well.* ***Conclusion:*** *Anemia is a common physical comorbidity in patients suffering from psychiatric disorders.*

Keywords: *Hemogram, Psychiatric Disorder*

Introduction

Patients suffering from different psychiatric disorders quite often suffer from anemia and vice-versa.[1-6] However, there is only a limited number of studies investigating CBC (Complete Blood Count) values among psychiatric patients.

Anemia is defined as the reduction in Hemoglobin (Hb), Red Blood Cell (RBC) Counts, and/or Hematocrit along with the oxygen carrying capacity of RBCs.[6] It can be divided into 3 categories, based upon the severity of anemia –

1. Mild-Hb = 10-12 gm/dL.
2. Moderate = 7-10 gm/dL.
3. Severe < 7 gm/dL.

Normal value of 12-15gm/dL is considered normal.[1,2] The most common type of anemia in India is Iron Deficiency Anemia followed by Megalo-blastic-anemia.[7]

Objectives

To study the prevalence of anemia and other hematological parameters in patients suffering from

various psychiatric disorders.

Materials and Method

All In-Patients and Out Patients in Psychiatric Department who fulfilled the inclusion and exclusion criteria were included in this cross-sectional study by consecutive sampling technique.

Inclusion Criteria

1. Age group of 18 to 45 years.
2. Both males and females.
3. All those who gave consent.
4. All those who could afford the CBC investigation.

Exclusion Criteria

1. Age less than 18 years.
2. Patients more than 45 years of age.
3. Those unwilling to give consent.
4. Those who could not afford the CBC investigation.

After obtaining consent and providing them with the complete information regarding the study; socio-demographic details of 100 patients were included in the study.

The CBC parameters were assessed by the pathologist by the following methods-

1. RBC count- Electrical Impedance
2. Hemoglobin- Photometry.
3. Hematocrit- Average of the RBC PCLH Heights.
4. MCV- Calculated.
5. MCH- Calculated.
6. MCHC- Calculated.

Results

In our study, 26% of the patients belonged to age group 20-25 years, 26% belonged to the age group 26-30 years, 25% to age group 31-35 years, 18% to age group 36-40 years and 5% to age group 41-45 years. 61% were males and 39% were females. 51% lived in rural areas and 49% lived in urban areas. 39% belonged to lower middle class, 49% belonged to middle class and 12% belonged to upper middle class. 72% suffered from psychiatric illness from past 0-5 years and 28% suffered from psychiatric illness from 6-15 years. 78% of them took treatment. Out of which, 9% were taking treatment from past 6 months, 55% were seeking treatment from past 1-5 years and 14 % were taking treatment from past 6-10 years. 77% of them had co-morbid physical illness. 18% of them were substance abusers, 18% of them had diagnosis of Schizophrenia, 34% of them had depressive illness, 6% suffered from Bipolar Affective Disorder (BPAD) and 24% of them suffered from Anxiety Spectrum Disorders.

In our study sample, 27% were anemic. 21% of them suffered from mild anemia and 6% of them suffered from moderate anemia. 14% had low hematocrit and 4% had high hematocrit. 12% of them had low RBC count and 3% had high RBC count. 20% had microcytic anemia and 7% had macrocytic anemia.

Discussion

In our study, 26% of the patients belonged to age group 20-25 years, 26% belonged to the age group 26-30 years, 25% to age group 31-35 years, 18% to age group 36-40 years and 5% to age group 41-45 years (Table 1). The age groups are evenly distributed in our study; hence this doesn't act as a confounding factor in our study.

61% were males and 39% were females (Table 1). But, neither age nor sex had any association with the derangements in hematological parameters in our study. As compared to the results of another study conducted in 2014, which showed that most

Table-1. Socio-Demographic Profile

a.	**Age roup (in years)**	**(N=100)%**
	20-25	26
	26-30	26
	31-35	25
	36-40	18
	41-45	5
b.	**Sex**	**(N=100) %**
	MALES	61
	FEMALES	39
c.	**Domicile**	**(N=100) %**
	RURAL	51
	URBAN	49
d.	**Socio economic status**	**(N=100) %**
	LOWER MIDDLE	39
	MIDDLE	49
	UPPER MIDDLE	12

of the hematological parameters decrease significantly in males after fifth decades. In females, the changes were not significant in most of the hematological parameters.[8]

In our study, 51% of patients lived in rural areas and 49% of patients lived in urban areas, which is quite even (Table 1). But, there was no association found in our study between domicile of patients and their hematological derangements. Whereas, in a study conducted in 2017, they found the prevalence of anemia to be high in urban (65.3%) as compared to rural (57.3%).[9]

Table-2. Comparison table showing difference in anemic status between substance abuse patients and schizophrenic patients

	Substance use disorders	Schizophrenia
Anemia present	6	8
Anemia absent	12	10

chi square test
p-value= 0.7332. (CI=50%, P=3.84). Hence, the value is statistically just significant.

Table-3. Comparison table showing difference in anemic status between patients suffering from psychiatric illnesses from 0-5 years and ones suffering from 6-15 years

Total duration of illness	Anemia present	Anemia absent
0-5 years	12	60
6-15 years	15	13

chi square test
p-value=0.0004, (CI=99.9%). Hence, the values are statistically highly significant.

In our study, 39% belonged to lower middle class, 49% belonged to middle class and 12% belonged to upper middle class (Table 1). Anemia was seen predominantly in individuals with poor socioeconomic backgrounds, who had little access to the center.

In our study, 18% of the patients suffered from Schizophrenia, 34% of them had depressive illness, 6% suffered from Bipolar Affective Disorder (BPAD) and 24% of them suffered from Anxiety Spectrum Disorders. These results are quite opposite to another large study conducted for peri-menopausal women in 2015, which showed that the frequency of anemia was the highest among psychotic disorder patients (35%), followed by generalized anxiety disorder patients (32%), and obsessive-compulsive disorder patients (26%). In their study, anemia was diagnosed in 22% of depressive disorder patients, 25% of bipolar disorder patients, and 24% of conversion disorder patients.[5]

Table 2 depicts that patients suffering from schizophrenia had more rates of anemia than substance abusers, and this finding is statistically just significant. As far as we could explore on database, there is no such study comparing anemic rates between schizo-phrenic patients and substance abusers. We compared the severity of anemia between all possible psychiatric disorders in pairs with each other, but the difference in the severity of anemia was satistically significant only between the schizophrenia and substance abuse disorders pair.

Table 3 depicts that patients of longer duration of illness had more anemic rates and the findings are statistically highly significant which is quiet obvious that with increased chronicity, psychiatric patients have higher rates of anemia, which is similar to other studies as well.[5]

The studies by enlarge have been conducted for different age groups. Many other studies have exclusively found evidence regarding the hematological changes with use of certain psychotropic.

Conclusion

Anemia is a common physical co-morbidity in the patients suffering from varied psychiatric disorders and also, more chronic the psychiatric illness higher the prevalence of anemia, possibly due to poor nutrition and poor self-care.

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Department of Psychiatry, Subharti Medical College, Meerut (U.P.)

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Original Article

Attitudes and Beliefs of Medical Students towards individuals with Mental Illness – A Multicentric, Cross Sectional Study

Seema Singh Parmar, Shweta Chauhan
Department of Psychiatry, Teerthanker Mahaveer Medical College & Research Centre, Teerthanker Mahaveer University, Moradabad, Uttar Pradesh-244001, India
Contact: Seema Singh Parmar, E-mail:drseemasp3@gmail.com

Abstract

Background: *Stigma is defined as a mark of disgrace or dishonour associated with a particular circumstance, quality or person. Amongst various illnesses, mental illnesses are considered to be the most widely stigmatized. Various studies have shown stigmatizing views of medical students towards the mentally ill, but a vast majority of this literature has originated in the western hemisphere, with only a handful of studies being conducted in South East Asia, especially India.* ***Aims & Objectives:*** *To determine the levels of stigma as perceived by medical students across various professional years and to compare the beliefs of medical students regarding mental illness between private and government universities.* ***Methodology:*** *100 students belonging to a government medical college and 100 students belonging to a private medical college in North India were asked to fill a questionnaire regarding the demographic details, etiology, symptomatology of psychiatric disorders and Belief Towards Mental Illness Scale. Results were tabulated using dependent and single sample t-tests.* ***Results:*** *Significant differences were seen amongst the students belonging to both the institutes regarding Phobias, Anxiety, Alcoholism and Drug addiction, with students of private medical college showing more negative views. Lower levels of stigmatizing views were seen in students with a history of prior psychiatric teaching.* ***Conclusion:*** *Significant levels of stigma and negative belief have been seen in students belonging to both government and private medical colleges especially in private setup and psychiatric teaching imparted as early as possible during the course of medical training can reduce the negative beliefs of students and thus further facilitate in treatment and care of people suffering from psychiatric illnesses.*

Keywords: *Stigma, Beliefs, Attitudes, Medical Students.*

Introduction

Stigma is defined as a mark of disgrace or dishonour associated with a particular circumstance, quality or person. Amongst various illnesses, mental illnesses are considered to be the most widely stigmatized[1]. Global studies done on general population demonstrate the beliefs and attitudes of people towards mental illnesses especially Schizophrenia, Alcohol use disorder and substance use disorder, with the latter two being largely considered not illnesses but rather a personality trait or a life style choice.[2]

Medical students are widely considered as the first contact a patient with any illness(be it psychiatric or non-psychiatric) has with a medical professional. Various studies have shown stigmatizing views of medical students towards the mentally ill, but a vast majority of this literature has originated in the

western hemisphere, with only a handful of studies being conducted in South East Asia, especially India.[3]

Our study aims to evaluate the stigmatizing views of medical students, in both government and private universities in India, towards mental illnesses – the necessity of diagnosis and the prognosis of such patients as perceived by the future health professionals of the nation, in varied setups.

Methodology

200 medical students across various years of medical curriculum, belonging to two different institutions, one a government university and the other a private university,were asked to fill a self-structured questionnaire regarding various demographic details of the participant and Beliefs towards Mental Illness Scale(BMI)[4] after obtaining due consent.

It was a cross sectional study conducted during the period of October 2016 – December 2016, and all the individuals not wishing to participate in the study or not willing to provide a written informed consent were excluded from the study.

Both the questionnaires were in English language as the study is only comprising of participants who are being educated in the same medium.

The following instruments were used in the study:

1. A self-structured questionnaire regarding the demographic details of the students, knowledge regarding mental illnesses, contact with mental illnesses and history of psychiatric posting.
2. Beliefs towards Mental Illness Scale (BMI) – which is a 21 item self-reporting measure of negative and stereotypical views towards mental illness.

SPSS v20 was used to analyse all the data collected and means were calculated using single sample t-test and independent sample t-tests.

Results

100 students each from a government and private medical college participated in the study.The mean age of the participating students was 21.14 ± 1.94 from the government institute and 21.15 ± 1.38 for those participating from the private institute. Out of the 100 participants from government institute, 61 were males and 39 were females. Gender wise distribution for the participants from private institution was equal.

The mean score of private university students on Belief Towards Mental Illness was 50.59 (Standard deviation 15.475, error mean 1.548), whereas those of government university students was 49.91 (Standard deviation 16.963, error mean 1.696). On independent sample T-test, the difference between the above two mean values did not come out to be significant ($p = 0.767$ at 95% CI of the difference). However, when single sample T-test was applied to total Belief Towards Mental Illness Scale scores with the test value of 30, results were calculated at 95% CI and they showed significant deviation with lower limit of 17.99 and upper limit of 22.51 [Table 1].

The total number of males participating in the study was 112 compared to 88 females. The mean score for Belief Towards Mental Illness Scale did not vary significantly when compared with the gender of the participating students($p = 0.813$ at 95% CI).

Students were inquired as to which of the following 10 disorders, according to them, were psychiatric in nature: Phobias, Anxiety, Mania, Depression, Schizophrenia, Mental Retardation, Epilepsy, Obsessive Compulsive Disorder, Alcoholism and Drug Addiction. Significant results were obtained for Phobias, Anxiety, Alcoholism and Drug Addiction, with majority of the students of private institute believing that these four disorders were not psychiatric in nature and hence did not

Table 1 : One-Sample Test of all 200 students comparing the total scores on Belief Towards Mental Illness

	Test Value = 30					
	t	Df	Sig. (2-tailed)	Mean Difference	95% Confidence Interval of the Difference	
					Lower	Upper
Total	17.679	199	.000	20.250	17.99	22.51

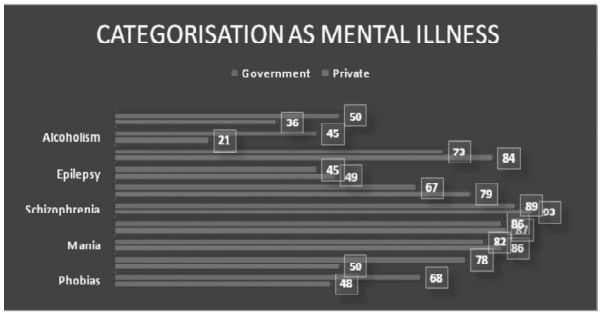

Fig. 1: Bar Graph showing which illnesses are believed to be Mental Illness by students of both Government and Private institutes.

need psychiatric attention or treatment. [Table 2, Fig.1]

When questioned regarding the etiological factors implicated in the causation of psychiatric illnesses, significant values were not obtained for any one variable, but more than half of the students both in government and private institutes, believed that infections could not be causally linked to any psychiatric disorder. [Table 3 & Fig. 2]

Students were also inquired as to which according to them were symptoms of a psychiatric

Table 2: Independent SampleT-test of all 200 students to assess which illness is considered as a psychiatric disorder by medical students.

Independent sample test										
		Levene's Test for Equality of Variances		I-test for Equality of Means						
									95% Confidence internal of the difference	
		F	Sig.	1	df	Sig (2-tailed)	Mean Diffe-rence	Std. Error Diffe-rence	Lower	Upper
Phobia MI or not	Equal variances assumed	14.178	.000	-2.911	198	.004	-.200	.069	- 335	- 065
	Equal variances not assumed			- 2.911	197.075	.004	-.200	.069	-.335	-.065
Anxiety MI or not	Equal variances assumed	45.231	.000	-4.291	198	.000	- 280	.065	-.409	-.151
	Equal variances not assumed			-.291	191.382	.000	-.280	.065	-.409	-.151
Mania MI or not	Equal variances assumed	2.384	.124	.769	198	.443	.040	.052	-.063	.143
	Equal variances not assumed			.769	195.981	.443	.040	.052	-.63	.143
	Depression MI/not assumed	.170	.681	.206	198	.837	.010	.049	-.086	.106
	Equal variances not assumed			.206	197.807	.837	.010	.049	-.86	.106
Schizohernia MI/not	Equal variences assumed	3.955	.048	.986	198	.325	.040	.041	-.040	.120
	Equal variances not assumed			.986	190.295	.325	.040	.041	-.040	120
MR MI/not	Equal variances assumed	14.829	.000	1.919	198	.056	.120	.063	-.003	.243
	Equal variances not assumed			1.919	194.052	0.56	.120	.063	-.003	.243
Epilepsy MI/not	Equal variances assumed	.886	.348	.0564	198	.573	.040	.071	-.100	.180
	Equal variances not assumed			.564	197.995	.573	.040	.071	-.100	.180
OCD MI/not	Equal variances assume	14.990	.000	1.901	198	.059	.110	.058	-.004	.224
	Equal variances not assumed			1.901	191.161	.059	.110	.058	-.004	.224
Alcoholism MI/not	Equal variances assumed	45.241	.000	-3.714	198	.000	-.240	.065	-.367	-.113
	Equal variances not assumed			-3.714	190.575	.000	-.240	.065	-.367	-.113
Drug Addiction MI/not	Equal variances assumed	8.422	.004	-2.010	198	.046	-.140	.070	-.277	-.003
	Equal variances not assumed			-2.010	197.671	.046	-.140	.070	-.277	-.003

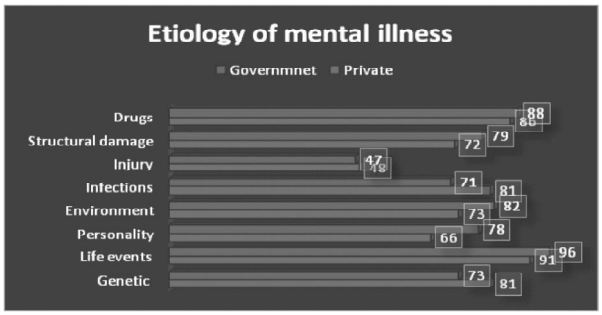

Fig. 2: Bar Graph showing the etiological factors that are believed to be linked to causing Mental Illness by students of both Government and Private institutes.

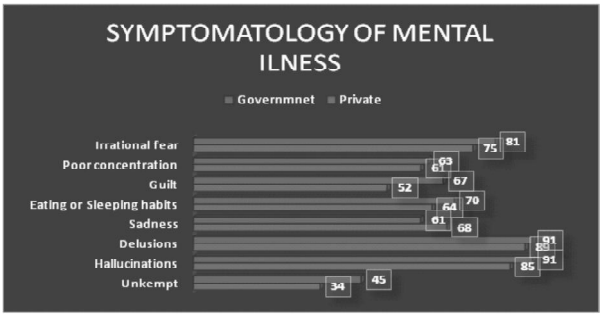

Fig. 3: Bar Graph showing which variables are believed to be symptoms of a Mental Illness by students of both Government and Private institutes.

illness. Following eight items were assessed: Unkemptness, Hallucinations, Delusions, Sadness, altered sleeping or eating habits, Feelings of Guilt, Poor concentration and Irrational fear. Significant values were obtained for only for guilt feelings (p = 0.031), which according to almost half the students of private university, was not a feature of psychiatric illness. Though the difference was not significant, but more than half the students of both government and private colleges believed that unkemptness was not a feature of psychiatric illness. [Table 4 and Fig.3]

Table 3: Independent SampleT-test of all 200 students to assess which variable is considered as an etiological factor of psychiatric disorders by medical students.

Independent sample test										
		Levene's Test for Equality of Variances		I-test for Equality of Means						
									95% Confidence internal of the difference	
		F	Sig.	1	df	Sig (2-tailed)	Mean Diffe-rence	Std. Error Diffe-rence	Lower	Upper
Genetic	Equal varience assumed		7.327	.007	1.344	198	.181	.080	-.037	.197
	Equal variances not assumed			1.344	195.045	.181	0.80	.060-	.037	.197
Life Events	Equal variances assumed	8.557	.004	-1.434	198	.153	-.050	.035	-.119	019
	Equal variances not assumed			-1.434	175.105	153	-.050	.035	-.119	.019
Personality	Equal variances	14.376	.000	-1.897	198	0.59	-.120	.063	-.245	005
	Equal variances not assumed			-1.897	194.541	0.59	-.120	.063	-.245	.005
Environmental upbringing	Equal variances	9.498	.002	-1.525	198	.129	-.090	.059	-.206	0.26
	Equal variances not assumed			193.999	.129	-.090	.059	-.206	.0206	.026
Drugs	Equal variances	11.215	.001	1.659	198	.099	.100	060	-.019	219
	Equal variances not assumed			1.659	193.949	.099	100	060	-.019	219
Infections	Equal variances assumed	.078	.783	.141	198	.888	.010	.071	-.130	150
	Equal variances not assumed			141	198.000	.888	.010	.071	-.130	.150
Injury	Equal variances assumed	5.322	.022	-1.149	198	.252	-.070	.061	-.190	.050
	Equal variances not assumed			-1.149	196.149	.252	-.070	.061	-.190	.050
Structural brain damage	Equal variances assumed	.703	.403	-.419	198	.676	-.020	.048	-.114	.074
	Equal variances not assumed			.419	197.155	.676	-.020	.048	-.114	.074

Table 4: Independent SampleT-test of all 200 students to assess which variable is considered as a symptom of a psychiatric disorder by medical students.

		Independent sample test								
		Levene's Test for Equality of Variances		I-test for Equality of Means						
									95% Confidence internal of the difference	
		F	Sig.	1	df	Sig (2-tailed)	Mean Diffe-rence	Std. Error Diffe-rence	Lower	Upper
Untempt	Equal variances assumed	9.845	.002	-1.744	198	.083	-.120	.069	-.256	.016
	Equal variances not assumed			-1.744	197	.374	.083	-.120	.069	-.256
Hallucinations	Equal variances assumed	7.005	.009	-1.305	198	.194	-.060	.046	-.151	.031
	Equal variances not			-1.305	189.036	.194	-.060	.046	-.151	.031
Delusions	Equal variances assumed	.884	.348	-.469	198	.639	-.020	.043	-.104	.064
	Equal variances not			-.469	196.444	.639	-.020	.043	-.104	.064
Sadness	Equal variances assumed	4.109	.044	1.032	198	.303	.070	.068	-.084	.204
	Equal variances not			1.032	197.608	.303	.070	.068	-.064	.204
Eating/Sleeping problems	Equal variances assumed	3.190	.076	-.900	198	.369	-.060	.067	-.192	.072
	Equal variances not assumed			-.900	197.576	369	-.060	.067	-.192	.072
Guilt feelings	Equal variances assumed	12.391	.001	-2.175	198	.031	-.150	069	-.286	-.014
	Equal variances not assumed			-.2.175	197.277	0.31	-.150	.069	-.286	-.014
Poor Concentration	Equal variances assumed	.335	.564	-.290	198	.772	-.020	.069	-.156	.116
	Equal variances not assumed			-.290	197.979	.772-	.020	.069	-.156	.116
Irrational Fear	Equal variances	4.216	.041	-1.022	198	.308	-.060	.059	-.176	.056
	Equal variances not assumed			-1.022	196.101	.308	-.060	.059	-.176	.056

Table 5: Independent SampleT-test of all 200 students comparing total score on Belief Towards Mental Illness Scale with history of psychiatric teaching received by the students.

		Independent sample test								
		Levene's Test for Equality of Variances		I-test for Equality of Means						
									95% Confidence internal of the difference	
		F	Sig.	1	df	Sig (2-tailed)	Mean Diffe-rence	Std. Error Diffe-rence	Lower	Upper
H/O Psychiatric teaching	Equal variances assumed	25.423	.000	4.841	198	.000	.320	.066	.190	.450
	Equal variances not assumed			4.841	194.551	.000	.320	.066	.190	.450

Significant difference was also seen when total scores of Belief Towards Mental Illness Scale was compared with whether the students had undergone any sort of psychiatric teaching, be it clinical postings or theoretical lectures. [Table 5]

Discussion

According to the World Health Report published in 2001, 450 million individuals worldwide suffer from mental or behavioural disorders[5]. Despite this vast number, very few of these individuals seek

medical help or get medical attention which can largely be attributed to the myths and misconceptions that are associated with psychiatric illnesses. It is also worthy of noting that while it is widely believed that these false notions might primarily be rooted in the developing world, most of the studies have been done in developed nations[6].The association of stress and Depression has long been recognized but recent emerging evidences show that this takes place via the modulation of immune system and the Hypothalamo-Pituitary-Adrenal (HPA) axis. Abnormal response on both Dexamethasone Suppression Test and Corticotrophin Releasing Factor (CRF) administration reveal an upregulated HPA axis in depressed individuals.Furthermore, similar abnormalities have been seen in individuals exposed to significant early life stress[7]. Studies have also shown decreased CRF receptors, decreased CRF mRNA and elevated levels of CSF-CRF in brains of depressed patients[8]. It has been noted that the administration of TNFα in various infective and oncogenic disorders tends to produce a depression like syndrome in these patients, thus TNFα is considered to be the quintessential depressive cytokine.[9]

According to a study conducted at a teaching hospital in London[10], more than 50% felt that people suffering from Schizophrenia or drug or alcohol addiction were dangerous and unpredictable, but the stigma appeared to be lessened as the experience of the medical professional increased. This finding has been corroborated in our study with most of the students giving higher scores on the questions related to dangerousness of the patient on the Belief Towards Mental Illness Scale.

In a survey circulated amongst the doctors of three medical colleges in Pakistan in 2006,[11] more than half of the respondents held negative attitudes towards people with mental illness, namely Schizophrenia, Depression and Alcohol or substance Use Disorder. Our study showed significant difference in stigmatising beliefs of government and private institute, with majority of the students of private medical college not regarding Phobias, Anxiety, Alcoholism and Drug addiction as psychiatric disorders. Students of both institutes did not show significant negative beliefs towards Depression or Schizophrenia as seen in the study conducted in Pakistan.

In a study conducted in New Delhi in 2012[12] to assess the attitude and belief system of medical students across various years of medical curriculum, lower levels of negative beliefs were seen amongst intern as compared to the rest of the students. Our study also reports a similar finding as the levels of stigma were significantly lesser in students with a history of psychiatric teaching – clinical or theoretical. Similar trends in less negative belief with a history of psychiatric education were seen in students of both government and private institute. This finding is further affirmed by a follow up study conducted in Sri Lanka,[13] in which significant decrease in stigmatising views of medical students was seen after a 6-week posting in Psychiatry.

A pioneering online survey which was conducted on 760 medical students in U.K.[14] showed the students highest regard for patients with pneumonia and lowest for patients with long standing somatoform complaints. This shows that stigma regarding psychiatric illnesses is prevalent even in developed countries as opposed to less educated, developing nations.

Not much work has been done in comparing the stigmatising views of students belonging to government and private institutes and our study shows significant differences in beliefs of students towards all the aspects of psychiatric disorders, be it classification, etiology, symptomatology or attitude towards people with psychiatric illnesses.

Conclusion

There is paucity of available literature on the subject of stigma in psychiatric illnesses especially the studies conducted to assess the negative beliefs and attitudes of medical students towards people suffering from psychiatric illness. The few studies that have been done on the subject have shown alarming levels of stigmatising views in medical students of both developed and developing nations. This shows that the belief system of medical students belonging to both the kinds of nations is not limited by the general levels of education and awareness of the society they belong to. This trend shows that psychiatric teaching imparted as early as possible during the course of medical training can reduce the negative beliefs of students and thus further facilitate in treatment and care of people suffering from psychiatric illnesses.

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Original Article

Occupational Therapy and Supportive Therapy on Socio-Occupational Functioning and self-esteem of Individuals with Schizophrenia

Upendra Singh,[1] Sweta,[2] Bhupendra Singh[3]
[1]DMHP Rohtas, (District Hospital, SASARAM) Bihar;
[2]Deptartment of Clinical Psychology, Nayi Subah Institute of Mental Health, Varanasi, U.P.;
[3]Institute of Mental Health, Pt. B.D. Sharma University of Health Sciences, Rohtak, Haryana, India
Contact: Bhupendra Singh, Email: 33bhupendrasingh@gmail.com

Abstract

Background: *The social functioning of individuals with schizophrenia contributes to their overall efficient consequences and ability to live in the community. Increasing the level of social functioning is an important therapeutic aim in the social interventions. Self-esteem is an important component for achieving proper psycho-social functioning for everyone. Relationship between the occupational functioning of individuals with schizophrenia and personal aspects of their functioning is not well established phenomenon.* ***Aim:*** *The aim of this study is to describe occupational therapy with supportive techniques and its impact on the occupational skills of individuals with schizophrenia and to investigate relationship between socio-occupation functioning and self-esteem.* ***Methodology:*** *Quasi experimental research design was made with multistage sampling in Ranchi Institute of Neuro-Psychiatry and Allied Sciences, (RINPAS) Kanke, Ranchi. 20 male participants were selected at third step of sampling. With written informed consent structured socio-demographic and clinical data sheet, Socio-occupational functioning scale (SOFS) and Rosenberg Self-esteem scale were administered.* ***Results:*** *Socio-occupational skills and self-esteem of the participants were improved significantly after the intervention. Improved socio-occupational skills in the participants enhanced their self-esteem.* ***Conclusion:*** *Use of occupational therapy on individuals with schizophrenia has positive impact on their personal and social life. They learned skills to maintain themselves, regularize their job, face day-to-day problems at their work place and hand an enhanced sense of self-esteem.*

Keywords: *Occupational Therapy, Schizophrenia, Self-Esteem, Socio-Occupational Skills.*

Introduction

Schizophrenia is a psychiatric disorder representing a persistent, often chronic, major mental illness mainly affecting thinking, with difficulties in perception of reality, which in turn affect behavior and emotion. Individuals suffering with schizophrenia show significant disturbance in one or more major areas of functioning such as work, interpersonal relations, or self-care. These functions are markedly below the level achieved prior to the onset of illness. If the onset is in childhood or adolescence, the individuals face failure in achieving expected level of interpersonal, academic, or occupational achievement, chronicity of illness reduces the chances of recovery and also increased the chances of relapse.[1,2]

Socio-occupational skills in general could be understood as the capacity of an individual to function in different societal roles such as homemaker, worker, student, spouse, family member, or friend. Socio-occupational skills also consider an individual's satisfaction with his ability to meet these

roles, to take care of himself and in general his self-esteem. Occupational status at admission has been shown to be predictive of functional outcome, as unemployed patients show significantly worse functional outcomes.[3] Patients with longer overall illness duration appear to have less favorable functional outcomes as do patients with illnesses characterized by episodes of long duration.[3]

Deprivation Model argued that employment provided both manifest (associated with financial income) and latent functions (associated with meeting psychological needs). People are driven to employment to attain manifest functions, but while employed also benefit from the latent functions of time structure, social contact, common goals, status, and enforced activity.[4] Deprivation of employment leads to deprivation in both manifest and latent functions, but it is the loss of the latent functions that operates to reduce well-being. Well-being has been widely operationalized in the occupational literature as self-esteem.[5] Experimental research has demonstrated that self-esteem is not a stable trait, but rather is likely to be effected by the immediate situation and the motives of the individual.[6] A consistent association has been demonstrated between self-esteem and occupational status, with unemployed people typically faring more poorly than,in-work counterparts.[7,8] Branden[9] explored that belief in one's capacity to change one's own situation was a major determining factor in the level of self-esteem. For the unemployed individual, job search confidence or self-efficacy is intimately associated with the capacity to change one's situation. Confidence in one's ability to find employment is likely to increase the level of well-being, including self-esteem.

In fact, a powerful will and confidence, a positive and healthy self-consciousness, problem solving and decision-making and mental health is directly related to the self-esteem and self-value.[10] Therefore self-esteem and value are necessary to keep a psychic balance and achieve individual perfection in the social conditions. Self-esteem contains all areas of human's life, whether directly or indirectly. In fact, mainly the roots of psychic and personal disorders, unstable romantic or social interactions, education or occupation failures as well as some of the sexual problems are in the low self-esteem or related to it.

As mentioned above socio-occupational skills in individuals with schizophrenia adds to their ability to live in the community. Thus, enhancing the level of socio-occupational skills is an important treatment goal. The treatment of schizophrenia involves a combination of medication and psychosocial interventions. Functional remission is being realized as one of the important goals of management in the treatment of schizophrenia. Positive self-esteem and socio-occupational functioning are important factors towards good prognosis in individuals with schizophrenia. Self-esteem is the outcome of improved socio-occupational functioning. Self-esteem is a broad construct that reflects people's emotional and cognitive evaluations of their lives.

Aim

Present study aimed to assess the impact of occupational therapy with supportive technique on self-esteem and socio-occupational functioning among individuals with schizophrenia.

Material and Methods

Hospital based quasi experimental research design conducted in Ranchi Institute of Neuro Psychiatry and Allied Sciences, (RINPAS) Kanke, Ranchi, Jharkhand, India. Patients with schizophrenia (as per ICD-10)[11] were considered as universe for the study. With ethical approval of Institutional committee, participants between 21 to 40 years of age, male, educated up to 5th standard, and at least two years of illness, were selected for the study. Patients having major physical illness, organic illness or substance dependence were excluded. A sum of 68 patients were identified from different wards by using simple random technique, and study plan was explained to them. They were screened by using self-prepared motivational analysis checklist. Patients scoring more than 20 in the screening were selected for the study, total 20 participants scored cut of the screening tool and were included for the study. Written consent was sought from participants following that structured socio-demographic and clinical data sheet filled for collecting the general information about patients. Socio-occupational functioning scale (SOFS)[12] and Rosenberg Self-Esteem Scale[13] was administered for pre and post assessment.

Procedure

The participants received 16 sessions in 2 months on average 5 days' interval. Each session lasted for approximately 55-75 minutes. They were monitored to attained occupational therapy unit. First session was initiated with base line assessment and end-line assessment was done on the last session without disclosing their name and identity. Therapeutic module included:

- Psycho education
- Life balance skills training
- Importance of Occupational orientation, advice & teaching
- Guidance and Encouragement; Praising and Incentives
- Reassurance; Rationalizing and Reforming
- Anticipatory Guidance (Rehearsal), Reducing and Preventing Anxiety and Fears
- Maintaining work skills; Expanding the patient's awareness
- Termination

Occupational tasks included:

- Baking bread
- Stitching clothes
- Gardening
- Painting furniture
- Cooking

In the initial session therapeutic alliance was developed with the participants followed by baseline assessment. Participants were psycho educated, explained the nature, course and prognosis of the illness. Role of pharmacotherapy and psycho-social treatment in their illness along with the importance of follow up were discussed. Possible side effects were conferred in the sessions. In the second part of intervention 4th session onwards focus was on bringing the problems to surface that patients faced while working in the occupational therapy unit and discussing the possible solutions for the troubles faced by them. At the same time, they encouraged to learn new things to get engaged in meaningful activities and deal with day to day life challenges. Practical exposure for practice was made to all the participants for improving their skills. In the last sessions (13th onwards) group intervention was focused in skills of self-management and independent working abilities to make them suitable for the community life and capable to handle the work and skill challenges.

Statistical Analysis

Statistical Package for Social Sciences (SPSS) 16 version was used for the statistical analysis. Percentile analysis was used for discrete socio-demographic variables and mean was used for categorical variables. Paired Sample t-test was administered for deference analysis between baseline and end-line scoring on the both scales, and Pearson product-moment correlation was used for to assess the relationship between the latent variables.

Results

Result findings shows (Table-1) mean age of the participants was 32 $\pm$ 7 years, 75% of them were only primary or secondary educated and 60% participants did not have any job. All were having a chronic history of mental illness (5.6 $\pm$ 3.4 years) with at least one hospitalization.

Table-1: Socio demographic profile of the participants

	Variables	**Participants (N=20)**	**%**
Age	**Mean $\pm$ SD**	32.25 $\pm$ 7.26	
Education	Primary Education	07	35
	Secondary Education	08	40
	Higher S. Education	02	10
	Graduation	03	15
Occupation	Farmer	06	30
	Business	03	15
	Daily Labour	02	10
	Unemployed	06	30
	Student	03	15
Duration of Illness		Mean + SD	5.67+3.49
No. of Hospitalization		Mean + SD	1.30+.571

Table number 2 shows participants' level of socio occupational functioning in the base line shows improved socio-occupational skills enhanced self-esteem among the study participants.

Table-2: Socio Occupational Functioning and self-esteem of the participants

Variables	Pre	Post	t (df=19)	P
	Mean ± sd	Mean ± sd		
SOFS	49.90 ± 1.714	29.50± 4.894	18.136	.000
Rosenberg self-esteem scale	12.95 ±1.761	18.25 ±2.826	6.694	.000

Table-3: Comparison of pre and post assessment scores on SOFS

Variables	Pre	Post	t (df=19)	P
	Mean ± sd	Mean ± sd		
Bathing and grooming	3.50 ± .513	1.80 ± .523	11.573	.000
Clothing and dressing	3.40 ± .598	1.65 ± .587	10.925	.000
Eating, feeding and diet	3.35 ± .587	1.75 ± .639	10.514	.000
Neatness and maintenances	3.80 ± .410	2.35 ± .671	10.722	.000
Conversational skills	3.45 ± .686	2.40 ± .681	6.185	.000
Social appropriateness /politeness	3.60 ± .503	2.70 ± .470	6.282	.000
Social engagement	3.35 ± .489	2.30 ± .733	5.688	.000
Money management	4.45 ± .686	2.25 ± .716	5.339	.000
Orientation/mobility	3.60 ± .598	1.80 ± .523	10.484	.000
Instrumental social skills	3.60 ± .598	1.80 ± .410	12.387	.000
Recreation/leisure	3.40 ± .681	2.30 ± .657	6.850	.000
Work	3.40 ± .681	1.90 ± .553	8.110	.000
Respect for property	3.55 ± .510	2.05 ±.605	11.052	.000
Independence/responsibility	3.40 ± .754	2.45 ± .945	5.146	.000

assessment was very poor which improved significantly after the intervention. Opposing this the level of self-esteem was low in baseline which was increased after the intervention. Result also shows that (Table-3) all the 14 sub domains of socio occupational functioning scale were found highly difficult which was improved significantly after the intervention.

Table 4 indicates correlation between the SOFS and Rosenberg self-esteem scale. Lowest score on SOFS suggests good socio-occupational skills and Rosenberg self-esteem scale is based on an average of 15-25 low score indicates low self-esteem and high score shows high self-esteem. Table indicates significant relationship between socio-occupational functioning i.e. clothing and dressing; eating, feeding and diet; social engagement; independence/ responsibility and self-esteem. Findings of the study

Table-4: Correlation between socio-occupational functioning and self-esteem (Post assessment)

Socio-occupational functioning scale	Rosenberg Self-esteem Scale
Bathing and grooming	.356
Clothing and dressing	.452*
Eating, feeding and diet	.459**
Neatness and maintenances	.409
Conversational skills	.356
Social appropriateness/politeness	.218
Social engagement	.572**
Money management	.006
Orientation/mobility	-.178
Instrumental social skills	.045
Recreation/leisure	-.043
Work	-.185
Respect for property	-.085
Independence/responsibility	.537*

**Significant at .05 level;*
***Significant at .01level*

Discussion

Occupational therapy along with supportive techniques was used to improve socio-occupational skills in the individuals with schizophrenia leading to enhanced self-esteem. Individuals suffering with schizophrenia have relapses and due to repeated hospitalizations they are often withdrawn from their skills at their jobs; therefore, experienced low self-esteem.

The concept of social functioning is, however, complex. It comprises of essentially two main components: (i) the ability to look after oneself and maintain daily activities and (ii) the instrumental and social skills to manage oneself and live in the community.[12] Findings of the present research reveal that participants showed significant improvement in their socio-occupational skills and their self-esteem after the intervention.

Occupational therapy in combination to supportive therapy reduced difficulties of socio occupational functioning significantly among the participants. Intervention make them able to maintain regular personal hygiene, take proper care of their clothing, and capable to prepare meals and serve to self and others. Participants voluntarily work for maintaining their ward activities like making bed, distributing tea to other patients, preparing the patients for group meeting and availing laundry facilities for ward. Participants after receiving the intervention had been able to maintain the non-verbal and paralinguistic gestures while having conversations with others; both in group and in one to one conversation. They were able to show assertiveness and make decisions for themselves in socially appropriate manner. Participants had established good interpersonal relationships with each other and were able to express and receive emotional support from their family (during family visit to hospital). They were able to calculate the number of days of engagement the Occupation Therapy Unit and the token money which they will receive for it. They started to show appropriate responses towards ward staff and families visiting (them or others) in the hospital. Participants started active participation in recreational activities and they were able to maintain a regular activity schedule in their day-to-day life. Also they were able to take care of others requirement that were in the need (i.e. feeding, helping in personal care, take care of their belongings of symptomatic patients).

Findings of the present study suggest that the occupational therapy receiving with combination of supportive technique was very effective in improving socio-occupational functioning in male persons with schizophrenia and also leading to enhanced self-esteem. Similar to our findings Tanaka et al[14] also concluded early occupational therapy may improve functional independence in patients with acute schizophrenia. Foruzandeh and Parvin[15] reported, occupational therapy combined with medications can improve the symptoms of schizophrenia, also making favor for occupational therapy. Findings shows good effects of occupational therapy on hospitalized schizophrenic patients with severe negative symptoms which is supported by a previous study[16] suggesting that Occupational Therapy can help to improve a relationship allowing the patient to face the therapist and that it might improve negative symptoms of schizophrenia.

Occupation therapy with supportive therapy can improve significantly in a very short time period as per our findings. Similar findings stated previously that, supportive therapy improved all measures of effective functioning, activity and participation and achievements were maintained[17]supported employment services had effective role in making vocationally functions to the middle-aged and older adults with schizophrenia. Similarly, Bond et al[18] also reported that supportive therapy supplemented by occupational therapy have a better outcome in persons with schizophrenia, when compared to occupational therapy all alone. Intervention reduced the functioning inability that reflected in self-esteem improvement, pervious study found, decrease self-esteem associated with an immediate increase in symptoms and individuals are not only characterized by a lower level of self-esteem but also by more fluctuations in their self-esteem.[19] Shamsunnisah & Hasanah[20] reported high level of self-esteem in schizophrenia was associated with more subjective factors rather than clinical, occupational and functional factors. The findings that improving the functioning laid a good impact on self-esteem, indicates the effectiveness of combining occupational therapy with supportive technique. Present findings show improvement in self-esteem of the participants, intervention improved socio-occupa-

tional skills and self-esteem. Significant improvement in socio-occupational skills i.e. clothing and dressing; eating, feeding and diet; social engagement. Independence/responsibility has positive correlation with sense of worthiness, self-respect, hope to overcome their failures and a sense of satisfaction with self. Improved socio-occupational skills give confidence, problem solving and decision-making ability that enhanced self-esteem among the participants.

Conclusion

Therapeutic milieu reflected improvement in socio-occupational functioning and self-esteem of the participants and maintaining the learned skills. Poor socio-occupational skills were related to low self-esteem in individuals with schizophrenia. Therapeutic intervention dealt with poor socio occupational functioning and low self-esteem both and participants started to perform socio-occupational skills at occupational therapy section with accuracy that shows enhanced self-esteem. It can be concluded that occupational therapy with supportive therapy can improve social functioning of chronic schizophrenia and it also improves the level self-esteem among the patients.

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Original Article

Efficacy of Mindfulness based relapse Prevention Therapy on Executive Function of Patients with Opioid use Disorder

Kehksha, Deoshree Akhouri, Suhail Ahmed Azmi
Department of Psychiatry, Jawaharlal Nehru Medical College, Aligarh Muslim University, India
Contact: Deoshree Akhouri, E-mail: drdeoshreeakhouri@gmail.com

Abstract

Background*: Mindfulness is one of the oldest meditation techniques based on the practices of Buddhist tradition. Various studies have demonstrated its efficacy on schizophrenia,depression, social anxiety disorder, substance use disorder etc. It also affects cognitive function of substance users and other people having psychiatric illness.* ***Methods****: Present study has beenconducted with this idea to determinethe efficacy of mindfulness based relapse prevention therapy (MBRP) on executive function(EF) of the patients with opioid use disorder.A sample of 20 patients (n=10 for intervention & n=10 for control group) were taken from OPD, Department of Psychiatry. DSM 5 diagnostic criterion for opioid use disorder was followed and according to inclusion and exclusion criteria patients were selected for the study. EF was assessed by Wisconsin card sorting test(WCST) prior to MBRP intervention and after two months of intervention. Data was analyzed by Wilcoxon matched pair sign rank test and Mann-Whitney U test to see the efficacy of MBRP on EF.* ***Results and Conclusion****: Findings of the study indicated that MBRP is a helpful intervention technique to improve EF of opioid users.*

Key words*: Mindfulness, Depression, Social Anxiety, Substance, Executive Function*

Introduction

Drug addiction is the tendency of compulsive drug seeking behavior that is usually manifested in intense craving followed bydrug consumption. Such type of behavior can persist recurrently even after a long period of abstinence.[1] Prolonged drug consumption may alter cognitive process. Studies have shown thatsome certain brain regions such as striatum, prefrontal cortex, amygdala, and hippocampusalter after drug addictionand these brain regions also work for cognitive functions such as memory,learningattention, reasoning and problem solving[2-5].In spite of its negative effects people consume drugs. According to National House survey, prevalence rate of opiate use in India is 0.7 % that is definitely increasing day by day.[6] There are various modes of treatment available for substance use disordersuch as pharmacotherapy, 12 step group program, cognitive behavior therapy, and motivational therapy.[8-10] Mindfulness therapy is a different kind of treatment where individual plays the role of an outside observer of his/her own activities, behaviors, thoughts, feelings, sensations and emotions.[11] Root of mindfulness has been found in Buddhist literature specifically in the text named "*Satipatthana Sutra"* and Abhidharma.[12] Since that time, mindfulness has been practicing in the form of mindfulness meditation and found an effective treatment of substance dependence, anxiety, depression, alcohol and other drugs use

andalso for sleep releted problems.[13-16] Cognition related disorder was also found to be suceessfully treated by mindfulness therpy. Zeidan et al, demonstrated efficacy of mindfulness therapy on long term memory, working memory, attention, visual spatial speed and executive functioning.[17] Therefore, in light of previous researches, present study aimed to assess the effect of Mindfulness Based Relapse Prevention (MBRP) on Executive Function (EF) with the following objectives.

Objectives

1. To assessexecutive function of patients with opioid use disorder.
2. To see the effect of MBRP on executive function.
3. To compare the patients receiving MBRP with the patients received Treatment as Usual (TAU) on EF after MBRP intervention.

Hypotheses - Following alternate hypotheses were created

1. Opioid use disorder affectsEF
2. MBRP therapy is better than TAU to improves EF of opioid users
3. There is significant difference between MBRP group and control group after 2 months of MBRP intervention

Methodology

Present study was conducted to see the efficacy of MBRP on opioid use disorder patients. Therefore a sample of 20 male opioid users wasselected consecutively from OPD, department of Psychiatry J.N. medical college, Aligarh. After fulfilling diagnostic criterion for opoid use disorder according to DSM-5, following inclusion and exclusion criteria was followed to select the patients for study.

Inclusion criteria

- Age ranged from 15-35 years
- Educated at least primary level
- Ready to give written consent

Exclusion criteria

- Co-morbidity of any medical and psychiatric illness, mental retardation, withdrawal symptoms and multiple substance use disorder
- Refused to give written consent

After it, patients were equally divided into intervention group and control group through random sampling method and administered these tools to collect data.

Tools

- ***Socio-demographic and Clinical Data Sheet*** **-** Patients' clinical and personal information was collected by using semi-structured clinical and personal data sheet. This sheet involves information like age, sex, socioeconomic status, education, resident, religion, marital status and family history of substance use. It also inquired about duration of illness, onset of illness, co-morbidity and previous treatment history.
- ***Wisconsin Card Sorting Test (WCST)–*** WCST was first developed by Grant and Breg (1948) to measure the ability of abstract reasoning and response shifting according to the change in environmental stimuli. This test has been used in this study to assess executive function of opioid users. WCST contains two decks of 128 cards that are matched with four standard cards on the basis of color, number and form in a specific sorting manner.Inter-scorer reliability for all the three responses was found to be 0.93, 0.92, 0.88 for perseverative response, perseverativeerror and non perseverative error respectively.

Procedure

First, all the patients were diagnosed according to DSM 5 criterion for having opioid use disorder. After it socio-demographic details were collected by using socio-demographic and clinical data sheet. Those patients who fell under inclusion criterion were provided information regarding MBRP program. The patients who agreed for the therapy session and ready to give written consent for being the part of MBRP were included in the study. Then both the tools mentioned above were administered on the patients prior to the therapy sessions for baseline data. One session per week was given to all the patients individually for two months according to the module of MBRP set by researchers specifically

for opioid users.Meanwhile psychiatrists were also forbidden to change the amount of medicines until the sessions were completed. MBRP was given in the following manner to all the patients of intervention group.

Module of therapy

Patients were given MBRP sessions according to the following module.

Week-1: In this week patients were trained to understand their thoughts that overwhelmed themby imaginations. Patients were trained to catch the stream of thought without controlling forcefully, by full "body scan"in which they focused on each and every body part, sensations inside and outside of the body gently. They were also instructed to choose a routine activity for practicing mindfulness.

Week-2: "Mindfulness of breath" and "sitting meditation" was practiced in this week. In this technique, patients focused their attention on each and every distinct point involved in breathing. In sitting meditation patients practiced bringing their awareness to the sensations inside the body followed by expansion of awareness to the whole body sequentially.

Week-3: This week patients learnt to do mindfulness with sounds they listen around them. It was done by sitting and focusing their attention on breath for few minutes followed by focusing their attention on the sound and its features gradually. "Three minutes breathing space" was also practiced in this session. In this exercise patients learnt to expand and narrow their awareness regarding self and the space. "Mindfulness walking" was also practiced in this session where patients walk mindfully.

Week-4: Here patients learnt to do mindfulness by imagining a situation in which they were "walking down the street". In this exercise they knew their thoughts and feelings and how can they affect their mood. This session was ended up with being aware of thoughts and feelings without falling into overwhelmed emotional state.

Week-5: In the fifth session patients learnt to do mindfulness practices whenever they have an emergency. For this purpose they were practiced "coping breathing in which they expand their awareness from breath to sensations, feelings, thoughts and emotions to the whole body. This exercise was instructed to practice in a challenged situation.

Week-6: After learning mindfulness of body sensation, thoughts, emotions and mind, patients learnt "mindfulness with silence" in this session. They also learnt "love and kindness" in which their experience of love spans from loving people next to them to the people of whole universe.

Week-7: In this week patients learnt to pay attention on them. They were learnt to take good self care and instructed to follow proper life style. Here they also practiced "choiceless awareness" in which they just sit and lie down and bring awareness to any random idea coming into their mind.

Week-8: In the last session patients were explained all the practices in brief and instructed to do them at regular basis even for a while whether they need it or not.

Patients of controlled group were not exposed to MBRP but they received only TAU. After completion of all MBRP sessions, post assessment of both groups was done with the same tools and data was collected for statistical analysis.

Statistical analysis

Chi square test was used to find out within group differences between patients on socio-demographic details. Wilcoxon matched pair sign rank test was used to see the change in scores over two points of time as the result of intervention.Mann-whitney U test was used to determine the difference between MBRP group and control group at base line and post assessment.

Table 1 is showing the number and percentage of patients selected for intervention group and control group.P value obtained by using Chi- square test shows no significance difference between both the groups on education ($X^2 = 3.53$, $p = .17$), marital status ($X^2 = .00$ $p = 1.00$), religion ($X^2 = .800$, $p = .37$), occupation ($X^2 = 1.14$, $p = .56$), resident ($X^2 = 3.52$, $p = .06$) and socio-economic status ($X^2 = 1.33$, $p = .51$).

For categorical data, independent t test was run to determine the difference between both the groups on age and duration of illness. Results show both groups don't differ with each other on age ($t = .440$, $p = .66$) and duration of illness ($t = .895$, $p = .38$) as evident by table 2.

Table-1. Difference between MBRP group and control group on socio-demographic details

Variables	Details	MBRP (n=10)	%	Control group (n=10)	%	Chi-square	Sig.
Education	Primary	2	20%	3	30%	3.53	.17
	Senior secondary	3	30%	1	10%		
	Graduate	5	50%	6	60%		
Marital status	Married	2	20%	2	20%	.00	1.00
	Unmarried	8	80%	8	80%		
Religion	Hindu	4	40%	6	60%	.80	.37
	Muslim	6	60%	4	40%		
Occupation	Students	6	60%	6	60%	1.14	.56
	Private job	3	30%	4	40%		
	Business	1	10%	0	—		
Resident	Urban	10	100%	7	70%	3.52	.06
	Rural	0	—	3	30%		
Socio-economic status	Lower	1	10%	2	20%	1.33	.51
	Middle	8	80%	8	80%		
	Upper	1	10%	0	—		

Table 3 demonstrates difference between MBRP group and control group on executive function assessed by WCST. Scores were obtained on three categories of WCST as Persevrative error, Category complete and total error and analyzed by using Mann- Whitney U test at baseline to check the difference between both the groups. P value shows no significant difference between both the groups on perseverative error (z=-1.32, p=.18), category complete (z=-.27, p=.78) and on total error (z=-.113, p=.91) at base line.

Post assessment was done to know the difference between MBRP and control group on executive function after two months of MBRP

Table-2. Difference between MBRP group and control group on age and duration of illness

Variables	MBRP group		Control group		t	P
Age (in years)	Mean	S.D.	Mean	S.D.		
	23.30	5.77	22.30	2.86	.440	.66
Duration of illness (in years)	5.76	4.28	4.3	2.86	.895	.38

Table-3. Comparison between MBRP group and control group on WCST at baseline

Variable	Group	Mean	SD	z	p
Persevrative error	MBRP	53.40	20.25	-1.32	.18
	Control	59.90	21.39		
Category complete	MBRP	2.25	1.16	-.27	.78
	Control	2.20	1.03		
Total error	MBRP	57.75	23.02	-.113	.91
	Control	57.30	23.02		

Table-4. Comparison between MBRP group and control group on WCST at post assessment

Variable	Group	Mean	SD	z	p	Effect size
Persevrative error	MBRP	46.65	19.82	-.21	.037	0.05
	Control	56.70	18.49			
Category complete	MBRP	3.40	1.46	-2.74	.01	0.61
	Control	2.50	.71			
Total error	MBRP	44.15	18.81	-1.74	.08	0.39
	Control	51.50	16.87			

intervention. On perseverative error mean value of MBRP group (M=46.65, SD=19.82) was found to be lower as compared to the mean value of control group (M=56.70, SD=18.49) and obtained p value (z=-.21, p=.037) shows significant difference between both the groups with small effect size (0.05) on it. On category complete, mean of MBRP group was found to be higher (M=3.40, SD=1.46) than the mean of control group (M=2.50, SD=.17) which was found to be significantly different (z=-2.74, p=.01) with large effect size (0.61). On last category which is total error, mean of MBRP group (M=44.15, SD= 18.81) was found to be lower than the mean of control group (M=51.50, SD= 16.87) and shows significant difference (z=-1.74, p=.08) between both the groups with medium effect size (0.39).

Table No. 5 indicates difference between pre assessment scores and post assessment scores of MBRP group and control group on WCST. Through this table, we can see that post assessment mean (M=46.65, SD=19.82) of MBRP group is lower than pre assessment mean (M= 53.40, SD=20.25) on perseverative error which differ significantly (z= -3.10, p=.002) with large effect size (0.61). On the other hand, post assessment mean (M=56.70, SD=18.49) of control group though lower than the pre assessment mean (M=59.90, SD=21.39) but difference between both was not found significant (z= -1.17, p=.240).

On category complete post assessment mean of MBRP group (M=3.40, SD=1.46) was found to be higher than the pre assessment mean (M= 2.25, SD=1.16) which shows significant difference (z=-3.24, p=.001). While pre assessment mean of control group (M=2.20, SD=1.03) was not found to be significantly different (z=-1.73, p=.083) from post assessment (M=2.50, SD.71).

On the third domain total error, pre assessment mean (M=57.75, SD=23.02) of MBRP group was found higher than the post assessment mean (M=44.15, SD=18.81) of MBRP group which indicates significant difference (z=-3.27, p=.001). In control group, pre assessment mean (M=57.30, SD=23.02) was higher than the post assessment mean (M=51.50, SD=16.87) but the difference between both the means was not found significantly different(z=-1.429, p=.153).

Table-5. Comparison between MBRP group and control group on WCST at two point of time

Variable	Group	Pre		Post		z	p	Effect size
		Mean	SD	Mean	SD			
Persevrative error	MBRP	53.40	20.25	46.65	19.82	0.98	.002	0.98
	Control	59.90	21.39	56.70	18.49	0.37	.240	0.37
Category complete	MBRP	2.25	1.16	3.40	1.46	1.02	.001	1.02
	Control	2.20	1.03	2.50	.71	0.55	.083	0.55
Total error	MBRP	57.75	23.02	44.15	18.81	1.03	.001	1.03
	Control	57.30	23.02	51.50	16.87	0.45	.153	0.45

Results and Discussion

Consuming substance is increasing day by day in spite of being awareof its devastating effects. Opioid intake affects major areas of human beings either physiologically or psychologically. Cognitive function is another kind of area which is affected badly when individual starts taking opioid for prolonged period or in a larger amount. There are several empirical studies available to show its effect on attention, working memory, recall, visuospatial skills, psychomotor activities etc.[18] Chronic substance use affects individuals' attention, memory and decision making ability.[19] Opioid users have shown deficits in executive functions, working memory and fluid intelligence in early abstinence period[20].One study conducted on amphetamine users and opiate users to explore its effect on memory and executive function. Results indicated significant impairment in executive function of opiate users. Chronic drug users were also found to have pronounced impairment in executive function.[21] Present study also indicates that opioid users have moderate impairment in executive function which is supported by previous studies.[20,21] MBRP was given only to the patients selected for intervention group but control group was merely exposed to TAU. After two months of intervention, significant difference was found between MBRP group and control group on WCST. Moreover within group difference was also found in MBRP group though

such difference was absent in control group. Findings of the study reveal that MBRP is an effective technique for enhancing executive function of opioid users rather than the patients receiving only TAU. Mindfulness basically works with the idea of focusing attention on inner and outer world and accepting them without being judgmental.[22] Studies have shown positive effects of mindfulness on cognitive function including attention, EF and memory.[23,24] There has been found a positive link between mindfulness practices and changes in brain structure. Data obtained by magnetic resonance imaging (MRI) scan has shown that mindfulness meditators have different brain structure as compared to non-practitioners. Mindfulness practitioners have thicker prefrontal cortex and thicker anterior insula.[25] Mindfulness practices also found to activate distinct cortical regions from dysfunctional prefrontal-limbic loop.[26] One pre-postpilot study conducted with active and passive control groups showed that mindfulness intervention improves sustained attention, cognitive flexibility, cognitive inhibition and data driven information process of the participants who received mindfulness intervention.[27] A meta analysis study explored neurobiological changes related to mindfulness meditation indicated that mindfulness practices activate prefrontal cortex and anterior cingulate cortex. Studies also revealed that mindfulness meditation helps to enhance cerebral areas involved in attention process.[28]

Conclusion, Limitations and Suggestions

Conclusively, it can be stated that MBRP is more effective technique to improve executive function of opioid user as compared to TAU. Though this study involves control group, it has some limitations. Small sample sizeis one of them so we can't generalizeour result on the whole population. Moreover patients with different kind of substance use disorder were not included in this study so we can't say which type of substance use disorder is more benefitted from MBRP. Female were also not included in the study. It may be the focus of future research whether females are less in number for using drugs in comparison to male or they are not willing to take any treatment for substance use disorder. In future, these limitations can be the area of research so that more sound results could be extracted in the field of MBRP.

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Original Article

Gender Differences in Depression and Anxiety among Patients with Epilepsy

Nitin Sharma,[1] Shantanu Bharti,[2] Ruchita Sharma,[3] Ajay Kohli,[4] Anju Agarwal,[5] Abdul Qadir Jilani,[6] Ritu Shukla,[7] Prashant Kumar,[8] Shiraz Ul Hasan,[9] Divya Deepak Srivastava[10]

Departments of Psychiatry[1,2,4,5,6,8-10] and Medicine,[3] Era's Lucknow Medical College and Hospital, Lucknow-226002

Department of Anesthesiology,[7] People's College of Medical Sciences and Research Centre, Bhopal-462037

Contact: Shantanu Bharti, Email-shantanubharti@gmail.com

Abstract

***Background**: Greater linkage of depression and anxiety have been observed in patients with epilepsy. This association have been complicated by demographic, medicinal and other variables. Surprisingly less attention have been given to association and impact of gender difference on depression and anxiety among patients with epilepsy. **Method**: In cross sectional out-patient based study, we have included 100 participants diagnosed with epilepsy. Each subject was assessed for depressive and anxiety symptomatology using Hamilton rating scale for depression (HDRS) and Hamilton rating scale for anxiety (HARS). **Results**: Females composed of 47% of the study group and stated high level of both anxiety (30.23%) and depression (25.58%) in comparison with males. Neither anxiety (p-0.527) nor depression (p-0.329) was significantly correlated. However, female patients had significantly higher psychic anxiety symptoms (p-0.041*) and general somatic symptoms (p-0.049*) in contrast to males on HDRS scale.**Conclusion**: Females patients with epilepsy in particular have higher levels of both anxiety and depression and should be assessed for psychic anxiety and general somatic symptoms. Hence, screening for anxiety and depression among patients with epilepsy will improve treatment outcome and quality of life.*

***Keywords**: Epilepsy, Depression, Anxiety, Gender differences.*

Introduction

Depression and anxiety are the most frequently associated in individuals with epilepsy.[1-4] There is strong link between, depression, anxiety and epilepsy-nearly half of individuals with epilepsy experience depression[5] while around 20% of these individuals' experience generalized anxiety disorder.[6] These co morbidities have major impact on quality of life, morbidity and mortality of the individuals.

The association of depression and anxiety in people with epilepsy is intricate and difficult to unravel from interactions of medical and psycho-social issues. There is accumulating evidence that demographics,[4] medications,[7-10] seizure-related factors[11] and psychosocial variables[12] are factors that contribute to the poor quality of life of people with epilepsy.

This opens room for several queries about the additional impact of gender differences on depressive symptoms and anxiety in people with epilepsy that have received surprisingly little attention so far.

Aim and Objectives

In our Cross-sectional Out Patient based study, we aimed to assess the prevalence of depression

and anxiety among patients with epilepsy based on gender. We also discriminated the distribution of anxiety and depressive symptomatology using validate rating scales based on gender differences.

Material and Methods

A Cross Sectional Out Patient Based Study was designed wherein, patients with epilepsy were recruited, all attending the Out-Patient Epilepsy Clinic at Department of Psychiatry, Era's Lucknow Medical College and Hospital in Lucknow.

Selection of Cases

We examined 147 patients during the tenure of study out of which 100 were included in the study and 47 were excluded.

Patients included in the study were 57 males and 43 females, with idiopathic epilepsy, aged between 18–60 years, without any other somatic or neurological comorbidity at the time of the psychiatric evaluation. The duration of epilepsy had to be medically proven for more than 12 months and patients had to be seizure-free for the last 72 hours before entering the study.

Those who were excluded, 13 were associated with substance abuse, 16 were seizure free for more than a year, 6 had other psychiatric illness, 2 required urgent medical attention, 2 had prior diagnosis of depression and rest were less than 16 or more than 60 years of age.

Patients having depression/anxiety prior to diagnosis of epilepsy or associated substance use disorder or have any other psychiatric illness, those with any serious illness requiring urgent medical attention or any chronic medical/surgical illness and those who were on proconvulsant medication were excluded from the study.

Evaluation for anxiety and depression

All subjects were then evaluated on Hamilton rating scale for depression (HDRS)[13] and on Hamilton rating scale for anxiety (HARS)[14]for anxiety. Seizures were classified according to international classification of epileptic seizures[16]. A specially designed questionnaire for demographic variables was also completed.

Hamilton rating scale for depression (HDRS)

HDRS (also known as the Ham-D) contains 17 items (HDRS17) pertaining to symptoms of depression experienced over the past week. It was originally developed for hospital inpatients, thus the emphasis on melancholic and physical symptoms of depression. Each item is scored with a value between 0 and 4, yielding a total score between 0 and 68.[13] We used cut-off points to identify patients with 'no depression' (score 0–7) versus 'mild to severe depression' (8–68).[13] The validity of these subscales has recently been reevaluated.[15]

Hamilton rating scale for anxiety (HARS)

HAM-A was developed to measure the severity of anxiety symptoms. The scale consists of 14 items, each defined by a series of symptoms, and measures both psychic anxiety (mental agitation and psychological distress) and somatic anxiety (physical complaints related to anxiety). Each item is scored on a scale of 0 to 5, with a total score range of 0–56, where < indicates mild severity, 18-24 moderate to severe and >25 moderate to severe anxiety.[14] The validity of these subscales has recently been reevaluated.[17]

Statistics

The results were analyzed using descriptive statistics and making comparisons between treatment groups with respect to growth parameters. Discrete (categorial) data were summarized as in proportions and percentages (%)while quantitative data were summarized as mean and SD. Proportions were compared using chi-square (χ^2) test. A two-sided ($\alpha = 2$) $p < 0.05$ was considered statistically significant. Software's MS-Excel and SPSS v 18 were used for analysis.

Results

Table 1 shows that most of the patients were male (57%) having mean age of 33.63 years in contrast to females who accounted 43% of study participants having mean age of 30.16 years. Majority of the patients under study were married. Almost similar percentage of participants were from urban and rural background 40% and 38% respectively, and 22% were from semi-urban region of the state. Participants with partial seizures were 63% and that of Generalized seizures were 37%.

Table 2 showed that female patients had more prevalence of both depression (25.58%) and anxiety (30.23%) in comparison to male patients in whom

Table-1: Sociodemographic variables

Gender	**Number (n = 100)**
Male	57
Female	43
Mean Age	In Years
Male	33.63
Female	30.16
Marital status	**Number (n = 100)**
Single	21
Married	71
Separated/Divorced/Widow(er)	
Domicile	**Number (n = 100)**
Rural	38
Semi urban	22
Urban	40
Seizure type	**Number (n = 100)**
Partial	63
Generalized	37

0.329) or anxiety (p = 0.527) (Table 2).

On further evaluation of depressive symptomatology according to HDRS scale (Table-3), it was found that anxiety particularly psychic was found significant (*p*-0.041) among patients with epilepsy. In addition to this, general somatic symptoms were also found significantly (p-0.049) associated with patients with epilepsy. However, in HARS scale (Table-4) no significant association was seen in different domains of anxiety and patients with epilepsy.

Discussion

In this study, we explored for possible gender differences in anxiety and depression in respect of prevalence and distribution of symptomatology among the patients with epilepsy. The mean age of study-group males and females was 33.63 and 30.16 years respectively. However, in a study by Gaus et al,[18] mean age of individuals for men and women was 49.2 and 40.4 years respectively.

Table-2. Prevalence of anxiety and depression in patients of epilepsy

Socio-demographic Variable	**HARS**	**p-value**	**HDRS**	**p-value**
Gender				
Male (n-57)	14 (24.56%)	0.527	10 (17.54%)	0.329
Female (n-43)	13 (30.23%)		11 (25.58%)	

prevalence was 17.54% and 24.56% of depression and anxiety respectively. Most of the patients had mild to moderate grades of depression and anxiety. None of the patients showed severe grade of either depression or anxiety. (Figure 2)

Furthermore, no significant association was observed based on gender either in depression (p =

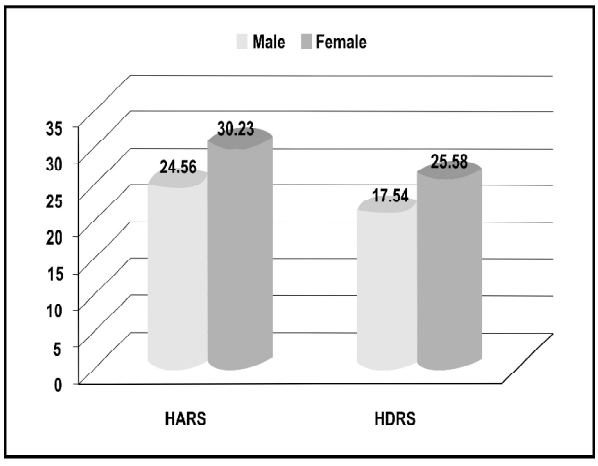

Fig. 2: Prevalence of anxiety and depression according to Gender

It was observed that among patients with epilepsy, anxiety and depression both were more prevalent among females than in males. Western studies[19-22] and Indian researches[23] both stated found higher prevalence of anxiety among females in general population. Also, Reddy et al[23] in their meta-analysis reported prevalence of depression to be 7.9 to 8.9 per thousand populations. In terms of socio-demographic variables,Indian studies have shown that depression is more common in women than in men.[24-28] Although the results of our study were not in harmony with previous literatures by Gaus et al,[18] Yue et al[29] and Maroufi et al[30] who had reported no gender differences in anxiety among patients with epilepsy. Both gender scored mild to moderate grade of anxiety and depressive symptoms.

On HDRS scale, 1/5th of males and 1/4th of females had mild to moderate depressive symptoms. No significant correlation was observed between gender and depressive symptoms. This finding was

Table-3. Comparative distribution of depressive symptomatology based on gender differences on the symptom checklist of HDRS

Symptoms	Male (n=57)		Female (n=43)		
	Number	%	Number	%	p-value
1. Depressed mood	17	29.82	10	23.25	0.464
2. Feelings of guilt	10	17.54	06	13.95	0.628
3. Suicide	00	00	00	00	N/A
4. Insomnia- early	15	26.31	12	27.90	0.859
5. Insomnia- middle	10	17.54	06	13.95	0.628
6. Insomnia- late	00	00	03	6.97	N/A
7. Work and activities	11	19.29	08	18.60	0.930
8. Retardation	06	10.52	04	9.30	0.840
9. Agitation	14	24.56	12	27.90	0.706
10. Anxiety – psychic	13	22.80	18	41.86	0.041*
11. Anxiety -somatic	17	29.82	14	32.55	0.770
12. Somatic symptoms – Gastrointestinal	14	24.56	13	32.23	0.527
13. Somatic symptoms – General	16	28.07	20	46.51	0.049*
14. Genital symptoms	14	24.56	06	13.95	0.189
15. Hypochondriasis	15	26.31	14	32.55	0.496
16. Insight	———		———		

Table-4. Comparative distribution of Anxiety symptoms based on gender differences on the symptom checklist of HARS

Symptoms	Male (n=57)	Female (n=43)			
	Number	%	Number	%	p-value1
1. Anxious mood	24	42.10	20	46.51	0.660
2. Tension	11	19.30	09	20.93	0.840
3. Fears	14	24.56	10	23.25	0.880
4. Insomnia	25	43.86	18	41.86	0.842
5. Intellectual	07	12.28	11	25.58	0.087
6. Depressed mood	17	29.82	10	23.25	0.464
7. Somatic (muscular)	04	7.02	06	13.95	0.252
8. Somatic (sensory)	12	21.0	12	30.23	0.427
9. Cardiovascular symptoms	15	26.31	13	23.25	0.666
10. Respiratory symptoms	04	7.02	03	6.97	0.994
11. Gastrointestinal symptoms	14	24.56	08	18.60	0.477
12. Genitourinary symptoms	06	10.52	03	6.97	0.539
13. Autonomic symptoms	20	35.08	10	23.25	0.201
14. Behavior	———		———		

not in harmony with Gaus et al[18] who reported significant gender difference in depression, with females affected more. This was probably because of the small sample size of our study and uneven male and female participants.

Of all possible explanation regarding more anxiety and depression among female, first is lack of female medical personnel at healthcare centres.[31] Secondly, medical doctors attribute different meanings to identical symptoms for presenting male and female patients[32] or attribute women's illnesses to psychiatric disorders and prescribe inappropriate medication.[33] Thirdly, poor women find themselves without healthcare facility, lack of privacy and confidentiality and less informative about healthcare service availability.[34] Also,enhanced emotionaland cognitive capacities of women themselves limit their access to healthcare.[35] All these factors contribute in poor treatment seeking behavior thereby increasing the severity of illness and hence attributing or aggravating the prevalence of anxiety and depression among females.

Upon evaluation of HDRS symptomatology, we found that females had significantly higher

prevalence of psychic anxiety and general somatic symptoms. Significant psychic anxiety was probably due to high tolerability of symptoms among women and provisions of less healthcare facilities. Also, societal stigma is highly associated with epileptic disorders and are the reasons for worry and apprehensions among females, which are determinants of psychic anxiety. Also, in partial epilepsy, aura is present which can lead to increase in psychic anxiety due to perceived feeling of seizure which is not present in generalized seizures.

In addition to this, significantly more somatic symptoms were observed in females rather than males. Approximately 50 % pf the female patients report of somatic symptoms in contrast to one fourth of the males. Somatic symptoms mainly reported in depression were lack of energy, severe headache and feeling of tiredness. This finding may be probably because of the post ictal pain following seizure episodes. Also, psychological symptoms are less acceptable in society, but with physical symptoms helps patients in seeking treatment. Rest of the symptoms on HDRS scale were found more prevalent among males. Although none of them were significantly associated, but genital symptoms, depressed mood and hypochondriasis were among the frequently reported symptoms. Assessment of HARS reveal no significant symptom correlation. Females had more of somatosensory and somatomuscular and intellectual anxiety symptoms. Whereas as males had more prevalence of fears, gastrointestinal and autonomic symptoms.The study had provided interesting associations between anxiety and depression and patients with epilepsy and further supports the importance of educational interventions. Hence, all the patients with epilepsy should be screened properly for the likely symptoms and further management should be done appropriately.

Conclusion

Females with epilepsy exhibits higher grades of anxiety and depression than males. Particularly females are significantly correlated with psychic anxiety and general somatic symptoms. In future, further studies are needed to show whether the information provided in our study in itself improve the quality of life among patients with epilepsy.

Limitations

Possible limitations tothis study were, firstly, the sample size was small. Secondly all the patients were included from the single center hampering the generalizabilityof our finding.

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Original Article

Coping among women diagnosed with Breast Cancer with Co-morbid Depression: A study from North India

Bandana Gupta
Department of Psychiatry, King George's Medical University, Lucknow, U.P., India
Contact: E-mail: drbandna@yahoo.co.in

Abstract

Background: *Females with diagnosis of breast cancer are in chronic stress. Ongoing treatment which includes surgery, chemotherapy and radiotherapy also adds to their stress and can lead to development of depression. Patients with breast cancer with co-morbid depression adopt various measures of coping to combat their stress. An individual's experience about a crisis situation is heavily influenced by the way of coping. Less is known about the topic in conjunction with depression and different coping strategies of woman diagnosed with breast cancer.* ***Aim:*** *The study was undertaken to assess coping strategies among females diagnosed with breast cancer with co-morbid depression.* ***Method:*** *A descriptive, cross sectional study was conducted on 48 females diagnosed with breast cancer with co-morbid depression attending out-patient Department of Endocrine Surgery and Department of Surgical Oncology of a tertiary care center in North India. Patients were evaluated on, MINI 6.0.0 to screen other psychiatric co-morbidities.Diagnosis of depression was confirmed on ICD-10 DCR.Hamilton depression rating scale (HAM-D) 17 items, was used to measure severity of depression and Cope Inventory was used to assess coping strategies.* ***Results:*** *Among the adaptive coping strategies most commonly used strategies were in the order of 'Acceptance', 'emotional social support' , 'religion', 'use of instrumental social support', 'active coping' , 'positive reinterpretation & growth' and 'suppression of competing activities'. The commonly used maladaptive coping strategies were in the order of - 'focus on venting of emotions', 'mental disengagement' and 'denial'.* ***Conclusion:*** *Patients diagnosed with breast cancer and co-morbid depression commonly use coping methods acceptance, emotional social support, religious methods, mental disengagement, denial and focus on venting of emotion.*

Keywords: *Breast cancer, Depression, Women, Coping*

Introduction

Female with diagnosis of breast cancer are in chronic stress and face ongoing problem in the form of surgery followed by chemotherapy and radio-therapy. Their worries and apprehensions related to disfigurement, anticipation of death, adverse effects of chemotherapy & radiotherapy and pain might be attributing to development of depression.[1]

Conflict between the environmental or internal demands, and the efforts produced to act upon them, is called coping.[2] Lazarus & Folkman in 1984[3] gave the cognitive theory of psychological stress and coping, which states that coping is an effort to meet the internal as well as environmental demands of the individual. Coping strategies can be grouped into "problem-focused and "emotion-focused. Problem focused coping is used when individual feels that some solution to the problem faced is

possible while emotion focused coping is used where nothing could be done for the problem and it has to be endured.[4]

Carver et al, arbitrarily divided coping into adaptive and maladaptive.[5] Adaptive coping strategies are Positive reinterpretation and growth, Active coping, Suppression of competing activities, Planning, Use of instrumental social support, Restraint, Religious coping, Use of emotional social support and Humor while Maladaptive coping strategies are Mental disengagement, Focus on and venting of emotions, Denial, Behavioural disengagement and Substance use. Acceptance can be adaptive or maladaptive.

"Positive reinterpretation and growth" is a type of emotion focused coping strategy aimed at managing distressed emotions rather than dealing with the stressor per se.

Active coping involves active participation of the individual to find permanent solution to the stressor or to mitigate its effects. This includes making small efforts step by step and coping in a graded manner.

Planning is a problem focused coping strategy where individual plans about strategies and ways of solving the problem.Planning constitute the secondary appraisal phase while active coping is involved in executing a problem focused action.

"Suppressing ones competing activities" is another kind of problem-focused coping where individual restricts to the problem situation to the extent of neglecting other important domains of life.This may lead to postponing other projects and avoiding other significant events of life in an attempt not to get distracted and deal with the stressor only.

"Restraint coping" is another act of problem-focused coping that involves waiting for an appropriate opportunity to act.Thus individual tries not to be impulsive and act only when the situation allows. This is an active coping as the person is making effort to deal with the stress but restraining oneself until the right time has come.

"Religion" is an emotion focused coping strategy, providing support at emotional and spiritual level. This helps individual to look at the positive aspects and generate optimism and strength to face the stressors. Faith in religion helps in laying foundation for positive reinterpretation and growth and other active coping strategies.

People facing problem situation usually seek social support either for instrumental reasons or emotional reasons.Instrumental reasons involves seeking advice, assistance or information to solve the problem and forms the basis of problem focused coping. While seeking social support for gaining sympathy and understanding of others forms the basis of emotion focused coping. It helps in providing support to a person who is emotionally insecure and not able to compensate with the prevailing stressors. This may be adaptive once the person survives emotional crisis and returns back to problem-focused coping. On the other hand, constant ventilating out one's emotions can lead to distress and thus become maladaptive, preventing one from taking steps to solve a problem.

"Denial" is a predominantly maladaptive emotion focused coping strategy as it delays cognitive appraisal of the stressors as well as active coping .This involves avoiding the painful emotional response which individual develops on confronting and dealing the problem situation thereby delaying active coping. Thus the situation worsens and outcome is poorly effected.

"Focusing on and venting of emotions" is another emotion focused coping strategy that may be adaptive but has a tendency to be largely maladaptive. The individual preoccupied by the ongoing stress, ventilates out the emotional turmoil to near ones to seek reassurance and support. Such a response is adaptive if the individual gradually accommodates to the situation and then moves on. However same response can turn out to be maladaptive if focusing on stress and ventilation distracts the individual from active coping and impeding adjustment or finding solution to the problem.

Two other maladaptive coping strategies are "behavioral disengagement" that means getting oneself engaged in activities other than that dealing with the stressor. It reflects an individual's helplessness. "Mental disengagement" is adopted where behavioral disengagement is not possible. It includes dissociating mentally from the situation and freeing of one's mind off a problem.

"Acceptance" is an emotion focused coping strategy emphasizing on two aspects of the coping process.Appraising and accepting the stressors of life as real is primary and acceptance of inability to cope with them is secondary. It can be considered

adaptive when the stressor has to be accommodated but it becomes maladaptive when stressor can be easily changed.

An individual's experience about a given crisis or ongoing problem depends heavily on the way he/she copes with it. Less is known about the topic in conjunction with depression and different coping strategies of woman diagnosed with breast cancer. Reasearch in this area can give meaningful results both for the patients and health care professionals to formulate interventions aimed to reduce stress generated by the diagnosis of cancer and to implement measures to improve coping with it. The association of depression in breast cancer can be explained by many biological, and psycho-social attributions. Breast cancer is a life threatening diagnosis and depression is a frequent co-morbidity in various stages of cancer.This study aimed to assess coping strategies among females diagnosed with breast cancer with co-morbid depression.

Methodology

This was a cross-sectional study conducted during 2016-17 in a tertiary care teaching hospital of North India.The Study was approved by Institutional Ethics committee and patients were recruited after taking written informed consent. The study sample comprised of women diagnosed with cancer of breast, who were attending the outpatient services of the Department of Endocrine Surgery and Surgical Oncology.

In our study, the diagnosis of breast cancer was confirmed by either Fine Needle Aspiration Cytology (FNAC) or Tissue Biopsy. Women between 18 to 60 years of age, diagnosed with breast cancer within one year and not receiving chemotherapy, were included in the study. Patients with psychiatric co-morbidities other than depression were excluded from the study. Patients were assessed on a semi-structured proforma for socio-demographic and clinical details.Psychiatric co-morbidities were ruled out applying M.I.N.I 6.0.0 version.[6] Confirmation of the diagnosis of depression was done as per ICD-10, DCR.[7] Hamilton depression rating scale- 17 item[8] and cope inventory[5] were used to measure severity of depression and coping strategies respectively.

Statistical analysis was carried out using STATA-23 software. The continuous variables were compared using Student's 't' test. The ordinal and nominal variables of the two groups were compared using the Chi-square test. Relationship between various domains of depression and other variables was studied by using Pearson correlation co-efficient.

Result

A total of 102 women diagnosed with breast cancer met the selection criteria out of 250 screened individuals. M.I.N.I.6.0.0. was applied on these selected women and those suffering from depression only (other psychiatric co-morbidites excluded) were further confirmed on ICD-10, DCR and included in the study (N=48). Thus 48 women with breast cancer with comorbid depression formed the study sample. Socio-demographic and clinical details of the study sample was recorded and HAM-D and Cope Inventory was applied on them.

Socio-demographic and clinical details of the study sample

In our study mean age of the patients and mean duration of cancer diagnosis were 43.34 ± 8.62 years and 1.96 ± 1.82 months, respectively. Majority of our patients were Hindu, married housewives, uneducated, from rural background and living in joint families. Diagnosable depression was present in 48 patients (47.05%), with mild depression present in 26 patients (54.16%) followed by moderate and severe depression in 22 patients (45.83%).

Coping

Among the adaptive coping strategies 'Acceptance','Use of emotional social support' turning to 'religion' was being used the most, followed by 'use of instrumental social support' and 'Planning'. 'Restraint' and 'Humor' were being used the least (Table 1). Among the maladaptive coping strategies 'Focus on and venting of emotions' was being used the most, followed by 'mental disengagement'. 'Denial', Behavioural Disengagement' and 'Substance use' were being used the least (Table 1).

Correlation of adaptive coping strategies with age and clinical variables was done. Age was significantly positively correlated with religious coping. Duration of malignancy was significantly negatively correlated with Instrumental social support, Active coping, Positive reinterpretation and

growth and planning. Severity of depression & stage of malignancy did not show any significant association with adaptive coping strategies (Table 2). Correlation of maladaptive coping strategies with clinical variables showed that the duration of diagnosis of cancer was positively correlated with Focus on and venting of emotions and severity of depression was significantly negatively associated with Denial and Behavioural disengagement. Age and Stage of cancer did not show significant correlation with any maladaptive coping strategies (Table 2).

Adaptive and maladaptive coping strategies were compared between mild depression group (n = 26) and moderate to severe depression group (n = 22). There were significant difference in the use of **Acceptance, use of instrumental social support** and **Active coping** with moderate to severe depression group using it more frequently. The difference in the use of other adaptive coping strategies between the two groups was not significant.

Denial and Behavioral disengagement as a maladaptive coping strategy was significantly more used by the mild depression group (Table 3).

In this study sample, patients used many adaptive coping strategies. Emotion-focused coping strategies used were, 'emotional social support' 'religion' and 'positive reinterpretation and growth' while problem- focused coping strategies used were, 'seeking of instrumental social support', 'active coping' 'suppression of competing activities', 'planning' and 'restraint'. 'Acceptance' can be considered as an adaptive or a maladaptive coping strategy, depending upon whether an individual accepts the situation and takes active steps to deal

Table 1: Use of various coping strategies in patients with breast cancer with co-morbid depression (N=48)

Coping strategies (domains of COPE inventory)	SCORE Mean (S.D.)	Range
Acceptance (ACC)	12.89 (2.37)	4- 16
Use of emotional social support (ES)	10.84 (2.40)	4- 16
Religion (RC)	10.58 (1.58)	4-16
Use of instrumental social support (ISS)	10.12 (1.64)	4- 16
Active coping (AC)	9.97 (1.27)	4-16
Positive reinterpretation and growth (PRG)	9.25 (1.34)	4- 16
Suppression of competing activities (SCA)	9.06 (1.35)	4-16
Planning (P)	8.91 (1.18)	4- 16
Restraint (R)	8.37 (1.37)	4-16
Humour (H)	4.41 (1.007)	4- 16
Focus on and venting of emotions (FVOE)	10.68 (2.01)	4- 16
Mental disengagement (MD)	6.70 (1.44)	4- 16
Denial (D)	5.31 (1.89)	4- 16
Behavioral disengagement (BD)	5.10 (1.22)	4- 16
Substance (SU)	4.52 (1.18)	4- 16

Table-2: Correlation of Coping strategies with background variables (n=48)

Subscales	Age (r, p)	Duration of diagnosis of cancer (r, p)	Stage of malignancy (r, p)	Severity of depression (r, p)
Religion (RC)	0.414 (0.003)	-0.152 (0.301)	0.037 (0.803)	-0.008 (0.959
Use of instrumental social support (ISS)	0.179 (0.224)	-0.407 (0.004)	-0.091 (0.539)	0.157 (0.287)
Active coping (AC)	0.15 (0.30)	-0.37 (0.008)	-.104 (0.48)	.252 (0.84)
Positive reinterpretation and growth (PRG)	0.112 (0.44)	-0.366 (0.01)	0.038 (0.79)	0.16 (0.26)
Planning (P)	0.21(0.15)	-.340 (0.018)	0.73 (0.63)	0.23 (0.10)
Focus on and venting of emotions (FVOE)	-0.49(0.74)	0.406(0.004)	-0.19(0.18)	-0.172(0.24)
Denial (D)	-0.61(0.06)	0.067(0.65)	0.11(0.42)	-0.40(0.004)
Behavioral disengagement (BD)	-0.14(0.33)	0.058(0.69)	-0.26(0.06)	-0.364(0.011)

Pearson correlation test, $p < 0.05$. *Only significant results are depicted*

Table-3: Comparison of Coping strategies with Severity of depression (n=48)*

Variable	Mean ± SD of domain (Mild depression) (n= 26)	Mean ± SD of Domain (Moderate + Severe) (n= 22)	Test of significance**	
			t	p
Acceptance (ACC)	12.26 ± 2.76	13.63 ± 1.55	-2.05	0.04
Use of instrumental social support (ISS)	9.69 ±1.76	10.63 ± 1.36	-2.04	0.04
Active coping (AC)	9.57 ± 1.10	10.45 ± 1.33	-2.49	0.01
Denial (D)	5.88 ± 2.32	4.63 ± 0.84	2.38	0.02
Behavioral disengagement (BD)	5.57 ± 1.27	4.54 ± 0.91	3.17	0.003

**Only significant results are depicted*
***(unpaired t test, p< 0.05)*

with the problem or not. In our study, 'Acceptance' as an adaptive coping strategy was used the most. Humor is an adaptive coping strategy that was not used much.

Among the maladaptive coping strategies, patients used 'focus on and venting of emotions', 'mental disengagement' and 'behavioral disengagement'. 'Behavioral disengagement' is reducing one's behavioral efforts to deal with a stressor. 'Mental disengagement' includes engaging in activities that help to distract a person from thinking about the problem at hand. This would interfere in coping actively with the stressor, and is thus considered maladaptive. Mental disengagement is generally used when behavioral disengagement cannot be executed.

Denial and substance use are maladaptive coping strategies that were not used much.

Discussion

Our hospital caters patients from major part of north India and central part of India. The study population represented the geographic region, where most people reside in rural areas and are Hindu as well as from joint families and low socio-economic status, which explains the socio-demographic characteristics of our sample.

As cancer is a life threatening condition and often people have difficulty in coping with such severe conditions, we planned to conduct this study. Patients with a life threatening diagnosis like breast cancer may use different coping strategies. Depression as a co-morbidity in patients with cancer might influence the various coping mechanisms used in this group of patients. So, studying coping strategies in females diagnosed with breast cancer and co-morbid depression might give an insight to understand the connective link between these two entities.

It is possible that over a period of time, coping strategies change and this may account for the large variety of strategies reported in our sample. Problem-focused coping strategies would be used more where problem resolution is plausible. Emotion-focused strategies are used more where problem resolution is less likely and dealing with personal distress is resorted to in the face of chronic problems.[9]

In present study *Acceptance* was the most commonly used adaptive coping strategy by patients suffering from Breast cancer with comorbid depression. Acceptance means learning to live with reality of the stressful situation and accepting the implication of course of illness and its adversity. So we can say that patients are not blaming themselves for the onset/reason of this illness and address their problem by assuming a full responsibility. This replicates the finding of Carver et al., which observed acceptance to be one of the most often used coping strategies along with positive reframing and the use of religion.[10] Similar finding was reported in other studies.[11,12]

Emotional Social Support was second most common emotion focused coping strategy used in our study. Studies suggest that most of the patients use emotional social support by talking to others about their problems.[13,14] Patients diagnosed with breast cancer feel less distressed by sharing their feelings and thoughts with family members and close friends and relatives. Thus we can depict that psychosocial support plays an indispensable part in reducing the distress faced by the patients.

Religion was third most commonly used coping

strategy among these patients. It is considered as one of the emotion-focused coping strategy involving mental activities that helps individual emotionally distancing from the stressor rather than bringing any change in the situation.[15,16] Patients believed that life is planned by the God and so it is an adverse event also,and they have to comply with it. Females with breast cancer reported that their faith in God reduced their fear and stress and provided inner strength and courage to fight with the disease.They left all the worries of death and future, uncertainties " in God's hands" These findings were analogous with past studies of breast cancer patients.[17,18,19] In this study, also with advancing age, religion as coping strategies was significantly more used by our study sample. These finding suggest that as the age of the women advances they tend to turn toward spirituality as their ray of hope.

The *planning* and *positive interpretation* is necessary to get through the traumatic experience of cancer, and adaptation to life thereafter. Patients using planful problem solving and actively coping using direct actions to solve the problem show better results with cancer treatment. Maneul et al., stated in their study that positive cognitive restructuring was more helpful for concerns about the future.[20] Use of this strategy was significantly more by participants of our study in the early phase of diagnosis than with increasing duration of diagnosis of malignancy. That means patients in early phase of diagnosis are more prompt and used planful problem solving to cope with breast cancer. Though use of these coping may cause stress for a temporary period as they are facing the stressful event but at the same time addressing their treatment need which is of immediate concern ,and for a long term they will start adjusting with their problem.

'Instrumental social support' (ISS), 'Active coping' (AC) and 'suppression of competing activities' (SCA) are other problem focused strategies used by the patients. Problem focused strategies helps patient to find out a concrete solution of the problem by talking to the people having similar experience and seeking advice from the experts. This type of coping help the patients to think in a positive direction and help in taking decision and facilitating treatment. In our study Instrumental social support, Active coping and Positive reinterpretation and growth was found to be negatively correlated with duration of diagnosis of cancer. This might signify that active coping is predominantly present in early phase of diagnosis of breast cancer and as the duration of malignancy progress, the severity of the distress caused by the diagnosis decreases and patients learn to adjust with it. There was significant difference in use of these strategies, where patient with moderate and severe group using it more. Also use of Denial and Behavioural disengagement was significantly less in this group of patients. This can be explained on the basis that those patients, who were actively coping, cognitively appraised the demands of situation and their psychological distress manifested in the form of moderate to severe level of depression while those not appraising the situation (using denial and behavioral disengagement) were less psychologically distressed and suffered only mild level of depression. One possible reason might be that during the course of cancer patients experience psychological adaptation in stages like – denial, anger, bargain, depression and acceptance. Depression and acceptance come late in the course of illness, which partly explains our findings. Small sample might be another reason that can explain our findings.

Restraint is a type of problem focused coping strategy and its use may result in delaying help seeking and treatment. This can lead to progression of cancer to advanced stage and metastasis.[21] *Humor* as coping strategies is not much used by the patients.

Among Maladaptive coping strategies, most common used strategy was *'focus on and venting of emotions* and *self-distraction (mental and behavioral disengagement)*, Use of venting in its mild form could advantage the patients for temporary period as it helps in releasing the unpleasant feeling and promote psychosocial well being by sympathetic as well as empathetic response from others. This finding suggests that cancer patient need empathy and patient listening from health professionals. Self-distraction is a form of avoidance coping strategy, which reflects the tendency to engage in other activities that distract the individual from thinking about the problem or taking action to handle the stressor. Common distracting activities include day-dreaming, watching television, or sleeping. For short term it may reduce the stress by avoiding it but at the same time patient may not seek any medical

assistance or help for psychological morbidity.

Denial as a maladaptive coping leads to avoiding all thoughts about the possible devastating effects of cancer. This strategy was much used by patients with mild severity of depression and found to be negatively correlated with severity of depression. This can be explained that use of denial as coping strategy tends to reduce the severity of depression by cognitively not appraising the situation and avoiding to face the problem. Similar finding were reported in another study.[22]

Behavioural disengagement and use of substance to cope with the problem was not much prevalent in our sample.

Our study being a cross-sectional study, explored the coping strategy in patients at single point of time. The findings of the study cannot be generalized as coping strategy may change over time. Those patients with diagnosis of breast cancer for long duration (more than one year) were not considered which limits the generalizability of the study. Due to small sample in each sub-categories of depression (i.e. mild, moderate and severe), comparison was not done in the coping strategies in these sub-categories as it may under dilute the power of the findings. It is a limitation of the study.

Conclusions

The present study explored various coping strategies used by patients of breast cancer with co-morbid depression. Coping strategies which influence adaptation to the diagnosis should be encouraged and used (e.g., acceptance, emotional support, religion distraction, and active coping strategies). Those coping strategies that could delay seeking medical and surgical help as denial and venting of emotions should be identified and corrected.Generalisation of the results is difficult because of small sample size and there is need of further such study with large sample size.

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Original Article

A Study of Psychiatric Aspects of Non-ulcer Dyspepsia

Dinesh Kumar Tyagi,[1] Jnanamay Das,[2] Harbandna Sawhney[3]
[1,3]Department of Psychiatry, Dr BSA Medical College and Hospital, New Delhi,
[2]Department of Psychiatry, ESIC Model Hospital, Noida, UP, India.
Contact: Harbandna Sawhney, E-mail: Sawhney.binnie@yahoo.co.in

Abstract

Introduction*:Gastroenterological clinics contain many patients whose upper abdominal symptoms could not be attributed to organic pathology. Dyspepsia is intended to refer to all upper abdominal and indigestion like symptoms thought to arise from the proximal alimentary tract including upper abdominal and retrosternal pain or discomfort, nausea, heartburn, vomiting and difficulty in swallowing etc. Non Ulcer Dyspepsia (NUD) is associated with psychological factors and studies for the same is limited.* ***Objectives****: This study was conducted to find psychiatric morbidity in patients of Non Ulcer Dyspepsia, the role of stressful life events as a precipitating factor and to see the personality traits of neuroticism and extraversion.* ***Methods:*** *The present study was conducted on fifty patients of non-ulcer dyspepsia and compared with healthy controls (without dyspeptic symptoms) matched for age, sex, social class.* ***Results:*** *Study revealed that non-ulcer dyspeptics were mainly from upper and lower middle class nuclear families of rural background and also majority of these were married and elder in the hierarchy of birth order. There was no significant difference in neuroticism and extraversion on Maudsley personality inventory. 82% of NUD patients received ICD 10 psychiatric diagnosis. Dysthymia was the most common psychiatric diagnosis (38%), followed by generalised anxiety disorder (14%) and depressive disorder (12%). Other diagnosis were also from either anxiety or depressive spectrum of neurotic disorder, however, one case turned out as schizophrenia. NUD patients scored significantly high for anxiety and depression on Max Hamilton anxiety scale and Beck's depression inventory.* ***Conclusion:*** *Non ulcer dyspepsia is associated with psychological factors.*

Key word*: Non-ulcer dyspepsia, Psychological factors.*

Introduction

Gastrointestinal symptoms and complaints are very common amongst the general population.[1,2] A proportion of patients develop such symptoms as a part of a life threatening physical illness while many others are considerably and persistently troubled by symptoms for which they are given no definitive explanation. Chronic lower abdominal complaints associated with disturbed bowel habit without any physical explanation are often diagnosed as irritable bowel syndrome. Similarly, upper G.I. complaints like dyspepsia and indigestion are very common complaints in the general population, in general practice attenders and in hospital out-patients.[1,3]

Gastroenterological clinics contain a high proportion of patients whose upper abdominal symptoms could not be attributed to organic pathology,[3-5] some of who may experience chronic symptoms which are unpleasant and disruptive to their lives.[6-8]

Dyspepsia is intended to refer to all upper abdominal and indigestion like symptoms thought to arise from the proximal alimentary tract including upper abdominal and retrosternal pain or discomfort,

nausea, heartburn, vomiting and difficulty in swallowing. An international working party,[9] subdivided dyspepsia into organic i.e. 'dyspepsia due to specific lesions which could be readily identified on routine investigation' and non-ulcer i.e. 'dyspepsia lasting for more than four weeks, unrelated to exercise and for which no focal lesion or systemic disease can be found responsible.

Studies concerned with association of psychological factors to NUD are surprisingly few and their findings are conflicting. Earlier studies reported that around one quarter to one third of NUD patients attract a primary diagnosis of depression on structured psychiatric interviews[10,11] whereas Magni et al[12] reported only 13% to have affective disorder. Studies in which questionnaire measures of depression have been administered in NUD samples suggest a significantly higher levels of depressive symptoms relative to general population samples matched for age, sex and social class.[13] and levels comparable with matched neurotic patients[12] and peptic ulcer patients.[13] Among the newer studies the data is conflicting. Kane FJ et al[14] found 35% NUD patient had depression. In a study of comparison of psychiatric morbidity of NUD and IBS, 14% of NUD patients had major depression as compared to 32% patients in IBS.[15]

Anxiety has received scant attention. Gomez and Dally[10] reported 22% of their NUD samples to have chronic tension and a further 15% to demonstrate 'hysterical' symptoms. Magni et al[12] reported two thirds of patients to have anxiety disorder of which 53% had generalized anxiety disorder and others had simple phobia, atypical anxiety disorder or adjustment disorder with anxious mood. Studies using questionnaire measures similarly report levels of anxiety and tension to be high in NUD, relative to the general population[13] and to be comparable with neurotic patients.[12] While one study reported anxiety to be high in NUD patients relative to an organic G.I. disease group,[10] another found no significant difference.[16] Surprisingly, in the study by Kane et al,[14] >70% were associated with generalised anxiety disorders and >30% were associated with panic disorders. Whereas in the study of comparison of psychiatric morbidity of NUD and IBS, 8% of NUD patients had anxiety disorder as compared to 14% patients in IBS.[15]

Among the Indian studies, Alexander et al[16] found that psychiatric morbidity was quite high in non-ulcer dyspepsia group as compared to peptic ulcer group with dysthymic disorder (39.4%) being the most frequent.

As the research in this area is limited, this study was conducted to find psychiatric morbidity in patients of Non Ulcer Dyspepsia (NUD), the role of stressful life events as a precipitating factor and to see the personality traits of neuroticism and extraversion.

Material and Methods

50 patients of non-ulcer dyspepsia, diagnosed according to the criteria given by Collin Jones,[9] were taken from the department of psychiatry and medicine, SPMC Bikaner. Equal number of properly matched healthy controls were also taken from the relatives of the patients attending the psychiatric and medical OPD. The details of each patient were recorded in a specially designed Performa which included the age, sex, marital status, religion, domicile, family type, family size, birth order as well as the details of present illness, past history and family history of any psychiatric illness. The findings of complete physical examination and laboratory investigations were recorded systematically. Mental status examination was also recorded on proforma. Psychiatric diagnosis was made as per ICD-10.[17] Criteria for NUD: Non ulcer dyspepsia was defined as upper abdominal or retrosternal pain, discomfort, heart burn, nausea, vomiting or other symptoms considered to be referable to the proximal alimentary tract, and lasting for more than 4 weeks unrelated to exercise for which no focal lesion or systemic disease can be found responsible.

Exclusion Criteria

1. Evidence of any systemic disorder
2. History and findings suggestive of irritable bowel syndrome
3. Dyspepsia of less than 4 weeks duration
4. Patients below the age of 18 or more than 60 years old
5. Already existing psychiatric illness

After proper selection of only NUD cases, the sociodemographic factors were recorded on Kupuswamy scale[18] for urban patients and Trivedi[19] for rural patients. The Hindi version of personality inventory of M.P.I.[20] was also administered to find

out the personality temperament of the patients. The Hindi version of PSLE scale of Gurmeet Singh et al[21] was applied specially to find out any forgotten events of preceding year of onset of presenting problems (prior to the study) in all patients who had met the criteria for Non ulcer dyspepsia. The level of anxiety and depression was quantified on Max Hamilton Anxiety Rating Scale[22] and Beck Depression Inventory[23] respectively. The similar assessment procedure which was applied for NUD patients was applied for control groups.

Results

The age range of NUD group was 20 to 50 years with mean age of 32.26 years, however the age range of normal controls was 18 to 56 years with mean age of 33.6 years. There were 50% male and 50% female patients with majority patients being married and from rural areas.

Table-4. Type of psychiatric morbidity among NUD cases

Diagnosis (ICD-10)	No. of NUD Cases	Percentage
Dysthymia	19	38%
Generalised anxiety disorder	7	14%
Depressive Episode (mild to moderate)	6	12%
Dissociative episode	2	4%
Depression Unspecified	2	4%
Obsessive Compulsive Disorder	1	2%
Agoraphobia with panic disorder	1	2%
Panic attack without agoraphobia	1	2%
Other anxiety disorder (unspecified)	1	2%
Schizophrenia	1	2%
Total	**41**	**82%**

Table-1 Scores on M.P.I.

		Mean Score	S.D.	T	P
Neuroticism	NUD Cases	18.32	11.26		
Normal	Controls	16.13	11.60	0.83	> 0.1
Extroversion	NUD Cases	26.62	6.65		
Normal	Controls	31.67	6.07	3.48	< 0.001 Significant

Table-2. Occurrence of stressful life events for NUD cases and normal controls during the preceding year

	Mean number of events	S.D.	T	P
NUD Cases	2.22	2.07	1.55	<0.1 significant
Controls	1.66	1.27		

Table-3. Distribution of psychiatric morbidity among NUD patients

Psychiatric morbidity	No.	%
Present	41	82%
Nil	9	18%

Table-5. Comparison of anxiety scores of NUD cases and normal controls on Max Hamilton anxiety rating scale

		S.D.	T	P
NUD	7.60	4.38	9.16	< 0.001 highly significant
Controls	1.46	1.47		

Table-6. Comparison of depression scores of NUD cases and normal controls on Beck Depression Inventory

	BDI Score	S.D.	T	P
NUD Cases	12.96	7.84	9.16	< 0.001 highly signifacnt
Normal Controls	4.77	4.70		

Discussion

The present study was conducted on fifty patients of non-ulcer dyspepsia and findings were compared with equal number of normal controls. The age range of NUD group was 20 to 50 years with mean age of 32.26 years, however the age range of normal controls was 18 to 56 years with mean age of 33.6 years. Alexander et al[16] have also

noticed that non-ulcer dyspepsia was more common during 19 to 58 years of age. Langeluddecke et al[24] found non-ulcer dyspepsia in age range of 19 to 73 years.

In our study group, 50% of patients were male and 50% females, however majority of the studies had majority male like Alexander et al[16] (78.8%) and Langeluddecke et al.[24] However, in comparison of psychiatric morbidity in patients with irritable bowel syndrome and non-ulcer dyspepsia,[15] majority were females in both NUD and IBS cases.

The majority of our sample population was from rural area as compared to urban area (54% vs 46%).

Socioeconomic status analysis of our study group shows majority of them from upper middle and lower middle socioeconomic status. Langeluddecke et al[24] also observed similar trends in his study group of NUD patients, 30% were professional managerial workers and 28% white collar workers. This finding supports our observation. These results show that stress is more in working class population resulting in more cases of non-ulcer dyspepsia.

Non-ulcer dyspepsia tends to occur more commonly in nuclear families as compared to joint families (56% vs 44%). This can be explained in the view that members of nuclear family are more subjected to stress and strains of the family because of lesser support system.

On Maudsley personality inventory, no firm conclusion could be drawn about neuroticism/ extraversion traits of NUD patients. NUD patients had less extraversion scores than controls, but only insignificantly high neuroticism scores as compared to normal controls (Table 1). However, Talley et al[13] reported high neuroticism in their personality inventory and likewise. Shukla et al[25] observed a high neuroticism on MHQ in cases of non-organic dyspepsia.

Bass[26] in his review of life events and gastro-intestinal symptoms highlighted possible role of psychological factors in the causation or development of various upper abdominal symptoms. Talley and Piper[13] conducted a study to find out the role of stressful life events in the development of essential dyspepsia and concluded that major life events have no association with the dyspeptic illnesses. Akin to these studies, Langeluddecke et al[24] could not find any significant difference in psychological factors amongst non-ulcer dyspeptics and organic dyspeptics. However, Hue et al[27] have concluded that dyspeptic patients had higher negative reception of major life events and supported the view that life events does have effect in pathogenesis of non-ulcer dyspepsia. We also did no find any significant role of stressful life events in precipitation of NUD when compared to normal controls. (Table 2).

Talley et al[13] in their case control study have suggested the patients of chronic dyspepsia do have persistently higher levels of anxiety, neuroticism and depression when compared to normal community controls.

Magni et al[12] have found high prevalence of psychiatric morbidity in 26 patients (86.7%) of dyspepsia of unknown origin as compared to organic dyspeptic 5 (25%) patients. Majority of axis I diagnosis were for anxiety disorders like generalised anxiety disorder, simple phobia, atypical anxiety disorder, hypochondriasis, adjustment disorder with mixed emotional picture, dysthymic disorder. No psychotic disorder was found. The only diagnosis on axis II was histrionic personality disorder. Five patients (25%) in the comparison group i.e. organic dyspeptics had diagnosis on axis I. The difference in frequency of psychiatric morbidity was highly significant.

Similarly, Alexander et al[16] have found that 67.7% of NUD patients had psychiatric morbidity as compared to 26.7% in the ulcer group. The difference between frequency of psychiatric morbidity was statically significant (x^2=11.64, df=1, p=0.001). Dysthymic disorder was most frequent diagnosis of NUD group (39.4%) and anxiety disorders comprised 22.4% of psychiatric morbidity.

In our study also, 82% of NUD patients had psychiatric morbidity (Table 3). Analysis of psychiatric morbidity among NUD patients show dysthymia (38%), G.A.D. (14%), depressive episode (12%), dissociative conversion disorder (4%) and depression unspecified (4%). The remaining diagnostic categories are obsessive compulsive disorder (2%), agoraphobia with panic attack (2%), panic attack without agoraphobia (2%), anxiety not otherwise specified (2%), schizophrenia (2%) (Table 4).

Morris et al[2] in his exhaustive review of NUD has concluded that aetiology of dyspepsia is still unknown. A number of possible explanations exist

but many patients still go undiagnosed. Research points towards psychological disturbances, exaggerated health concerns and psychosocial factors. He has identified the role of psychological distress in 100 patients of NUD in his follow up study and he has also concluded that a significant proportion of NUD patients have a psychiatric disorder usually anxiety, depression or personality traits which influence their presentation with dyspeptic symptoms. Langeluddeck et al[24] on a series of psychological tests have found that non-ulcer group has significantly higher levels of tension, hostility, anxiety relative to peptic ulcer patients but to be comparable as measures of depressive symptoms tendency to supress anger, Talley et al[13] have also found anxiety, depression and neuroticism. Magni et al[12] have particularly found anxiety disturbances (66.7%), Alexander et al[16] have mainly noticed the occurrence of dysthymic disorder (39.4%) predominately in NUD patients. In a study by Kane et al,[14] patients were asked to complete a self-rating symptom questionnaire regarding current GI symptoms and current symptoms of anxiety, panic, and depression; they were also asked to complete the Brief Symptom Inventory. Two groups were compared—those with known heart disease and those without heart disease. Substantial numbers of patients in both groups satisfied criteria for generalized anxiety disorders (> 70%), panic disorder (> 30%), and major depression (> 35%). GI symptoms compatible with non-ulcer dyspepsia were strongly associated with a psychiatric diagnosis. In a study[15] of comparison of psychiatric morbidity in patients with irritable bowel syndrome and non-ulcer dyspepsia,14% had major depression and 8% had anxiety disorder.

Our study findings have also found that patients of NUD have considerably higher psychiatric morbidity as compared to normal population. The treatment of psychiatric morbidity will in turn reflect in improvement of clinical status. We have also assessed the anxiety scored on MHARS[22] in both groups of population and have found that patients of NUD have considerably higher scores as MHARS as compared to normal controls. (7.60 vs 1.46) (Table 5). This difference in scores was found highly significant statistically. The severity of depression was measured on Beck's depression inventory (BDI) and difference in scores of BDI[23] in patients of NUD and normal controls was found highly significant (12.96 vs 4.770). (Table 6)

Conclusion

The present study was conducted on fifty patients of non-ulcer dyspepsia and compared with healthy controls (without dyspeptic symptoms) matched for age, sex, social class. Study revealed that non-ulcer dyspeptics were mainly from upper and lower middle class nuclear families of rural background and also majority of these were married and elder in the hierarchy of birth order. However, both males and females suffered equally from NUD.

There was no significant difference on neuroticism and extraversion on Maudsley personality inventory.

82% of NUD patients received ICD-10 psychiatric diagnosis. Dysthymia was the most common psychiatric diagnosis(38%), followed by generalised anxiety disorder (14%) and depressive disorder (12%). Other diagnoses were also from either anxiety or depressive spectrum of neurotic disorder, however, one case turned out as schizophrenia. NUD patients scored significantly high for anxiety and depression on Max Hamilton anxiety scale and Beck's depression inventory.

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Original Article

Relationship between Occupational Stress and Job Satisfaction

Urmi Chakraborty,[1] Tanuja Bhardwaj [2]
Department of Clinical Psychology, Center of Excellence in Mental Health, PGIMER, Dr. Ram Manohar Lohia Hospital, New Delhi-110001
Contact: Urmi Chakraborty, E-mail: urmipsy83@gmail.com

Abstract

Introduction: *Stress at work place can lead to a number of consequences for the employees as well as for the organisation. It is important to understand its relationship with job satisfaction.* ***Aim:*** *The aim is to examine the relationship between occupational stress and job satisfaction in blue collar workers.* ***Materials and Methods:*** *A total of 50 blue collar workers were assessed using Occupational Stress Index and Job Satisfaction Scale. Correlation analysis was used to study the relationship between the two variables.* ***Results:*** *Significant correlation was found between occupational stress and job satisfaction.* ***Conclusion:*** *Occupational stress had negative relation with job satisfaction in blue collar workers.*

Keywords*: Occupational Stress, Job satisfaction, Blue Collar Workers.*

Introduction

Work related stress has been shown to affect a person's health, performance and general well-being.[1] External or internal causes including physical, environmental and social factors that lead to physiological, cognitive and behavioural pressures for an individual are referred to as stressors.[2] Work stress or job stress is generally defined in context of the work place environment and is described as a person's decreased capability to cope with his or her work demands. The factors that affect employees' well-being include work load, time pressures, lack of job control, poor working conditions which are mainly intrinsic to job role. Other factors also focus on the role within the organisation and factors related to organisational climate or structure.[1,3] The dimension of occupational stress has been classified into physiological stress and psychological stress. Physiological stress is seen in terms of the bodily reactions such as headache, abdominal pain, chest pain, fatigue, sleep disturbance, muscle ache etc. Psychological stress on the other hand encompass anxiety, depression, burn out, job alienation, hostility, anger, irritability and frustration resulting from job strain. Occupational stress is also shown to leading to three forms of distress-medical, psychological and behavioural.[4] Therefore, occupational stress can cause both physical and mental health problems.[5-7]

There are numerous studies which have shown that job stress is negatively associated with job satisfaction.[8-11] If the pressure at the workplace is resisted by the employee and is seen as manageable then sometimes it might act as a motivating factor in continuing the job. However when the job demands exceeds a person's resources and are unmanageable and unavoidable then it can lead to a lot of stress and ultimately would hamper an employee's performance and his or her level of satisfaction and would have adverse consequences for the employee's as well as for the organisation.[11] Certain personality variables have also been examined in context of job satisfaction.[12] Occupational stress has direct and indirect costs associated with it.[13,14] Studies have also found a positive relationship between job satisfaction and

organisational commitment and trust.[14] Since there are so many adverse consequences of occupational stress on the employees as well as the organisation, it becomes important to address this issue for further intervention. Therefore, the present study aims to explore the relationship between various areas of job stress and job satisfaction and also the role of various socio demographic factors in job satisfaction.

Methodology

Sample

The sample for the study was selected through purposive sampling. The sample comprised of workers (n=50) of a small-scale industry preparing motor parts. The mean age was 25.30 years.

Inclusion Criteria

Only Blue-Collar workers were taken.

Exclusion Criteria

Persons having chronic physical illness

Tools

***Socio-demographic profile*:** Semi structured Performa that contained details of demographical information of age, education, marital status, nature of work, etc.

Occupational Stress Index (OSI): OSI was developed by Srivastava and Singh, 1981 was used to measure occupational stress. This test has 12 subscales related to 12 dimensions of job role overload, role ambiguity, role conflict, unreasonable group and political pressure, responsibility for persons, under participation, powerlessness, poor peer relations, intrinsic impoverishment, low status, strenuous working conditions and unprofitability. Its reliability by split half method was 0.93 and validity was 0.59.

***Job Satisfaction Scale*:** This scale was developed by Field and Roth, 1951 and was used to measure the job satisfaction level of employees. This test consists of 18 items out of which 9 items are positive and another 9 items are negative. Each item has been measured on 5 point scale.

Procedure

The study was quantitative in nature. The variables were measured using standardized scales. The participants were first contacted and informed consent was taken from all the participants. Once they agreed, their socio demographic details were taken and the tools were administered.

Statistical Analysis

Descriptive statistics was used to measure the occupational stress and job satisfaction. Correlation analysis was used to find out the relationship between the variables.

The study is quantitative in nature with correlation design. The research explored the relationship between various occupational stress factors and job satisfaction in blue collar workers. This design was intended to measure the association between these variables quantitatively.

Results

Socio-demographic data (Table 1) reveals that the mean age of the employees was 25.3 years. All of them were male.

Majority were educated up to matriculation (64%) and most of them were single (52%). Among them, 62% were involved in mechanical kind of work and 38% were involved in non-mechanical work. Most of them were in the income group, who earned up to 1500 INR per month. Majority of them were the only earning members in their family. While only 6% were having more than 2 earning members in their family. Among the employees it was seen that most of them (62%) were working since less than 1 year. Majority of them belonged to joint family (62%). Most of them (36%) of the employees were having 11 to 15 members in their family, 30% were having 16 and more members and only 14% had up to 5 family members.

Results from Table 2, shows that most of the employees (74%) reported high stress in role overload section.

Equal percentage reported low and high stress in responsibility for persons and in poor peer relations most of them reported moderate level of stress. They reported high stress in almost all areas of stress particularly role conflict (78%).

The results of correlation analysis revealed that the scores on the occupational stress and job satisfaction were significantly correlated r (48) = 0.707, p=0.00.

Figure 1 shows the stress levels of employees on the various domains of Occupational Stress Index. It was found the high levels of stress were reported by majority of the participants.

Table-1. Socio-demographic and Personal Details of the Employees

Variable	N	Mean ±	SD
Age	50	25.30 ±	7.09
Variables		**Number**	**Frequency (%)**
Education	Up to matriculation	32	64
	Matriculation to Graduate	18	36
Marital status	Single	26	52
	Married	24	48
Nature of work	Mechanical	31	62
	Non-mechanical	19	38
Income (in INR per month)	Up to 1500	32	64
	1501 - 3000	2	4
	3001 - 5000	12	24
	5001 & more	4	8
No. of caring members	One	38	76
	Two	9	18
	More than two	3	6
Length of service	Less than 1 year	31	62
	1 to 5 years	12	24
	6 & more	7	14
Type of family	Nuclear	19	38
	Joint	32	62
No. of family members	Up to 5	7	14
	6 to 10	10	20
	11 to 15	18	36
	16 and more	15	30

Table-2. Frequency Distribution of Stress Levels of Employees on OSI Domains

OSI sub-scales	Low Frequency (%)	Moderate Frequency (%)	High Frequency (%)
Role overload	2	24	74
Role ambiguity	12	20	68
Role conflict	10	12	78
Unreasonable group & political pressure	6	28	66
Responsibility for persons	46	8	46
Under participation	20	6	74
Powerlessness	14	14	72
Poor peer relations	6	58	36
Intrinsic impoverishment	20	14	66
Low status	30	22	40
Strenuous working conditions	12	30	58
Unprofitability	14	38	48

OSI- Occupational Stress Index

Figure 2 shows the graphical representation of job satisfaction in employees. It was found that majority of the participants were dissatisfied.

Discussion

Understanding the relationship between occupational stress and job satisfaction is of great importance and has various implications. The findings of the present study revealed that there was a significant negative correlation between occupational stress and job satisfaction. There is a consistency between the results of the present study and previous literature in a number of ways. The results also described the various sources of stress and behavioural problems in blue collar workers. The major cause of stress was found to be ineffective communication between the employees and their supervisors and also conflicts between them.[2]

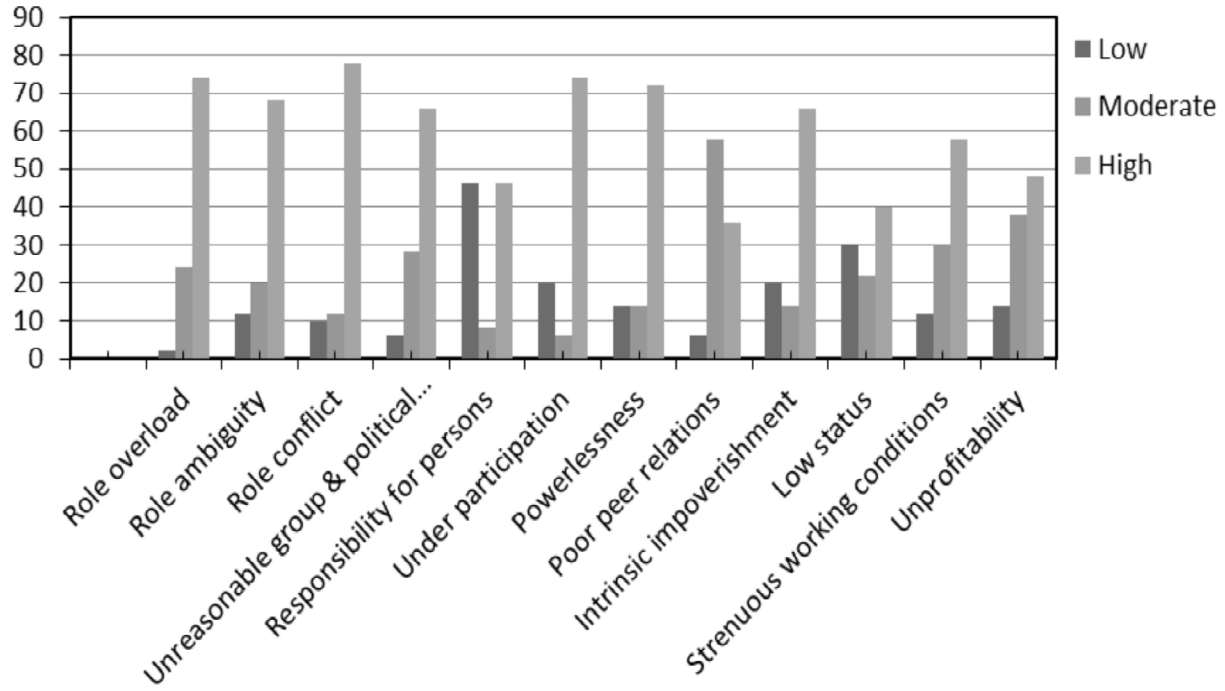

Fig. 1: Graphical representation of Stress Levels of Employees on OSI Domains

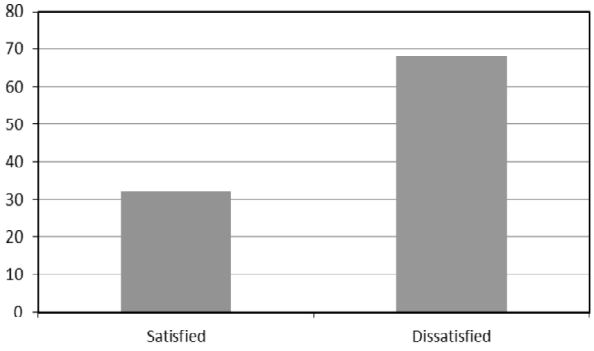

Fig. 2: Graphical representation of Job Satisfaction of Employees

Studies have also suggested some other factors that lead to stress in workers. For instance, it has been found that increased work load and high emotional demands are more resource consuming and cause stress and fatigue further leading to low satisfaction at work.[8] The relationship between employment quality and work related well-being in the European Labour force has also been studied. The research findings indicated that a clear association was found between various indicators of job satisfaction, perceived safety climate and the ability to continue the job and these variables also significantly correlated with work related well-being.[15] In a study the level of job satisfaction in the blue collar workers has been examined and found that these workers were more dissatisfied than the white collar workers and also they engages more in the disruptive behaviours at work place.[16] The job demand resources model can be used to explain this relationship. According to this model, if the job demands are high then it can lead to stress and poor health whereas if the resources are high then it can lead to better motivation and increased productivity at work. Studies have also focused on the determinants of work stress in blue collar workers. For instance, study was conducted on psychosocial hazard analysis in blue and white-collar employees and found that stressors including the socioemotional aspects had a major impact on the employees.[17] Research have not just focused on the environmental factors that affect stress and job satisfaction but also individual's personality factors that can impact job satisfaction. The findings showed that trust and locus of control moderated the relationship between job satisfaction and organisational commitment. This finding has important implications from an intervention point of view. Specific interventions can be planned so that better well-being of the employees can be predicted by lowering the levels of stress at work place.[18,19] However, there are certain limitations of the study also. The sample size was less therefore in the future studies the study

can include more participants in order to enhance the generalizability of the findings. This study includes few variables, other variables that might have played a role in affecting the relationship between occupational stress and job satisfaction can be targeted in the future studies.

Conclusion

The present study aimed at examining the relationship between occupational stress and job satisfaction in blue collar employees. The findings supported the hypothesis and revealed that there was a significant negative relationship between occupational stress and job satisfaction. These findings can be used to develop some intervention plans for the employees. The effect of various mediating and moderating factors in this context can be further studied.

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Original Article

Perceived Burden and Therapist Attitude in Caregivers of Schizophrenic Women

Dinesh Kumar Tyagi,[1] Jnanamay Das,[2] Harbandna Sawhney[3]
Department of Psychiatry,[1,3] Dr. Baba Saheb Ambedkar Medical College & Hospital, Rohini, Delhi, India;
Department of Psychiatry,[2] ESIC Model Hospital, Noida, UP, India.
Contact: Jnanamay Das, E-mail: drjdas@hotmail.com

Abstract

Introduction: *Schizophrenia usually affects the person in early adulthood and despite much advances in the pharmacological treatment, it usually runs a chronic course. As the locus of care has shifted from long term hospital care to community based care, in the process of providing care and attention to the schizophrenic patients, the burden on the caregivers or their support needs often goes unnoticed. This study was aimed to assess the perceived burden and therapist attitude in caregivers of schizophrenic women and to identify their support needs.* ***Methodology:*** *Caregivers primarily responsible for the care of 40 adult schizophrenic women suffering for more than one year attending the psychiatry OPD of an urban government hospital were assessed using a specially designed semi-structured proforma. The assessment was done in the areas of their socio-demographic profile, caregiving, perceived subjective burden including coping, perceived objective burden and perceived therapist attitude.* ***Results:*** *Majority of caregivers were educated married males, both spouses and parents. Nearly half of them felt burdened physically and financially, while more than half perceived burdened emotionally and socially. Most were anxious throughout the duration of care and they wished to share their feelings with the therapist. The therapist was largely seen as a good listener and information provider. Caregivers' commitment to care and capacity to cope increased with time and they felt totally involved in the treatment process.* ***Conclusion:*** *Further studies are required to find out the magnitude of burden in the caregivers of schizophrenic women, the backbone in Indian family system, using large study sample and patient specific sociodemographic or clinical correlates as well as caregiver-specific sociodemographic characteristics, coping strategies and expectations from therapist so that guidelines can be formed and integrated in the treatment protocols to address the support needs of caregivers.*

Key words: *Schizophrenia, Women, Caregivers, Burden, Support.*

Introduction

Schizophrenia is the paradigmatic illness of psychiatry. Described as Dementia Praecox, Emil Kraepelin also mentioned about a usually deteriorating course of the illness. Schizophrenia usually affects the person in early adulthood and it usually runs a chronic course, affecting men and women equally.[1] It affects general health, functioning, autonomy, subjective wellbeing and life satisfaction of those who suffer from it. Despite 50 years of pharmacological and psychosocial intervention, schizophrenia remains one of the top causes of disability in the world.[2] The prevalence rate of schizophrenia as reported in India ranges from 0.7 to 5.5 per thousand.[3] In Indian culture, as women are the backbone of the families, when women are affected by a severe and debilitating disorder like schizophrenia, the effect on family could be devastating.[4] On the other hand, the family is an integral part of the care system for a person with a chronic

mental illness. Caring for a spouse with schizophrenia is an enduring stressor and causes a considerable amount of burden whereas living with a schizophrenic patient can put restrictions on the rest of the family too.[2]

Concepts of burden

The concept of 'burden of care' came into being with the growth of deinstitutionalization movement when families had to assume major caregiving responsibilities for the patient.[5] Though the term was first used by Treudley to describe the impact of illness and its consequences on those in close contact with a severely ill psychiatric patient, more comprehensively 'burden' has been described as the presence of problems, difficulties or adverse events which affect the lives of psychiatric patients' significant others, i.e., members of the household or the family.[6,7] The burden perceived by caregivers of patients with psychiatric illness contributes to a fundamental prognostic aspect of the disease and is a critical determinant for negative caregiving outcomes.[2] The 'burden of care' has been conceptualized as having two distinct components — objective and subjective. Objective burden is defined as 'the extent of disruptions or changes in various aspects of the caregivers' life and household such as taking care of daily tasks; whereas subjective burden indicates the psychological and emotional impact of mental illness on family members including feelings of grief and worry or in other words it is the caregivers attitude or emotional reactions to the caregiving experience.[2,5,8] Since the mid-1950s, numerous studies documented high degrees of objective and subjective burdens on relatives and patients' caregivers who go through impairments and emotional distress that occur as a consequence of schizophrenia.[9-13] While restriction of social activity, social embarrassment, inconvenience and tension due to patients' behaviour were reported in families of male schizophrenic patients, the subjective burden rather than objective burden was linked to the psychological wellbeing of the caregiver.[14] Greater objective than subjective burden was reported by clients dyads, the objective burden was positively correlated with duration of illness while subjective burden was negatively correlated with the age of the patients. Level of functioning of the patients was found as the only significant predictor of both objective as well as subjective burden.[15,16]

Factors likely to influence the caregiver burden could be patient's characteristics and caregiver characteristics like family type and size, economic and educational status, role expectations, illness related beliefs though there are cross-cultural differences too.[4] In Indian women, marriage rate was found to be higher (approx.70%) as compared to west in schizophrenia, probably because of lower age of marriage in India.[9] But female patients were able to function adequately in their role as housewives though the illness was more disabling for young patients and affected their education.[3] Evaluation of families from a rural background using the interview schedule of Pai and Kapur revealed that the major area of burden was financial, followed by disruption of family routine, disruption of leisure activities whereas adverse effects were noted on mental and physical health of caregiver where the majority of patients were female (55%), illiterate and unemployed.[17] While the parents of the schizophrenic patients, especially older mothers experienced greater burden, the parents of daughters, who had a longer duration of illness, who were less educated and unemployed reported greater burden too. Parents especially fathers of adults with schizophrenia experienced higher levels of depression, poorer perceived health, lower levels of psychological wellbeing and less marital satisfaction compared with their age matched peers. Other negative consequences of primary caregivers were emotional problems, disruption of the lives of adults in the household and disturbances in the work performance.[18,19] Despite many researchers presupposed that only in exceptional cases schizophrenic patients were able to live in stable partnership, because of the relatively early onset of the illness and the illness-related deficits of the patient,[20] one-third of schizophrenic patients were found to be married or were living with a partner. Female patients suffering from schizophrenia were having better chances of marrying or having a stable partnership than their male counterparts.[21,22] In case of spouses, a greater burden was reported in wives of persons with psychosis, who were older, had children staying at home, who experienced lower levels of mastery and had lesser social support. Spouses of persons with schizophrenia reported lesser participation in social activities and a higher

degree of psychiatric morbidity than spouses in the normal group. High degree of stigma and fear of social discrimination had been reported in earlier studies.[23]

At the same time, the results of these studies raise questions as to how much a family or caregivers can provide assistance to the patient before they themselves become overburdened and require professional help. Although the burden on relatives of schizophrenia patients has been the subject of numerous studies, hardly any study until now have focused on the living situations of spouses of schizophrenia patients.[4] An in-depth reanalysis of the existing literature has revealed that research on the burden on relatives of schizophrenia patients has almost exclusively questioned parents of schizophrenia patients, and rarely the patients' spouses.[23,24] This gap in research is even more surprising as there are numerous publications dealing with the specific burden on spouses as caregivers of patients with other psychiatric disorders such as depression or dementia.[20,24,25] The spouses of schizophrenia patients have largely been neglected in previous research. In this study, we have tried to explore the existence of burden among each and every primary caregiver and family members of patients with schizophrenia and tried to assess the severity too.

Methodology

The study was conducted at the Psychiatry OPD of Dr. Baba Saheb Ambedkar Medical College and Hospital, Rohini, Delhi. It is a 500 bedded general hospital under the Government of National Capital Territory (NCT) of Delhi and caters to a population of about 1 million. Built in an area of about 30 acres, it is the largest Government hospital in the North-East part of the city and is well connected by road and metro rail services. This was a cross sectional study of caregivers of 40 adult schizophrenic women.

The sample composed of women schizophrenics and their primary caregivers who attended the psychiatric OPD for follow up and consented to participate in the study. Caregivers were included for the study if they could fulfil two criteria (i) in the case of patients: diagnosed cases of adult schizophrenic women according to ICD-10 criteria and suffering for more than one year and also in regular follow up for at least 6 months,[26] (ii) in the case of caregivers: an adult person in the family or close relative living in the same environment for at least past one year and primarily responsible for the care of the patient.

A clinical interview was done to review the history and diagnosis of schizophrenia according to ICD-10 criteria. Followed by this, a questionnaire was applied to the primary caregiver to assess the perception of the caregivers about their emotional status, attitude towards care, the burden of care as well as therapist's role as listener and information/ education provider. The details were noted in the specially designed semi-structured proforma. The assessment was done in the following areas:

a) Patients' profile,
b) Socio-demographic profile of the caregivers (age, gender, education, marital status, earning status, family size),
c) Caregiving (relationship with the patient, duration of caregiving, the quantum of care, involvement in care),
d) Perceived subjective burden and coping (feeling to illness, initial and current; capacity to cope with time, commitment to care),
e) Perceived objective burden (on physical health, financial health, social activities, mental health),
f) Perceived therapist attitude (sharing of the burden, therapist as listener and information provider).

Results

40 primary caregivers of 40 schizophrenic women were assessed.

Patients' factors

Most of the patients (95%) were young adults or middle aged. Majority of the patients were literate, with nearly half of them were having education secondary or more. Two thirds of schizophrenic women patients were married but none was divorced and among them one third were employed too, either currently or previously. Diabetes mellitus and hypertension were found to be the most common comorbid illness (Table 1). Patients were having a varied duration of illness ranging from 2 to more than thirty years but only 22.5% were having an illness of more than 20 years. Though two thirds of patients were taking treatment for less than 5 years,

Table-1: Profile of the patients

Age Group of the patients (in years)	No of Patients	% of Patients
18-30	13	32.5
31- 40	5	12.5
41 -50	12	30
51-60	8	20
>60	2	5
Education of the patients	**No of Patients**	**% of Patients**
Illiterate	8	20
Primary	5	12.5
Middle	8	20
10-10+2	10	25
>Graduation	9	22.5
Marital Status of the patients	**No of Patients**	**% of Patients**
Married	27	67.5
Unmarried	13	32.5
Widow	0	0
Divorced	0	0
Employment of the patients	**No of Patient**	**% of Patients**
Employed	5	12.5
Employed before	9	22.5
Never employed	26	65
Comorbid Condition	**No of Patient**	**% of Patients**
Diabetes Mellitus	4	10
Peptic Ulcer Disease	1	2.5
Hypertension	3	7.5
Arthritis	2	5

Table-2: Illness and the effect of treatment

Duration of illness of the patients	No of Patient	% of Patients
2-5 Years	16	40
5-10 Years	8	20
10-20 Years	7	17.5
20-30 Years	6	15
30 & above Years	3	7.5
Duration of treatment	**No of Patient**	**% of Patients**
<2 Years	9	22.5
2-5 Years	17	42.5
5-10 Years	3	7.5
10-20 Years	6	15
20 & above Years ..	5	12.5
Compliance with treatment	**No of Patient**	**% of Patients**
Poor	9	22.5
Satisfactory	9	22.5
Good	19	47.5
Can't say	3	7.5
Response to treatment	**No of Patient**	**% of Patients**
No	0	0
Some	6	15
Significant	23	57.5
Marked	11	27.5
Functional Status	**No of Patient**	**% of Patients**
Basic Self Care	40	100
Shopping neighbourhood market	25	62.5
Attends to visitors at home	24	60
Social Functions	20	50
Fulfils family responsibility	20	50

more than one fourth were on treatment for 10 years or more. 70 % of the patients had satisfactory to good compliance with the treatment and 85% had shown significant to marked response while the rest also had at least some response. While all the schizophrenic women were able to take basic care of themselves, 50-62.5% could manage other daily activities and social responsibilities too (Table 2). Additionally, though none of the patients in the study group was abusing any substance 25% of them became violent or suicidal at some point of time during their illness whereas 17.5% had a history of hospitalization or received depot antipsychotics too.

Caregivers' factor

Around two thirds of the caregivers were males and again two thirds were young adults and middle aged. The majority (60%) of them had at least secondary level education and most of them (72.5%) were married. Majority of them belonged to small families and had adequate income (Table 3). Most of the caregivers (95%) consisted of either the first degree relatives or spouses and a majority of them were providing care for less than 5 years with full involvement (Table 4). Though all the caregivers reacted emotionally and felt differently during the initial stage, most of them learned to cope with the situation gradually over a period of time with more commitment. But most of them remained mentally disturbed to some extent while feeling anxious or depressed being the common features (Table 5). It

Table-3: Details of the caregivers

Distribution of caregivers by gender		
Gender	**No of Care Giver**	**% Care Giver**
Male	26	65
Female	14	35
Distribution of caregivers by age group		
Carer Age	**No of Care Giver**	**% Care Giver**
<18 Years	1	2.5
18-35 Years	15	37.5
35- 50 Years	9	22.5
50- 65 Years	10	25
> 65	5	12.5
Distribution of caregivers by education		
Carer Education	**No of Care Giver**	**% Care Giver**
Illiterate	5	12.5
Primary	6	15
Middle	1	2.5
Secondary & above	10	25
Graduate & above	18	45
Distribution of caregivers by marital status		
Carer's Marital Status	**No of Care Giver**	**% Care Giver**
Married	29	72.5
Unmarried	9	22.5
Other	2	5
Distribution of care givers by family size		
Carer's family Size	**No of Care Giver**	**% Care Giver**
2 Persons	4	10
3 Persons	7	17.5
4 Persons	12	30
5 Persons	6	15
6 Persons	4	10
7 & above Persons	7	17.5
Distribution of caregivers by their family income per month		
Carer's family Income	**No of Care Giver**	**% Care Giver**
< 5 K	5	12.5
5-10 K	11	27.5
10-20 K	11	27.5
20-50 K	9	22.5
> 50 K	4	10

Table-4: Details of care giving

Distribution of caregivers by their relation with patients		
Carer's relation with patients	**No of Care Giver**	**% Care Giver**
Parents	12	30
Spouse	15	37.5
Children	11	27.5
Others	2	5
Duration of care giving in years		
Duration of Care Giving	**No of Care Giver**	**% Care Giver**
< 5 Years	25	62.5
5-10 Years	8	20
11-20 Years	4	10
20 & above Years	3	7.5
Caregivers involvement in the treatment process		
Caregiver involvement in treatment process	**No of Care Giver**	**% Care Giver**
None	0	0
Some	4	10
Significant	8	20
Total	28	70
Quantum of care		
Average time spent daily with the patient		3.72 Hrs
Average time taken commuting & consulting doctor per visit		2.2 Hrs
Average distance travelled to reach doctor		5.9 Km.
Average frequency of visit		Once a month
Average medicines expenses per month		Rs. 300
Average travel expenses per visit		Rs. 60
Also attended during hospitalization		20%

was observed that while the half of the caregivers didn't feel any financial as well as physical health related burden at all, the majority of them felt burden related to their social activities and mental health (Table 6). A significant number of caregivers could share their burden with the therapist and most of them perceived the therapist as a good listener of their problems. On the whole, the caregivers relied on the therapist for information regarding the nature of the illness, treatment process, outcome and the cost of treatment (Table 7).

Discussion

Most of the schizophrenic women were married, literate, young or middle aged women, 70% of them had satisfactory to good compliance and none were having a history of substance dependence. Almost all were able to take basic care of themselves and half of them were able to fulfil their family responsibilities too. The patient profile was consistent with a few other studies where schizophrenic female patients were either married or had better chances of marrying or a stable partnership.[21,22] Female patients were also able to

Table-5: Changes in coping styles over the time

Initial reactions to diagnosis		
Initial Reaction	**No of Care Giver**	**% Care Giver**
Despair	10	25
Anxious	14	35
Confused	9	22.5
Shocked	7	17.5
Change in coping capacity of caregivers with time		
Learned to cope	35	87.5
Capacity decreased	5	12.5
Change in commitment of caregivers with time		
Commitment of Care	**No of Care Giver**	**% Care Giver**
Increased	34	85
Decreased	3	7.5
Unchanged	3	7.5
Current feelings of the caregivers		
Current feeling	**No of Care Giver**	**% Care Giver**
Insecure	3	7.5
Anxious	17	42.5
Depressed	5	12.5
Inappropriate Guilt	4	10
Helpless	3	7.5
No Specific Feeling	8	20

Table-6: Perceived burden on the caregivers

Burden on physical health of the care givers		
Burden on Physical Health	**No of Care Giver**	**% Care Giver**
No	20	50
Some	14	35
significant	6	15
Marked	0	0
Burden on the financial health of the care givers		
Burden on Financial Health	**No of Care Giver**	**%Care Giver**
No	20	50
Some	15	37.5
significant	4	10
Marked	1	2.5
Burden on the Social Activities of the care givers		
Burden on Social Activities	**No of Care Giver**	**% Care Giver**
No	12	30
Some	15	37.5
Significant	11	27.5
Marked	2	5
Burden on the mental health of the care givers		
Burden on mental health	**No of Care Giver**	**% Care Giver**
No	9	22.5
Some	24	60
Significant	6	15
Marked	1	2.5

Table-7: Sharing by the care givers and expectation from the therapist

Care givers willingness to share their burden		
Sharing Burden With	**No of Care Giver**	**% Care Giver**
Family member	15	37.5
Friend	18	45
Therapist	24	60
Perception of therapist as listener among the care givers		
Therapist as Listener	**No of Care Giver**	**% Care Giver**
Never	0	0
Occasionally	0	0
Often	7	17.5
Always	33	82.5
Perception of therapist as Information provider among the care givers		
Therapist as Informationist	**No of Care Giver**	**% Care Giver**
Nature of illness	38	95
Treatment Process	34	85
Outcome of Illness	34	85
Coping skills	18	45
Rehabilitation	16	40
Cost of Treatment	35	87.5

function adequately in their role as housewives.[3]

Majority of the caregivers being young or middle aged males, well educated with good earnings and married, felt burden mentally or on the activities related to their social life. This may be due to the fact that most of the caregivers were first degree relatives or spouses who were caring for the patients being fully involved in turn restricting their social activities and recreation.[23] Family caregiver burden was found to be complex and included several areas such as activities in daily life, worry and social strain.[27] Behaviours related to activity and self care was perceived to be most distressful as compared to aggressive or psychotic behaviour. Distress was more often reported by younger relatives and those with more education.[28] Small family size of the majority of the caregivers associated with long term care too contributed to increasing the burden. The extent of both objective and subjective burden was found to be more in relatives of schizophrenics than affective disorder.[29] One interesting finding of this study is that the half of the caregivers didn't feel any financial burden as well as physical health related

burden at all. The reason being the majority of the caregivers were young or middle aged males and had adequate income to bear the expenses related to treatment. Moreover, the average distance travelled to reach the therapist was short, thereby travel expenses was less and most of them were provided medicines by the hospital free of cost or reimbursed by employers; these might have helped to reduce the financial burden as well as the physical health related burden. Thus, caregivers experienced more social or emotional burden than the physical or financial burden. Another reason may be that sample had inclusion criterion for being in regular follow up for at least six months and site of the study being Psychiatric OPD of a general hospital. In previous studies, the burden on the physical health was also found to be negligible. In contrast, the emotional health of the family was untouched and the pattern of burden was principally felt in the areas of family routine, family leisure, family interaction and finances.[29,30] Families faced more financial burden where the male member had the illness.[2,30] Parenting mentally disabled adults also imposed undue stress on elderly persons.[18]

Though all the caregivers reacted emotionally and felt differently during the initial stage, most of them learned to cope with the situation gradually over a period of time with more commitment. The reason may be that the majority of the caregivers had education at least up to the secondary level or higher and had adequate income which helped them to cope with the situation gradually after a period of initial emotional reaction to the diagnosis and prognosis. Caregivers of clinically stable patients with severe mental disorders like schizophrenia and bipolar affective disorder experienced nearly similar level of burden and used the similar pattern of coping strategies.[31] Though few of the caregivers were able to adjust with the situation, 70-75% continued to feel emotionally burdened and restricted their socialization to some extent because of high commitment and involvement in caring the schizophrenic family member. As the caregivers were very close to the patients and emotionally involved, their mental well being significantly depended on the well being of the patients too. It is consistent with the findings of the studies that impairment and disability of spouse were related to caregiver's poorer perceived health, increased health-risk behaviours, increased anxiety and depression.[30,32] In spite of commonly feeling anxious or depressed a significant number of caregivers were able to share their emotional burden with the therapist who listened to their problems carefully. This may be due to the fact that the therapist being the trained person, an expert, was able to establish good rapport with the caregiver providing them each and every information as well as educating them about the illness, treatment process, its outcome and helping them in the decision making process.[33]

This was the scenario of the burden when the majority of the patients were married, having short duration of illness as well as treatment, had good compliance with no substance abuse, had shown significant response to treatment and all of them were able to take basic care of themselves. It can be speculated that the burden on the caregivers would have been much higher had the patients been unmarried with longer duration of illness and treatment, poor compliance, poor response to treatment, poor basic care and coming from far off places. It had already been observed that the family members had to give significantly more money and time to the adults with dual disorders of chronic mental illness and substance use.[34]

So from the findings it can be concluded that techniques have to be explored to reduce all types of burden from the caregivers as it is also considered to be a part of the treatment process which ultimately contributes towards better treatment adherence, better prognosis and outcome. These again have also got effects on the burden of the caregiver and the vicious cycle goes on.[2] It has been already an established fact that increase in spouse impairment and disability were generally related to caregiver strain, poorer perceived health, increased health-risk behaviours, increased anxiety and depression, ultimately leading to poorer outcomes over time.[32,35]

For this following measures can be taken:

i) Mental health professionals like psychiatrists, psychologists, psychiatric social workers or psychiatric nurses should be available in the nearby area to provide help regarding treatment process, listen to the caregivers and extend a helping hand. There is a need to establish Psychiatric units in general hospitals at district or taluka level

where people will be able to reach for treatment by travelling a short distance with little expenditure and more frequently.

ii) Medicine to chronically suffering psychotic patients invariably be provided through public hospitals free of cost or by mobilization of social resources for the same.

iii) There should be provisions for admissions in psychiatric hospitals in case the patient becomes unmanageable and violent. Treatment strategies should include rehabilitation of settled patients too.

iv) There should be provision for halfway home in the nearby area where the patient can be kept for a short period so that the caregiver can continue with their social activities and recreational activities to remain mentally healthy.

v) Family members should be involved in decision making process regarding treatment of schizophrenic patients as they have a great commitment to care and perceive therapist as an ally in whom they can confide.

vi) There is a need to make treatment strategies which would include education to family members about coping skills and rehabilitation of patients. Counsellors should be accessible for ventilation and discussion of their problems whereas centres for yoga, meditation and other spiritual activities should also be available which will help them to cope up well and help reduce their emotional burden.

vii) Mental health professionals, government and society at large should make collective and cohesive efforts for rehabilitation and reintegration of the mentally ill and their burdened family members in the mainstream of the society. For this associations or support services shall be established at the local, regional and national level.

Strengths and limitations of the study: In this study, family type whether nuclear or joint, background if urban or rural and the onset of illness if prior to or after marriage were not taken into consideration. Though in this study no rating scale was used we tried to cover a wider range of parameters of the caregivers as well as the patients. Almost all possible patient and caregiver factors relevant clinically were incorporated in a specially designed semi-structured proforma. Still, there is a definite need for multi centred large sample studies to find out patient and caregiver specific correlates of burden and develop effective treatment strategies to lessen the burden on caregivers.

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Original Article

A Study of Parenting Style and Coping Strategies in Mothers of Children and Adolescents with ADHD

Shweta Singh,[1] Amit Arya,[2] Pawan Kumar Gupta,[3] Suyash Dwivedi[4]
[1]Government Medical College, OraiJalaun, U.P.,
[2-4] Department of Psychiatry, KGMU, Lucknow, U.P., India
Contact: Pawan Kumar Gupta, E-mail: gpawan2008@gmail.com

Abstract

Background: *Only a few researches have done on parenting styles and coping strategies of parents with ADHD children that could potentially impact the parental stress, parent-child relationship and symptoms of ADHD. Moreover, Indian studies are highly lacking in this particular area.* ***Method:*** *Non-experimental cross-sectional, descriptive design has been used to study 40 mothers (mean age 35.23 ± 5.09 years) of children with ADHD (mean age 8.65 ± 2.62 years) by using Parenting style and dimension questionnaire (PSDQ) to assess the parenting styles and BRIEF COPE was used to assess the coping strategies.* ***Results & Conclusion****: Authoritative parenting style was most commonly used followed by authoritarian and permissive parenting style. Mothers have highest scores on active coping, followed by Acceptance, religious coping, positive reframing, use emotional support, planning, use of instrumental support and 'humor' as a least scored on adaptive coping strategy. The maladaptive coping strategies with highest scores on behavioral disengagement followed by self-distraction, venting, denial, self-blame and substance use was used with least score. Parenting style and coping strategies have found to be significantly associated.*

Keywords: *Children, Adolescents, ADHD, Parenting styles, Coping strategies*

Introduction

Culture influences parenting and child rearing practices[1,2]. Studies have shown that the mothers (Indian and Chinese) were more likely to use authoritarian parenting styles as compared to their Western counterparts.[3,4] however, these parenting practices are dynamic due to increasing globalization, urbanization, intergenerational shifts in thinking patterns, and changing role reversals in parenting. In India, there is diversity of culture and this also adds to the changes in the social milieu and changing trends in child rearing and parenting.

ADHD is particularly relevant in today's society as it is one of the most common diagnosis in educational and mental health setting.[5] Parenting style which refers to the standard strategies parents use in rearing their children has an impact on physical health of children with ADHD. Rsearch has shown that mothers of children with ADHD have permissive parenting style and less control over children, which results in injuries experienced by children.[6] It has also been reported in previous studies that parents of ADHD children are more authoritarian in their parenting. Parents of ADHD children have lower ability to cope with their child's difficulties.[7] Therefore the dysfunctional coping and poor parenting skills further worsen ADHD symptoms. Also the "behavioral parenting therapy" (BPT) is considered to be an effective intervention to improve children behavior, parenting behavior, and

parental perception of children with ADHD. Hence educating parents about parenting skills would improve a parent's ability to solve problems with ADHD children and adolescents.[8]

Only a few researches have focused on the parenting styles and coping strategies of parents with ADHD children and moreover Indian studies are highly lacking.Therefore, this study was planned to assess the parenting style in parents of children and adolescents with ADHD i.e. authoritative, authoritarian and permissive, along with parental coping. With early identification of parenting style and coping strategies,we can correct the faults in parenting and decreased dysfunctional coping of parents and parental stress which can lead to better overall improvement of an ADHD child.

Methodology

Non-experimental cross-sectional, descriptive design has been used for the present study. Total 60 mothers were screened for the study out of which 40 were included having age < 55 years, having child or adolescent diagnosed with ADHD as per DSM-5 by a consultant psychiatrist at the child and adolescent psychiatry OPD during November 2017 to March 2018. 14 mothers were excluded because they had ADHD child with other psychiatry comorbidities and 6 refused to give consent. Socio demographic and clinical details were recorded according to the semi-structured proforma. Parenting style and dimension questionnaire (PSDQ)[9] was used to assess the parenting styles of the mothers and BRIEF COPE[10] was used to assess the coping strategies. Descriptive statistics (frequency distribution and percentage, mean and SD) was used to analyze the socio-demographic, clinical detail, parenting style and coping strategies. Inferential Statistics t-test, ANOVA was used to find the relationship of parenting style with selected demographic and clinical variable. Correlation coefficient (Pearson correlation) was used to find out association between parenting style and coping strategies. The study has been approved by the institutional ethical committee.

Results

The mean age of mothers under study was 35.23 ± 5.09 years (range 26 – 45 years). The socio-demographic profile of mothers shows that majority of them were graduates (62.5%), and housewives (62.5%). Most of them belonged to the urban area (72.5%). 82.5% of them did not have any previous knowledge about ADHD. None of them had attended any formal training program regarding parenting of an ADHD child. The age of diagnosis of ADHD was school age in majority (57.5%) of the children and adolescents. ADHD was diagnosed in Preschool age among 35.0% children and adolescents. The mean age of children under study was 8.65 ± 2.62 years. Majority of the children were males (72.5%) and had primary educational status (75%). Type and frequency of use of different parenting style has been shown in Table 1.

Table-1. Types of parenting style (mean scores and frequency of use)

Parenting Style	Overall (n=40)		
	Mean	SD	Frequency
Authoritative Parenting Style	52.48	8.43	58.05
Authoritarian Parenting Style	26.05	6.97	28.82
Premissive Parenting Style	11.88	2.48	13.14

In the present study, low maternal education was very significantly associated with scores of authoritarian parenting style (p= 0.002) than permissive parenting style (p=.46). Also, the scores of permissive parenting style was found to be associated with mother's occupation as housewife than any other jobs (p=0.01) i.e. being a housewife can be associated with more use of permissive parenting style while there was no association of occupation with scores of other parenting styles. There was no significant difference found between the scores of parenting styles when compared for religion, total family income and family history of psychiatric illness.

Scores of coping strategies used by mother of ADHD subjects are given in Table 2.

Correlation of adaptive and maladaptive coping strategies with authoritative parenting style has been shown in the Table 3. On looking at the correlation of adaptive coping strategies with authoritative parenting style, it was seen that authoritative parenting style has positive correlation with adaptive coping strategies (active coping, emotional support, positive reframing, humor, acceptance and religion),

Table-2. Types of coping strategies used by mothers of ADHD (n=40)

Coping	Coping strategies	Score	
		Mean	SD
Adaptive	Active coping	6.85	1.08
	Acceptance	6.43	1.38
	Religion	5.58	1.69
	Positive reframing	5.35	1.67
	Emotional support	4.90	1.52
	Planning	4.85	1.14
	Instrumental support	4.15	1.37
	Humor	2.08	0.27
Mal-adaptive	Behavioral disengagement	5.15	0.98
	Self-distraction	4.65	1.19
	Venting	3.83	1.47
	Denial	3.45	1.22
	Self-blame	3.08	1.87
	Substance use	2.43	1.17

and has negative correlation with planning and instrumental support. No Authoritative parenting style has significant positive correlation with other coping strategies except emotional support (p=.031) and acceptance (p=.044). Authoritative parenting style has negative correlation with maladaptive coping strategies (ie. self-distraction, denial, and behavioral disengagement) and positive correlation with venting, self-blame and substance use.

On looking at the correlation of adaptive coping strategies with authoritarian parenting style, it was seen that all adaptive coping strategies had positive correlation with authoritarian parenting style but active coping and positive reframing had negative correlation. But only "Planning" is found to be significantly correlated with authoritarian parenting style. (p=.038, r=.329)

All maladaptive coping strategies apart from behavioural disengagement had positive correlation with authoritarian parenting style. Only venting (p=.044, r=.320) had significant positive correlation with authoritarian parenting style.

On looking at the correlation of adaptive coping strategies with permissive parentings style, it was seen that all adaptive coping strategies apart from positive reframing had positive correlation with permissive parenting style. A significant correlation was found between permissive parenting style with adaptive coping strategies such as emotional support (p=.037), instrumental support (p=.022) and planning (p=.034). Emotional support, instrumental support and planning shows significant positive correlations with Permissive Parenting Style with r=.330, r=.360& r=.336 respectively.

Maladaptive coping (self-distraction, venting, self-blame) had positive correlation with permissive parenting style but behavioral disengagement, substance use and denial had negative correlation. No significant correlation was found between permissive parenting style and any of the maladaptive coping.

Table-3. Correlation of coping strategies (adaptive and maladaptive) with parenting style

Coping strategies	Authoritative Parenting Style		Authoritarian Parenting Style		Permissive Parenting Style	
	Pearson Correlation	*p*-value	Pearson Correlation	*p*-value	Pearson Correlation	*p*-value
Adaptive coping strategies						
Active coping	.093	.569	-.013	.938	.175	.279
Emotional support	.341	.031	.081	.621	.330	.037
Instrumental support	-.020	.904	.158	.331	.360	.022
Positive reframing	.306	.055	-.142	.381	-.014	.932
Planning	-.112	.492	.329	.038	.336	.034
Humor	.212	.190	.026	.876	.092	.573
Acceptance	.320	.044	.150	.355	.121	.457
Religion	.309	.052	.095	.559	.304	.056
Maladaptive coping strategies						
Self-distraction	-.014	.933	.237	.140	.072	.660
Denial	-.146	.368	.178	.271	-.057	.726
Behavioral disengagement	-.102	.530	-.141	.386	-.246	.126
Venting	.115	.481	.320	.044	.283	.077
Substance use	.031	.850	.029	.861	-.008	.962
Self-blame	.046	.776	.234	.147	.151	.352

Discussion

Parenting style is thought to have an important implication, because this provides an emotional environment for the parent child relationship.[11] Parents of children with ADHD engage in more inappropriate parenting style, have lower parental care and higher parental protection. Besides this, ADHD symptoms also influence parent's parenting style which leads to exacerbation of ADHD symptoms and use of dysfunctional coping strategies. Poor coping strategies further leads to parental depression and stress.[12]

The present study shows that the Permissive parenting style (13.14%) was least commonly used as compared to authoritative parenting style (58.05%) and the authoritarian parenting style (28.82%). Previous studies have also shown the parents of ADHD children and adolescents were least permissive and more authoritarian as compared to parents of non-ADHD children and adolescents. In contrast to previous studies,[8] the present study has most of the parents using authoritative parenting style (58.05%).

In the present study low maternal education was very significantly associated with scores of authoritarian parenting style ($p=0.002$) than permissive parenting style ($p=.46$). Also, the scores of permissive parenting style was found to be associated with mother's occupation as housewife than any other jobs ($p=0.01$) i.e. being a housewife can be associated with more use of permissive parenting style while there was no association of occupation with scores of other parenting styles.

The parents of ADHD children and adolescents were used following adaptive (problem focused, emotional focused) and maladaptive (dysfunctional) coping strategies.

In the present study,among adaptive coping strategy used by parents of ADHD children and adolescents were with "active coping" with highest score, followed by" "Acceptance", "religious coping", "positive reframing", "use emotional support", "planning", "use of instrumental support" and "humor" as a least scored. The present study is in line with previous studies which have shown that mother with ADHD child frequently used problem focused coping (active coping) than emotional focused coping strategies (acceptance). Various authors have reported that higher use of positive reframing (perceiving problems as challenges that can be resolved) by mother of ADHD child results in lower maternal distress, which may leads to decrease in use of community resources because it is seen that higher the maternal distress, more is the utilization of community resources.[5,12,13]

The maladaptive coping strategies with highest scores used by mothers with ADHD children and adolescents were, "behavioral disengagement" followed by "self-distraction", "venting", "denial", "self-blame" and less frequently used maladaptive coping was "substance use". The present study finding is contradictory with a study which reported that parents had higher use of venting in comparison to other maladaptive coping.[14] The present study shows that the authoritarian parenting style has positive and significant correlation ($p<0.05$) with maladaptive coping (venting and denial) and this finding is supported by Mc Kee et al which reported that mothers who use venting and avoidant focus-coping, display more coercive parenting style (authoritarian).[15] The present study also found that authoritative parenting style has positive and significant ($p<0.05$) correlation with adaptive coping (emotional social support) and this finding is also consistent with the findings of a study which reported that mother who used adaptive focus coping and seeking emotional social support use less over reactive discipline.[15] Present study found that the permissive parenting style, has positive and significant correlation with adaptive coping (emotional, instrumental, support and planning) and this finding is not supported by previous study which reported that mother who use avoidant–coping (maladaptive) also use lax discipline (permissive style).

The above contradictory findings can be explained by the fact that the present study has only included mothers (as Parent) while previous studies have interviewed both fathers and mothers of the children.[5]The present study was a time bound study and with small clinical sample whereas the previous studies have been conducted among larger samples.

The findings of the present study should be interpreted specifically for clinical sample of children and adolescents from Uttar Pradesh (India). This is the only Indian study of parenting specific to ADHD. Studies on large sample size, comparison with non-

ADHD parents, multicentric as well as community studies are needed to explore the parenting style and coping strategies in ADHD sample in India.

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Original Article

Learning Disabilities or Structure Boundaries: A review on the ease of Smart Technology and Strategy Development in Iranian Primary Schools

Vahid Mansouri, Zohreh Khoshneshin
Department of Educational Technology, Kharazmi University, Psychology and Education Faculty
Contact: Zohreh Khoshneshin, E-mail : khoshneshin@khu.ac.ir

Abstract

Introduction*: The present study focuses on effectiveness of teaching strategy and structure boundaries scrutinized through researches implicated in several primary schools of Iran.* ***Aim****: to review the impacts of concentration on teachers' knowledge and inclination as structure elements' besides of teaching strategies in primary schools.* ***Method****: 300 of teachers and 20 principals in two regions of one city and 14 students (combination of learning disorders) participated in research as sample.* ***Results and conclusion****: Iranian primary school at the first level of their trend to prepare smart classroom needs using updated strategy which depended to teachers' knowledge and inclination touse technology.*

Keywords:*Learning disabilities, Smart technologies, Strategy development, Schools, Iran*

Introduction

Teachers needknowledge and updated skills in teaching strategies referred to the types of learning style or disorders encountered in educational environment. Experiments affirms that strategies like conceptual map implicated through multimedia on social skills could improve among learners with learning disorders. Meanwhile the main question is related to the teacher inclination and knowledge to use technology in educational environment.[1,2] Several studies highlight how teachers' inclination and attitude to teaching play an essential role when teaching curricular includes technology.[3-5] Researchers assert that they assist in predicting behaviors related with the integration of using technology and new strategy in the classrooms. In this way, inclination and attitude would be closely related: if teachers use of technology is to change, then their inclination towards the technology have to change.[2]

Iranian Ministry of Education issued a declaration at the "formalities of registration on blended structure for students with special learning needs" at 2014.[6] It is noted at mentioned declaration that blended structure for students with special learning needs required the use of a teacher as facilitator and helps students with special needs learn better.[7] This type of students have to be taken care specially besides others at classroom while the special types of adequate strategies for them is not issued or anticipated. It does not seem appropriate if we consider the type of skills needed for special students as normal students because normal students are free to learn based on daily experiments. Students with special learning needs are able to learn only if teachers, principals and educational instructions have planned it. That is why the type of strategies teachers approached and their declination to use technology are questioned at present study.

Material and Methods

The present study was conducted in one of the big Iranian cities. A researcher made questionnaire

with 17 questions was used and distributed among 300 teachers and 20 principals. The second section of research was designed to use a teacher made questionnire in one classroom with a blended sample for normal students and students with special needs. Quasi-experimental research method is used with pretest-posttest instrument. Sample of the study includes14 students (aged 6-14 years). It is a researcher made questionnaire measure learners with mental retardation. Social skills improvement included three components as interaction with others, social adaptive behavior. Questionnaires' Reliability estimated by Cronbach's alpha (0.87). Mann-Whitney U test used to analyses the data, compartments of the pre-post-test scores in experimental group after the intervention. The Wilcoxon Signed rank test with the effect size is also approached to data analysis.

Sample and Sampling procedure

300 teachers and 20 principals in two regions of one city selected and answered the questionnaire. In the second section of research 14 students (combination of learning disorders) participated to learn social skills based on conceptual map teaching strategy.

Tools

17 item questionnaire used to assess the teachers and principal knowladge and inclination to use technology during teaching. The teacher made questionnire is used to estimate students learning achievment at second section of research.

Results and Discussion

First question: How is the inclination and knowladge of teachers in using technology for making smart classrom?

Teachers were asked to specify their inclination and knowledge in the field of applied technology in teaching and training through the specified items. Table 1 shows the teachers' responses about their inclination and knowledge in the field of applying information technology in teaching. As it can be seen from table, the frequency of teachers' inclination and knowledge have been evaluated in three levels: low level equals to 370 (7.3%), intermediate level equals to 1372 (26.9%) and high level equals to 3358 (65.8%).

Table 1. The frequency distribution of teachers' responses to items of inclination

Classes	Number	Percent	Fe	O_E
Low & high classes	370	.7.3	1700	-1330
Intermediate & low classes	1372	.26.9	1700	-328
Intermediate & high classes	3358	65.8	1700	1658
Total	**5100**	**–**	**–**	**–**

Analysis of inferential data in the part of inclination and knowledge of teachers by chi-square test for general comparison of response classes (Table 2) was found to be at significance level of 0.001 showing that the distribution of the individuals in the sample group is different at three response classes, so that the frequency of the "agree" and "strongly agree" responses is higher than the frequency of the "intermediate", "low" and "very low" responses, but the frequency of the "intermediate" and "very low" responses has not been significant. In general, we can say that in average about 65.8 percent of teachers are highly and very highly inclined to apply information technology.

Table 2. The results of chi-square test for general comparison of response classes

Test	Value	df	Sig.
Chi-square	272.85	2	0.001

Table 3. The results of chi-square test for general comparison of response classes

Classes	X^2 value	df	Sig.
Low & high classes	24.9	1	0.001
Intermediate & high classes	83.9	1	0.001
Intermediate & low classes	57.9	1	0.001

In order to answer the first research question of the study on teachers' inclination and knowledge about using technology for making smart classroom, the present research conclude that the teachers' inclination and knowledge for using technology in teaching are at intermediate level. If teachers are not equipped with the knowledge required in the process, they will not be successful in the field of using information and communication technology and the deployment of smart classroom. Develop-

ment of social skills is an important process in young childhood and adoles-cence.[8] Deficits present in childhood that are left undetected and/or untreated can lead to increased problems into adulthood.

Second question: Does teaching on the basis of concept mapping as an active teaching method could improve student'ssocial skills? Sample of the study includes14studentsaged 6-14 years (combination of learning disorders).[9] It is a researcher-made questionnaire measures learners'improvement in social skills included the component of social adaptive behavior.

Mann-Whitney U test used to analyze the data, compartments of the pre-post-test scores in experimental group after the intervention. The Wilcoxon Signed rank test with the effect size is also done. It is revealed that there is a significant difference in pre-test and posttest scores of students in different level. So implementation of concept mapping plus to using multimedia could enable disordered learners as it is suggested to construct their minding's as well improvement of their social skills.

Table-4. Comparative data experiment-control groups: social adaptive behaviors

Sub scale of	Group	Test	Sum	Mean	N
Interactive with others	Experi-mental	pretest	46.50	6.64	7
		posttest	77.00	11.00	7
	Control	pretest	58.50	8.36	7
		posttest	28.00	4.00	7

Table-5. Mann-Whitney U result: comparative effects in social adaptive behavior

Test Statistics

Subscales of interactive with others in pretest		Subscales of interactive with others in posttest	
Mann-Whitney U	.000	Mann-Whitney U	18.500
Wilcoxon W	28.000	Wilcoxon W	46.500
Z	-3.151	Z	.800
Asymp. Sig. (2-tailed)	.002	Asymp. Sig. (2-tailed)	.424
Exact Sig. [2*(1-tailed Sig.)]	.001[a]	Exact Sig. [2*(1-tailed Sig.)]	.456[a]

b. Grouping Variable: Group

Data analysis of the tables showed Z (3.15) is significant ($p = 0.002$). There are significant differences between scores of students before and after intervention

Conclusion

Iranian primary school is at the first level of their trend to prepare smart classroom needs using updated strategy which dependson teachers' knowldge and inclination to use technology. It should seriously take into consideration that the platforms of using strategies should be mached with different clusters of students with normal or disordered type in upcoming type of Iranianeducational environments.

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Original Article

Comparative Study on Marital Adjustment of Female Spouses of Individuals suffering from Alcohol Dependence Syndrome and Female Spouses of Individuals without Alcohol Dependence Syndrome

Mohammad Sameer Khan,[1] Rishi Panday,[2] Ajaz Ahmed Khan[3]
Department of [1]Psychiatric Social Work and [3]Clinical Psychology, Government Medical College, Srinagar, Jammu and Kashmir and
[2]Department of Psychiatric Social Work, Jamia Millia Islamia, New Delhi.
Contact: Rishi Pandey, E-mail: rishiraj.lu@gmail.com

Abstract

Background*: Alcohol dependence is a big issue in our society and associated with domestic violence, which in turn aggravates the physical and emotional distress of the family. Alcohol dependence also leads to marital conflict as sometimes it converts in the form of domestic violence. Various studies revealed that there is low level of marital adjustment among the family members of alcohol dependence.* ***Aim****: The aim of the study is to compare marital adjustment between the spouses of individuals with alcohol dependence syndrome and spouses of normal population.* ***Methods****: It was cross sectional study conducted at Ranchi Institute of Neuro-Psychiatry and Allied Sciences, Ranchi. 60 samples were selected and these samples were divides into two groups one with spouses of individuals with alcohol dependence syndrome and other group consisted of spouses of individuals without alcohol dependence syndrome. Marital adjustment is compared between the two groups by using Marital Adjustment Questionnaire.* ***Results:*** *There was significant difference in marital adjustment between the spouses of individual with alcohol dependence syndrome and spouses of individuals without alcohol dependence syndrome.* ***Conclusions****: Wives of individuals without alcohol dependence syndrome had better marital adjustment as compared to spouses of individuals with alcohol dependence syndrome.*

Keywords: *Alcohol dependence, Mental Health, Marital adjustment*

Introduction

Alcoholism is a serious disease and its sign and symptoms vary depending upon how much a person consumes and how frequent. Continuing alcohol use affects the lives of its users and his or her family. Sometimes the person reaches to a level of alcohol consumption that can be life threatening. The person's respiratory system becomes too much depressed and it can stop breathing (respiratory depression). If alcohol abuse remained untreated, it will lead to the addiction which includes physical dependency or lack of inhibition to stop alcohol despite knowing its harmful consequences.

Impact of Alcoholism on Marital Life:

Alcohol dependence affects both the person and his family as well. It influences the person's cognition, neurology, physiology and also causes the social impairments. It also affects the person's family including the spouses of the person. The alcohol dependent person shows the behavior abnormalities, such as irritability, aggressive and abusive behavior and sometimes assaultive behavior. It has proven that alcoholism causes alcoholic jealousy which may result in suspicion towards spouse regarding the infidelity. Hence after keeping the above said things into consideration, it becomes important to know that how spouses of alcohol dependents show adjustment in their marital life by keeping into consideration the other duties such as parenting and house hold chores.

Marital distress: Alcohol abuse results in marital distress. Marriages in which both the spouses are alcoholic show high amount of distress as compared to that of individuals married to non-alcoholics or one spouse consuming alcohol. Marital satisfaction strongly depends on the communication in terms of how partners communicate with each other. Chronic alcohol use can result into negative and hostile communication which results in decreased satisfaction in marriage with greater tension. Drinking can cost lot of time that could have been used by the partners with each other especially if one of the partners abuses alcohol outside the home. The more time spent apart from each other means that the non alcoholic partner is less satisfied and which can contribute toward the divorce.

Psychological distress: Alcohol abuse increases psychological distress of the non-drinking spouse. An adult's alcohol abuse also is related to children's increased social, emotional, behavioral, and academic problems, which in turn leads to more stress in the family and less marital satisfaction.

Alcoholism and the risk of divorce: With alcoholism and marriage, problems are related to increase rates of marital violence, poor communication, and feelings of marital distress that lead to a greater risk of divorce. Differences between spouses in their drinking behaviors decrease marital quality and increase the likelihood of divorce.

Research documenting the association between alcohol involvement and marriage disruption has a long history, going back almost 100 years and found that alcoholic males had lower ratings on a measure of "congeniality of married life" than non-alcoholic males[1]. Findings of another research suggested that "arrested inebriates" were less likely to be married and had high rates of marital separation[2]. Reviewed studies from the 1940s through the 1970s are showing higher rates of marital problems among those with AUDs or alcohol problems.[3].

Marital Adjustment: It is the subjective evaluation of one's experience in their marriage and it means the marital adjustment can only be rated by each person in response to the question, "How satisfied are you?" The level of your satisfaction cannot be determined by anyone else. Marital adjustment is not a property of a relationship, but it is a subjective experience and opinion. Though marital adjustment is a relatively stable attitude and attribute which reflects the individual's overall evaluation of the relationship. Marital adjustment depends upon the individual's needs, expectations, and desires for the relationship. Marital adjustment is a degree to which an individual's needs, expectations, and desires are being satisfied in their marriage; a subjective condition which can only be described by the individual spouse; and the individual's personal evaluation of their marriage. Most similar to the concept of marital happiness because only the individual is able to say how happy or satisfied they are. Happiness in life is linked with successful marriage. A review of the literature reveals that most people are happier attached than unattached. A close, nurturing, equitable, intimate, lifelong companionship with one's best friend is a very strong predictor of happiness than any other. In India, Family Planning Association of India based on all India sample of over 3,800 youngsters, made a survey. The survey throws some light on their expectations from marriage partner. It was noticed that men marry for companionship, sexual satisfaction, to have a life of their own, to please parent and for security. Women marry for companionship, security, independent life, social pressures and sexual satisfaction. Marriage and family are not optional, they are necessary; they meet man's deepest needs[4]. Marriage provide a person an opportunity for a secure and protected satisfaction of his needs and for his companionship, affection and sexual expression. The success in marriage depends partly on finding a suitable match, but it is not the only condition. For successful

marriage, the partners must learn how to live together, to share, compromise, accommodate, adjust and plan together. One is required to develop a proper attitude, skill and temperament to be successful in marriage. It implies considerable change in the personalities of both the partners, which they bring them at the time of marriage. A successful marriage promotes happiness. Many studies have been conducted to explore the factors underlying successful marital adjustment. Physical and psychological health problem of maladjustment reported higher level of anxiety, depression and somatic complaints among such wives.[5] Alcohol use leads to more negative and hostile communication, more expressions of anger and less warmth and unity in the relationship. These factors decrease a couple's satisfaction in their marriage and create greater tension.

- *Everyday family responsibilities*. Alcohol use disorders decrease marital satisfaction as they decrease the drinking spouse's ability to participate in everyday household tasks and responsibilities. This inability leads to greater stress on the non drinking spouse and decreases satisfaction in the marriage.
- *Psychological distress*. Alcohol use disorders increase the psychological distress of the nondrinking spouse. An adult's alcohol abuse also is related to children's increased social, emotional, behavioral, and academic problems, which in turn is associated with more stress in the family and less marital satisfaction.

It is well documented that spouses' wellbeing and way of life is influenced by their partner's alcohol problems, few studies have been conducted with the main purpose of finding methods of helping the spouses to deal with the problems and improve their own wellbeing. Unilateral family therapy with spouses of uncooperative individual with alcohol dependence syndrome has been performed in order to decrease drinking in the partner.[6,7]

Spouses of individual with alcohol dependence syndrome are affected on many different levels. Several studies have shown that spouses of individual with alcohol dependence syndrome often present significant rates of mental and physical problems, communication problems, low social activity and poor marital satisfaction.[8,9] The spouses develop ways of dealing with the concomitant stress, a coping behavior which seems to be rather uniform even though spouses of individual with alcohol dependence syndrome are, of course a heterogeneous group with varying backgrounds.[10,11]

In marital therapy it has been demonstrated that individual with alcohol dependence syndrome and their spouses can improve their quality of life and reduce the negative influence of the alcohol misuse.[12] It is however not always possible to offer marital therapy, partly because of the individual with alcohol dependence syndrome insufficient motivation.[13]

Alcohol is known as family disease because it is responsible for more family problems than any other single cause. Wives of alcoholics are 'an unknown universe' in Indian society. Women bear a double burden because of husband's drinking; they are supposed not only to control their husbands drinking, but also to maintain homeostatic balance in family. Usually spouses have feelings of hatred, self –pity and become physically and mentally ill. As a result, wives were inconsistent, demanding and often neglect the children. Having financial difficulties are another issue that families or wives of alcoholics have to deal with. The family has to give up certain privileges because of the large amount of money spent on alcohol.

Aims

The aim of the study is to assess and compare the marital adjustment of female spouses of individuals suffering from alcohol dependent syndrome with female spouses of individuals without alcohol dependent syndrome.

Material & Methods

Universe of the study

The subjects for the present study were taken from the outpatient department (OPD) of Ranchi Institute of Neuro-Psychiatry and Allied Sciences (RINPAS), Kanke, Ranchi.

Research design

The present study was a hospital based cross sectional comparative study .

Sampling technique: Purposive sampling technique was used.

Sample size

The sample size consists of a total of total 60 samples which was further divided into two groups each group consisted of 30 samples. One group was spouses of individuals with alcohol dependent syndrome and other group was spouses of individuals without alcohol dependent syndrome. Sample was taken from the outpatient department of Ranchi Institute of Neuro Psychiatry and Allied Sciences (RINPAS) Kanke, Ranchi.

Inclusion Criteria of Patients

- Patients who are diagnosed with alcohol dependence syndrome according ICD-10 (D.C.R.)
- Patients who are having illness of duration not less than 1 year.
- Patients who are not having any other physical or mental illness.

Exclusion Criteria of Patients

- Patients who are less than age of 21 years and more than the age of 65 years.
- Patients who have duration of illness less than 1 year.
- Patients who are having some other severe physical or mental illness.

Inclusion Criteria for Spouses

- Spouses involved in care at least for 1 year.
- Spouses who will provide written informed consent.
- Spouses who are educated up to 5th standard
- Spouses who don't have any other person with mental, physical illness, neurological and mental and behavioral disorder due to use of any psychoactive substance.

Exclusion Criteria for Spouses

- Spouses who are having any physical, mental illness, neurological and mental and behavioral disorder due to use of any psychoactive substance
- Spouses who are involved in caring more than one person with mental illness.
- Spouses which are illiterate.

Procedure

Initially permission was taken from the director and the head of the department of the psychiatric social work of the institute for conducting the present study "comparative study on marital adjustment of female spouses of individuals suffering from alcohol dependence syndrome and female spouses of individuals without alcohol dependence syndrome". After screening according to the inclusion and exclusion criteria, samples were selected for the current study from the outpatient department of Ranchi Institute of Neuro-Psychiatry and Allied Sciences (RINPAS) Kanke Ranchi. The samples were selected by using purposive sampling technique and a total of 60 samples. The objectives of the study were explained to the participants. After establishing the rapport and explaining the purpose of the study the details of the socio-demographic data and various scales like General health Questionnaire and Marital adjustment questionnaire were used. For the statistical analysis SPSS (statistical package for social sciences) 16.0 version was used. *t*-test was used for the statistical analysis.

Tools Used

- *Socio Demographic Data sheet (self prepared)*
  It is a semi structured, self prepared Performa especially created for the study. It contains information about the socio-demographic variables like age, sex, religion, education, marital status, occupation and domicile.
- *GHQ-12 (Goldberg, 1978)*
  Goldberg and William developed the General Health Questionnaire-12. It is used to screen any psychiatric morbidity in healthy persons. General Health Questionnaire-12 is the short version of the original General Health Questionnaire containing 60 items for the detection of the psychiatric illness. Internal consistency of GHQ - 12 has been excellent. A high degree of internal consistency was observed for each of the 12 items with Cronbach's alpha value of 0.37-0.79, while total score was 0.79 in the population study. Test-retest correlation coefficients for the 12 items score were highly significant.
- *Marital Adjustment Questionaire (Pramod Kumar & Kanchan Rohatgi,*

1999)

Marital Adjustment Questionnaire developed by Pramod Kumar & Kanchana Rohatgi (1999). The marital adjustment questionnaire (MAQ) has totally 25 'Yes-No' type items divided into three area like Sexual, Social, Emotional. The reliability of 0.96 and has been frequently used in Indian studies. According to this questionnaire, the higher the score, better is the adjustment like sexual includes item 9, 20, 23, 25; Social includes item 3, 4, 5, 6, 12, 14, 15, 18, 19; Emotional includes item 1, 2, 7, 8, 10, 11, 13, 16, 17, 21, 22, 24.

Results

Results are shown in Tables 1 (socio demographic profile and Table 2 (scores on MAQ)

Discussion

Sexual adjustment

In domain sexual adjustment the average score of mean and standard deviation of spouses of persons with ADS is 1.68 ± 0.74 and average score of mean and standard deviations is 3.23 ± 0.52. Significant difference was found in this domain indicating that the spouses of persons without ADS show high sexual adjustment as compared to that of spouses of persons with ADS. This finding

Table-1. It shows the comparison of two groups i.e. spouses of persons with ADS and spouses of persons without ADS in relation to their socio demographic parameters. No significant difference was found between the two groups

		Spouses of ADSN =30		Spouses of without ADSN =30		X^2
		N	%	N	%	
Age (in years)	25 to 30	15	(50)	14	(46.66)	0.34
	31 to 35	10	(33.33)	12	(40)	
	36 to 40	05	(18.66)	04	(12.33)	
Occupation	Service	3	(10.0)	3	(10.0)	1.44
	House wife	25	(83.3)	22	(73.3)	
	Others	2	(6.7)	5	(16.7)	
Education	Primary	15	(50)	18	(60)	3.46
	Middle	09	(30)	06	(20)	
	High school and above	6	(20)	06	(20)	
Domicile	Urban	12	(40)	12	(40)	4.57
	Rural	12	(40)	15	(50)	
	Semi-urban	6	(20)	3	(10)	
Type of family	Nuclear	12	(40)	15	(50)	0.89
	Joint	12	(40)	12	(40)	
	Extended	6	(20)	3	(10)	
Duration of marriage (in years)	3-4	12	(40)	9	(26.7)	2.67
	5-6	9	(30)	15	(50.0)	
	7-8	9	(30)	6	(20)	

Table-2. Comparison of marital adjustment of spouses of persons with ADS and spouses of persons without ADS

Marital Adjustment Variables	Group		
	Spouses of ADSM ± SD	Spouses of without ADSM ± SD	t
Sexual Adjustment	1.68 ± 0.74	3.23 ± 0.52	7.99**
Social Adjustment	4.10 ± 1.98	7.73 ± 1.01	13.94**
Emotional Adjustment	5.43 ± 2.40	9.36 ± 0.76	11.86**
Total score of Marital Adjustment	11.21 ± 6.37	20.32 ± 2.28	19.89**

**=significant at 0.01 Level

suggested that spouse of individual with alcohol dependence have poor sexual adjustment. Finding of another research study supported this study, greater substance use tends to decrease libido and to increase some types of sexual dysfunction, such as anorgasmia and vaginismus.[14]

Social adjustment

In domain social adjustment the average score of mean and standard deviation of spouses of persons with ADS is 4.10 ± 1.98 and the average score of mean and standard deviation of spouses of persons without ADS is 7.73 ± 1.01. Significant difference is found in this domain indicating that the spouses of persons without ADS is having better social adjustment as compared to that of spouses of person s with ADS. Alcoholics spouse seems to lie solely in their status as wives of alcoholics.[15] They have to endure years of isolation, blame of relatives, lack of friends, little money, violence, unsatisfactory sexual relations.[16]

Emotional adjustment

In domain emotional adjustment the average score of mean and standard deviation of spouses of persons with ADS is 5.43 ± 2.40 and the average score of spouses of persons without ADS is 9.36 ± 0.76. Significant difference was found in this domain indicating that the emotional adjustment of spouses of persons without ADS is having better emotional adjustment as compared to that of spouses of persons with ADS. Another research finding suggested that the man refuses to seek treatment, and that there are frequent marital disagreements about the man's drinking[17]. Spouse of individual with alcohol dependence have poor emotional adjustment in comparison with spouse of individual without alcohol dependence.[18]

Total score of marital adjustment

In this domain the average score of mean and standard deviation of spouses of persons with ADS is 11.21 ± 6.37 and the average score of spouses of persons with out ADS is 20.32 ± 2.28. Significant difference was found in this domain indicating that the marital adjustment of spouses of persons without ADS is high as compared to that of spouses of person with ADS. The results are also in conformity with this study. Alcoholics spouse seems to lie solely in their status as wives of alcoholics.[15] They have to endure years of isolation, blame of relatives, lack of friends, little money, violence, unsatisfactory sexual relations.[19] The spouses of drinkers suffer from elevated rates of depression, anxiety and somatic complaints, report low levels of relationship satisfaction.[17] The research examined the variables that influenced the degree of family dysfunction in alcoholic family. The findings of the present study also reflected the marital adjustment problems felt by spouses of the individual with ADS and these spouses felt stress and health related issues. They also felt spouse rejection and lack of freedom from expression.[20]

Limitations

- Being time bound study sample size was small and hence the results could not be generalized.Comparison with some other disorder could have been done. The study needed to be carried out on a large sample with comparable representations of the both groups.

Future directions

- The future study must be attempted to include some other psychosocial aspect of the spouses of persons with ADS which are being experienced by them.

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Original Article

A Study to assess the Knowledge and Practice patterns of the use of Electronic Cigarettes from India

Shruti Srivastava,[1] Rashmita Saha,[2] Subhash Giri,[3] N.C. Priyadarshini,[4] Varnika Ahuja[5]
[1,2,4,5]Departments of Psychiatry and [3]Medicine, University College of Medical Sciences & Guru Teg Bahadur Hospital, Dilshad Garden, Delhi-110095
Contact: Shruti Srivastava, E-mail: Srivastava_shruti@hotmail.com

Abstract

Background*: There is a rising trend of the use of Electronic cigarettes among the youth in an attempt to use a safer substitute to the conventional cigarettes. E-cigarettes contain E-liquid or E-juice which is formulated to contain a mixture of chemicals, nicotine in some products.* ***Objective****: This study is done to establish the prevalence of use of e-cigarettes, the misconception of these being a lesser harmful substitute to cigarettes and also the awareness of harmful effects of their use.* ***Method****: A study was carried out to ascertain awareness, knowledge, and practise of Electronic Cigarettes around the premises of the largest tertiary care teaching hospital, of Delhi, India in the youth aged 18-30 years. The road consists of 5-6 tobacco vendors despite the hoardings of hospital showing hazards of tobacco products. Department of Psychiatry and Medicine undertook an initiative to spread the awareness of mortality and morbidity associated with Tobacco use. Awareness, and practises of E-Cigarettes were studied as a part of this broad initiative.* ***Results:*** *2000 pamphlets were distributed providing information on how tobacco damages various body organs. Those who were willing to give consent and agreed to participate, a total of 315 study participants filled the questionnaire specially designed for the awareness and practise patterns of Electronic Cigarettes. 57.77% had regular intake of nicotine with mean Fagerstorm score 3.38. Only 60.95% of the people were aware of e-cigarettes, 34.28% acquired information through peers, 3.49% both internet and peers,12.70% from newspaper, 6.03% from family members. 31.74% thought it is less harmful than the intake of other forms of tobacco products, only 10.16% thought there are side effects of E-Cigarettes. 23.80% tried E-Cigarettes and only 5.39% were regular users. 74.66% had less satisfaction than regular cigarettes. Adverse effects noted on short term usage were discomfort, mild headache, bad taste, dizziness, skin burns. Availability and high cost were the deterrents for their use while glamour/branding, a measure for relaxation, feeling good were associated with craving for E-Cigarettes.* ***Conclusion:*** *Pamphlets especially designed for the study purpose with pictorial diagram depicting that E-cigarettes are harmful to the body, are not safe in pregnancy, misnomer that they bring about tobacco cessation, that they contain varying proportions of nicotine were distributed along with individual psycho-educative sessions. Tobacco control should include warnings for newer products like E-Cigarettes that they are injurious to health, advocating ban of such products.*

Keywords: *Electronic cigarettes, Knowledge, Practices, India*

Introduction

Tobacco use

Tobacco use is the leading cause of disease and premature death that can be prevented globally. The overall prevalence of tobacco smoking was 60.2% where males smoked at higher rates than females (68.81% and 12.56% respectively). 41% of the surveyed males (n=750) used tobacco either by smoking or smokeless method or both (9.7% used both, 23.4% smoked and 27.3% used smokeless tobacco) in the reported prevalence figures of tobacco smoking from India.[1] Global Burden of Disease (2000-2025) carried out over 146 countries showed declining trends in the prevalence figures (22.1% in 2010) (both sexes) and there is a projected declining trend in the prevalence figures (18.9% in 2025) (both sexes) of tobacco smoking in all age groups.

Current tobacco smokers among >15yrs of age reported from India had the following age-standardised prevalence in both sexes (11.3%), male (20.6%), female (1.9%). The influence of peers was the most significant reason for initiating tobacco smoking both globally and in India. The use of tobacco causes more deaths every year as reported than alcohol use, car accidents, suicide, AIDS. Tobacco is a silent killer causing lung, bladder and reproductive cancers with India reporting the highest number of oral cancers globally. It is predicted that tobacco will take the toll of 175 million people worldwide between 2005-2030. Higher rates of tobacco related deaths are reported from developing countries as compared to developed countries. Probable reasons for increased tobacco use in developing countries are due to increase in population, poor health services and targeting of susceptible populations by tobacco industries.[2]

Cigarette smoke contains nicotine, cadmium and poly-aromatic hydrocarbons that are harmful if smoked in pregnancy. Reproductive functions like oestrogen synthesis, metabolism, trophoblast invasion and proliferation, uterine-fallopian tube function are found affected by smoking.[3] Infertility, miscarriage, mutagenesis, low birth weight babies, sudden infant death syndrome, stillbirths are consequences of consumption of tobacco and related products. Amniotic cells grown in-vitro in media containing nicotine produces chromosomal aberrations, thus highlighting the fact that complete abstinence should be advised from active/passive smoking in pregnancy.[4] The newer e-cigarettes are not reported to be safe in pregnancy in a recent review by Whittington et al 2018. They highlighted the fact that e-cigarettes contain the similar nicotine as in the usual cigarettes, since nicotine affects the immune system, neural development, lung and cardiac function in a developing foetus in animal studies.[5]

E-cigarettes

Vaping is a new term coined for the use of electronic cigarettes. E-cigarettes are gaining popularity among smokers because of their look, feel and taste as compared to traditional cigarettes. A review carried out using 49 studies from 2006 to 2013 by Pepper and Brewer on electronic nicotine delivery systems (ENDS) found that the awareness increased from 16% to 58% from 2009-2011, usage from 1%to 6%. The reasons cited for using ENDS were safety and quitting smoking, avoid smoking restrictions.[6]

The survey done on school students of seventh grade in Finland in 2011, the same students (5742 students, 73% responders) in their ninth grade were reassessed in 2014. 43.3% boys had tried e-cigarettes, 25.6% girls, with the strongest predictors for e-cigarette experimentation were the use of conventional smoking, drunkenness, energy drinks, poor academic performance, participation in team sports.[7] A population study of U.S. adults carried out on 5398 participants who were aware of electronic vapor products found that both cigarettes, e-cigarettes usage was associated with affective states, lower perceived risk with positive affective states.[8] Another nationally representative Tobacco and Health Study carried out in two phases (2013-2014), (2014-2015) reported that current cigarette smokers using electronic cigarettes daily had significantly reduced consumption of using regular cigarettes by 50%.[9]

The need for carrying out the awareness, and practise patterns of electronic cigarettes from developing country like India was felt as there were hardly any previous studies reported from our country that leads the list of oral cancers globally with tobacco usage being cited as the major reason.

Methodology

The study was carried out around the premises

of the tertiary care teaching hospital, which is the largest East Delhi Hospital. There are tobacco vendors situated on the roadside adjoining the Guru Teg Bahadur Hospital, despite the huge hoardings of Tobacco being hazardous to health on the hospital wall. GTB Hospital canteen is open to the general public 24 x 7, throughout 365 days which caters to the staff of the hospital, residents of the area as well as the general public. Permission to carry out the study was taken out from the appropriate authorities. Two thousand Pamphlets carrying information that different tobacco products carried nicotine which is harmful to different organs was distributed throughout the premises described above in detail. Only the willing individuals willing to participate in the study was included after signing the consent form. The study was carried out over summer months May to June for three consecutive years from (2016-2018) as part of the short term projects undertaken by undergraduate medical as well as psychology interns posted in the Department of Psychiatry and Department of Medicine. Study participants were free to ask questions about the concerned nicotine use and their queries were answered to satisfaction. The purpose was to assess whether the participants were aware of Electronic Cigarettes and to assess the practise patterns.

Methodology

Study measures

1. Study participants were enquired about their socio-demographic details. Assessment was done whether the tobacco use was ever tried/occasional/regular use.
2. Regular users were asked to fill Fagerstorm Nicotine Dependence Scale**.** The study participants were assured that their identity would not be disclosed and data would be anonymous. Those who were aware of Electronic Cigarettes were counselled about the harmful effects of E-Cigarettes by another pamphlet which was given to them.
3. The study questionnaire that was developed to study the knowledge, attitude practises of Electronic Cigarettes is as follows:

1. *Knowledge and attitude regarding e cigarettes*-
   - Are you aware of electronic cigarettes being available?
   - How did you get to know? Peers, newspapers, internet, family
   - Are you aware of electronic cigarettes being used?
   - Do you think E cigarettes are more harmful/ equally harmful/ less harmful /do not know as compared to regular cigarettes?
   - Are you aware of any side effects of e cigarettes? Yes/no/do not know
   - Mention a few side effects-
   - Do you think it is safe during pregnancy? Yes /no/do not know
   - Will you recommend E-cigarettes for smoking cessation Yes/no
2. *Practice of e cigarettes*-
   - Have you tried E cigarettes? Yes/no
   - Occasional use/ regular use?
   - What are your reasons for using E-cigarettes?
   - Does it provide the satisfaction of a regular cigarette? Yes/no
   - Do you switch to regular cigarettes if you run out of E cigarettes? Yes/no
   - Reason for switching to regular cigarettes? Cost/availability/less pleasure from E-cigarettes
   - Have you noticed any adverse effects of E cigarettes?
   - Any other point you would like to mention

All the study participants were educated about the health hazards of nicotine consumption, advocating complete abstinence of tobacco and related products including E-cigarettes on an individual basis by the investigators.

Data was analysed using Microsoft Excel. A total of 500 study participants undertook the filling of the questionnaire, out of which only 315 completed, rest were excluded.

Results

Socio-demographic and nicotine consumption

2000 pamphlets were distributed providing information on how tobacco damages various body organs. Those who were willing to give consent and agreed to participate, a total of 500 study participants initially enrolled, 315 filled the complete questionnaire specially designed for the awareness and practise

patterns of Electronic Cigarettes. Average age of the study sample was 28.92 years. 292 (92.69%) were males, 23 (7.30%) were females. Mean years of education was 11.71 years. 313 participants were employed that included students as well as self employed such as farmers, rickshaw pullers, drivers, shopkeepers, businessman. 148 (46.98%) were married, 167 (53.01%) were separated/divorced/ unmarried. 57.77% had regular intake of nicotine with mean Fagerstorm score 3.38.

Awareness of E-Cigarettes

Only 60.95% of the people were aware of e-cigarettes, 34.28% acquired information through peers, 3.49% both internet and peers, 12.70% from newspaper, 6.03% from family members. 202 (64.2%) knew that E-Cigarettes were being used.

31.74% thought it is less harmful than the intake of other forms of tobacco products, 5(1.58%) thought they are more harmful than usual, 67 (21.26%) considered E-cigarettes equally harmful, 143 (45.39%) did not know whether harmful or not. Only 10.16% thought there are side effects of E-Cigarettes, whereas 160 (50.97%) answered that E-cigarettes had no side effects, 54 (17.14%) had no knowledge about side effects. The common side effects reported with nicotine usage synonymous with E-Cigarettes were cancer, dependence, heart problems, breathing problems, weight gain, tuberculosis.

Practice of E-cigarettes

23.80% tried E-Cigarettes and only 5.39% were regular users.74.66% had less satisfaction than regular cigarettes. Adverse effects noted on short term usage were discomfort, mild headache, bad taste, dizziness, skin burns. Availability (62.65%) and high cost (30.6%) among users were the deterrents while glamour/branding (20%), curiosity (6%), a measure for relaxation (57%), feeling good (8%), chocolate flavour (8%) were associated with craving for E-cigarettes. The reasons cited with the usage of E-cigarettes were more than one response by the respondents. Use of E-cigarette for cigarette cessation was carried out by 5.3% of tobacco users.

Discussion

The results from our study found out that 60.95% were aware of E-cigarettes and 23.80% had ever tried. Mendez et al. 2013 estimated that the prevalence rates of smoking could be higher (approx. 872 million smoker) by 2030 if policies are not undertaken for escalating the cost of cigarettes and related products.[10] Our study also reported that high cost of E-cigarettes acts as a deterrent for its usage. Chocolate flavour of E-cigarettes was one of the reasons for continuing its usage, a finding in line with another worker, Litt et al who reported the preferred chocolate flavour of E-cigarettes in 88 smokers.[11] The percentage of youth are influenced by media, peers and to a lesser extent by family members trying out E-cigarettes in a developing country like ours, where the online buyers of E-cigarettes are increasing at enormous proportions. Policies advocating discouraged usage of E-cigarettes in youth has been suggested by researchers like Franck et al 2016.[12] None of the occasional / regular smokers in our study continued E-cigarettes only for significant length of six months. A recent review by Frank et al supports that E-cigarettes are not able to provide complete abstinence for periods longer than six months.[13] 5.3% of the tobacco users have tried E-cigarettes for complete abstinence from nicotine, a review article by Srivastava et al emphasized the practise of E-cigarettes for nicotine abstinence as a misnomer.[14] A study carried out on medical students from Pakistan found 65.6% students were aware of E-cigarettes, 31 (6.2%) reported having used E-cigarettes, of whom 6 (1.2%) self-reported daily use.[15] Another study by Hossain et al from Dhaka, Bangladesh also reported tobacco prevalence of 60.2% in 264 students.[16] In Global Youth Tobacco survey by WHO including 146 member countries reported similar prevalence figures of tobacco use from the participant countries, thus focussing attention on adopting measures of controlling this growing tobacco epidemic globally.[17] Pictorial pamphlets used for educating participants for giving up E-cigarettes/to bacco products in our study are supported by another recent U.S. population based study that highlights the importance of negative images as an education tool for tobacco control.[8]

Limitations and conclusions

The major limitation cited in our study is the cross-sectional work. Though the sample size was collected to reflect different strata from the popula-

tion, still data generated is not representative of the entire population of the country. Nevertheless, the study reflects that majority of the population is aware of electronic cigarettes, less proportions have tried as availability and costs being the major deterrents. Pamphlets especially designed for the study purpose with pictorial diagram depicting that E-cigarettes are harmful to the body, are not safe in pregnancy, misnomer that they bring about tobacco cessation, that they contain varying proportions of nicotine were distributed along with individual psycho-educative sessions. Tobacco control should include warnings for newer products like E-Cigarettes that they are injurious to health, advocating ban of such products.

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Psychomicrobiology

Role of Cytokines in Psychiatric Disorders

Shalini Malhotra[1], Pradeep Kumar[2], Nirmaljit Kaur[3], Preeti Madan[4], Nandini Duggal[5], M.S. Bhatia[6]

Department of Microbiology,[1,3,5] PGIMER and Dr. RMLHospital, New Delhi; CCRUM,[2] New Delhi; Department of Psychiatry[6], UCMS and GTB Hospital, Delhi

Contact: Nirmaljit Kaur E-mail: njkbhatia@yahoo.co.in

Introduction

The immune system is described as a sensory system whose primary purpose is identifying the foreign ("non-self") substances, referred to as antigens. Two equally important aspects of the immune system are the innate and acquired immunity. The mechanisms of innate immunity are physical and chemical barriers, cellular components, and soluble molecules. The main cellular components of the innate immune response include dendritic cells, monocytes, macrophages, granulocytes, and natural killer (NK) cells. The important components of acquired immunity are T as well as B lymphocytes that specifically recognize and respond to an antigen. Thus, innate and acquired immune responses represent the action of various specialized cells and soluble molecules that they secrete.

Cytokines are chemical messengers or hormones of the immune system, which mediate cell–cell interactions in immune responses. They induce the movement of cells toward sites of inflammation, infection, and trauma. They also regulate and coordinate many activities of the cells of innate and acquired immunity.

Psychiatric disorder is defined as a syndrome characterized by clinically significant disturbance in an individual's cognition, emotion regulation, or behavior that reflects a dysfunction in the psychological, biological, or developmental processes underlying mental functioning.

There is an emerging interest in immune aspects of psychiatric disorders and new theories have been proposed regarding the linkage of innate and adaptive immunity by the brain-fat axis These findings encouraged us to discuss a possible influence of cytokines on psychiatric illness' onset and progression, considering cognitive impairment and metabolic changes in patients with these disorders.

Cytokines

Cytokines are a broad category of small proteins that are important in cell signaling and have an effect on the behavior of cells around them. It can be said that cytokines are involved in various neural signals like autocrine, paracrine and endocrine signals as immunomodulating agents. Their definite distinction from hormones is still under research. Cytokines may include interleukins, chemokines, interferons, lymphokines, and tumor necrosis factors. Cytokines are produced by a broad range of cells, including immune cells like macrophages, B and T lymphocytes and mast cells, as well as endothelial cells, fibroblasts, and various stromal cells; a given cytokine may be produced by more than one type of cell.[1]

They act through receptors and modulate the balance between humoral and cell-based immune responses, and they regulate the maturation, growth, and responsiveness of particular cell populations. Some cytokines enhance or inhibit the action of other cytokines in complex ways.The widespread cellular distribution for cytokines may be a feature that differentiates them from hormones. Virtually all nucleated cells, but especially endo/epithelial cells and resident macrophages (many near the interface with the external environment) are potent producers of IL-1, IL-6, and TNF-á.etc.

Classification of Cytokines

Structural homogeneity has been able to partially distinguish between cytokines that do not demonstrate a considerable degree of redundancy so that they can be classified into various types: the IL-1 family, which primarily includes IL-1 and IL-18; the IL-17 family, which has yet to be completely characterized, though member cytokines have a specific effect in promoting proliferation of T-cells that cause cytotoxic effects; the cysteine-knot cytokines which include members of the Transforming growth factor beta superfamily, including TGF-α_1, TGF-α_2 and TGF-α_3; the IL-2 subfamily; the interferon (IFN) subfamily and the IL-10 subfamily.[1]

A classification that proves more useful in clinical and experimental practice outside of structural biology divides immunological cytokines into those that enhance cellular immune responses, type-1 (TNFα, IFN-α, etc.), and type-2 (TGF-α, IL-4, IL-10, IL-13, etc.), which favor antibody responses.

Several inflammatory cytokines are induced by oxidative stress.[2] The fact that cytokines themselves trigger the release of other cytokines and also lead to increased oxidative stress which are important in chronic inflammation, as well as other immune responses, such as fever and acute phase proteins of the liver (IL-1, 6, 12, IFN-a).

Cytokines also play a role in anti-inflammatory pathways and are a possible therapeutic treatment for pathological pain from inflammation or peripheral nerve injury.[3] There are both pro-inflammatory and anti-inflammatory cytokines that regulate this pathway. Cytokines are most commonly grouped by their functional similarities, although this kind of categorization is highly arbitrary with regard to their pleiotropy. One of the most prominent concepts used to discriminate two distinct ways that the specific immune system can react on environmental stimuli is the classification of T helper 1 (Th1) and T helper 2 (Th2) cell diversity. This classification is based on the cytokine production patterns of T helper cells and reflects the polarization of the immune answer to either a cell-mediated (Thl) or a humoral (Th2) immune response.

Th1 cells mainly produce IFN-ã, IL-2, IL-12, IL-18, and TNF-α, while Th2 cells principally secrete IL-4, IL-5, IL-6, IL-10, IL-13, and TGFα. TNF-α and IL-10 are commonly characterized as Th2-like cytokines, although they are synthesized by both Th1 and Th2 cells.[4]IL-12 and IL-4 are essential for the development of Th1 and Th2, respectively. The Th1 system helps in cell-mediated immune responses against intracellular pathogens, whereas the Th2 system promotes B cell maturation and humoral immune responses against extracellular pathogens. Th1 and Th2 cytokines antagonize each other in promoting their own type of response, while suppressing the other type of helper cell. Which system will dominate at a time depends on the relative timing and ratio of IL-4 to IFN-α and IL-12. Such a polarized development of T cells happens not only on the peripheral level, but also in the CNS. Although initiation of T-cell responses is unlikely to occur within the CNS, T cells and monocytes will be massively recruited if pathogens are placed into the cerebral ventricles. Perivascular macrophages, owing to their location close to the blood-brain barrier (BBB), can stimulate T cells to proliferate and secrete Th1 cytokines. Following extravasation into the CNS parenchyma, T cells also interact with intrinsic CNS cells, particularly microglia and astrocytes. Microglia progressively acquire a clear-cut macrophage phenotype in response to CNS injuries,[5] and can induce the production of Th1 cytokine IL-12and of Th2 cytokines such as IL-10 and TGFα. Astrocytes are also potential sources of TGFα, which inhibits MHC II (major histocompatibility complex II) and ICAM-1 (intercellular adhesion molecule 1) expression in macrophage/microglia. Microglia and astrocytes also secrete chemokines that may affect the recruitment of Th1 and Th2 cells. In sum, there is involvement of a complex network between microglia, astrocytes, and T cells in the balance between Th1 and Th2 systems, which in turn might have impact on immune responses within the CNS.[5]

Mechanism of action of various Cytokines

Recently, the cytokine receptors have come to the attention of more researchers than cytokines themselves, partly because of their remarkable characteristics, and partly because a deficiency of cytokine receptors has now been directly linked to certain debilitating immunodeficiency states.

Each cytokine has a matching cell-surface receptor and subsequently, cascades of intracellular signaling then alter cell functions. This includes the upregulation and/or downregulation of several genes and their transcription factors, resulting in the production of other cytokines, an increase in the number of surface receptors for other molecules, or the suppression of their own effect by feedback inhibition.

The effect of a cytokine on a given cell depends on the cytokine itself, its extracellular abundance, the presence and abundance of the complementary receptor on the cell surface, and downstream signals activated by receptor binding; these last two factors can vary by cell type. Many cytokines appear to share similar functions.

It seems to be a paradox that cytokines binding to antibodies have a stronger immune effect than the cytokine alone. This may lead to lower therapeutic doses.Adverse reactions to cytokines are characterized by local inflammation and/or ulceration at the injection sites. Occasionally such reactions are seen with more widespread papular eruptions.[6]

Cytokines are often involved in several developmental processes during embryogenesis and are crucial for fighting off infections and in other immune responses. However, they can become dysregulated and pathological in inflammation, trauma, and sepsis.[7]

Functions of Cytokines

Adverse effects of cytokines have been linked to many diseases ranging from schizophrenia, major depression and Alzheimer's disease to cancer. Normal tissue integrity is preserved by feedback between diverse cell types mediated by adhesion molecules and secreted cytokines; disruption of normal feedback mechanisms in cancer threatens tissue integrity. Over-secretion of cytokines may trigger a dangerous syndrome known as a *cytokine storm*. Cytokine storms are suspected to be the main cause of death in the 1918 "Spanish Flu" pandemic. Another important example of cytokine storm is seen in acute pancreatitis. Cytokines are integral and implicated in the cascade resulting in the systemic inflammatory response syndrome and multi- organ failure associated with this intra-abdominal catastrophe.

Some cytokines have been made into protein therapeutics using recombinant DNA technology. Recombinant cytokines being used as drugs include[8]:

- Bone morphogenetic protein (BMP), used to treat bone-related conditions
- Erythropoietin (EPO), used to treat anemia
- Granulocyte colony-stimulating factor (G-CSF), used to treat neutropenia in cancer patients
- Granulocyte macrophage colony-stimulating factor (GM-CSF), used to treat neutropenia and fungal infections in cancer patients.
- Interferon alfa, used to treat hepatitis C and multiple sclerosis
- Interferon beta, used to treat multiple sclerosis
- Interleukin 2 (IL-2), used to treat cancer.
- Interleukin 11 (IL-11), used to treat thrombocytopenia in cancer patients.
- Interferon gamma is used to treat chronic granulomatous disease and osteopetrosis

Correlation between Cytokines and CNS

The first evidence suggesting an interaction between the brain and the immune system can be related to studies performed a century ago by Russian scientists. Derived directly from a Pavlovian perspective on the conditioning of behavioral and physiological responses, a conditioned stimulus (CS) was repeatedly paired with injections of foreign proteins. Subsequent exposure to the CS, alone, was purported to induce antibody production in addition to a conditioned increase in a variety of non-specific defense responses. As this research attracted very little attention outside the Soviet Union, the commonly accepted beginning of research in the field of psycho-neuroimmunology (PNI) is associated with the experiments of Ader, who was studying taste aversion conditioning in rats in the 1970s. Conditioned animals that were re-exposed to a CS, previously paired with the immunosuppressive effects of cyclophosphamide showed an attenuated antibody response to sheep red blood cells. The results of these initial experiments demonstrated that the immune system was subject to classical conditioning.

A more complex research direction in the field of PNI was the study of behavioral influences on immunity, starting in the 1950s with the research on stress and infectious disease.[9] During the 1970s, a

renowned researcher was beginning to systematically investigate the neuroendocrine-immune system network with his studies on the effects of immune responses on neural and endocrine function.[9] Felten (as quoted in reference 9) described the direct contact of noradrenergic sympathetic nerve fibers with lymphocytes and macrophages. He showed that these nerve fibers were localized in specific compartments of lymphoid organs, forming close, synaptic-like neuro-effector junctions with T lymphocytes and macrophages. These "hard-wired" connections between the brain and the immune system have been shown to be a major route for behavioral and central cytokine influences on immune function. They are, thus, important for a mechanistic understanding of the signaling between the nervous system and immune system.

All these investigations demonstrated the influence of the central nervous system (CNS) on the immune function. However, this is only half the truth, as the brain-immune interaction is bidirectional. The old paradigm of the brain as an immunologically privileged organ may have inhibited the research of the immune system's action on brain and behavior. Meanwhile, it is commonly accepted that immune cells enter the brain even under normal, non-pathological conditions, and that all kinds of brain cells - neurons, glial and endothelial cells - are sensitive to the transmitters of the immune system i.e. the cytokines.

A number of studies have studied the ways in which the cytokines influence brain function. There is evidence for an active, saturable, and specific transport system for certain cytokines across the BBB. By the use of radiolabeled cytokines in animal experiments, cytokines like IL-1, TNF-α, and IL-2 were demonstrated to be transported across the BBB. These experiments suggest that active transport plays a significant role in getting cytokines across the BBB. One limitation, however, is that the absorption of labeled cytokines into the brain tissue may not reflect the transport of cytokines across the BBB, but the binding of cytokines to the BBB. Some data show that the majority of intravenously (IV) infused radiolabeled IL-1á can be found on brain endothelial cells, or on the surface and pinocytotic vesicles of the brain endothelia shortly after injection.[10]

Another pathway for cytokines to engage the CNS is the vagus nerve. Numerous studies have been published demonstrating the involvement of vagus nerve in peripheral cytokine-induced CNS responses. One of the first observations was that peripheral LPS-induced hyperalgesia can be blocked by vagotomy, indicating that afferent vagal pathways innervate specific regions of the brain as a key connection between peripheral cytokines and the CNS.[11]

A recently studied pathwayproposed that peripheral immune stimuli may induce the production of cytokines by cells of the BBB, which then secret cytokines into the brain parenchyma. In situ hybridization studies showed that the cells of the BBB respond to peripheral immune stimulation by producing IL-1, IL-6, and TNF-α[12]

Local action of cytokines at many brain sites may actually be mediated via the receptors on endothelial cells. This binding induces another important effect of peripheral cytokines on cells of the BBB: the induction of cyclooxygenase-2 (COX-2), a rate-limiting enzyme of prostaglandin synthesis. Predominantly IL-1 and TNF-α induce the expression of COX-2 in endothelial cells of the BBB.[12]

As many cytokine-induced CNS effects can be blocked by COX inhibitors, the cytokine-induced COX-2 activity in BBB cells may represent a central mechanism of cytokine-CNS interaction.

The cytokines may enter the brain via infiltrating leukocytes. The leukocytes may enter the brain under both normal and pathological conditions. In normal brain, scattered and random crossing of the BBB by leukocytes provide immune surveillance for the CNS. Under pathological conditions such as bacterial meningitis, activated leukocytes expressing inflammatory cytokines may infiltrate the brain.[13] Additionally, CNS action of cytokines may weaken the BBB, promoting an increased infiltration of cytokine producing leukocytes.

The above mechanisms for the entrance of cytokines into the brain highlight the limitations of measuring peripheral levels of cytokines in neuro-psychiatric disorders. Cytokine levels in the blood (i.e. serum or plasma) may reflect the systemic immune status and have been established as useful clinical markers in septic shock, inflammatory disorders, or cancers, but cannot conclusively clarify

the cytokine expression within the CNS.

Cytokines and their Psychiatric influences

Direct evidence for the neural activities of cytokines was first obtained after injections of various cytokines systemically or into the cerebral ventricles (intracerebroventricular [ICV]). These studies established that cytokines can activate the hypothalamus-pituitary-adrenal (HPA) axis, induce fever, prolong slow-wave sleep, reduce food and water intake, and decrease motility These effects were evident not only in experimental animal, but also in humans who received cytokine injections for cancer treatment. The most tested cytokine with regard to brain-immune interactions is interleukin-1 (IL-1), although other cytokines such as the tumor necrosis factor alpha (TNF-α), interferon (IFN), IL-2, IL-6, and IL-12 can all induce one or several of the above responses.[14]

In a study, plasma concentrations of interleukin (IL)-18 were measured in 13 untreated patients with psychiatric disorders. There was a significant elevation of IL-18 levels in patients with major depression (n = 8) and panic disorder (n = 5), compared with normal controls. The mean IL-18 value of these psychiatric patients was comparable with that of various somatic disorders reported. This suggested that the elevation of plasma IL-18 levels reflect the increased production and release of IL-18 in the central nervous system under stressful settings.[15]

Interleukin-6 was first identified as a B-cell differentiation factor, that induces antibody production by activated B cells. This cytokine promotes the differentiation of B cells, the population expansion and activation of T cells, and regulates the acute inflammation. Upon IL-6 binding to IL-6 receptor (IL-6R) are initiated its multiple functions. The IL-6R is composed of the IL-6-binding chain, existing in forms of transmembrane IL-6R and soluble IL-6R (sIL-6R), and a gp130 signal-transducing chain. The primary sources of this cytokine are monocytes and macrophages at site of injury during acute inflammation, as well as T cells in chronic inflammation.

The toll-like receptors (TLRs) are major sensors of the innate immunity, able to recognize a broad range of molecules of different classes of microbes, as well as damage-associated molecular pattern released from stressed cells, and to initiate an inflammatory response rapidly. TLR ligation is one of the earliest events leading to IL-6 production. In homeostatic conditions, level of IL-6 is low, but IL-6 serum levels tend to rise quickly in stress. IL-6 modulates various aspects of the innate immune system, such as hematopoiesis and influx of neutrophils at sites of infection or trauma. In addition, this cytokine induces synthesis of C-reactive protein, serum amyloid A, and fibrinogen, as proteins of acute phase.[16]

Classical IL-6 signaling is thought to be anti-inflammatory and occurs through binding of IL-6 to the membrane bound cell surface receptor. Classical IL-6 signaling only occurs on some subsets of T cells, hepatocytes, megakaryocytes, neutrophils and monocytes Additionally, IL-6 engages pro-inflammatory trans-signaling in which the soluble form of the IL-6 receptor (sIL-6R) is shed from the membrane bound receptors The sIL-6R binds to IL-6 and is transported to any cell type that expresses gp130 on its surface). While most soluble receptors, such as the soluble receptor for tumor necrosis factor alpha (TNFα) result in antagonistic action by competing for the ligand, the sIL-6R is agonistic and increases the various types of cells through which IL-6 can signal. In both classical and trans-signaling, the IL-6/IL-6R/gp130 complex activates intracellular signaling through the Janus kinase/signal transducer and activator of transcription (JAK/STAT) pathway and the mitogen-activated protein kinase (MAPK) pathway. There is evidence that an imbalance away from the MAPK pathway via removal of regulation by suppressor of cytokine signaling 3 (SOCS3) towards the pro-inflammatory STAT3 signaling pathway contributes to autoimmune disease and therefore may also be a target for stress susceptibility Another method through which circulating levels of IL-6 and its downstream mechanisms are altered is via the soluble form of gp130. While sIL-6R acts as an agonist, the soluble form of gp130 acts as an antagonist sequestering IL-6 and sIL-6R in blood, thereby stopping IL-6 from activating trans-signaling but not classical signaling Further research is needed to determine whether stress alters soluble gp130 and its potential use as an antidepressant.

Classical signaling is only seen in a few cells types found in the periphery. In classical signaling both the IL-6 receptor and gp130 signal transducer

are membrane bound. IL-6 binds to the receptor resulting in transcription that is thought to be anti-inflammatory. B. IL-6 trans-signaling occurs in any cell type that has membrane bound gp130; all brain IL-6 signaling is thought to be trans-signaling. IL-6 bound to sIL-6R activates signaling through membrane bound gp130. Trans-signaling is thought to be pro-inflammatory in part through its ability to activate more gp130 signal transducers compared to classical IL-6 signaling. C. Blockade of IL-6 signaling through soluble gp130. A soluble form of gp130 can bind to sIL-6R/IL-6 complexes and blocks trans-signaling whereas,it does not block classical IL-6 signaling.

A number of transcription factors directly regulate the IL-6 gene including nuclear factor kappa B (NFκB), cAMPresponse element binding protein (CREB), activator protein 1 (AP-1) and nuclear factor for interleukin 6 (NF-IL6)[17]. The binding of NFκB to the wild type IL-6 promoter in a variety of human cell types is necessary and sufficient to regulate IL-6 Through trans-repression, glucocorticoid receptors (GR) can block the ability of NFκB to act as a transcription factor, potentially comprising a method through which stress modulates IL-6 levels Therefore, disruptions in the sensitivity of GR within the body can lead to an increased inflammatory response, which is independent of cortisol levels.

There are many ways that chronic alterations in IL-6 levels, both within the periphery and the brain, may contribute to depression symptomatology. Because IL-6 acts on so many different target tissues throughout the body, dysregulation of this particular cytokine can precipitate a multitude of events relevant to depression. While it may be unlikely that IL-6 is acting alone to trigger the symptoms of depression, blocking the effects of IL-6 can prevent further escalation of inflammatory responses, as will be discussed in more detail below.

Two recent meta analyses indicated that IL-6 is the most consistently elevated cytokine in the blood of patients with MDD[17] corroborating emerging evidence that IL-6 levels might serve as a predictive biomarker. In antidepressant non-responders, peripheral levels of IL-6 positively correlate with symptom severity In healthy subjects undergoing psychosocial distress, low peripheral IL-6 levels can predict earlier resolution of negative mood. There may be a genetic basis for individual differences in the IL-6 response to adverse conditions. Polymorphism of a single nucleotide on the IL-6 promoter (SNP rs1800795) is thought to contribute to a heightened risk of inflammation in individuals that are exposed to adverse socio-economic environments.[18] This occurs via â-adrenergic activation of the erythroid transcription factor (GATA 1), a mediator of red blood cell development and maturation. Another polymorphism on the IL-6R gene (rs 8192284) leads to a functional amino acid change altering the proteolytic cleavage site that changes circulating levels of sIL-6r. It is possible that these genetic differences may contribute to an individual's stress sensitivity that may inform future bioassay development.

There are implications that sex differences in the immune system may contribute to the greater incidence of depression in women. The menstrual cycle alters circulating levels of cytokines in healthy women with increases found in sIL-6R, TNFα and IL-4 during the luteal phase), which may have implications for pre-menstrual dysphoric disorder. A surge in the female gonadal hormonesestrogen and progesterone correlated with elevations of circulating levels of IL-4 and TNFα, respectively. Women also had higher circulating levels of sIL-6R and TNFα than males during both stages of the cycle Women are more sensitive to depression and social disconnection induced by exposure to the endotoxin lipopolysaccharide (LPS). In women but not men, the change in TNFá and IL-6 following LPS administration positively correlated with increased feelings of social isolation, but there were no sex differences between males and females in the circulating levels of IL-6 or TNFα in response to LPS. Later in life, post-menopausal women seem to have greater basal levels of IL-6 and a larger IL-6 stress response than age matched men, suggesting that the relationship between gonadal hormones and cytokines is complicated and unlikely to be directly correlative.[19]

Astudy performed few decades ago examined the relationship between the peripheral immune system and depression and put forth a theory suggesting that immune dysregulation contributed to behavioral symptoms of the illness. In support of this hypothesis, there have been numerous studies in patients with various inflammatory conditions

including rheumatoid arthritis and psoriasis[20] demonstrating a relationship between inflammation and depressed mood. However, the relationship between depression and inflammation in humans is largely confounded by the likelihood that the symptoms of the disease themselves contribute to mood changes.

A recently performed study provided the first evidence that peripheral inflammation predates the occurrence of depression. The children with higher circulating levels of IL-6 at age 9 were at a 10% greater risk of developing MDD by age 18 than the general population or children with low levels of IL-6.[21] While these clinical data are important, the best way to directly explore the functional relationship between IL-6 and depression is through stress based animal models of depression.

Within preclinical research, the basis for a functional relationship between depression-like behavior and inflammation originated from studies examining sickness response to systemic administration of LPS), which triggers pro-inflammatory cytokine release. Following a single systemic LPS injection, rodents exhibit decreased self-care, social interaction, locomotor activity and feeding over the subsequent 24 h period. Furthermore, LPS injection in male rats results in increased anhedonia as measured by decreased preference for saccharin and decreased sexual behavior. However, as the expression of these behaviors is tied to inflammatory activation by LPS and subsides following a return to baseline, this syndrome is considered sickness behavior rather than a valid model of depression.[20]

Stress based preclinical models of depression and anxiety demonstrates that IL-6 is elevated following the onset of depression-associated behaviors. Rodents exposed to chronic mild stress (CMS), a series of stressors presented in an unpredictable manner over time, express anhedonia and increased circulating levels of pro-inflammatory cytokines including IL-6. Some studies have found no significant change or even a decrease in peripheral IL-6 following CMS. However, both studies found increased brain levels of other inflammatory markers which, may reflect a time-dependent shift from peripheral to central cytokine activation or even potentially transport of the peripheral cytokines into the brain. Peripheral and hippocampal levels of IL-6 were increased in a rodent model of seasonal affective disorder in which depression-like behavior was induced by 4 weeks of constant darkness. IL-6 knockout mice were resistant to the development of a depression-like phenotype following exposure to constant darkness, suggesting a functional role for IL-6 in stress susceptibility.[20]

In humans, resilience has been defined as the ability to actively adapt to stressful experience and avoid the negative social, biological and psychological consequences of exposure, Within the context of animal models, resilience is defined as an active coping mechanism that allows the animal to avoid the deleterious physiological and/or behavioral effects of chronic stress, In contrast to resilience, susceptibility is defined as a passive coping response that results in maladaptive behavioral and biological consequences. A study has recently demonstrated that differences in IL-6 levels in the innate peripheral immune system predict vulnerability to repeated social defeat stress (RSDS)[20] a resident intruder-based stress model. In this model, experimental mice are placed into the home cage of a larger, sexually experienced, aggressive mouse each day for 10 days. The larger mouse quickly establishes dominance through physical interaction. Following RSDS, approximately two thirds of mice exhibit depression-like phenotypes measured by social avoidance, anhedonia, disruptions of the circadian system, and metabolic changes[22] along with increased activation of pro-inflammatory immune markers such as IL-6.

This study found that IL-6 is elevated to a greater degree in the blood of susceptible mice than resilient mice and that this elevation occurs within 20 min of the first social defeat. Even though there were no baseline differences before mice were exposed to stress, it was discovered that the animals that later become susceptible had higher circulating leukocytes and that those cells released more IL-6 when stimulated via LPS ex vivo. To examine whether these individual differences in the peripheral immune system are causal to the development of stress susceptibility, bone marrow (BM)-derived hematopoietic stem cells (HSCs) were removed from stress susceptible mice releasing high IL-6 or from IL-6 knockout (IL-6–/–) mice and transplanted into wild type mice whose own peripheral immune cells were lethally irradiated. Lead shielding

protected the brains of these animals, preserving microglia. Stress-susceptible BM chimeras had shown increased social avoidance behavior after exposure to subthreshold RSDS. IL-6–/– BM chimeras, as well as those treated with a systemic IL-6 monoclonal antibody, were resilient to RSDS, suggesting that reduced production of IL-6 by circulating immune cells contributes to depression behaviors. These findings were also replicated in a purely emotional stress paradigm with no physical component, demonstrating that this is not simply a peripheral response to physical trauma.[20] Recently, a second study in rats exposed to a version of RSDS also detected higher circulating levels of pro-inflammatory cytokines, including IL-6, only in the blood of animals that showed submissive behavior during social interaction with an aggressor.[23]

Data from a non-social stress based model, learned helplessness (LH), corroborates a functional role for IL-6 in the development of stress susceptibility. Here, subjects are exposed to a controllable or uncontrollable stress, such as shock, and the ability to actively escape a subsequent stressor is then measured. Only about 20% of animals that undergo the uncontrollable stress are susceptible and develop LH, whereas the remaining responders are resilient and do not show escape deficits. Susceptible animals display anhedonia and increased levels of circulating IL-6, while animals exposed to controllable stressors or resilient animals do not show these same perturbations. Furthermore, IL-6 knockout mice are resilient to acute stress models, including the forced swim test (FST), tail suspension test (TST) and LH). Together, these studies indicate that peripheral IL-6 has a functional role in the development of depression-like behaviors. One possibility is that IL-6 in the periphery is targeting receptors in the brain although the detailed mechanisms of how this would occur need to be elucidated.[20]

The available clinical literature provides evidence of increased IL-6 in the brain of patients with depression. Elevations of IL-6 in the cerebral spinal fluid (CSF) were found in older women with depression in patients with either depression or schizophrenia), suicide attempters and women experiencing post-partum depression.[20,23] Surprisingly, the studies that examined both plasma and CSF levels of IL-6 did not find correlations between the measures, suggesting that peripheral IL-6 levels do not necessarily directly reflect central IL-6 levels.

In animal models, increased levels of IL-6 have also been detected in many areas of the brain. Maternal deprivation results in increased levels of pro-inflammatory cytokines, including IL-6 in the CSF of rats. Increased IL-6 mRNA was detected in microglia isolated directly from the brains of mice that have undergone a variant of repeated social defeat stress. Treatment with the antidepress antimipramine blocked social avoidance behavior and reduced microglia IL-6 in animals exposed to stress or those given a systemic injection of LPS. Increased IL-6 protein was reported in the hippocampus of rats that underwent chronic unpredictable stress) and was attenuated by chronic treatment with the antidepressant fluoxetine or treatment with an alternative medicine Cordycepin, a derivative of adenosine extracted from fungi shown to have antidepressant efficacy Within the prefrontal cortex, increased levels of IL-6 protein were reported in rats exposed to uncontrollable shock that had shown LH behavior, but not in animals that were resilient to the same stressor). There has also been some indication of sex differences in vulnerability to stress mediated by IL-6). The authors[24] found that repeated intra-nasal LPS administration in rats led to greater immobility in the FST in females than males and this coincided with increased IL-6 transcription in the hippocampus of females only.

Intracranial injection of IL-6 was found to be pro-depressant across a behavioral test battery in mice independent of sickness behavior. Intracranial injection of IL-6 resulted in increased protein levels of IL-6 in a number of brain areas including frontal cortex, hippocampus and hypothalamus. Additionally, transgenic mice that over expressed IL-6 centrally also demonstrated increased immobility behavior on the FST and TST similar to the animals that received intra-cranial injections of IL-6. Both IL-6 antibody and soluble gp130 resulted in blocking the effects of IL-6 infusion on immobility. Work examining enhancement of susceptibility to a virally induced mouse model of multiple sclerosis by social stress has also demonstrated that a centrally administered IL-6 antibody blocked the stress induced increase in severity of symptoms. Additionally, central injection of IL-6 in the absence of social stress was sufficient to increase symptom severity.[20]

Recent study suggested that IL-6 may act

through trans-signaling to increase the synaptic inhibition/excitation (E/I) ratio on prefrontal cortical neurons.[25] This effect on E/I ratio was successfully blocked by vagal nerve stimulation activating the "anti-inflammatory reflex." Intriguingly, systemic administration of IL-6 was found to decrease extracellular dopamine levels in the nucleus accumbens (NAc), an effect that was further potentiated by a mild stress suggesting that peripheral sources of IL-6 alter activity of brain reward circuitry. In addition, some of the actions of central expression of IL-6 are likely mediated by its effects on astrogliosis, microgliosis and blood brain barrier integrity[20] potentially resulting in greater peripheral infiltration into the brain.

Within the brain, the interactions between NFκB and IL-6 may also contribute to depression-associated behavior through effects on synaptic plasticity, Inhibitor of κB kinase (IκK), which contributes to increased NFκB signaling, is elevated in the NAc of susceptible mice that undergo repeated social defeat stress.[25] Over-expression of a constitutively active form of IκK leads to a number of depression- and anxiety-like behaviors including increased social avoidance following a sub-threshold stress, passive coping in the FST, increased anhedonia measured by decreased sucrose preference (and increased exploratory based anxiety behavior measured in an open field. Social avoidance behavior is linked to an IκK-dependent increase in excitatory synaptic plasticity within the NAc), however it remains to be determined whether NFκB is activated upstream through IL-6 to exert its effects on NAc plasticity or depression-like behavior.[26]

Role of IL-6 in Schizophrenia

Interleukin-6 has been widely studied in different aspects of schizophrenia: its onset and progression, association with different clusters of symptoms, response and resistance to the treatment, and metabolically and other comorbid states. IL-6-174G/C polymorphism showed to be associated with increased IL-6 plasma levels and represent a risk factor for schizophrenia[16] IL-6 gene expression in first-episode psychosis has a significant negative correlation with BDNF gene expression and associated with a smaller left hippocampal volume. The meta-analysis of American researchers[27] provide strong evidence that traumatic events have significant impact on the inflammatory immune system. Further, IL-6 is included in potential molecular pathway that results in development of mental disorders and somatic states later in life. Induced viral or bacterial infection with IL-6 in pregnant mice produces intermediate phenotypes that are related to adult offspring schizophrenia Also, increased levels of IL-6 were found only in those patients with schizophrenia that had a childhood trauma history. The Avon Longitudinal Study of Parents and Children had reported twofold increased risk of psychotic disorder at age 18 years for subjects who had higher IL-6 serum levels at age 9 years, in a dose–response manner.[16]

Previous studies have shown conflicting results regarding the levels of IL-6 in schizophrenia. Some authors did not report any alterations in central nervous system[28] and serum. Elevated levels of IL-6 in the cerebrospinal fluid of schizophrenia patients had been shown by others. The first meta-analysis of cytokine levels in schizophrenia patients has concluded that IL-6 levels are increased), but recent meta-analysis has pointed out that IL-6 is increased in first-episode psychosis and acute relapse, and can be used as a state marker of schizophrenia[16]. This has been proved by elevated IL-6 level in subjects with at-risk mental state (ARMS) and suggested that it can be used as a marker in prodromal period. On the contrary, our findings did not confirm elevation of IL-6 in first-episode psychosis and schizophrenia in relapse. Additionally, a study[16] established the positive correlation between IL-6 level and illness duration. Therefore, another group of scientists assumed that the fluctuation of IL-6 level in schizophrenia may be relevant for its pathogenesis. Taking all this information into account, it is of great importance to mark the exact period in the evolution of this chronic and deteriorating disorder, in order to understand the possible different roles of IL-6 in acute inflammation, chronic inflammation, and/or autoimmunity in natural history of schizophrenia.

Positive correlation between IL-6 plasma levels and the positive symptoms severity were suggested in subjects with ARMS and war veterans with schizophrenia.[29] The levels of IL-6 mRNA from peripheral blood mononuclear cells were elevated in patients with worse positive symptomatology.

Others presented results of positive correlation between IL-6 serum levels and negative symptoms severity in drug-naive male patients with schizophrenia.[16] Recently, it has been shown that individuals with schizophrenia have higher plasma levels of IL-6 that are correlated with depressive symptoms and worse mental and physical well-being Higher IL-6 levels were shown to be related with cognitive decline in schizophrenia. These neurobiological findings could direct the remodeling of categorical approachand dimensional approach into some new concepts of schizophrenia syndrome.[16]

Obesity itself leads to systemic inflammatory response, called *metaflammation*, originated from metabolic tissues such as adipose tissue, pancreatic islets, liver, muscle, and brain In response to metabolic stress triggered by the excess of nutrients, expanding adipose tissue infiltrates Th1 lymphocytes, NKT cells, and classically activated macrophages that mediate the development of metabolic abnormalities Macrophages can be activated in different ways, which favor microbicidal and pro-inflammatory functions (called classically activated macrophage, M1), or in contrast, reparative, and anti-inflammatory functions (called alternative activated macrophage, M2). On the other hand, Treg cells, Th2 lymphocytes, and alternatively activated macrophages have a protective role in nutrient excess-induced inflammation. Pro-inflammatory macrophages are the major source of TNF-α, IL-1α, and IL-6 in metabolic tissues that mediate impaired glucose utilization and attenuate insulin sensitivity in both paracrine and endocrine manner Systemic level of IL-6 had a strong correlation with obesity and insulin resistance and serum concentrations of IL-6, sIL-6R, and gp130 are elevated in patients with metabolic syndrome (MetS) and related cardiovascular disorders .On the contrary, the production of IL-6 by skeletal muscles during exercise is found to be protective. Additionally, the deletion of gene encoding IL-6 impairs systemic insulin sensitivity and enhances hepatic inflammation[30]. In accordance with these pleiotropic properties of IL-6, it is likely that it can exhibit different effects in tissue-specific manner.

Apart from the impact on adipose tissue expansion during obesity, IL-6, as the most important regulator of numerous functions in central nervous system is widely expressed in hypothalamic region that regulates appetite and energy intake. The expression of IL-6 in central nervous system correlates negatively with the expansion of adipose tissue during obesity. It was shown that mice lacking gene encoding IL-6 develop mature onset obesity, suggesting an important role of IL-6 in the regulation of body weight). Intracerebroventricular administration of IL-6 causes energy expenditure thus demonstrating central anti-obesity effects of IL-6. The recent data show that IL-6 exhibits anti-inflammatory properties during obesity by promoting IL-4-dependant alternative macrophage polarization thus contributing to attenuation of obesity-induced inflammation and regulation of glucose homeostasis.[16]

Metabolic abnormalities including obesity and obesity-related disorders such as impaired glucose tolerance, type 2 diabetes, and cardiovascular disease are strongly associated with psychotic diseases, in particular schizophrenia [31]. Patients with schizophrenia have a higher risk to develop MetS, although it is not clear weather this is a disease-inherited state or the side effect of widely used antipsychotic medications. It is speculated that schizophrenia and type-2 Diabetes could be associated independently of antipsychotic treatment, possibly based on the common genetic background. There are evidences that drug-naive patients in the first episode of schizophrenia have impaired glucose tolerance Moreover, in the first episode of schizophrenia the elevated circulating insulin-related peptides were found, with no difference in glucose levels.[16]

Many studies have confirmed that both schizophrenia and MetS underlie chronic low-grade inflammation indicating that disturbances in immune response might be involved in concurrent onset of both conditions. Increase in adipose tissue activity might contribute to the inflammation seen in schizophrenia. Also, low-grade inflammation independent of adipose tissue activity have been associated with low-physical inactivity, inadequate dietary choices, smoking, and stress, which are often seen in schizophrenia patients.[16]

Cytokines that are important in glucose utilization and insulin sensitivity appear to be elevated and might be involved in pathogenesis of schizophrenia It has been shown that patients with schizophrenia have increased plasma levels of IL-6 and significant

correlation of cytokine plasma levels with body mass index was also established.

These metabolic abnormalities can correlate with both schizophrenia and antipsychotic treatment, possibly based on the alterations of systemic levels of different cytokines and adipokines Antipsychotics can increase rates of obesity, with consequent upregulation of IL-6, and leptin.[16] In rodent and human studies, there are evidence for an association between leptin, cognition, and behavior. Leptin modulates activity of mesolimbic dopaminergic neurons in the hypothalamus, which is especially important in schizophrenia Trujillo et al[32] showed that leptin production was increased by IL-6 in human adipocyte cultures, but others observed IL-6 inhibitory function or no effect on leptin production. It appears that leptin has neuroprotective role, but in antipsychotic-induced leptin resistance and in obesity these neuroprotective properties are not so obvious Therefore, cytokine changes that are associated with antipsychotic treatment could be a consequence of weight gain. There was no significant difference in the serum level of IL-6 in psychotic patients compared with healthy control. However, it was observed that serum level of IL-6 had significantly decreased after antipsychotic treatment in patients with first-episode psychosis and schizophrenia in relapse These available evidence suggest that decreased levels of IL-6 following antipsychotic therapy could be predisposing factor for the development of obesity and obesity-related metabolic disorders in schizophrenia.[16]

The new evidence into pathogenesis of psychotic disorders indicates that gut microbiota could have a role in cognitive and behavioral patterns and affects the development of MetS through not entirely known mechanisms. Commensal micro-organisms have a triggering effect in the activation of innate immune cells such as dendritic cells and macrophages in lamina propria, following increased production of pro-inflammatory IL-1α, IL-6, IL-23, and possibly IL-12, thus contributing to the polarization of adaptive immune response toward Th17 or Th1 type, respectively. Increased intestinal inflammation was observed in patients with schizophrenia, more significantly before the initial administration of antipsychotics. Gut microbial composition affects systemic cytokine concentrations and possibly, by this gut-brain communication, alters the behavior in schizophrenia.[33]

Therapeutic role of IL-6

Clinicians noticed altered immune response in patients with schizophrenia long before anti-psychotics' era This finding indicated that antipsychotics would affect not only the schizophrenia outcome, but additionally would modify the immunity of treated patients.[16] All available antipsychotics treat the symptoms of schizophrenia by blocking D2 receptors, but also regulate the serotonin and glutamate neurotransmission. Efficacy and side effects of antipsychotics cannot be completely explained by neurotransmission theory and it is well known that they exhibit neurotrophic, neurogenetic, and neuroprotective properties.[33] Several studies reported that antipsychotics decrease systemic values of pro-inflammatory cytokines. Some researchers found an increase of anti-inflammatory cytokine IL-10 in sera of patients treated with antipsychotics and showed that increased levels of TGF-α stay elevated after antipsychotic therapy in first-episode psychosis and schizophrenia in relapse. Taken together, it appears that antipsychotics have additional anti-inflammatory properties.[34]

It was previously suggested that treatment resistance in schizophrenia is associated with IL-6 elevated levels Several cytokines, including IL-6, can predict a treatment response in first-episode psychosis Decrease of systemic value of IL-6, together with favorable clinical outcome following anti-psychotic therapy, is the dominant phenomenon in most studies.[35] Many studies found a significant positive correlation between the concentration of IL-6 in sera and psychopathology at the onset, as well as after the administration of antipsychotics. In the post-mortem orbitofrontal brain studies in schizophrenic patients, IL-6 mRNA significantly positively correlated with antipsychotic lifetime and daily mean intake. Few studies revealed that clozapine affects the increase of IL-6 in the plasma during the 2 weeks, but not the longer treatment, while other, comprehensive studies showed that atypical antipsychotic drug risperidone or the typical antipsychotic haloperidol do not significantly affect serum levels of IL-6 in patients with schizophrenia. Further, decrease of IL-6 in the plasma of patients with exacerbation of schizophrenia was shown after

discontinuation of the haloperidol therapy.[36] The peripheral low-grade inflammation was found in animal model after olanzapine treatment, correlated with upregulation of IL-6 in hypothalamus and adipose tissue (white and brown), and enhanced average size of adipocyte and macrophage infiltration level.

Clinical studies[16,33] pointed out the beneficial effects of immunomodulatory therapy in schizophrenia, especially in early stage of the disorder with respect to symptoms severity, and in improving cognitive impairment in patients with schizophrenia. Anti-IL-6 drugs have been developed and already used for treatment of various diseases and cancers, such as CNTO328 chimeric anti-IL-6 monoclonal antibody (mAb) (siltuximab) and anti-IL-6R mAb, atlizumab (also called tocilizumab). Ingested tocilizumab can inhibit experimental autoimmune encephalitis by decreasing pro-inflammatory Th1 cytokines and increasing Th2 anti-inflammatory cytokines.[16,37-40]

One of the hope in drug development for the treatment of schizophrenia might be the tissue-specific IL-6 blockade, thus avoiding systemic side effects of this kind of treatment. IL-6 plays significant role in disease genesis and progression, and the use of specific inhibitors may not only be beneficial for exacerbation and alleviation of positive symptoms, but in particular to possible attenuation of cognitive impairment in patients with schizophrenia.

Conclusion

Cytokines affect the innate and acquired immunity, but all these effects are context dependent andtheir tissue-specific role in central nervous system and other metabolite tissues must be considered. The functional dichotomy of various interleukins may play a critical role in maintaining the balance between pro- and anti-inflammatory responses. It is likely that IL-6 can have a phase specific role in schizophrenia evolution, in the context of acute inflammation, chronic inflammation, and/or autoimmunity. Now it seems to be clear that metabolic dysregulation in terms of glucose metabolism alteration or lipid profile disturbance occurs already in antipsychotic-naïve patients with first-episode psychosis. IL-6 and leptin activity in hypothalamus could provide explanation for co-occurrence of schizophrenia and metabolic syndrome. Current literature regarding the role of microbiome in schizophrenia is still modest, but antipsychotic-induced alterations of the gut microbiota and metabolic changes should also be thoroughly explored. Treatment-resistant schizophrenia is associated with increased IL-6 sera level. The relationship between higher IL-6 level and cognitive decline in schizophrenia has been observed, thus implicating the impact of IL-6 on behavioral aspects of schizophrenia. Beneficial effects of immunomodulatory therapy in schizophrenia have been already proven and the use of tissue-specific inhibitors of IL-6 or other IL-6-targeted therapy could possibly be useful in the treatment of schizophrenia and comorbid somatic states. Similarly, role of IL18 in causing psychiatric disorders has also been studied and proved in various studies.

Thus we conclude that cytokines do play a role in psychiatric illnesses and further studies are required to explore their antagonists' potential in treatment of various such disorders.

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Psychophysiotherapy

Psycho Physical Challenges of Female Athlete

Jaswinder Kaur[1], Shweta Sharma[1], M.S. Bhatia[2]
Department of Physiotherapy[1] Dr. R.M.L. P.G.I.M.E.R. & Hospital, New Delhi
Department of Psychiatry,[2] UCMS & GTB Hospital, Delhi
Contact: Jaswinder Kaur, E-mail: linktojk@yahoo.com

Female participation and popularity in sports has increased dramatically in the twentieth century. The male and female athletes from the same sporting discipline are prone to develop many similar types of problems.This article explores the problems that are associated with female athletes. Female athlete has often faced social stigma and endangered her feminine image, it was expected that female athletes perceive and actually experience role conflict. Many young females became prone to disordered eating behaviors and body-shaping drug use because of the sociocultural pressures toward thinness. Few common injuries are dehydration which increases the risk of hyperthermia and hypothermia. Sports injuries result in devastating physical, psychological, and financial consequences thus significantly impact the level of activity and quality of life of athlete which have not been fully recognized by our society.

The successful recovery from injury is as much a mental as a physical victory. Sport injuries frequently have profound negative consequences on the physical health of sports participants.[1,2] It often results in an immediate imbalance and disruption including loss of health and achievement of athletic potential.[3,4] They also cause psychological disturbance through increased tension, depression, anxiety, fear, and decreased self-esteem. Therefore, psychological intervention should be integrated into the treatment regime in order to expedite both physical and psychological recovery from injury.[5,6] Studies indicates that psychological interventions helps in reducing negative psychological consequences,[7,8] improves coping skills,[6,7,9,10] and reduces re-injury anxiety.[6,11] As a result of improved psychological well-being, injury recovery period is shortened and injured athletes frequently return to play sooner.

Challenges faced by Female Athletes

1. Physical problems:

a) ***Female Athlete Triad:*** The female athlete triad is a spectrum of disease encompassing a broad set of disorders involving low energy availability, menstrual dysfunction, and low bone mineral density (BMD). It was first identified by the American College of Sports Medicine (ACSM) in 1992 and was characterized by disordered eating, amenorrhea, and osteoporosis. Young women of 17–25 years of age who exercise suggested that the prevalence of all three components of the disorder ranged between 0-15.9%.[12] In the general adolescent female population, the prevalence of disordered eating is estimated between 13-20%.[13,14] Factors dictating energy availability include caloric intake, baseline metabolic function, and energy expenditure. Maladaptive dietary habits such as restriction, purging, laxative, stimulant and diuretic use may lead to insufficient energy availability. Female athletes are susceptible to negative health outcomes if energy balance is not maintained. Female athlete with negative energy balance and hypometabolic state has altered hypothalamic function.[15] Hypothalamic dysfunction leads to subsequent menstrual disturbances.[16] Menstrual dysfunction may present as primary amenorrhea, secondary amenorrhea, or oligomenorrhea. Primary amenorrhea is the absence of menses at age 15 in the presence of normal growth and secondary sexual characteristics or the absence

of menses three years after development of secondary sexual characteristics. Secondary amenorrhea is the absence of menses for more than three cycles or six months in women who previously had regular menses, or the absence of menses for more than nine months in women who previously had irregular menses. Oligomenorrhea is defined as menstrual cycles more than 35 days apart. Prevalence of 69% is reported in female athletes with secondary amenorrhea who participate in lean sports compared with 5% of the general population.[17] Bone health is maintained through a continuous process of balanced osteoblastic and osteoclastic activity. In females with a negative energy balance, altered GnRH pulsatility suppresses the hypothalamic-pituitary axis and results in a hypoestrogenic state. Rigorous athletic activity alters the development and maintenance of bone health in preferential anatomic locations. The studies estimate the prevalence of low bone density in female athletes is as high as 13% compared to 2.3% in the general adult population.[18]

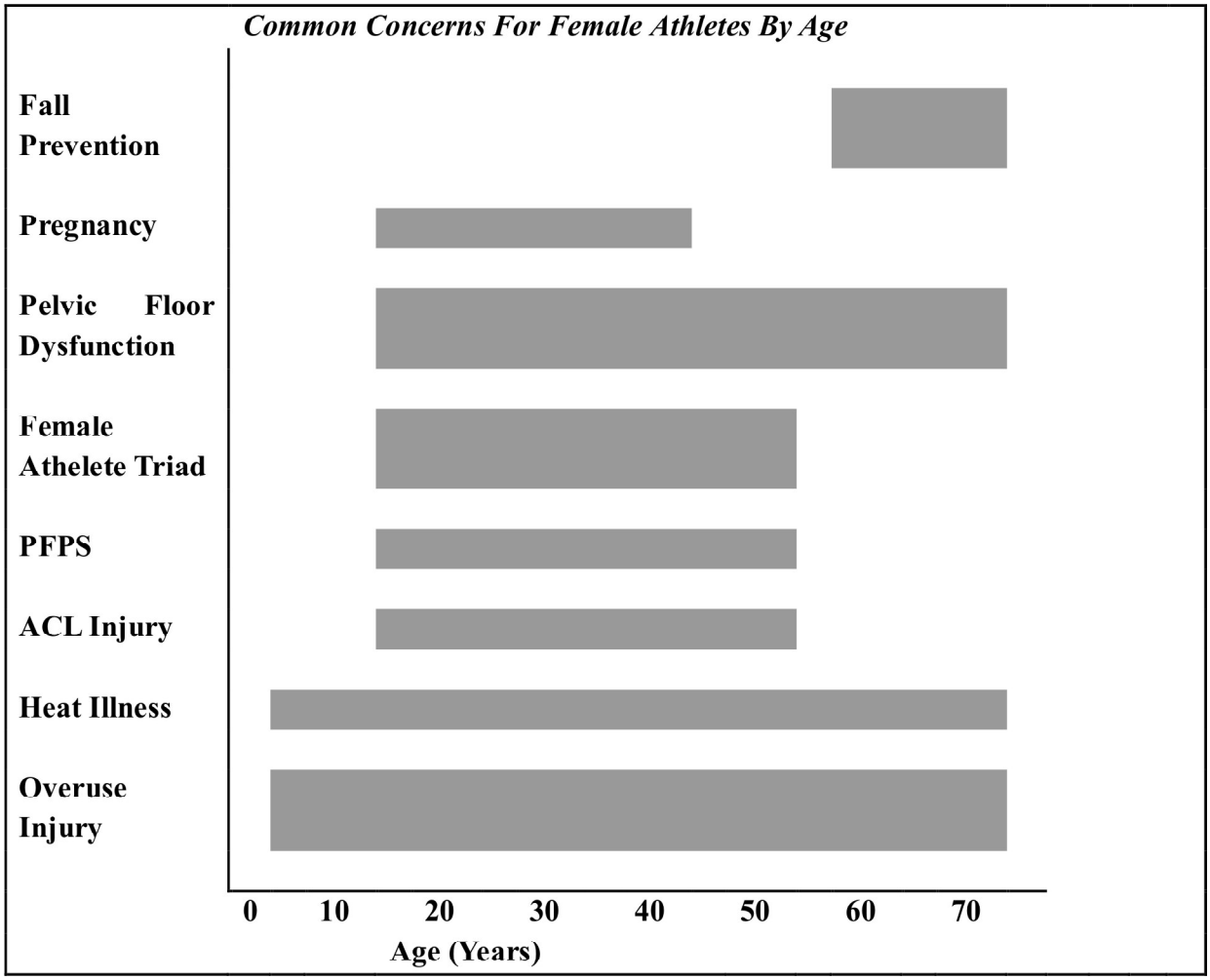
b) ***Pregnancy:*** Pregnant athlete shows an increased susceptibility to musculoskeletal injuries because of increase in relaxin hormone. Increase in body weight shifts the center of gravity (COG) forward which makes the women more unstable. Hypoglycemia during strenuous exercise is a potential problem for pregnant athletes along with overheating and dehydration. There is potential risk of fetal injury by direct hit and fetal distress. Decrease in uterine blood flow because of exercise may lead to growth retardation. Risk of premature labor is associated due to increased level of nor adrenaline. They should probably avoid participation during the heat of the day and not try new contact or dangerous sports especially late in the pregnancy. Pregnancy complications for women with anorexia nervosa include hyperemesis gravidarum, anemia, spontaneous abortion, preterm birth (PTB), caesarean section, and postpartum depression.[19] Fitness related infertility is common in female athletes. They do struggle in getting pregnant and getting help for infertility because of limited awareness of treatment options, feeling of isolation, financial barriers of getting professional help and expectations that athlete women should be strong enough to handle these problems of their own.

c) ***Pelvic floor dysfunction:*** Weakened pelvic floor muscles can lead to pain, bowel/bladder incontinence as well as decreased pelvic stability. A significant number of elite female athletes have symptoms of stress urinary incontinence.[20] Female athletes involved in running, cross fit, gymnastics and other high-impact activities are at risk for the occurrence of urinary incontinence (UI). About 50% of women with urinary incontinence report symptoms of stress incontinence.[21] There are two types of stress incontinence: urethral hypermobility and intrinsic sphincter deficiency (ISD). In the presence of urethral hypermobility, the urethra keeps on shifting positions with an increase in abdominal pressure, allowing urine to exit the bladder. Nulliparous women who have competed high-impact sport activities for prolonged periods are associated to stress UI.[22] A female athlete of volleyball, handball and basketball has decreased perineal pressure as compared to non-athletes. A lower perineal pressure correlates with increased symptoms of urinary incontinence and pelvic floor muscle dysfunction.[23] Literature shows that in high impact activities, such as track and field, gymnastics and some ball games there is highest prevalence of pelvic floor muscle dysfunction.[20] Activities such as jumping and running put increased stress onto the pelvic floor. When these muscles, fascia and ligaments are negatively impacted, the female athlete experiences pain, weakness and dysfunction.

d) ***Overuse injuries:*** Studies have found that women have a higher incidence of stress fractures than men.[24] Stress fractures occur more frequently in amenorrhoeic than normally-menstruating women.[25,26] The exact mechanism of stress fractures in amenorrheic women is uncertain and may not necessarily be related to low bone density. Menstrual status should be assessed in all female athletes who present with stress fractures. High-risk stress fractures common in females include those in the femoral neck, patella, anterior cortex of the tibia, medial malleolus, talus, tarsal navicular, fifth metatarsals, and great toe sesamoids.[27] Patello-femoral pain syndrome (PFPS) is another common problem among female athletes. The increased incidence of PFPS in women compared with male athletes is thought to be related to structural, biomechanical, sociological, and hormonal differences between genders.[28] Exact etiology of PFPS still remains unclear despite of its high incidence. The

causes of PFPS are usually classified as extrinsic and intrinsic, and three major factors contributing to PFPS are lower extremity and patellofemoral malalignment, quadriceps muscle imbalance and weakness and physical overload of patellofemoral joint.[29] Patellar tendinitis, lateral epicondylitis and IT band syndrome are other common overuse injuries.

Common Concerns for Female Athletes by Age[30]



e) ***Dietary problems:*** Dietary problems occur very frequently in female athletes, particularly in sports requiring low body fat like women's gymnastics or synchronized swimming. In a recent British survey, 40% of synchronized swimmers were found to be below the recommended levels in 10 out of 12 nutrients. A correct diet plays an important role in the health and performance of all athletes.[31] There is evidence that inadequate caloric intake is more likely to occur in female athletes, and this will affect the hormones associated with the menstrual cycle. The reduced calorie intake or fasting increases the serum hormone binding globulin (SHBG) or the substance that combines with the male and female hormones and transports them in the blood. This then reduces the level of the biologically active estrogen and testosterone. In young athletes, this may delay menarche and in older athletes may result in long periods without menstruation. An increase in SHBG also occurs in athletes on a high fiber diet and a low meat protein diet with the same result. Female athletes are more prone to iron deficiency. Iron deficiency is also common in vegetarians who, if they are on the contraceptive pill, may develop problems with the metabolism of their folate and vitamin B_{12} which are essential for the maturation

of the red cells that transport oxygen in the blood.[31,32] Relative energy deficiency in sports and disordered eating/eating disorders are also of concern for these female athletes.[33]

2. Psychological problems:

a) *Emotional stress and Anxiety:* Anxiety plays a paramount role in sports. Sports psychologist have long believed that high levels of anxiety during competition are harmful, worsening performance and even leading to dropout.[34] Frisch et al found that emotional stress was more frequent in women with secondary amenorrhea.[35] Anxiety consists of two subcomponents: cognitive component which is characterized by negative expectations about success or self-evaluation, negative self-talk, worries about perfor-mance, images of failure, inability to concentrate, and disrupted attention[36,37] and somatic component which is related to autonomic arousals, negative symptoms such as feelings of nervous, high blood pressure, dry throat, muscular tension, rapid heart rate, sweaty palms and butterflies in stomach.[37,38] Ray and Weise-Bjornstal described seven categories in which an athlete may experience stress.[39] These categories are - affective, behavioral, biological/physiological, cognitive, imaginal, interpersonal, and sensory. During sports their safety is threatened, both while competing and in their daily lives. Therefore, there is a strong likelihood of developing Post Traumatic Stress Disorders (PTSD) at some point during their careers.[40] Kessler et al[41] found that the risk of developing PTSD after a traumatic event is 8.1% for men and 20.4% for women. For young urban populations, higher risks have been reported. Breslau and colleagues found an overall risk of 23.6% and a risk of 13% for men and 30.2% for women.[42]

b) *Attention deficit hyperactivity disorder:* Incidence of ADHD is more among athletes who participate at the elite level. ADHD is a disorder of chronic and impairing behavioral patterns that results in abnormal levels of inattention, hyperactivity or both.[43,44] Female athletes may experience problems with specific movement required in competitive sports and may manifest problems with balance or coordinated activity.[45] It is a deficit in behavioral inhibition.[46] The symptoms include poor attention span ,managing time ,difficulty with waiting one's turn, organizational skills, and initiating or completing tasks; and increased risk-taking behaviors.[47] Anxiety, depression, disruptive behavior, learning disorders, substance abuse, and psychotic disorders are common comorbidities.[48,49] Cammi Granato who scored more goals than any other player in the history of U.S. women's hockey had ADHD.[50]

c) *Substance use disorder:* Drug abuse is common in athletes, with an estimated 67% of body builders using steroids, 52% of professional football players using opioids, and up to 93% of college athletes using alcohol. Athlete may abuse drugs to enhance or improve their performance, cope with stress and to deal with other career challenges. It is common and can have serious long-term effects, such as arrests, bans from a sport, or overdose. Athletes who suffer physical injuries may use drugs, such as opioids and marijuana, to deal with pain.[51]Sometimes addiction starts when they are prescribed painkillers for an injury. Over time, they may begin to misuse their prescriptions thus eventually becoming both physically and psychologically dependent on these medications. In athletes retirement is faced much earlier than other careers. Retiring from the game can be a difficult transition for athletes who are not prepared as they will miss the thrill of competition. Thus drug abuse is the way to cope up with these stress. It has also been used to deal with peer pressure.

3. ***Sociocultural Problems:*** Many societies, cultural norms or religious thoughts continue reinforcing the belief that a woman's place is in the home. Family commitments frequently put a great strain on female athletes.This makes it more difficult for those women who wish to participate in high level sport. Strong social pressures exist to deter females from aiming for high achievement and maximum success in sports. This leads to stress and changes in their menstrual cycle. Female athletes are more objectified on the field, much as they are on the streets. From coaches, to commentators, to the audience, women are looked at as commodities showcasing themselves for pleasure, not as entities of potential and talent. This level of prejudice or discrimination can come from even the highest of places. For many female athletes, the sexual climate of sports may pose frequent risks and challenges. The psychological outcome for the female athlete is severe when her personal safety is violated through harassment or abusive behavior. Research

demonstrates that sexual harassment and abuse in sport seriously and negatively impact on athlete's physical and psychological health. It causes impaired performance and leads to athlete drop-out. Clinical data indicates that psychosomatic illnesses, anxiety, depression, substance abuse, self-harm and suicide are some of the serious health consequences.[52]

4. ***Economic problems:*** The chance of a stable income seems bleak for a female athlete job security is yet another worrying question. With the low funding that the teams and clubs receive for their training and gear, female athletes sometimes are pressed to work another job for additional income.[53] As forced, they can't give their best to training and sports. This forces them to drop out of the race of sport altogether. Once they have passed their prime or retire, they don't know how they will support their families. There are a few programs by the government to get jobs for women under sports quota, they usually end up getting very low-paying jobs.

Management of Psychophysical challenges

Physiotherapy Interventions:

1. In females with triad the energy intake should be increased by 300 to 600 kcal/day calcium intake of 1,000 to 1,500 mg/day and 32 to 50 ng/mL/day with 1,500 to 2,000 IU/day of vitamin D is recommended. Athletes with low BMD should participate in 2-3 days per week of high-impact loading and resistance training. Physiotherapist deals with the exercise metabolism, training adaptation sports biomechanics and exercise prescriptions.
2. Physiotherapist trains athlete with incontinence extensively with a very high success rates. A variety of techniques such as Kegel's exercises, pelvic floor muscle stimulation and approaches are used in which the athlete will be taught to contract the right muscles of the pelvic floor and sphincters. Consideration of the bowel and bladder function and strengthening of the diaphragm, deep back, abdominal muscles and gluteal core are also done. The physiotherapist helps recuperate the function of all of the supporting muscles and provide education regarding bowel and bladder habits that can have a major impact on the athlete performance in sports.
3. Exercise guidelines in pregnancy: mild to moderate exercise for 20-30 minutes 3 to 4 times a week should be performed. Maternal heart rate should not increase 140 beats per minute. Avoid exercise in supine position, hot weather. Avoid excessive and ballistic stretching. Low impact aerobics and low weight training exercises are preferable.
4. Physiotherapy Management in overuse injury are:

- *Remove cause:* Lack of appropriate muscle strength or endurance, poor core stability, muscle imbalance (strong tight muscles versus weak stretched muscles), inflexibility, malalignment or biomechanical issues (e.g. flat foot, squinting patellae), training errors, faulty technique and incorrect equipment.
- *Reduce inflammation:* though inflammation is required for proper healing, an excessive or prolonged inflammation response can become self-perpetuating and destruction. Therefore, controlling inflammation is one of the prime goals in treatment. The classic approach is PRICE along with modalities and medications.
- Warm-up and cool-down before and after all exercise.
- Use proper equipment (e.g. special shoes for jogging, a racquet that is the right size with the proper grip size and strings strung to your level of play).
- Conditioning of athlete for 2-3 weeks prior to sports activity. This includes training of muscle strength, power, endurance and motor reeducation. A good conditioning program incorporates strength training of uninjured tissues with appropriate forms of aerobic exercise. These include stationary bicycle, stair climbing, upper body ergometry and water workouts.
- Regaining full flexibility of joints and soft tissues after injury. It is maintained by static, ballistic stretching and neuromuscular facilitation.Carefully return to activity as the symptoms dictate.

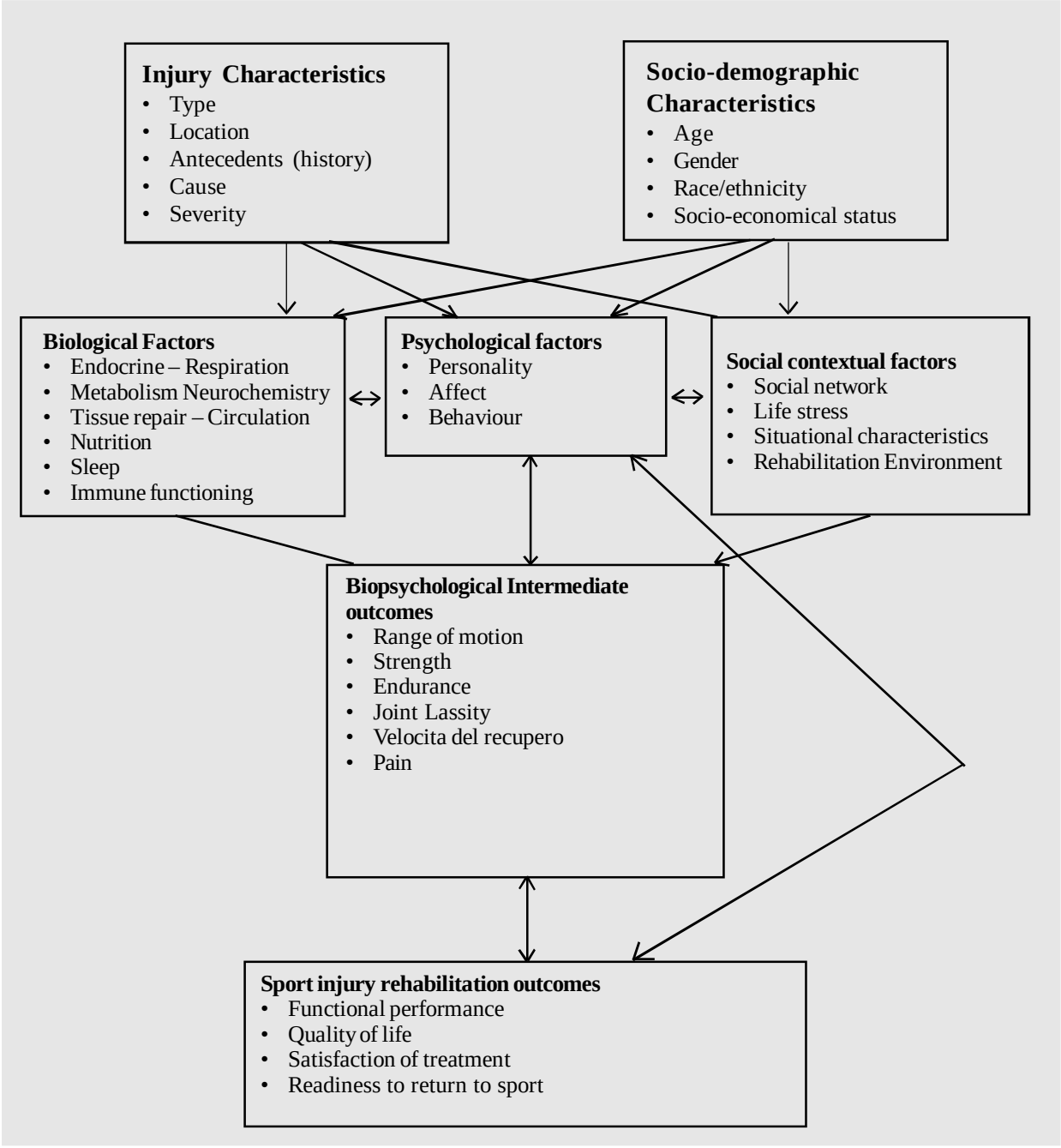
- In PFPS, Quadriceps muscle stretches, balanced strengthening, proprioceptive training, hip external rotator strengthening, orthotic devices, and effective bracing will relieve the pain in most athletes.

Psychological interventions:

Psychological Model for Sport Injury Rehabilitation: The Biopsychosocial model[54] considers the factors influencing the rehabilitation process, and the intermediate and final outcomes of the rehabilitation.

The four most prominent Psychological Skill training methods are goal setting, self-talk, mental imagery and rehearsal and relaxation.

- ***Goal Setting:*** Weinberg showed that achieving process goals leads to increased self-confidence, improved physical skill mastery and performance.[55] Goal setting is believed to enhance an individual's ability



to accomplish a given task by providing individuals with a sense of direction to focus their efforts, by increasing the degree of persistence and by developing new strategies aimed to successfully completing a task.

- **Self-talk** is an internal distracter which has cognitive and motivational functions.Self-talk intervention program increases confidence and anxiety control, which in turn enhances performance.[56] Positive self-talking techniques includes cognitive restructuring, countering and thought stopping, which in turns enhance performance, self-esteem and attentional focus.[55]
- **Mental imagery**, when used in conjunction with goal setting and positive self-talk, has been shown to enhance performance, self-confidence, control activation, and arousal regulation. Mental rehearsal is very similar to mental imagery. Mental rehearsal works best when used in conjunction with the actual physical activities - i.e. before practice or competition
- **Relaxation** is the primary PST technique that athletes use in order to cope with pressure. Progressive muscular relaxation (PMR) method is used to enhance sporting performance by reducing anxiety and enhancing self-efficacy. Another form of relaxation is transcendental meditation which is used on competition days, anywhere up until an hour before competing, to regain composure and control.[56] It is helpful for those who have difficulty in getting to sleep. Evidence showed that relaxation can reduce the feelings of depression, frustration, and anger through lowering heart rate, breathing rate, metabolic rate, and blood pressure.

Social awareness: Much progress has been made in women's sports in past two decade but further efforts are required to encourage girls to take up and continue in sports. Increased recognition from the media and increased sponsorship from both government and private sources should be sought. Parents have an important role in encouraging their daughters. Society should respect and change their views regarding their participation in sports.

Conclusion

There has been a dramatic increase in number of female exercising and competing in sports. We can see women jogging, walking and attending aerobic classes as well as competing in individual and team sports. While few female athletes have achieved a relatively high profile and financial reward, most are yet not supported by media and potential sponsors. Despite all these challenges they are rising and making some serious history with their determination. They are prone to physical and psychological disorders. Combination of low energy intake, functional hypothalamic amenorrhea, and osteoporosis are the main constituents of the female athlete triad, which poses significant health risk to female athletes. If the symptoms of triad exist, early diagnosis and multidisciplinary approach are the essential aspects of the treatment of this disorder. Pre-participation physical evaluation is needed to identify athletes at risk and screen for any problems that may predispose the athlete to an overuse injury.Sport psychologist allows for prompt management for any undue emotional distress.

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Psychophysiotherapy

Physiotherapy — An Adjunct in Psychosexual Disorders

Jaswinder Kaur[1], Megha Masaun[1], Mansi Gupta[1], M.S. Bhatia[2]
[1]Department of Physiotherapy, Dr. R.M.L. Hospital & PGIMER, New Delhi and
[2]Department of Psychiatry, UCMS & GTB Hospital, Delhi
Contact: Jaswinder Kaur, E-mail: linktojk@yahoo.com

Psychosexual health is a significant component of general wellbeing as determined by the World Health Organization - a state of physical, emotional, mental and social well-being in relation to sexuality.[1] Psychosexual problems affect about 40% of the population and sexual functioning is an important part of a patient's health.[2]

Indian society is entangled in the vicious circle of traditions, misconceptions, myths, prejudices and social taboos about sex leading to difficulty in tackling the problem. These problems also need to look within the context of poverty, stressful living situations, diverse cultural belief systems, quackery, ignorance and inadequate health services. However, there is little recognition of how these health problems are related to human sexuality and their dysfunctions. There is an urgent need to understand how sexual attitudes, beliefs, and values act and influence these problems.[3] Many patients feel awkwardness and are sensitive in expressing sexual pain and distress. Moreover, the accurate figures cannot be estimated because of prevalence of male patients suffering from psychosexual problems visiting quacks and sex clinics and their female counterparts hesitating in even discussing their problem with family.[4] So, both the partners are devoid of proper medical consultation and treatment making the problem highly prevalent yet frequently under-recognized, hence left untreated in clinical practice.Since, psychosexual dysfunctions are a major healthcare issue as they affect the individual's personal as well as social life, they deserve timely recognition and management.

It has been reported that many psychosexual disorders are associated with fear, stress, anxiety, depression, prior abuse or rape and guilt feelings both in males and females. According to Dunn,[5] strong physical, social and psychological associations can be seen with sexual problems. In men, erectile problems and premature ejaculation were associated with increasing age, anxiety, hypertension and diabetes. In women, the predominant association with arousal, orgasmic and enjoyment problems were found to be associated with anxiety and depression. Vaginal dryness was found to increase with age, whereas dyspareunia decreased with age.[5]

Neurological basis

The neurobiology of sexual behavior can beconceptualized in terms of human sexual response cycle defined by Kaplan[6] who proposed a triphasic model of sexual desire, excitement and orgasm. These phases are interconnected but governed by separate neurophysiological systems. The current evidence suggests that sexual desire is mediated by subcortical structures, specifically hypothalamus. The temporal lobe amygdalae, also play a significant role in this phase. Sexual excitement is mediated by cortical structures namely the parietal and frontal lobes controlling genital sensation and the motor aspects of sexual response, respectively, sustaining sexual activity until progression to orgasm for which the septal region has been implicated. Rather than a linear progression, there is an interconnected neural network where different brain regions and associated phases of sexual response are simultaneously activated, producing the physical and psychological manifestations of human sexuality. So, any disruption

affecting the neurogenic pathways can result in psychosexual dysfunction.

As Infertility is one of the major cause of psychosexual problems, its impact on psychosexual health can be outlined as (a) Infertility causing Psychosexual problems, (b) Psychosexual problems masquerading as cases of infertility and (c) Incidental findings of psychosexual disturbances in cases of infertility.[7]

Male Psychosexual Disorders

Verma et al analyzed patients with sexual disorders attending the psychosexual clinic and found premature ejaculation (77.6%) and nocturnal emission (71.3%) as frequent problems followed by a feeling of guilt about masturbation (33.4%), small size of the penis (30%) and erectile dysfunction (23.6%). Excessive worry about nocturnal emission, abnormal sensations in the genitals, and venerophobia was reported in 19.5%, 13.6% and 13% of patients, respectively.[8]

Pre-mature Ejaculation: It may be due to anxiety, which in turn may result due due to masturbation in past, guilt regarding coitus,when coitus is attempted first time in life, intercourse at long intervals, excessive foreplay etc.

Delayed orgasmand ejaculation: It can be the outcome ofinsufficient excitement, arousaland anxiety.

Psychogenic Impotence: It can be due to psychiatric disorders, e.g. endogenous depression, schizophrenia and anxiety, inexperience, honeymoon and post-vasectomy impotence. The social and emotional feelings associated with vasectomy and its intimate relationship to sex lead to a psychosomatic disturbance by producing a feeling of weakness and selective impotence (i.e. impotence only with wife) and may be due to hostile feelings towards wife, feeling of excessive respect or distrust for the partner, lack of attraction towards the partner, impotence prior to orgasm and ejaculation i.e. penis becomes flaccid after penetration which may occur in cases of multiparous women with lax vagina which does not afford frictional grip, fear of pregnancy, masturbation anxiety i.e. guilt about masturbation is a frequent cause of impotence, miscellaneous cause e.g. pregnancy or death, when coitus environment is threatening and distracting, unconscious hostilities towards women stemming from childhood experiences.[9]

Female Sexual Disorders

As compared to male sexual dysfunction, a few Indian studies are available in the area of female sexual dysfunction. This area remains largely unexplored. In a cross-sectional survey, Singh etal reported female sexual dysfunction (FSD) in 73.2% subjects. The complaints elicited were difficulties with desire in 77.2%, arousal in 91.3%, lubrication in 96.6%, orgasm in 86.6%, satisfaction in 81.2%, and pain in 64.4% of the subjects. Age above 40 years and fewer years of education were identified as contributory factors. Women attributed FSD to physical illness in participant or partner, relationship problems, and cultural taboos but none had sought professional help.[10]

Frigidity: It is a low libido (sex drive) in women. It is mainly due to psychological causes viz. ignorance regarding coitus,fear of coitus, feeling of hostility and envy against males,sexual dysfunction, fear of pregnancy, fear of injury during intercourse, husband being weakly potent or suffering from premature ejaculation, depression or anxiety.[9] It includes: *Sexual interest/arousal disorder* i.e. inability to maintain sexual desire, sexual fantasies or thoughts. *Sexual aversion disorder* i.e. avoidance of sexual activity which has more relevance to phobias and other anxiety disorders. *Orgasmic disorder* i.e. difficulty in achieving orgasm following sufficient stimulation and arousal. *Low sexual desire* which is one of most common problem acting as defense against further distress and protect from further psychological and/or physical pain.[1]

Genito-pelvic pain/penetration disorder: Sexual pain disorders include dyspareunia and vaginismuswith persistent or recurrent genital pain associated with sexual intercourse.*Vaginisums* is an involuntary spasm of the vaginal muscles and is always psychogenic in origin. It is usually an automatic fear or anxiety reaction, coming after painful past experiences during the intercourse.[9] Dyspareunia is pain on intercourse and may be present for a short time at the onset of marriage or sexual intercourse and if persists long after marriage or develops later in life, it is suggestive of local diseases or emotional disturbance.

Non-coital sexual pain disorders: It is a genital pain disorder induced by non-sexual

stimulation, most commonly vulval pain disorders. The chronic bladder pain syndrome and perineal pain also result in significant sexual problems.

Patients often present late due to embarrassment and commonly with an alternative problem. Learning to recognize and act upon both verbal and non-verbal clues, with empathy, is essential in their management.[2]

Management

Individuals are most potent if they are well relaxed and least suspicious. Best way to preserve normal potency up to old age is to retain healthy attitudes towards sex and to practice sex relations regularly at relatively short intervals.[9] According to Talli Yehuda Rosenbaum,[11] a multidisciplinary model should be incorporated in management of psycho sexual problems. The treatment must include a combination of medical management for physiological factors, physiotherapy treatment for the physical aspects and psychosexual treatment, including cognitive behavioral therapy for the relational, emotional and sexual aspects of the dysfunction.[11] Multidisciplinary treatment is best provided with a complementary approach best achieved through regular communication between the treating practitioners including physician or gynecologist, physiotherapist and psychologist. Thus management of psychosexual disorders includes:

1) General Measures

They include advice regarding disturbing conditions, initially avoiding intercourse and its failure, removal of fantasies regarding sex, treatment of depression, anxiety etc.[9]

2) Patient Education and Awareness

The patients are empowered to overcome their fears and provided suggestions regarding non intercourse related sexual activities and appropriate contraception.[11] Sex education should be given to both the partners regarding coital techniques, sexual organs anatomy, physiology, so as to rectify their queries regarding sex and false impression resulting from misinformation derived from others during adolescence.[9]

3) Medical Management

It includes Hormone Replacement Therapy with Estrogen or Testosterone along with the treatment of associated conditions if any like dermatoses, vaginal atrophy, vulval and bladder pain, recurrent UTI. Female sex hormones like Estrogen has role in smooth muscle relaxation and enhancement of genital blood flow. Androgens primarily affect sexual desire, arousal, orgasm. Noradrenergic non-cholinergic neurotransmitters e.g. Vasoactive intestinal polypeptide and nitric oxide are involved in arousal. In males, oral erectogenic agents with vasoactive drugs has emerged as the first line treatment for erectile dysfunctions Vasoactive intracavernous injections, intraurethral therapy medicated urethral system for erection (MUSE) has shown success rates varying from 43%-69% in efficacy studies. Topical therapy with nitroglycerine, testosterone and minoxidil ointments have met with only minimal success could act as another tool in the armamentarium of physicians treating erectile dysfunction. Treatment of premature ejaculation is primarily focused on behavior therapy, topical anesthetic agents, tricyclic antidepressants and selective serotonin reuptake inhibitors. However, an approved treatment regime does not exist.[12]

4) Psychotherapy

Psychotherapy may be the intervention of choice for the patient with primarily nonorganic erectile dysfunction, such as that caused by depression. Psychotherapy can be valuable as an addition to medical or surgical interventions. Unfortunately, there are very few follow-up studies examining the long-term effect of this intervention. Withdrawal from psychotherapy is common.[13] Psychotherapy includes:

(a) *Supportive Psychotherapy* is aimed to help the sufferer by encouraging non-coital stimulation, e.g. masturbation to reduce his tension and to provide a measure for sexual satisfaction, promoting the frank communication between sexual attitude, performance and inhibition.

(b) *Psycho-analytic Psychotherapy* is the treatment of choice when psychological factors are responsible for frigidity and other sexual problems. It is more likely to prove beneficial in those whose inhibitions are due to unconscious feeling of guilt, disgust or the repressed hostility, then in women with a strong material fixation and infantile personality make-up.[9]

(c) *Cognitive Behavioral Therapy* has been

proved to be effective for psychosexual disorders. Bergeron et al compared CBT, biofeedback with a home trainer, and surgery and found that women with dyspareunia can benefit from both medical and behavioral interventions.[14]

(d) *Relationship therapy* where the couple should be allowed to express their anxieties, have points of misinformation rectified, and encouraged to share with each other their concern and anxiety over sexual matters in time to prevent the development of overt sexual dysfunction. Reduction of expectations for performance when the husband shows signs of strain are necessary to avoid the establishment of impotence.[7]

(e) *Behavioral Therapy* includes talking to the patient and his/her partner to figure out ways to deals with stressful or painful issues, ask them to talk with each other to resolve the problems if possible, behavioural changes to change the way they think.

5) Physiotherapy Treatment

Physical therapy interventions provide noninvasive methods that are easy to perform and are painless and inexpensive. Studies have shown positive results after a pelvic floor reeducation program for men with erectile dysfunction.[15,16] Physical therapy plays a major role in improving psychological and interpersonal relationship of both the partners. Exercise produces endorphins that stimulate the body in a positive way and helps patients in dealing with depression and anxiety. Exercise also induces cellular energy flux, hormone levels, muscle stretch and intracellular calcium ions, together activates intermediate genes. Coactivation of transcription factor cascades oxidative capacity, glucose transport and insulin signaling, glucose and lipid metabolism and hepatic glucogenesis. 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.[17]

Main goals of Physiotherapy are to increase awareness, proprioception, muscle discrimination, muscle relaxation, normalization of muscle tone, increase elasticity at the vaginal opening and desensitize painful areas, and decrease fear of vaginal penetration. Physiotherapist educate the partners about the relevant anatomy of the pelvic floor, the erection process and function of important muscles, ischiocavernosus and bulbocavernosus along with the contraction of pelvic floor muscles. The intervention consists of active exercises, biofeedback and electrical stimulation of the perineal muscles.[13]

Exercises to Relax Pelvic Floor

Breathing based exercise help to relax the pelvic floor. Diaphragmatic breathing causes full relaxation of pelvic floor and allows blood to flow into the genitals. There is a natural reflex relaxation of pelvic floor in response to this breathing with diaphragm.[7] Additionally, patients should perform general relaxation exercises like Jacobson technique, Laura Mitchell relaxation technique etc. to overcome anxiety, depression and enhance mood.

Pelvic Reeducation Exercises

Vaginismus, vulvar vestibulitis syndrome (VVS), and dyspareunia which often coexist clinically are generally characterized by physical findings such as pelvic floor hypertonia, a condition that warrants the intervention of a Physiotherapist.[11] Studies by Bergeron etal[18] and Hartmann etal[19] reported that over 70% patients rated themselves as much improved with Physical therapy with promising potential outcomes.

While in case of pelvic floor muscles weakness, strengthening exercise are prescribed for the same. Exercises are done initially in supine position.The patients are asked to perform short (1 second) and long-lasting (6–10 seconds) contractions of the target muscles. Later, the exercises are done with the patient sitting or standing. In a study by Van Kampen, 47% of the patients regained normal erectile function, and 24% had an improved erection after a pelvic-floor re-education program in combination with EMG biofeedback and electrical stimulation.[13]

EMG Biofeedback

Pelvic floor EMG biofeedback for the treatment of vulvar vestibulitis syndrome has been well studied.[14,18] The goals of EMG biofeedback are to normalize pelvic floor muscle tone, decrease hypertonus, and improve contractile and resting stability.[11] Graziottin suggested two sessions

consisting of general relaxation and postural changes and eight sessions of levatorani surface EMG biofeedback with self-insertion of a small single user EMG sensor into the vagina for treatment of vulvar vestibulitis syndrome.[20]

Electrical Stimulation

Other modalities available to the Physiotherapist include pelvic floor electrical stimulation. Use of pelvic floor electrical stimulation has been studied in the treatment of levatoranihypertonus and pelvic pain[21] and has been reported to successfully improve pelvic floor muscle strength and reduce pain in the treatment of VVS.[22]

Ultrasound Therapy

The use of perineal ultrasound – the application of deep heat produced by frequency waves – for the treatment of dyspareunia has also been reported in the literature.[23]

Manual Therapy

Careful assessment of the strength, length, and mobility of the pelvic and lumbar joints, as well as the surrounding musculature of the pelvis and hips is made. A typical musculoskeletal presentation of patients with vaginismus is tight hip flexors and adductors — muscles related to posture of "pulling in." They are commonly found to present with weak, undeveloped pelvic floor muscles, Techniques for treating musculoskeletal dysfunction associated with pelvic and vulvar pain include muscle energy techniques, contract/relax, and passive and resisted stretching designed to normalize pelvic imbalances, improve blood circulation and mobility in the pelvic and vulvar area.

Dilators are used not only to help overcome penetration anxiety but to stretch the intracoital opening. Perineal dilators, designed for pre-delivery perineal stretching in women hoping to avoid episiotomy, is useful for introitus and perineal stretching in women with introital tightness.[24] The most favorable results were found in studies in which a combination of exercises, biofeedback, and electrical stimulation was used.[15,16] A physiologic explanation for the effect of our interventions is that physical therapy can contribute to the improvement of erectile dysfunction by decreasing venous outflow.[13]

Conclusion

Management of psychosexual problems should focus on the holistic needs of the patient. Understanding their communication of the difficulties that are impacting on their sexual life can allow resolution of the symptoms. Medical management along with Psychological counseling and Physiotherapy management can prove to be beneficial in reducing the symptoms and improving their social and personal life. However, to date, the efficacy of a combined multidisciplinary approach to treatment is required to be studied further.

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Commentary

Bio psychosocial model : Is it obsolete now?

[1]Aniruddha Basu, [2]Aparna Goyal
Department of Psychiatry, [1]All India Institute of Medical Sciences, (AIIMS) Rishikesh, Uttarakhand-249203;
[2]University College of Medical Sciences & Guru Teg Bahadur Hospital, Dilshad Garden, Delhi
Contact: Aniruddha Basu, Email-draniruddhabasu@gmail.com

Introduction

The biopsychosocial model (BPS) is currently one of the most important models for understanding the conceptual basis of mental health and its deviation from normality[1]. First proposed by Roy Grinker and later popularised by George Engel in latter half of the twentieth century it was an attempt to humanise medicine as well as to 'biologise' psychiatry. In the latter sense it tried to reconcile the mutually warring camps of the orthodox psychoanalytic model and the 'young turks' of the biomedical model who believed in Kraepelinian tradition that all psychiatric disorders are diseases with a biochemical, neurophysiological or structural basis.[2] In BPS, Engel wisely found out a 'middle path' - thereby he was a true savior of psychiatry from the hegemony of the anti-psychiatry movement, challenges of the deinstitutionalization era and placed it at an equal pedestal with all medical diseases and also gave a new identity to the field of psychosomatic medicine.[3] In its true sense, the BPS was more than just an explanatory model - it was an epistemology of clinical practice which has redefined the doctor-patient relationship.[4]

Bio-psycho-social model in evolution

In the famous article in 'Science' in 1977, Engel argued about the psychosocial factors as important in the causation and course of diseases, about the illness experience and the need for human care, about the importance of psychosocial factors in the definition of disease and sickness and that clinical work should not be limited to biomedicine[5]. He derived the BPS model from the General Systems Theory perspective where the individual is conceptualized as interacting between the microcosm of cell and tissue on one hand and the macrocosm of family, society and culture on the other hand. So the BPS model is more than what the 'medical humanism' of William Osler aspired[6]. It is not a mere combination of biomedical and psychosocial factors. Rather BPS is the focal meeting point of the two perspectives of positivism and constructivism which provide it the much needed philosophical paradigm.[7] Hence the achievement of BPS model went beyond more than 3,500 citations of the original article, it changed the way medical students perceive medicine and the holistic approach to health and disease both from the individual and community perspective.

Biopsychosocial model as theory

BPS has been criticized extensively: from being 'not a model at all', 'fancy theorizing', lacking explanatory power, practicability, cost-effectiveness,empiricism to promoting anarchy.[8] But no greater proof of its subsistence can be that in the last 40 years it has been applied in a variety of medical conditions ranging from orthopedics, surgery to dermatology. But its popularity and widespread application is not enough - if anybody wants to research the validity of BPS, one needs to test it indirectly as no abstract theory like 'theory of evolution' or 'psychoanalytic theory' has been ever tested concretely. Ironically, if one needs concrete evidence then that is provided by the current biological research which has often been an antithesis of the BPS approach. For example, in the studies related to the 'gene X environment' interactions, the proposed mechanisms of bio-

psycho-social interactions have been highlighted. However, such evidence is not enough to study an overwhelming conceptualization of health and disease as the BPS. Indirect methods may be research showing its effectiveness in undergraduate training when even after 5-28 years of follow-up general physicians agreed to its usage in day to day practice – this may be considered the predictive validity of the model in psychometric terms.[6] Recent studies have shown that empathy in doctor-patient relationship modelled in BPS terms is an important predictor of clinical outcome.[9] The BPS has been accused of lacking explanatory power – but the real life case examples in later articles of Engel related to myocardial infarction and the death of Mr. Enderby a character in Agatha Christie's 'Murder at the Gallop' illustrate a useful description of pathway of causation[10,11]. Other challenges remain like the applicability of the BPS in resource strained settings, prioritization amongst the three tenets of 'bio', 'psycho' and 'social' which can easily be researched with innovative methodologies like devising an evidence based person centered interview method.[12]

Biopsychosocial model and medicine

Another measure of its validity may be its usage in different settings and cultures. As a response to myopic criticisms the closest evidence of concurrent validity may be provided by the Indian example. In India doyens of psychiatry like Wig-Verma-Surya have used the BPS model and have advised its modification based upon cultural and spiritual lines[13].This is not just a 'zeitgeist' of the post-colonial era of the late twentieth century but influenced by their wide practical experience and also in accordance with the ancient lore of 'holism' immortalized in the Upanishads and the traditional Indian systems of medicine. BPS model has also been used by WHO in its public health programs – for example for poverty alleviation programs along with mental health programs.[14] Often the validity of BPS model is challenged by the much feared 'anarchy of eclecticism'.[6] This can rather be considered a strength of the BPS model which gives the opportunity for devising an individualized treatment plan. So questioning the validity of the BPS model in that sense would be like doubting the concept of 'personalised medicine'.

Biopsychosocial model

The importance of the BPS model had been well acknowledged in the previous DSM editions by a separate axis and DSM-5 has also liberally included psychosocial and cultural aspects. Currently, BPS model is facing significant challenges posed by the Research Domain Criteria (RDoC) which has a strictly neurobiologic framework.[15] In that case, epigenetic or related research may be a possible savior of the BPS, but the true spirit of holism can hardly be challenged by RDoC which still requires firm grounds. However, such challenges are necessary to improve the BPS like the addition of dynamic interactions with contextual factors by Lehman et al.[16] The space provided for such constant modifications within a relatively structured paradigm is a strength which none of the other alternatives like the reductionist biomedical model or the method based model of Jasper can provide – hence the future of BPS appears to be a modified BPS only.

Conclusion

Any model or framework has its own deficiencies but a bio psychosocial model do help us with a holistic approach as well has been found useful in multiple discipline and fields. There might be need to improve it but not consider as obsolete.

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Drug Review

Esketamine in Psychiatry

Aparna Goyal, M.S. Bhatia, Ankit Saxena
Department of Psychiatry, UCMS & GTB Hospital, Dilshad Garden, Delhi-110095
Contact: Aparna Goyal, E-mail: piku0908@gmail.com

Introduction

Newer molecule or use of non psychiatric drugs for treatment of psychiatric disorders have always been looked up specially as currently available antidepressant drugs have delayed onset of efficacy and low remission rates. One such drug is ketamine which is being considered and even used as off label at certain places for rapid response to depressive symptoms those with treatment resistance. Ketamine is commonly used as an anaesthetic and analgesic agent but recent studies on its use in depression demanded a closer look. Esketamine which is S enantiomer of ketamine is considered one step further considering to have better safety and efficacy profile. Rapid onset of antidepressant effects has been observed following intravenous administration of esketamine but now an intranasal delivery method is being developed with lesser risk of side effects.In contrast to ketamine, S-ketamine is reported to be less prone to psychomimetic side effects, such as derealisation and hallucinations.One of the limitation observed with ketamine and esketamine was most patients who respond tend to relapse within several days or up to 1 week after a single infusion and unable to sustain the anti-depressant effect over long duration.[1,2] So though it has been considered as effective treatment for depression there is still no consensus on optimal dosing as well as effects of long term therapy.[3]

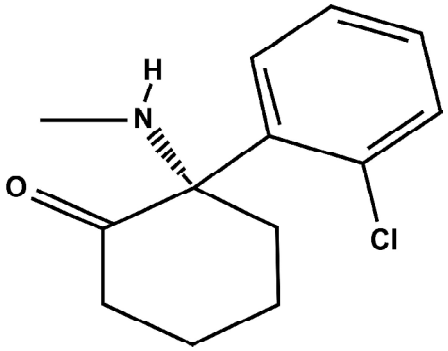
Mechanism of action

Esketamine, the S-enantiomer of ketamine is a new molecular entity and a non-competitive glutamate N-methyl-D-aspartate (NMDA) receptor antagonist. It has a higher affinity for the receptor as compared to R Ketamine also known as arketamine. Esketamine non-competitively blocks the NMDA receptor and may interact with mu-opioid receptors and sigma receptors, but it targets the glutamate NMDA receptor for antidepressant effect. The glutamatergic system plays an important role in the neuropathology and treatment of depression as glutamate (L-glutamic acid) is the major excitatory neurotransmitter in the central nervous system and exerts its action through ionotropic glutamate receptors and metabotropic glutamate receptors.[4]

Chemical Structure and Pharmacokinetics

Ketamine is a racemate that comprises the R-(“)-ketamine enantiomer (arketamine) and the S-(+)-ketamine enantiomer (esketamine). Ketamine is an arylcycloalkylamine structurally related to phencyclidine (PCP). Ketamine hydrochloride is water-soluble, white crystaline and has a pKa of 7.5.[5] Ketamine contains a chiral centre at the C-2 carbon of the cyclohexanone ring, so that two enantiomeres exist S-(+)-ketamine and R-(-)-ketamine. Esketamine has molecular formula of $C_{13}H_{16}ClNO$ with molecular weight of 237.727 g/mol (Fig-1)[6] and more active than (R) Ketamine. Esketamine has a threefold to fourfold higher affinity for *N*-methyl-D-aspartate (NMDA) receptors than arketamine.[7] Effects typically begin within five minutes when given by injection with the main effects lasting up to 25 minutes. Andrade conceptualized that intranasal drug delivery of esketamine has a relatively rapid onset of action and increased bioavailability probably due to the rich vasculature and relatively high systemic absorption via nasal mucosa.[8] The absolute bioavailability of intranasal

esketamine 20 mg and 25 mg in healthy participants was found between 45 and 59% in a study by Bitter.[9]



Indications

Esketamine is a general anesthetic and is used for similar indications as ketamine.Studies have shown that S(+)-ketamine is approximately two times as potent as racemic ketamine leading to several therapeutic investigations them at dose relation 1:2 concluding that both drugs caused a similar activation of the endocrine stress response and a comparable stimulation of the sympatho-adrenergic system. Esketamine has been mainly studied in depression specially treatment resistant depression, suicidality and in PTSD.[10] Moreover, increasing experimental evidence supports a remarkable neuroprotective effect of S(+)-ketamine, which may become a promising drug for new therapeutic approaches to neuroprotection.[11] Esketamine is under review for FDA approval for Treatment resistant Depression (TRD).[12]

Clinical Studies

There are about 40 clinical trials[13] registered in clinical trials registry in various phases and stages, some completed, some still recruiting and multiple randomized studies/ case series reported in literature for investigation of esketamine and its efficacy, safety, tolerability profile.

In a phase 2 double blind randomized delayed-start, placebo-controlled study by Daly et al to assess the efficacy, safety, and dose-response of intranasal esketamine hydrochloride in patients with TRD. Intranasal ketamine was used as an adjunctive to that of an existing antidepressant. Significant changes in MADRS scores were found as compared to placebo and it was concluded that, antidepressant effect was rapid in onset and dose related. Response appeared to persist for more than 2 months with a lower dosing frequency.[14]

Another study by Canuso et al double-blind, randomized,multicenter, proof-of-concept study, 68 participants with depression and suicide ideation were to receive intranasal esketamine 84 mg vs placebo along with standard treatment. Score of MADRS at 4 hours and 24 hours and day 25 were assessed and found that patients with esketamine had better response. Improvement was also observed in the esketamine group on the MADRS suicidal thoughts item score at 4 hours (effect size=0.67), but not at 24 hours (effect size=0.35) or at day 25 (effect size=0.29).[15]

In a case series study on 4 individual by Ajub etal, reported where esketamine 0.5 mg/kg was given as an intravenous infusion over 40 minutes in patients with treatment resistant depression with psychosis. In most of the clinical trials psychosis was one of the excluding criteria considering that ketamine is used to induce a pharmacological model of psychosis, but with this case series it was reported remission of both depressive and psychotic symptoms after treatment of patients with depression and acute psychosis Notably, they experienced mild, short-lasting increases in psychotic symptoms, but these had no impact on the long-term outcome of these patients with psychosis.[16]

There are still trials in process of recruiting where comparison with other antidepressant as well as multi national set up are under progress and results are awaited for them.

Dosage

Esketamine is used as intravenous infusion 0.2 mg/kg or 0.4 mg/kg over 40 minutes twice weekly[17] or as single IV infusion of 0.5 mg/ Kg[1] or as intranasal dose of 2 mg, 56 mg or 84 mg twice weekly have been usually advocated in the trials.[14]

Side effects

The most common adverse events among participants in the esketamine group were nausea, dizziness, dissociation, unpleasant taste, and head-ache, constipation.[17] When used in high dosages or as a drug of abuse, ketamine has also been associated with short-lasting, completely reversible or long-lasting cognitive impairment.[18] Ketamine has been associated with cognitive deficits, urotoxicity,

hepatotoxicity, and other complications in some individuals with long-term use [19] limiting its use hence possibily S-ketamine might exert similar antidepressant effects as ketamine in TRD but may be better tolerated.[20]

Special Concerns

Ketamine is considered to worsen conditions such as angina, stroke, uncontrolled hypertension by increasing blood pressure hence should be used cautiously in these patients. It has also been stipulated to raise intraocular pressure and precipitate acute porphyria. Esketamine is under phase 3 trial in elderly and preliminary results are in support of safety.[21]

Conclusion

Newer drugs for treatment of depression specially in treatment resistance are indeed required. Ketamine and Esketamine both have promising effects considering their rapid onset as early as 4 hours but has also a downside of not sustaining the antidepressant effect. Studies are in progress to evaluate how to overcome the limitations of this drugs.

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Forensic Psychiatry

Prescription : Do's and Don'ts

Varun Garg,[1] Aparna Goyal[2]
[1]Department of Forensic Medicine, NDMC Medical College and Hindu Rao Hospital, Delhi
[2]Department of Psychiatry, UCMS and GTB Hospital, Delhi
Contact : Aparna Goyal, Email : piku0908@gmail.com

Introduction

Prescription is one of those necessary basic requisite that is taught and learnt in medical school. It also forms the method of communication between a doctor, patient, pharmacist and even other doctors. There are certain parameters which are expected to be in any prescription by a doctor but unfortunately we see a lot where they lack one or the other. The absence of such parameters are recognized as prescription errors and which can cause harm to patient or counted as negligence leading to medico-legal suit against the doctor. This paper reviews those aspects of prescription errors and what can be done to prevent them.

A Prescription

A prescription is an order that is written by the physician to tell the pharmacist what medication you want your patient to take. The first is the super-scription, the symbol ℞ from the Latin recipe, meaning "take." The second part is the inscription, specifying the ingredients and their quantities. The third part is the subscription, which tells the pharmacist how to compound the medicine. The fourth and last part is the signature. A basic prescription should atleast contain basic identifying features of the patient like name of the patient, age or date of birth of the patient, gender. While prescribing doctor should write legibly the date, drug name, dosage, duration frequency, quantity prescribed, route of administra-tion and any special instructions or precautions to be taken. It should also contain prescribing physician signature with seal containing name and registration number. "Post code prescribing" is described as variable prescribing in different parts of country as well as in world.[1] Every country has its own standards related to basic requirement of a prescrip-tion, as well as over the counter drugs prescription. India seems to have less stringent rules and even with a regulating authority many of the drugs are procured over the counter rather than on prescrip-tions. These have led to increased antibiotics resistance as quite a number of people would buy as per some advice or their previous experiences rather than consulting a physician.

Prescription error

The prescription error is a failure in the prescrip-tion writing process leading to wrong instructions about the identity of the recipient, the drug, the formulation, dose, route, timing, frequency, and duration of administration.[2] Rational (appropriate) prescribing is described as one which is based on drug effectiveness, safety and convenience relative to other drugs on individual basis and takes cost into account only when the above criteria for choice have been satisfied.[3] Beers and Phadke's criteria are most commonly used to evaluate the rationality of prescriptions.[4]

In a study by Calligaris et al prescription errors are high. 23.9% of prescriptions were found illegible and 29.9% of prescriptions were incomplete in this Italian study where prescriptions were analysed for legibility (generic or brand drug name, dose, frequency of administration) and completeness (generic or brand name, dose, frequency of adminis-tration, route of administration, date of prescription and signature of the prescriber).[5] Similarly a Portugese study[6] reported 3.3 errors per prescrip-tion order. Even developed countries like United Kingdom and Mexico[7] reported 15% - 53% of the prescription to be containing one or more errors in critical care units.[8] Unfortunately, in a study from

Sudan only one prescription out of 2000 examined was considered ideal. Half of the prescriptions were free from errors but incomplete in some or other form and 14% contained potential interactions with different degrees of seriousness, 12.2% of prescriptions contained errors being potentially serious to the patients.[9] Studies from India has also reported prescription faults. In a study done in rural Gujarat, outpatient prescriptions were analysed on the basis of WHO prescribing guidelines and was found that though details of doctor was in all prescription registration number was only in 14.10% prescription and only half were signed. In 420 prescriptions only one drug was prescribed without brand name and 65% were legible.[2] In another Indian study from Nagpur, of the 1376 prescriptions most of them were irrational and the prescription error score varied significantly across prescriber profiles.[10] Similar findings were noted from Loni, Maharasthra where most of the prescriptions were illegible, prescriptions were only in brand name and about one quarter had missing dose/ route of administration of drugs.[11] Study from Karamsad, Gujarat on elderly people evaluated the prescriptions on the basis of Phadke's criteria and reported that third of each were rational, semirational or irrational.

Errors in decision making and errors in prescription writing[12] are considered to be two main types of prescribing errors. Most common causes are subdivided into three categories namely non vigilance caused by stress, lack of appropriate routines or violation of them, and lack of appropriate skills/ negligence.[13] These errors can cause significant adverse effects at times and amount to negligence creating medicolegal issues.[14] So physicians while prescribing should be vigilant as many of these errors are preventable.

Medicolegal issues

Recently UP court had fined Doctors Rs 5000 for their illegible shabby handwriting. This is one of those few legal issues which were highlighted but there are innumerable more in concern with prescription errors itself that can create problems for doctors if not taken precautions actively. In the civil law, there are three degrees of negligence : (i) lata Culpa, gross neglect; (ii) levis Culpa, ordinary neglect; and (iii) levissima Culpa, slight neglect.[15] The complainant can look for compensatory action like monetary compensation, or it can bring about punitive action by filing a criminal complaint against Indian Penal Code (IPC) or disciplinary action by asking the medical council to intervene.[16] Though the onus of establishing the negligence is entirely on the plaintiff unless the damages are obvious. Also, as far as prescribing medicines are concerned, physicians should avoid advising telephonically without clinically examining the patient as it carries a higher risk of adverse outcome at times.

Basic Principles of Prescriptions By WHO[17]

As per WHO, bad prescribing habits lead to ineffective and unsafe treatment, exacerbation or prolongation of illness, harm to the patient, and higher costs.

One should prescribe rationally which include defining patient's problem, specifying therapeutic objective, whether the selected drug is suitable for your patient, then start the treatment along with giving adequate information, instructions regarding side effects and precautions to take and to monitor and stop if any adverse event is anticipated or has occurred.

Guidelines describes how to select a particular drug for treatment which extends to not only making a diagnosis and specifying therapeutic objective but also identify all possible effective drugs for treatment with their pharmacokinetics, interactions and look for best possible option for the concerned patient. It is also advisable to be regularly updated with different advances and upcoming treatment so as to provide with better choices.

Prescription in Psychiatry

Apart from the basic guidelines, those who treat patients with mental illness should make an effort to enlist, recruit and involve the patient in collaboration related to the prescribed medication. The psychological implications of receiving a drug therapy should be discussed and taken into account. Health care providers should always look for both non pharmacological and pharmacological treatment and should involve patients in decision making process. It should not be implicitly suggested that modifications of thought, mood and conduct can be achieved by pharmacological means only. Prescriptions should not be issued before a detailed clinical assessment is completed, and before having explored

the psychological mechanisms underlying symptoms. Treatment should be for a pre-planned period of time. Titration of most pharmacological treatments should be done gradually, especially in the children, elderly and those with comorbid medical illness. Health care providers should always consult the national or local prescribing information or instructional material keeping in view inter ethnic differences and metabolic differences. Should be aware of all drugs/substances patient is taking and the risk of their possible interactions. Health care providers must be aware of international, national, regional and local drug regulations. Monitoring drug use because of adherence issues in psychiatric population as well as high risk of misuse in patients with suicide ideation or substance abuser should be carefully looked upon.[18]

E prescriptions

With technology, computerized or electronic prescriptions were introduced where prescriptions were sent electronically directly to the pharmacist streamlining the clinical practice workflow, and patient satisfaction and increase in compliance.[19] Majority of studies have reported decrease in prescribing errors[20,23] while some do not.[21] Also it has been postulated that when computers are used as aid in decision making there are sometimes so many warnings that prescribers may become immune to them.[22] Computerized prescribing have been reported to reduce the risk of illegibility, and decrease in omission errors[23] and fewer calls from pharmacy for clarifications.[24] Still, electronic prescribing is in its early stage to predict a verdict on its being an asset or liability.

Conclusion

Prescription writing is one of the basic medical aspects but very few medical graduates have undergone its teaching. As a result prescribing errors is commonly seen which can lead to even serious adverse event on the patient contributing to negligence. Every physician should be aware of basic principles and guidelines for prescriptions. Newer advancements with electronic prescribing may also help in reducing these errors.

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Case Report

Adult onset Metachromatic leukodystrophy presenting as neuropsychiatric disorder

Rahul S. Ranjan[1], **Anil Singh**[2], **Md. Irfan Alam**[3], **Chandramohini Bhalla**[4]
Departments of Radiology,[1,3,4] Rama Medical College, Mandhana, Kanpur and
[2]Sanjay Gandhi Postgraduate Institute, Lucknow, U.P.
Contact: Rahul S. Ranjan, E-mail: rahulranjanradio10@gmail.com

Introduction

Metachromatic leukodystrophy (MLD) is the typical white matter disease which belongs to the lyososomal sphingolipid storage group and it is inherited in the autosomal recessive way.[1] MLD is caused by the deficiency of enzyme arylsulfatase A resulting in the deficiency of sulfatide degradation and the target gene is ARSA gene.

The accumulation of Sulfatide triggers leukodystrophy. The incidence of MLD is reported as about 1 per 1, 00,000 live births in European population & is found at even lower rates in Asia.[2,3] Clinically it shows a wide range of spectrum with respect to age of onset & clinical presentation. The suggested classification is as follows –

1. Late infantile form – Starts before age of 2 or 3 years.
2. Juvenile form – Starts between 2 or 3 and 16 years.
3. Adult form – Present its first symptom after age of 16 years[4-6]

There have been rare cases of Metachromatic leukodystrophy in India. So, here we report a case of Adult onset form of MLD that presented with Neuropsychiatric symptoms.

Case Report

An 18 years old female patient was brought by her relatives to psychiatric department. Her symptoms started about one year back. She had a normal birth history and adequate development till last year, when she started developing tremors of hand. This followed with bowel and bladder incontinence and gradual deterioration in intelligence. At the time of presentation she had behavioral disturbances and schizophrenic symptoms. On examination, patient was semi alert, tended to laugh when addressed. No other replies were obtained to questions. Her cranial nerve examination was normal. Her routine laboratory investigations did not yield any significant abnormality. Her HIV and syphilis test were negative.

Her MRI Brain revealed changes of leukodystrophy in form of symmetrical white matter signal changes involving both cerebral hemispheres without anterior or posterior predominance. It appeared hyper intense on T2 W & FLAIR images and hypointense on T1 W images (Figure 1 & 2). No contrast enhancement was seen on post contrast T1 W images. Associated atrophy of corpus callosum and cerebral hemisphere was seen with mild ventricular prominence (Figure 2).

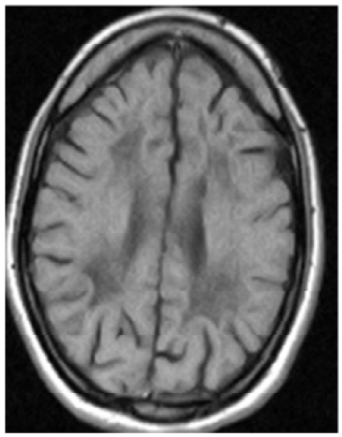

Figure-1

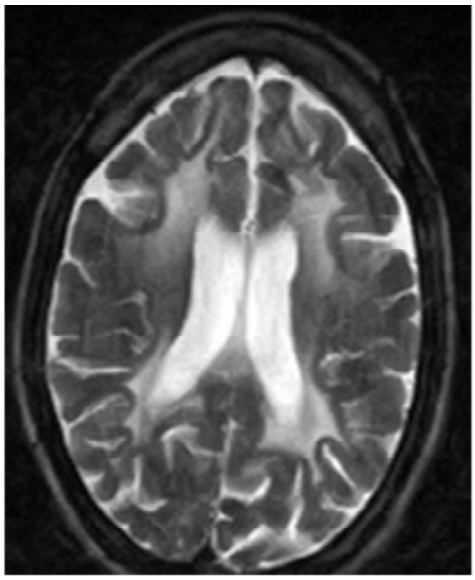

Figure-2

USG abdomen was done to look for ancillary findings which revealed symmetric gall bladder wall thickening with sludge like intraluminal echogenic material and papillary polypoid growth of inner wall obliterating the lumen (Figure 3). These findings have been reported in cases of metachromatic leukodystrophy.

On asking about family history, it was revealed that patient's elder sister had similar symptoms starting about 17 years of age and she died at 20 years of age.

Based on these findings, diagnosis of metachromatic leukodystrophy was made. Urinary Sulfatide level or gene assay could not be done due to non availability of services.

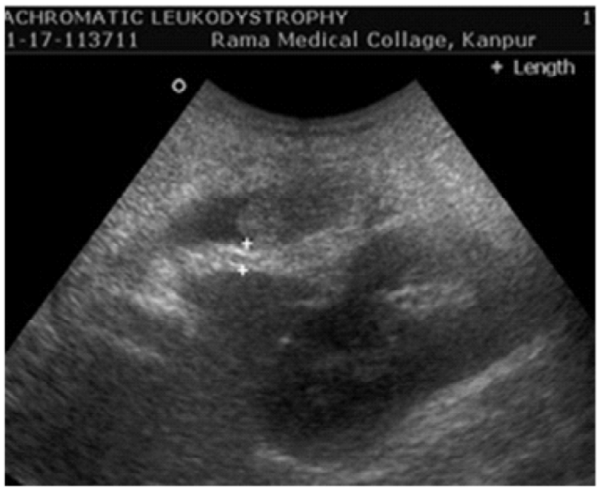

Figure-3

Discussion

Our case presented the adult onset form of MLD with symptom onset at 17 years of age followed by Progressive deterioration. European survey reveled 40 – 50% of patients have a late infantile form, 30-40% a juvenile form and around 18-20% an adult form.[2,6,7]

Brain MRI reveals –

T1W images –

Early – Decreased T1 signal in periventricular white matter.

Late - Progressive decreased white matter signal & cerebral atrophy.

T2W images –

Early – 1. Confluent periventricular hyperintensity (butterfly pattern)
2. Early sparing of perivascular white matter (tigroid or leopard pattern).
3. Early sparing of subcortical U fibers.

Late – Peripheral extension of hyperintensity with involvement of U fibers, corpus callosum, internal capsules with progressive cerebral atrophy.

FLAIR – "Butterfly Pattern" of periventricular hyperintensity.

DWI – Restriction at margin of active demyelination.

T1 Contrast – No white matter enhancement.[8]

Urine Sulfatidelevel, arylsulphataseA enzyme activity and ARSA gene analysis are carried out to confirm it.

However in Indian scenario, where these laboratory facilities are not available, the characteristic abnormality of gall bladder on ultrasonography may serve as an ancillary diagnostic clue to supplement the clinical and MR imaging findings, facilitating the differential diagnosis from the other similar leukodystrophies. The findings include diffuse thickening of gall bladder wall (more than 3 mm thick), sludge like echogenic intraluminal material or papillary polypoid ingrowth of inner wall obliterating the lumen.[9]

Adult metachromatic leukodystrophy is reported in cases as young as 16 years. In contrast to the juvenile form, the clinical pictures of adult metachromatic leukodystrophy is mainly characterized by progressive mental deterioration and other neurological symptoms may appear later in the course of disease. A 5 to 10 years survival is common

and the disease may even progress slowly over various decades.[10]

Our case report suggests that adult onset metachromatic leukodystrophy should be suspected in cases of young adults presenting with neuro-psychiatric symptoms with positive family history in sibling.

In Indian scenario, where laboratory investigations of urine Sulfatide level, arylsulfatase A enzyme activity and ARSA gene analysis are not routinely available, the characteristic abnormality of gall bladder on ultrasonography may serve as an ancillary diagnostic clue to supplement the clinical and MR findings & facilitating the differential diagnosis from the other similar leukodystrophies.

T1W (Figure 1) and T2W (Figure 2) axial MRI images of brain showing diffuse symmetrical altered signal in bilateral white matter with cortical atrophy and ventricular prominence.

Ultrasound abdomen (Figure 3) showing thickening of gall bladder wall (with thickness of 6.0 mm) with intraluminal echogenic sludge like filling defect.

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Case Report

Atypical presentation of Delusional Oral Parasitosis with Lingual Dysesthesia and Black Tongue

[1]Navneet Kaur Bhatia, [2]Navleen Kaur Bhatia, [3]Manjeet Singh Bhatia
[1]Department of Dental Surgery, Dr. R.M.L. PGIMER & Hospital, New Delhi;
[2]Department of Dentistry, A.I.I.M.S., Jodhpur, Rajasthan;
[3]Department of Psychiatry, U.C.M.S. & G.T.B. Hospital,Dilshad Garden, Delhi-110095
Contact: Navneet Kaur Bhatia, E-mail: drnavneetbhatia@gmail.com

Introduction

Delusional parasitosis is an uncommon psychiatric disorder in which patients have the firm conviction that small, living organisms, such as insects, worms or larvae infest their skin or other organs.[1-3] This has been described in association with depression,[4] posterior thalamic hemorrhage and involvement of root of trigeminal nerve. We describe a case of delusional parasitosis involving the mouth. The patient initially suffered from dysesthesia and subsequently developed delusional oral parasitosis ("worms" infesting her mouth).

Case Report

We describe a case of 48-year-old married housewife. She was living with husband and two children in a neighboring rural area. There were no known stressors. She presented with a four months' history of insects crawling residing in her oral cavity. They were also eating her mouth cavity resulting in numbness of tongue and oral mucosa. She had herself used different paste and lotions for killing or removing insects but had no improvement. On examination by an otorhinolaryngologist, there was no evidence of infestation. She was referred to a dentist who had advised her to use a mouthwash. When she came for follow up, there was no improvement but it had resulted in black tongue which, again strengthened her belief. She was then referred to Psychiatry OPD.

The detailed examination revealed no abnormality except preoccupation that she is being infested with insects in the oral cavity that had led to numbness over tongue and inner side of mouth. There was also blackening of tongue (Figure). There had been no change in the symptom since onset. Due to infestation, she had also developed anxiety, sleeplessness, reduced appetite and was unable to do her household activities perfectly. She did not believe in the suggestion of her relatives including husband and children that there is no such infestation with insects. Relevant routine and specific investigations were normal.

Detailed systemic examination including neurological examination and relevant investigations

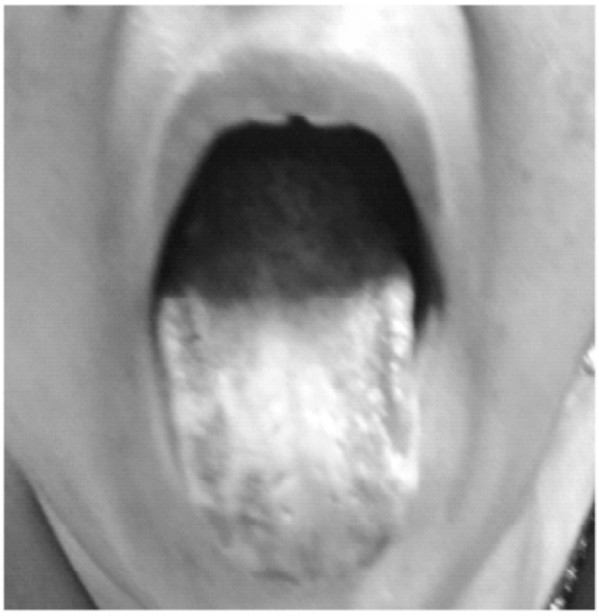

Fig.: Showing black tongue

did not reveal any abnormality. There was no past and family history of any chronic psychiatric disorder, physical disease, or drug abuse. Mental state examination revealed a middle-aged lady of endomorphic build. Psychomotor activity and speech were normal. There was no perceptual abnormality. She was preoccupied with the complaint. Thinking revealed the presence of delusions of being infested by small insects. Higher mental functions were normal.

The patient was psycho-educated that it is a disease that require treatment with systemic psychotropic drugs.She was also asked to stop mouth wash. The patient was started on tablet Lurasidone 20 mg/day, which was gradually increased to 40 mg/day in four weeks. There was improvement in her delusion, numbness and blackening of tongue in 6 weeks, however complete remission took 10 weeks, and on following her up for 3 months, she did not develop the delusion again.

Discussion

In this patient, numbness of tongue and oral cavity along with belief of being infested with insects inside the mouth seems to have triggered off the disease. There are different hypotheses put forward to explain the origin of delusional infestation. One hypothesis is that these patients develop inability to discriminate between normal and abnormal body perceptions and the delusion may be mediated by dysfunction in the limbic system probably due to over activity of the dopaminergic system, as evidenced by the efficacy of the specific dopamine antagonist, pimozide.[2,3,7] Many atypical antipsychotics have been used in the treatment of delusional parasitosis.[3,6-13] This is probably the first case report of delusional parasitosis in which Lurasidone has been successfully used. Lurasidone acts as a partial agonist at 5-HT1A receptors and an antagonist at 5-HT7 receptors, which results in improvement in cognitive performance and a significant reduction in depression.[11,12] This receptor profile may be particularly beneficial in patients with delusional disorder. Previous reports had suggested that serotonergic dysfunction may be involved in the pathophysiology of delusional disorder, somatic type because there had been reports of successful treatment with antidepressants.[13,14] The presentation of delusional oral parasitosis with lingual dysesthesia and blackening of tongue and complete remission with treatment has been rarely reported.[2,3] Some authors have found trigeminal nerve roots' affliction as the cause of parasitosis.[5] Delusional infestation has been described in association with depression[4,10], but in the present case there was no evidence of depression. The present case was followed up for 3 months and did not develop the delusion again. These patients usually require long-term treatment because relapse rate is high on stopping the treatment.[15]

There are many causes of black tongue[16] but in the present case, the use of mouth wash containing peroxide had resulted in blackening of tongue resulting in strengthening of her belief that the cause is parasites in the oral cavity. These patients require to be correctly identified, properly referred and adequately treated. The unnecessary investigations and treatment should be avoided.

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Case Report

Trichotillomania: A rare case with secondary delusion

Richa Mehta, Chirag Patel, Anuj Mittal, Dweep Chand Singh
Department of Psychiatry, Deen Dayal Upadhyay Hospital, New Delhi
Contact: Anuj Mittal, Email: drmittalanuj@gmail.com

Introduction

Currently classified in the ICD 10 as a habit and impulse disorder, trichotillomania (TTM) is characterized by noticeable hair loss due to a recurrent failure to resist impulses to pull out hair. The hair-pulling is usually preceded by mounting tension and is followed by a sense of relief or gratification.[1]

TTM has an insidious onset with a chronic course culminating in varied degrees of hair loss. The prevalence rate varies from 0.6% to 3% and is more common in females,[2] with an average age of onset around 13 years.[3]

The mean number of sites from which hair is pulled varies from one to six.[4] The pulling style may be focused or automatic. The research suggests that classical TTM cases present with varying degrees of both styles of pulling.[5]

TTM may present either as a primary or secondary condition co-morbidly with disorders like schizophrenia, delusional disorder, OCD, depression, and borderline personality disorder.[4]

Case Report

Ms. T, a 35-year-old, unmarried Hindu female, hailing from middle socio-economic strata, educated upto graduation, currently living in a nuclear family, with no past history of medical or dermatological diseases and no family history of psychiatric illness, presented with the complaints of failed attempts (self and guided) to control repetitive hair pulling and pasting of the extracted hair root onto her scalp, with a belief of propagating hair growth.

Ms. T was apparently well until the age of 12 years, when she first began pulling out her eyelashes in order to make a wish for the severe discord between her parents to end and reportedly experienced gratification after the same.

Gradually the patient did not have any eyelash hair left and thus began to pull hair from her scalp using her thumb and forefinger in order to experience the same gratification, especially during quarrels between her parents. The pulling occurred in no particular order, with one strand at a time and increased in frequency during high stress situations and passive activities. No tweezer or cosmetic device was used and the patient did not ingest the extracted hair. This pattern continued progressively throughout the illness, with hair loss becoming more prominent with time.

During these teenage years she was often teased by peers and overtly criticized by her mother for being partially bald which was a "social embarrassment" for herself. This caused the patient significant emotional distress and led to social avoidance. This distress increased from school to college, and was exaggerated by the pressure at work, which significantly worsened the hair pulling behavior. The mother would strike the patient's hand whenever she saw her pulling her hair, but in vain. Thereafter, she gradually developed two major bald spots following which she decided to disguise her baldness by wearing a wig to work.

Soon after purchasing the wig, the patient's mother forcefully shaved the patient's hair to reduce the pulling behavior and promote hair growth. This caused the patient a lot of distress, but she was too scared to confront her mother, as she held a fear of being rejected by her. This compelled the patient to pull hair from her leg, as she was unable to control

the urge. The frequency of pulling was usually once every hour, with a strong preference for pulling out coarser hair, as she felt that they were *"different"* and *"did not match"* with the rest of her leg hair.

After pulling hair from her leg, the patient would carefully separate the hair bulb from the strand and rub it gently on her left cheek, with the aim of cleansing it of impurities. A small drop of super glue using a fine nozzle tube was then applied onto the *"pure"* root, which was pasted her shaved scalp and pressed down with her index finger to ensure that the root was *implanted* properly, with a firm and fixed belief that the implanted root would propagate hair growth. The patient also believed that the new hair that began to grow after shaving was due to the implanted roots alone, which further validated her beliefs.

There was no history suggestive of any psychotic illness, symptoms of OCD or any other anxiety spectrum disorder.

No prior treatment was sought. Currently, the patient has been managed on Fluoxetine and Clonazepam pharmacologically and treated with 12 sessions of HRT comprising of Awareness training, competing response training and building social support, with partial response.

Discussion

The hair pulling had initially begun as a coping response to the severe marital discord between the patient's parents and is currently precipitated by stressful situations as well as the experience of boredom. The pulling is maintained due to a sense of relief post pulling and a simultaneous secondary gain of attention received from the mother, an authoritarian parent with high demands and low warmth towards the child.

The current case report fulfills the ICD-10 criteria of Trichotillomania (F63.3).[1] For the initial twenty-two years of illness the patient was only pulling her hair, but since the past one year, she has gradually developed a ritual of purifying and implanting the extracted root using adhesives, believing that it would propagate hair growth. Overtime, this belief became firm and fixed.

The current case identifies the patient's delusional beliefs as secondary to TTM as the onset of TTM preceded the delusional beliefs; hair-pulling is not in response to a delusion; the delusional belief of hair growth only developed once the patient's hair was forcefully shaved off and the action of implantation supported her purpose of growing out her hair quickly. The patient was treated as per standard guidelines with partial response.[6]

TTM has been reported to occur co-morbidly with disorders like schizophrenia, delusional disorder, OCD and Borderline personality disorder and may present as either a primary or as a secondary condition.[4,7,8] Few reports have shown TTM as secondary to Delusional disorder[9,10] however, this is a rare case with Delusional beliefs secondary to TTM.

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Case Report

Dhat Syndrome

P. Patra,[1] Jyoti Prakash,[2] Sunil Goyal,[3] B. Patra,[4] SA Khan[5]
[1,2,5]Department of Psychiatry, Command Hospital, Kolkata
[3]Department of Psychiatry, INHS Asvini, Mumbai
[4]Department of Psychiatry, Katihar Medical College, Bihar.
Contact: Jyoti Prakash, E mail: drjyotiprakashpsy@yahoo.com

Introduction

Dhat syndrome is a culture bound syndrome which is included in ICD 10 under "Other specified neurotic disorders" and in DSM5 under "cultural context of distress." The term was coined by Wig.[1] ICD 10 describes Dhat syndrome as undue concern about the debilitating effects of the passage of semen. This belief that semen loss is dangerous and poses grave risk to physical health is a long standing and widely prevalent belief in the Indian subcontinent including Pakistan, Nepal, Bangladesh and Srilanka.[2-4]Ancient Hindu mythology and medical test describe seven "Dhatus" (chyle, blood, flesh, fat, bone marrow and semen), each of which is a refinement of the previous one and the final product is the elixir semen.[5] There is a prevalent belief in the northern regions of India that to produce one drop of semen 40 drops of bone marrow are required , each drop of bone marrow requires 40 drops of blood and each drop of blood requires 40 meals.[6] Hence the belief that semen is precious and its loss robs a man of his vitality and makes him prone to diseases. Though majority of literature is on men some have reported similar symptoms in women too.[7] In Dhat syndrome, the complaint is generally concern with the passage of semen while passing urine or while staining to pass stool.[8] Patients present with multiple vague somatic and psychological complaints with or without psychosexual dysfunction like premature ejaculation or erectile dysfunction.[3,9] management of Dhat syndrome is centered around empathetic listening, correction of distorted beliefs, sex education, reassurance, relaxation exercises and if required use of anxiolytics and antidepressants.

Case report

22 yrs old male was referred for psychiatric consultation by the urologist when no organic basis could be found for his repeated complaints of whitish discharge in urine and vague somatic complaints.

History revealed that individual was apparently asymptomatic till seven months when he saw some whitish discharge along with passage of urine. He believed it to be "dhat"/ "Veer" and considered it very ominous. He mentioned that "Veer khoon se bhi jyada kimti hai sharer ka mani (i.e. jewel) hai, uska niklna bahut kharab hai, dhatu nikalne se aadmi mar sakta hai". He remembered a tale of a relative who had apparently died of "excessive" masturbation as his "dhat" had been exhausted. He became worried and discussed the matter with his friends who further reinforced his belief that something is wrong within his body. After 4-5 days he developed burning sensation inside abdomen, burning micturition and increased frequency of urine. He reported to the local hospital and was managed conservatively as outpatient. He had temporary relief in his symptoms. Over the next few months he continued to have similar episodes. He consulted urologist for the same and underwent 2 weeks of treatment. He also took some ayurvedic medicine for his symptoms but had inadequate relief. He got his urine tested repeatedly but all reports came out to be normal. Despite normal reports (for diabetes mellitus, urinary tract infections, sexually transmitted diseases etc) he continued to have belief that "dhat" is escaping his body and that it was seen as "kachra" in his urine. He was allegedly told that it was his "dead veer". He started remaining worried for his health and remained preoccupied with the same most

of the time. He remained disturbed with his symptoms as he wanted to be treated for his "dead veer" so that he could have another child. He also stopped consuming non vegetarian food and spices as he mentioned that "ye sab garam ho-te hai aur veer ko nuksan karte hai". Individual continued to visit different doctors with complaints of whitish discharge in urine, weakness, poor concentration and forgetfulness. Individual was due to get married soon but he was procrastinating it as he doubted that he may face problems in consummating the marriage due to his deteriorating health. In this background the individual was referred for psychiatric evaluation.

He denied past h/o STD, head injury, loss of consciousness, seizure, any psychiatric, medical or surgical illness. He hails from rural agrarian background of Bhagalpur district of Bihar. His father (68 yrs) is a farmer and mother (60 yrs) is house wife, both are healthy. He is 2nd of 05 siblings. He denied history of mental illness in the family. He is educated up to 10th class. Individual claimed cordial relation with all family members. Denies any sexual exposure, used to masturbate regularly. Now has stopped since the onset of his symptoms.

At admission, his general physical and systemic examination was WNL. Mental state exam revealed him to be kempt, cooperative with normal psychomotor activity. Speech was relevant and coherent. Mood was described as "theek hai", it was stable with normal intensity and no diurnal variation. He had an anxious and reactive affect with goal directed thinking. He had guilt over his practice of masturbation and attributed his symptoms to it. Individual had prominent anxiety cognition with corresponding somatic and autonomic features. There were no delusions, or perceptual abnorma-lities. He had intact cognition, judgment and insight with a clear sensorium and stable bio drives. He was diagnosed as a case of Other Specified Neurotic Disorders (Dhat syndrome) and treated in a warm empathetic milieu with sex education, relaxation exercises, cognitive therapy aimed at correcting his cognitive distortions, medications (Sertraline, tapering doses of lorazepam) and other supportive measures. Individual responded satisfactorily to the interventions.

Discussion

A young male from an average socioeconomic strata belong from a conservative, rural upbringing developed a culturally sanctioned belief of discharge of semen in urine. He attributed it to his practice of masturbation and was greatly disturbed by it. As per his culturally condoned belief he was losing precious elixir "Dhatu" whose preservation in the human body was essential for physical well being and whose loss may lead to even fatal outcomes. Indivi-dual sought help for his multiple vague somatic and psychological complaints, some of hypochondriacal nature from various medical practitioner. Despite normal investigation reports, empirical treatment for UTI, STDs etc the individual continued to remain symptomatic finally leading to psychiatric referral. Individual matched the profile of a patient with dhat syndrome.[10,11] As the general norm is in such cases, his beliefs were sanctioned by his culture and maintained by information from his peers. Manage-ment in such cases first involves ruling out organicity. Patients must be handled with empathy, reassurance. Cognitive distortions are to be targeted with sex education focusing on the anatomy and physiology of the genitourinary system, facts about semen production, nocturnal emission and masturbation. Relaxation exercises and use of anxiolytics, antidepressents have been well documented.[10,12]

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Case Report

Fragile X syndrome: Behavior manifestation of autism spectrum disorder and Dandy Walker variant

Paramjeet Singh, Pyare Lal Bhalothia, Lalit Batra, Priyank Jain, Sahiba Singh
Department of Psychiatry, Psychiatric center, SMS Medical College Jaipur, Rajasthan 302004
Contact: Pyare Lal Bhalothia,Email: dr.pyarebhalothia@gmail.com

Introduction

Fragile X syndrome [FXS] is the prime cause of hereditary mental retardation. It affects one in 4000 males and that there is one female carrier per 800 and one male carrier per 5000.[1-4] The inactivated gene FMR1 codifies the disease and is altered at locus Xq27.3 (long arm of chromosome X).[1,5] This gene determines the non-production of the protein FMRP[2,6,7] the deficiency of which causes the disease, as this protein is essential in the regulation of neuronal changes, stimuli, and maturation — that is, of the development of the nervous system and also affects the development of connective tissue,[3] the cause of the articular hyperlaxity presented by these patients.[2] FXS continues to be associated with high rates of stringently defined autism (i.e. autistic disorder) and autism spectrum disorders (i.e. pervasive developmental disorder). Nearly one third of young males with fragile X score in the autistic range on the Childhood Autism Rating Scale.[8] A more recent study using the Autism Diagnostic Observation Schedule found that 35.1% of young males scored in the autistic range.[9]

Varying degrees of chromosomal alteration in fragile X syndrome are seen as physical and psychological effects. The most frequent physical characteristics are elongated and narrow face, prominent mandible, macroorchidism, prolapsed mitral valve, large and prominent ears, strabismus, otitis of the middle ear, excessive pronation of the foot, and also increased articular laxity.[2,3,5] The most-frequent psychological characteristics are hyper-activity, attention disorders, autistic behavior in some cases, extreme shyness, repetitive language, a tendency to avoid direct eye contact, typical flapping of the hands during expression, nervousness and hypersensitivity to stimuli, resistance to change of any sort, behavioral problems and aggressiveness in some cases.[2-4] In addition, the structural central nervous alterations observed in the form of Dandy-Walker variant, caused outstanding interferences in the development of communicative abilities, in reading and writing learning, and in the individual's social integration.[10]

Case Report

We present a case report of 8-year-old male child from the OPD at psychiatric center Jaipur (India) for evaluation. The main reason for the consultation was the abnormal behavior. The patient was not able to communicate verbally, making writhing hand movements, cooing noises, increased activity, irritable behavior, not getting along with others, poor academic skills. Molecular genetic analysis diagnosed him a case of fragile X syndrome, methylation status was positive, genotype – expansion of trinucleotiderepeats present >200 (Normal - <55).

Child's delay in expressive language and possible delay in social interactions was an indicator for additional workup. His normal prenatal and birth history was against teratogenicity or perinatal causes for his developmental problems. His normal new born screen makes a metabolic disorder unlikely.

His family history is also not significant. On general physical examination patient has enlarged ears, elongated face, mid facial hypoplasia, high arched palate, flat feet, hyper extendable joints and enlarged testes.

By using diagnostic tool for Autism spectrum disorder INCLEN suggested Autism spectrum disorder. The ISAA scale also suggestive of moderate Autism (score 115).

The patient was made to undergone following investigations-2-D echocardiography and ultra-sonography of whole abdomento rule out comorbidities and were found to be normal.

MRI brain reveals 46 mm x 22 mm posterior fossa cyst of CSF density, communicating with enlarged fourth ventricle and hypoplastic vermis - likely Dandy Walker variant [Figure]

Neurosurgical opinion was taken for dandy walker cyst, they suggested no active neurosurgical intervention required at present because of no pressure effect is present currently and advised follow up observation for pressure effects.

Discussion

Diagnosis of fragile X syndrome has important implications for the patient and his family as it may lead to feelings of guilt, but may also relieve guilt and anxiety if either parent had been concerned about some other cause for which he or she might have felt responsible. We should also help the family to understand that child will have permanent disability rather than to hope unrealistically that he will recover from his "delay."

The developmental disability seen in fragile X syndrome is typically moderate rather than severe.

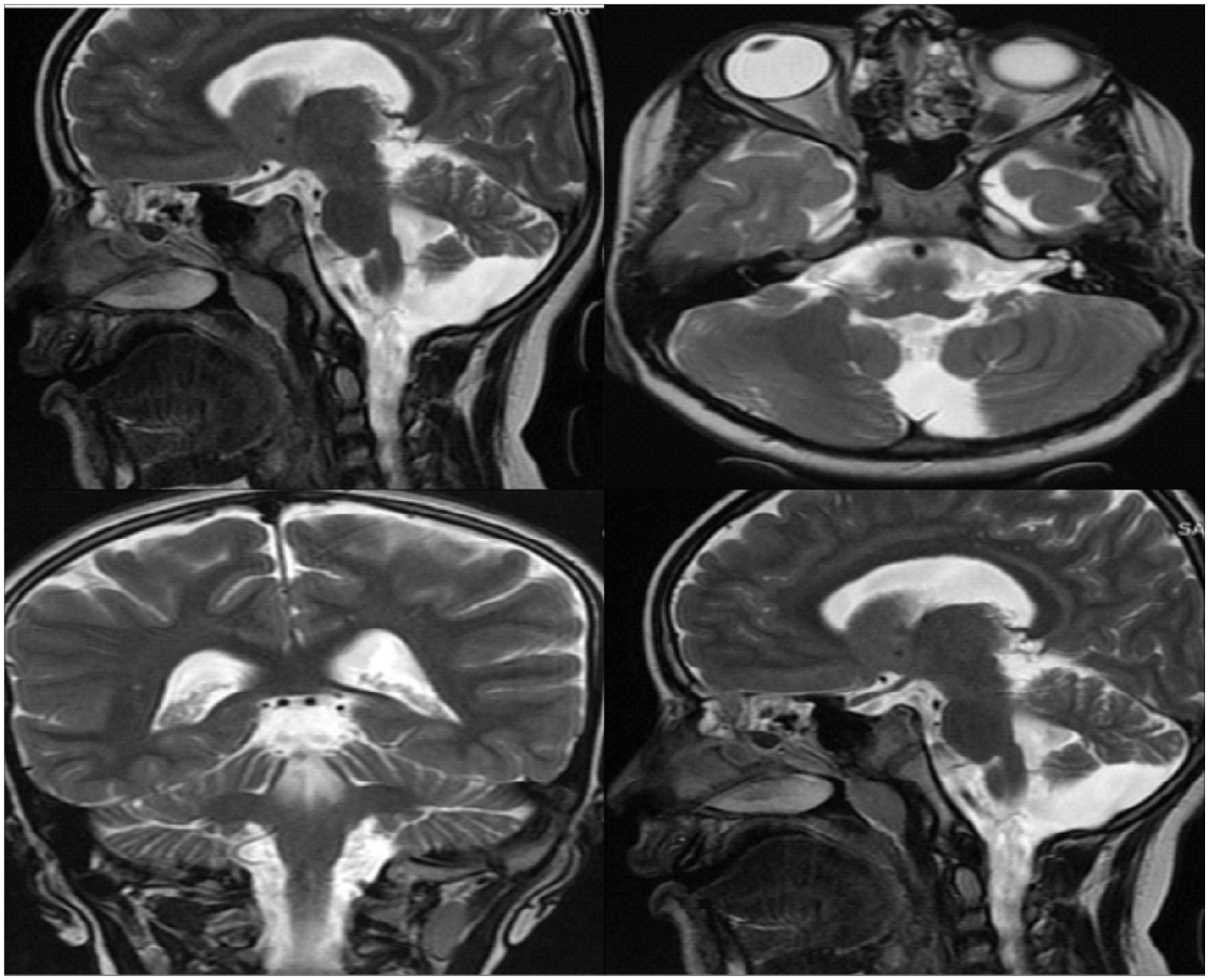

Fig. 1: Magnetic resonance images of brain showing posterior fossa cyst of CSF density, communicating with enlarged fourth ventricle and hypoplastic vermis

Often the phenotype includes behavioral problems such as hyperactivity, poor eye contact and withdrawn social behavior, perseverative speech, and in extreme cases, autism.

Conclusion

Dandy walker cyst needs to be addressed for additional signs and symptoms that includes huge posterior fossa, sunset sign, seizures, spasticity, respiratory failure, delayed mile stones, hydrocephalus and increased intracranial pressure. To avoid all these complications such subjects are to be seen periodically and they may require surgical intervention at a later date.[11]

Information about genetic risks for other family members.

Other family members at risk of having this condition or of having children with this condition may consider molecular genetic testing.

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Case Report

A case of adult onset Metachromatic Leukodystrophy presenting with psychiatric manifestations

Ankit Saxena, Aparna Goyal, M.S. Bhatia
Department of Psychiatry, UCMS & GTB Hospital, Dilshad Garden, Delhi-110095
Contact: Ankit Saxena, E mail: ankidjd1990@gmail.com

Introduction

Leukodystrophies are a group of disorders that are hereditary in nature and primarily affect the white matter of the brain and thus are characterized by poor myelination around nerves.[1]

Metachromatic Leukodystrophy (MLD) is a leukodystrophy that is transmitted in an autosomal recessive pattern and is caused by a deficiency in lysosomal arylsulfatase A (ASA), an enzyme that catabolizes sulfatides. This leads to accumulation of sulfatides, which is a major myelin lipid and thus causes demyelination around nerves.[2] Depending upon the age of onset, 3 clinical phenotypes have been described for MLD. The most common type, Late-infantile MLD generally appears between 18 and 24 months of age. The juvenile type occurs between 4 and 16 years, whereas the adult type, is characterized by an onset beyond 16 years of age. The clinical symptoms often vary with age of onset. Whereas patients in childhood present with a disturbance in gait and eventual ataxia, spastic quadriplegia, optic atrophy, and peripheral neuropathy, the adult form of MLD often presents with Psychiatric manifestations and may lead to misdiagnosis of psychosis or bipolar disorder.[3]

Diagnosis of MLD requires characteristic clinical presentation, typical brain magnetic resonance imaging (MRI) abnormalities, measurement of ASA activity in leukocytes, sulfatide levels in urine, and ARSA mutation analysis. MRI shows bilateral symmetric abnormal hyperintense T2 signal changes starting in the corpus callosum, subsequently involving the periventricular white matter, before spreading to the central and subcortical white matter.[4] There have been few anecdotal case reports where MLD initially presented with psychiatric symptoms but was later diagnosed as MLD.[5,6,7]

Here we present a case of an adult that presented initially with behavioral and mood changes but was eventually diagnosed to be suffering from adult onset MLD.

To the best of our knowledge, no such cases in adults have been reported from India.

Case Report

A 25 year old unmarried Hindu female educated upto graduation and belonging to a middle socio-economic status nuclear family presented to the Psychiatry OPD with complains of forgetfulness, behavioral changes, mild slurring of speech and unsteady gait since about 1.5-2 years. Although the patient's long term memory was fairly well preserved, the family members reported that the patient often forgot about the conversations she had with them and found it difficult to hold a job as she was not able to remember the details of her tasks. The patient also appeared very irritable and would often shout at her family members and throw fits of rage on even slightest provocation. The patient's speech became a little slurred and also mildly hoarse in quality since the last one year. The patient also had slight unsteadiness in gait since 1 year

accompanied with history of a few falls.

The general physical examination was within normal limits. The neurological examination showed brisk deep tendon reflexes and an extensor plantar response. Her gait was mildly ataxic but the sensory system was within normal limits. On Mental status examination, patient had slightly slurred speech with an irritable affect. Her Mini Mental status examination (MMSE) score was 28/30.

Based on history and examination, a provisional diagnosis of organic mood disorder was made and the patient was investigated thoroughly and started on 5 mg olanzapine for her mood symptoms. The patient was also referred to Neurology for liaison.

Her investigations revealed a raised TSH level but normal blood counts, liver and kidney functions, and normal B_{12} and folate levels. Nerve conduction velocity of all 4 limbs was also normal. Her cerebrospinal fluid examination revealed 2 oligoclonal bands in gamma globin region. Her Brainstem evoked response audiometry (BERA) was within normal limits and Visual evoked potential (VEP) showed increased P100 in both the eyes.

Her MRI Brain showed diffuse bilateral and symmetrical hyperintensity involving bilateral periventricular and sub cortical white matter with involvement of corpus callosum, posterior limbs of internal capsules, dorsal brain stem and bilateral middle cerebellar peduncles with multiple small cystic areas and small area of thin ring enhancement in right parietal region.

MRI spine revealed mild posterior disc bulge at C4-C5, C5-C6 and C6 –C7 levels indenting the thecal sac. Also, a thin linear central T2 intramedullary hyperintensity in spinal cord extending from D4-D11 levels was seen.

Based on the clinical presentation and MRI findings, the patient was diagnosed to be suffering from adult onset MLD. The patient and the family members were explained about the prognosis of the disease and was kept on thyroxine 25 microgram, Olanzapine 5 mg along with calcium and vitamin supplements.

Discussion

Late juvenile and adult patients with MLD have an insidious disease onset and often present with psychiatric symptoms as was observed in our case.A number of case reports[5,6,7] also suggest that especially early in the disease, when motor function is still intact, it is challenging to distinguish MLD from a primary psychiatric disorder. While the presentation in our case was dominated by behavioral and mood changes,initial symptoms can be similar to a first presentation of schizophrenia, depression, learning difficulties, ADHD, or autism spectrum disorder.[8] Hyde et al[9] reported that, in 53% of patients with adult MLD, psychosis is present and is often the initial manifestation while Hageman et al[10] report that psychosis is a less common symptom than previously suggested and in their group of 13 patients with confirmed adult MLD (1972–1992), the most common symptoms were ataxia and behavioural abnormalities. In our case, although behavioral abnormalities were significant but no psychotic symptoms were found. Van Rappard et al[11] have suggested that usual initial development, followed by a period of regression, which progresses slowly may give a clue for diagnosing MLD. Thus, a combination of an initially typically developing child with a clear change of behavior together with cognitive decline should prompt diagnostic evaluation for neurometabolic disorders. This should include both neurological examination and brain MRI. The combination of psychiatric and neurological symptoms, especially in patients who regress despite treatment or who fail to respond to treatment and have neurological symptoms, are suggestive of a degenerative neurological disorder.

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Case Report

Engagement of teachers during intervention of ADHD child dramatically effects behavioral outcomes

Tarun Verma
Psy Clinic, B-3/141, 2nd Floor, Paschim Vihar, Delhi-110063
E-mail: tvcp911@gmail.com

Introduction

Attention Deficit Hyperactivity Disorder (ADHD) is characterized by inability to pay attention in day to day activities and difficulties in remaining stable at one place for longer time. It is a disorder occurring in children and adolescents, and in some cases onset may happen during adulthood also[1]. Attention is the primary cognitive ability that facilitates successful initiation and completion of tasks, which also involves other cognitive domains of memory, concentration, judgment and inhibition of impulses. These functions are generally compromised in children with ADHD and this leads to poor functioning in daily life, academics and social relationships.[2] Hyperactive children find it difficult to stay at one place for long, and as a result are difficult to teach and coach.

Classroom is an environment that expects pupils to behave with discipline and maintain attention. For obvious reasons, children with ADHD are not able to fit in the classroom conditions. They disturb other children, get aggressive easily, do not let teachers teach properly, become disobedient and moody and get distracted easily. It's a challenge for teachers to deal with ADHD children.[3] Most teachers are not aware how to manage these kids effectively and often become arrogant and rude towards these kids. They generally complain to parents about the child's behaviors in classroom and expect them to get their child treated with the help of a medical professional. Despite the fact that treatment may work well at home under parental guidance, without involvement of teachers, these children can't be managed well inside the classroom.[4]

The success of treatment requires proper use of medications and psychosocial interventions that is possible through the involvement of parents as well as teachers, since the child spends a large part of time in school. For this, adequate parent-teacher interaction is necessary at regular intervals to monitor the progress of the child.[5] Through such an interaction parents and teachers can inform each other about the changes in the behaviors of the child which can help both of them to make necessary changes in their strategies, through consultation of clinician.A case report of an ADHD child is presented below to highlight the importance of teacher engagement in intervention.

Case Report

An 8 years old male child, was brought by parents at a private clinic in West Delhi. The child was brought to clinical attention for the first time after repeated prompts by teachers and school counsellor since it was getting difficult for teachers to manage him at school. He is the only child of lower-middle SES parents, studies in a prestigious public school of West Delhi, under EWS quota, and stays in a joint family with grandparents, maternal aunt and her son.After detailed case history taking and psychometric evaluations, he was diagnosed having ADHD. The child was born out of normal, full term delivery and had no significant medical complications at pre-, peri- or post-natal periods. The child had delayed development in speech and

gross motor movements (standing, walking and running). He was able to learn academic skills in time, however, social life was restricted to home environment and he faced difficulties in forming healthy social contacts since beginning of socialization. He did not used to play with kids and was generally seen aloof in school. His IQ was in normal range, 97 as measured through MISIC. His SQ as measured by VSMS was 81. His inattention, hyperactivity scores were at maximum value (9/9)as measured by Vanderbilt parent and teacher rating scales.

The child was treated through behavior therapy only with weekly sessions, as parents had refused to give any medications to the child. Parents were able to work on tasks with the child at home. Parents had made structured routine of the child, and reinforced his behaviors through incentives at the end of week and month. Token economy, time out, attention building exercises, memory tasks, shaping of new behaviors and various other strategies were used to bring stable and consistent changes in the child's behaviors.Child began forming new social relationships, became very active in play and learnt several new tasks within a period of 3 months. He was gradually becoming easy to discipline at home and parents were enthusiastic to see changes in the child. His Vanderbilt scores decreased from 9 to 7 on parent rating scale.

The interventions with teachers began after two months of working with parents. The class teacher showed interest and worked collaboratively with the clinician as well as parents. She was provided written suggestions and strategies that would help her to deal with the child. Like, reinforcing the child for classroom behavior and classwork with behavior charts, calling his attention to studies whenever he got distracted, being empathetic and using positive reinforcements often instead of punishments contacting parents about his academic work, and providing weekly behavior reports to the clinician. His Vanderbilt scores further decreased from 7 to 6 on parent scale while from 9 to 7 on teacher rating scale.

When he got promoted to higher class, his class teacher was changed. She did not maintain contact with parents at all, did not provide any behavior reports to the therapist, attributed complete responsibility for intervention to school counsellor and therapist, scolded child for his hyperactive behaviors, made him sit alone, complained to parents about him by writing notes in his notebook. His Vanderbilt scores gradually increased from 6 to 8 and 7 to 9 on parent and teacher rating scales, respectively.

Discussion

After interventions by the class teacher in lower class, the child gradually became less hyperactive in classes, began to complete his classwork, did not lie at home about school behaviors, showed less aggressive and impulsive behaviors towards other children, participated in classroom activities. The child showed increased interest in exams and scored well in finals. He also joined sports group at school.

Later in higher class, the child began to show increased impulsive behaviors in the classroom within a month time. He used to beat children, threw things at them, ran out of classes often, did not show interest in studies and exams, scored very poor in unit tests, used to lie to parents on regular basis, became disobedient and argumentative, and very inattentive in studies. He showed less interest in sports too.

This continued for 3 months, and the parents decided to put him on medicines which improved his attention span but with no change in other behaviors. He is able to improve through psycho-therapy at home only. It was later decided among parents and therapist to give him leaves from school of at least one day every week and enrol him in a sports club near home where he can keep himself engaged to develop positive mental habits.

The case shows importance of teacher engagement in the treatment of child with ADHD. It is highly recommended that teachers should play an active and engaging role in helping the child with ADHD.

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Book Review

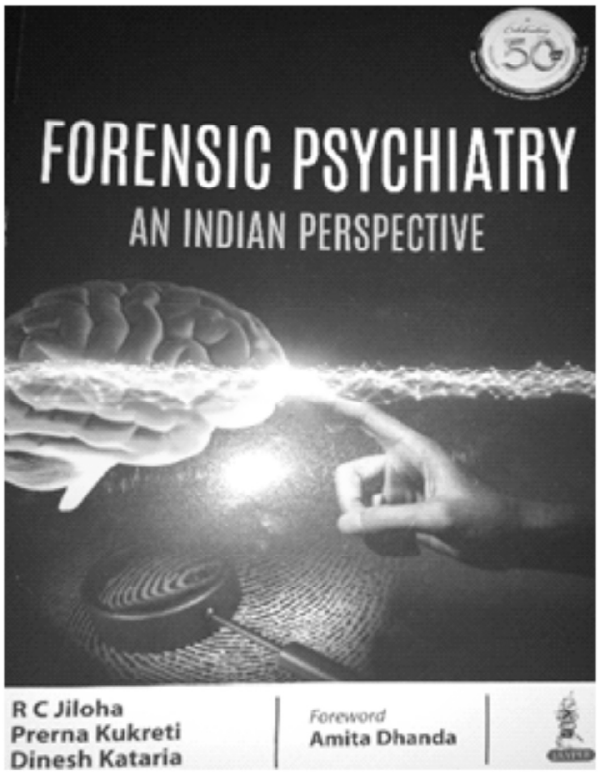
Forensic Psychiatry – An Indian Perspective

R.C. Jiloha, Prerna Kukreti, Dinesh Kataria

Forensic Psychiatry or Legal Psychiatry deals with medico legal aspects related to the practice of mental health. The focus has recently shifted from institution to community and human rights. Forensic Psychiatry is an important subject which needs regular updating.The subject does not form a significant proportion of curriculum taught to the students trained in mental health or forensic medicine.There are few updated books on the subject related to Indian Practice.

This book written by experienced authors is an effort to comprehensively map out the various sectors in which law and psychiatry intersect with each other in a democratic polity. It is a succinct and structured account of core forensic psychiatry areas and other important legal issues.

The book is divided into *8 sections* and *39 chapters*. ***Section 1*** deals with historical aspects, introduction and interface of law and psychiatry. ***Section 2*** is an important area dealing with doctor-patient relationship i.e. areas such as medical negligence, consent, capacity assessment and case records. ***Section 3*** deals with principles of evaluation (i.e. intervening, special investigations, i.e. polygraph, brain mapping, narco-analysis), ethical issues, report writing and psychiatrist as an expert witness in Court. ***Section 4*** deals with testamentary capacity and marriage related issues. ***Section 5*** is intersection of mental health and criminal law I.e. principles and procedures and stages of trial of cases, role of psychiatrist, pretrial assessment by police, fitness to stand trial and assessment or insanity defense, ***Section 6*** includes medico legal responsibilities concerning management of cases (adults and children) of sexual offence. ***Section 7*** is about legal statues relevant to mental health (i.e. Mental Health Care Act 2017, laws related to Addiction Psychiatry and Rights of Persons with Disabilities Act). ***Section 8*** is a special section dealing with human rights, medico legal issues of suicide and homicide, risk assessment, violence and crime, domestic violence,



gender dysphoria, organ transplantation, childhood bullying and euthanasia.It also covers legal issues concerning treatment of foreign nationals with mental health problems. Every section of the book has been nicely referenced.

This book fulfils the academic needs and curriculum requirement of students working in psychiatry, medicine, paramedical and allied branches, and other related fields (i.e. forensic science and forensic medicine).

This book requires regular updating and also a glossary in future edition.

M.S. Bhatia
Director Professor & Head,
Department of Psychiatry,
U.C.M.S. & GTB Hospital,
Delhi-110095

Interesting Articles

- **Neurotrophins, cytokines, oxidative stress mediators and mood state in bipolar disorder: systematic review and meta-analyses.** Rowland T, et al. BJP 2018; 213 : 514-525.
- **Risk factors for interpersonal violence: an umbrella review of meta-analyses.** Fazel S, et al. BJP 2018; 213 : 609-614.
- **Depression and hopelessness as risk factors for suicide ideation, attempts and death: meta-analysis of longitudinal studies.** Ribeiro JD, et al. BJP 2018; 212 : 279-286.
- **Enduring effects of psychological treatments for anxiety disorders: meta-analysis of follow-up studies.** Bandelow B, et al. BJP 2018; 212 : 333-338.
- **Artistic creativity and risk for schizophrenia, bipolar disorder and unipolar depression: a Swedish population-based case–control study and sib-pair analysis.** MacCabe JH, et al. BJP 2018; 212 : 370-376.
- **Continuation of Atypical Antipsychotic Medication During Early Pregnancy and the Risk of Gestational Diabetes.** Park Y, et al. AJP 2018; 175 : 564–574.
- **Can a Framework Be Established for the Safe Use of Ketamine?** Freedman R, et al. AJP 2018; 175 : 587–589.
- **Antidepressant-Resistant Depression in Patients with Comorbid Subclinical Hypothyroidism or High-Normal TSH Levels.** Cohen BM, et al. AJP 2018; 175 : 598–604.
- **Prenatal Primary Prevention of Mental Illness by Micronutrient Supplements in Pregnancy.** Freedman R, et al. AJP 2018; 175 : 607–619.
- **Efficacy and Safety of Intranasal Esketamine for the Rapid Reduction of Symptoms of Depression and Suicidality in Patients at Imminent Risk for Suicide: Results of a Double-Blind, Randomized, Placebo-Controlled Study.** Canuso CM, et al. AJP 2018; 175 : 620–630.
- **Physical Activity and Incident Depression: A Meta-Analysis of Prospective Cohort Studies.** Schuch FB, et al. AJP 2018; 175 : 631–648.
- **Revisiting Antipsychotic Drug Actions Through Gene Networks Associated with Schizophrenia.** Kauppi K, et al. AJP 2018; 175 : 674–682.
- **Family Intervention in the Care of a Patient With Nonepileptic Seizures.** Heru AM. AJP 2018; 175 : 824–830.
- **Acute and Longer-Term Outcomes Using Ketamine as a Clinical Treatment at the Yale Psychiatric Hospital.** Wilkinson ST, et al. J Clin Psychiatry (JCP) 2018; 79 (4) : 17m11731.
- **Psychiatric Medications and Reproductive Safety:Scientific and Clinical Perspectives Pertaining to the US FDA Pregnancy and Lactation Labeling Rule.** Freeman MP, et al. JCP 2018; 79(4) : 18ah38120.
- **Effect of Lurasidone on Sexual Function in Major Depressive Disorder Patients With Subthreshold Hypomanic Symptoms (Mixed Features):Results From a Placebo-Controlled Trial.** Clayton AH, et al. JCP 2018; 79(5) : 18m12132.
- **Psychiatric Disorders and Comorbid Cannabis Use: How Common Is It and What Is the Clinical Impact?** Satre DD, et al. JCP 2018; 79(5) : 18ac12267.

- **C-reactive protein, brain-derived neurotrophic factor, interleukin-2, and stressful life events in drug-naive first-episode and recurrent depression: A cross-sectional study.** Jeenger J, et al. Indian J Psychiatry 2018; 60 : 334-339.
- **Use of social networking site and mental disorders among medical students in Kolkata, West Bengal.** Barman L, et al. Indian J Psychiatry 2018; 60 : 340-345.
- **Creativity and psychopathology: Two sides of the same coin?** Reddy IR, et al. Indian J Psychiatry 2018; 60 : 168-174.
- **Psychological problems and burnout among medical professionals of a tertiary care hospital of North India: A cross-sectional study Highly accessed article.** Grover S, et al. Indian J Psychiatry 2018; 60 : 175-188.
- **Clinical profile and outcome in a large sample of children and adolescents with obsessive–compulsive disorder: A chart review from a tertiary care center in India.** Deepthi K, et al. Indian J Psychiatry 2018; 60 : 205-212.
- **The association between Borna Disease Virus and schizophrenia: A systematic review and meta-analysis.** Azmi M, et al. Asian J Psychiatry 2018; 34 : 67–73.
- **Procalcitonin and C - reactive protein as peripheral inflammatory markers in antipsychotic drug-free schizophrenia patients.** Varun CN, et al. Asian J Psychiatry 2018; 35 : 11-14.

Forthcoming Events

CONFERENCES AND MEETINGS ON PSYCHIATRY

- Columbian Congress of Psychiatry 2018; 31 Oct 2018 - 03 Nov 2018; Cartagena, Colombia. Event website: http://psiquiatrascolombia.org/congreso-colombiano2018/
- Royal College of Psychiatrists Faculty of Eating Disorders Conference 2018; 02 Nov 2018; London, United Kingdom; Event website: https://www.rcpsych.ac.uk/traininpsychiatry/conferencestraining/conferencesandcourses/nov02_eatingdisorders2018.aspx
- Mayo Clinic Frontiers in Addiction Treatment 2018; 02 Nov 2018; Rochester, United States; Event website: https://ce.mayo.edu/psychiatry-and-psychology/content/frontiers-addiction-treatment-2018
- 20th International Society of Addiction Medicine 2018; 03 Nov 2018 - 06 Nov 2018; Busan, South Korea; Event website: http://isam2018-busan.com/2017/english/main/index_en.asp
- Psychiatrie und Psychotherapie Update Refresher - 16 DFP-Punkte; 05 Nov 2018 - 06 Nov 2018 Vienna, Austria; Event website: http://www.fomf.at
- RANZCP Faculty of Psychiatry of Old Age and the Asian Society Against Dementia Conference 2018; 07 Nov 2018 - 10 Nov 2018; Melbourne, Australia; Event website: https://www.fpoaasad.com.au/
- NEI Psychopharmacology Congress 2018; 07 Nov 2018 - 11 Nov 2018; Orlando, United States; Event website: http://www.neiglobal.com/Congress/CNGOverview/tabid/147/Default.aspx
- International Society for Traumatic Stress Studies 34th Annual Meeting 2018; 08 Nov 2018 - 10 Nov 2018; Washington, United States; Event website:http://www.istss.org/am18/home.aspx
- Canadian ADHD Resource Alliance 14th Annual ADHD Conference & Preconference Events 2018; 10 Nov 2018 - 11 Nov 2018; Calgary, Canada; Event website:https://caddra.societyconference.com/v2/
- Royal College of Psychiatrists Perinatal Faculty Annual Conference 2018; 13 Nov 2018; London, United Kingdom; Event website:https://www.rcpsych.ac.uk/traininpsychiatry/conferencestraining/conferencesandcourses/nov13_perinatalconf2018.aspx
- RCPSYCH Faculty of Perinatal Psychiatry Annual Scientific Conference 2018; 13 Nov 2018; London, United Kingdom; Event website:http://www.rcpsych.ac.uk/traininpsychiatry/conferencestraining/conferencesandcourses/nov13_perinatalconf2018.aspx
- Medical Cannabis & Cannabinoids EU: Where Do We Go From Here?; 15 Nov 2018 - 16 Nov 2018; Frankfurt, Germany; Event website:https://www.forumsandevents.co.uk/medical-cannabis-cannabinoids-eu-where-do-we-go-from-here
- Annual Medical Update for the Child and Adolescent Psychiatrist 2018; 22 Nov 2018 - 23 Nov 2018; London, United Kingdom; Event website:https://www.infomedltd.co.uk/annual-medical-update-for-the-child-and-adolescent-psychiatrist-2018/
- Society for Mental Health Research Annual Conference 2018; 28 Nov 2018 - 30 Nov 2018; Noosa, Australia. Event website:http://www.smhr.org.au/40th-annual-smhr-conference-28-30-november-2018.aspx
- ANCIAPP2018 — Annual National Conference of Indian Association of Private Psychiatry; 30 Nov 2018 - 02 Dec 2018; Delhi, India; Event website:http://anciapp.com/
- Current Psychiatry / American Academy of Clinical Psychiatrists Psychiatry Update 2018; 02 Dec 2018 - 04 Dec 2018; Las Vegas, United States; Event website:https://www.globalacademycme.com/conferences/aacp-encore/home
- MPG18 — Maudsley Prescribing Guidelines International Conference 2018; 17 Dec 2018; London, United Kingdom; Event website:https://www.maudsley-prescribing-guidelines.co.uk/conference2018/
- 29th International Conference on Adolescent Medicine & Child Psychology, January 23-24, 2019; ROME, ITALY; E-mail: childpsychology@annualconferences.org
- Global Conference on Forensic Psychology & Criminology, January 23-24, 2019, PARIS, FRANCE. E-mail: CMH@europemeet.com

- 32nd Annual San Diego International Conference on Child & Family Maltreatment 2019; 26 Jan 2019 - 31 Jan 2019; San Diego, United States; Event website:http://www.cvent.com/events/the-32nd-annual-san-diego-international-conference-on-child-and-family-maltreatment/event-summary-2694b17fed5e496e8773a7e98ff00175.aspx
- Annual Conference of Indian Psychiatric Society; 31Jan-3rd Feb, 2019; Lucknow, India. Event website: http:/www.ancips2019lko.com
- 4th International Conference on Clinical and Counseling Psychology, February 25-26, 2019, TOKYO, JAPAN; E-mail: clinicalpsychologists@psychiatryconferences.com
- 7th World Congress on Depression and Anxiety, February 27-28, 2019, Seoul, South Korea. E-mail: depression@conferencesseries.org
- 5th International Conference on Mental Health and Human Resilience,March 07-08, 2019, Barcelona, Spain; E-mail: mentalhealth@psychiatryconferences.com
- European Autism Congress, March 14 & 15, 2019, Zagreb, Croatia; E-mail: ECA@europemeet.com
- European Psychiatrists Meeting, March, 14-15, 2019, ZAGREB, CROATIA; E-mail: EPM@europemeet.com
- 31st American Psychiatry, Psychology and Nursing Congress, March 18-19, 2019, Chicago, USA. E-mail: globalpsychiatry1@gmail.com
- 30th World Summit on Positive Psychology, Mindfulness, Psychotherapy and Philosophy, March 18-19, 2019, Chicago, USA; E-mail: positivepsychologymeetings@gmail.com
- 6th World Congress on Mental Health, Psychiatry and Wellbeing, March 20-21, 2019, New York, USA; E-mail: mentalhealth@americameetings.com
- ADAA — Anxiety and Depression Association of America 2019 Conference; 28 Mar 2019 - 31 Mar 2019; Chicago, United States. Event website:https://adaa.org/2019-conference
- German Society for Child And Adolescent Psychiatry, Psychosomatics And Psychotherapy 2019; 10 Apr 2019 - 13 Apr 2019; Rosengarten, Germany; Event website:http://www.dgkjp-kongress.de/
- Annual Congress on Child Care: Mental Health, Psychology and Nursing, April 12-13, 2019, Toronto, Canada; E-mail: childcare@annualamericacongress.org
- 6th International Conference on Depression, Anxiety and Stress Management,April 25-26, 2019, London, UK; E-mail: stress@conferencesfinder.com
- ISCP — 26th International Symposium on Controversies in Psychiatry (Barcelona & Live Video Streaming); 25 Apr 2019 - 27 Apr 2019; Barcelona, Spain; Event website:http://www.controversiasbarcelona.org
- 28th International Conference on Psychiatry & Psychology Health, May 06-07, 2019, Amsterdam, Netherlands; E-mail: pearlwatsonpsy@gmail.com
- 8th World Congress on Addictive Disorders & Addiction Therapy, May 09-10, 2019, London, UK. E-mail: addiction@neuroconferences.com
- 29th Euro Congress on Psychiatrists and Psychologists, June 10-11, 2019, Berlin, Germany. E-mail: europsychiatrists@conferencesfinder.com
- 2nd Annual Congress on Mental Health, June 13th - 15th 2019, Amsterdam, Netherlands. E-mail: CMH@europemeet.com
- 31stWorld Psychiatrists and Psychologists Meet, June 24-25, 2019, Ho-Chi-Minh, Vietnam. E-mail: psychiatrist@neurosciencesummit.net
- IFMAD2019 — 18th International Forum on Mood and Anxiety Disorders; 04 Jul 2019 - 06 Jul 2019; Vienna, Austria; Event website:http://www.ifmad.org/2019/
- ICCAP2019 — 14th International Conference on Child and Adolescent Psychopathology; 22 Jul 2019 - 24 Jul 2019; London, United Kingdom; Event website:https://www.iccapconference.com/
- 30th International Conference on Psychiatry and Mental Health, August 14-15, 2019, Tokyo, Japan; E-mail: psychiatry@psychiatrymeet.com
- 32nd ECNP Congress 2019; 07 Sep 2019 - 10 Sep 2019; Copenhagen, Denmark; Event website:https://2019.ecnp.eu/.aspx

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All the pages must be numbered starting from title page. The manuscript should be typed on A4 size paper with 1 inches margin and should be double-spaced. All abbreviations should be mentioned when they first appear in the text as well as on the abstract page below key words.

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Title page must contain type of article, title and running title not exceeding 40 characters on the top of it. In the byline authors name (last name, first name followed by initials of middle name) and highest academic qualifications must be mentioned. Department and institution to which the work should be attributed should be mentioned below authors name.

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Start each of following section on a separate page.

Introduction: State the object of research with reference to previous work.

Methods: Describe methods in sufficient detail so that the work can be duplicated, or cite previous descriptions if they are reality available.

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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.

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